PED-JUST

PED orientation in urban regeneration programmes

Evidence from Denmark, Italy (Apulia Region), and Poland (Lower Silesia)

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Authors	Kristian Olesen, Matthew Howells, & Rasmus Nedergård Steffansen, (AAU); Laura Grassini & Giulia Motta Zanin (POLIBA); Magdalena Belof, Agnieszka Szumilas, & Katarzyna Piskorek (WUST)
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POLIBA	Laura Grassini
AAU	Enza Lissandrello
WUST	Lukasz Damurski

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Executive summary

The PED-JUST project aims to improve an understanding of how urban regeneration programmes can promote PED development and support just transitions in disadvantaged neighbourhoods. In this report, referring to the results of the WP1 of the project, we have analysed to what extent PED-oriented and social justice-related objectives have been integrated into existing urban regeneration programmes in Denmark, Italy (Apulia Region), and Poland (Lower Silesia Region) in the period 2005-2025.

The main findings of this report are:

1. The landscape of urban regeneration programmes and funding opportunities are organised very differently in the three case areas. In Denmark and Italy there are strong traditions for state-led urban regeneration programmes dating back to the 1980s and 1990s. In Poland urban regeneration programmes emerged in the mid-2000s after the country joined the EU. In Italy and Poland, the regional government plays important roles in allocating funding for urban regeneration in disadvantaged neighbourhoods. In Denmark funding for urban regeneration in disadvantaged neighbourhoods is mainly managed by the National Building Foundation for non-profit housing, whilst Copenhagen Municipality has set up a parallel funding scheme at the municipal level.
2. PED is a relatively new policy concept in the European discourse on how to promote climate neutral cities. Existing urban regeneration programmes do therefore not explicitly refer to PEDs or address the three PED dimensions (efficiency, flexibility, production) in a comprehensive manner.
3. Urban regeneration programmes in the three countries (DK, IT, PL) have mostly targeted improvements of the housing stock's energy efficiency, whilst less attention has been dedicated to energy flexibility measures or measures promoting local renewable energy production. In addition, improvements in energy efficiency have mainly been promoted by other regulatory mechanisms, such as building regulations promoting a certain level of energy standards, with urban regeneration programmes playing a secondary role.
4. In general, urban regeneration programmes have a strong focus on distribution of benefits by focussing on disadvantaged neighbourhoods (distributional justice), and by involving specific groups in participation and decision making (procedural justice). On the other hand, aspects related to the extent to which diverse social groups, identities, needs, and forms of knowledge are acknowledged and valued (recognitional justice) are often ignored.
5. There has been very little explicit focus on the fair distribution of energy-related benefits and burdens, the inclusiveness and transparency of energy decision-making processes, and the

recognition of diverse social groups, needs, and forms of knowledge (energy justice) in urban regeneration programmes. In addition, no explicit acknowledgement is made of potential risks of green gentrification, thus no specific measures to counteract gentrification have been developed.

1. Introduction

While integrated urban regeneration has a long history in European urban policy, recent programmes increasingly incorporate energy and climate objectives, positioning urban regeneration as a key interface between spatial planning and energy transition governance. Integrated urban regeneration programmes can be powerful tools for advanced replication strategies for Positive Energy Districts (PED) and building blocks for climate-neutral cities, as they focus on transforming the existing built environment and increasingly include energy transition objectives within their scopes (EU, 2015). Their attention to the neighbourhood scale has the potential to bridge the gap between energy transition initiatives focused on single buildings (like e.g. the EU Renovation Wave) and those targeting the city as a whole (like e.g. the Horizon Mission on climate-neutral and smart cities). At the same time, integrated, place-based approaches to urban regeneration are widely recognised as enabling synergies between bottom-up social innovation dynamics and wider urban transition strategies (Moulaert et al., 2010). But for these potentials to unfold, it is important that the effectiveness and efficacy of integrated urban regeneration programmes towards climate-neutrality is strengthened to ensure that nobody is left behind. This requires the definition of appropriate means to analyse the PED-urban regeneration nexus from the perspective of energy justice (Carley et al., 2020; Hearn et al., 2021). This is particularly crucial when it comes to disadvantaged neighbourhoods, due to their intertwining dynamics of socio-economic and physical marginalisation. The forecasted huge increase in national and international funding for the sustainable energy transition adds further urgency to this. The PED-JUST project aims to address the main question of how integrated urban regeneration strategies in disadvantaged neighbourhoods effectively can support the PED transition pathway while leaving nobody behind.

1.1. Aim of the report

PED-JUST seeks to improve an understanding of how urban regeneration programmes can promote PED development and contribute to socially just energy transitions. This goal is of capital importance given the growing concern for the phenomena of green gentrification and unequal access to transition gains connected to urban regeneration initiatives (Anguelovski et al., 2018; Tubridy, 2021). In this report, which is the result of the activities carried out in WP1, we assess the integration of PED-oriented and social justice-related objectives in existing urban regeneration programmes with the aim of understanding the state-of-the-art of current urban regeneration programmes. To do so, we investigate how PED objectives and various dimensions of social justice have been integrated into urban regeneration programmes in Denmark, Italy (Apulia Region,

and Poland (Lower Silesia Region) in the period 2005-2025. We do this with the aim of establishing a background and context against which specific urban regeneration projects in each country can be selected and assessed in WP2 of the project.

1.2. PEDs and urban regeneration

PEDs have been promoted by the EU as a steppingstone towards realizing the ambition of developing climate neutral cities by 2050. As part of this agenda, the research and innovation programmes *JPI Urban Europe* and *Driving Urban Transitions* (DUT) have set the goal of developing 100 PEDs by 2025. Here, PEDs have been defined in the following way:

> Positive Energy Districts (PEDs) are energy-efficient and energy-flexible urban neighbourhoods or areas of connected buildings and facilities, that produce local renewable energy, achieve net zero greenhouse gas emissions, and actively contribute to overall climate neutrality. Core aspects are renewable energy production, affordability, and financial sustainability, enabling PEDs to unlock their full potential as drivers of systemic transformation. By integrating diverse systems and infrastructures – such as energy, mobility, and ICT – and fostering interactions between buildings, users, and regional networks, PEDs align with a clear mission toward sustainability. Through engagement at all levels of governance, the empowerment of local energy communities, and alignment of initiatives, PEDs secure energy supply and a good life for all in line with social, economic, and environmental sustainability. (DUT, 2025: 3)

The PED framework is centred around three dimensions: energy efficiency, energy flexibility, and local renewable energy production (DUT, 2025). Here, energy efficiency refers to attempts to reduce the overall energy demand by lowering the energy consumption. This can, for example, be done by lowering the heating and cooling demand in buildings. Energy flexibility refers to the ability of the energy system to align production and consumption patterns and balance the system in response to changes in demand and supply. Local renewable energy production refers to the ambition of replacing energy production from fossil fuels with renewable energy sources implemented at local and regional levels.

As improving energy efficiency is at the heart of PED development, refurbishment of the built environment supported by urban regeneration programmes offers a unique opportunity for promoting a green transition. Here, urban regeneration initiatives in disadvantaged neighbourhoods can play important roles, as disadvantaged neighbourhoods often are the worst performing neighbourhoods in terms of energy efficiency

due to poorly maintained or low-quality housing stock. At the same time, urban regeneration initiatives can play instrument roles in ensuring that energy transitions happen in a socially just way.

It is therefore crucial that urban regeneration programmes (with or without explicit ambitions of promoting a green transition) do not lead to urban transformations which ultimately displace vulnerable groups from disadvantaged neighbourhoods. Such processes can be understood as 'green gentrification' – a process by which the 'greening' of a neighbourhood (for example by upgrading the energy standards of housing through renovations, improving a neighbourhood's green spaces, or making renewable energy production possible) leads to increases in rents, which might displace vulnerable groups from the neighbourhood (Anguelovski et al., 2018). From a PED-perspective, we can understand 'green gentrification' as the implementation of energy related measures, which leads to increases in rent or have other side effects, which displace vulnerable groups from a neighbourhood. At the current moment, green gentrification is a real threat in PED development, and it is uncertain how PEDs can contribute to a just energy transition (Hearn et al., 2021). Understanding the mechanisms of green gentrification becomes increasingly important with the recent adoption of the EU Energy Performance of Buildings Directive in 2024, which aims to fully decarbonise the building stock by 2050 (EU, 2024). This directive is set to be transposed into national legislation by late autumn 2026. As buildings across the EU are renovated in line with contemporary energy efficiency standards, there is a significant risk of gentrification. This risk is especially pronounced as improvements are not happening across the entire building stock at once.

1.3. Unpacking the energy – social justice nexus

As Carley & Konisky (2020: 569) have put it: 'the transition to lower-carbon sources of energy will inevitably produce and, in many cases, perpetuate pre-existing sets of winners and losers.' This understanding has led to an increased focus on 'energy justice' in the academic literature. The understanding here is simply that some part of the community may benefit from the energy transition, whilst other groups may be more or equally disadvantaged from this transition. Jenkins et al. (2016) have developed a framework for evaluating energy justice and identified strategies for how issues of energy justice can be approached. Following contemporary theorisations on social justice (Rawls, 1971; McCauley et al., 2013; Fraser, 2014) energy justice can be understood into the three tenets of distributional, recognition, procedural, see Table 1. Here, distributional justice refers to where and how (in)justices are distributed in space. This refers not only to where energy infrastructures are located and the externalities they impose on the local community, but also considers whether the local community would have access to new energy services. Recognition-based justice address who is ignored or misrepresented in the energy transition. It also calls for the acknowledgement of

'divergent perspectives rooted in social, cultural, ethnic, racial and gender differences' (Jenkins et al., 2016: 177). Procedural justice encourages researchers to explore whether a given process can be considered fair. Here, the concept of fairness refers to whether communities and individuals have access to decision-making processes in a non-discriminatory way. Jenkins et al. (2016) emphasize three important mechanisms for achieving just outcomes; local knowledge mobilization, greater information disclosure, and better institutional representation.

Table 1: An evaluative and normative approach to energy justice (table reproduced from Jenkins et al., 2016: 175)

Tenets	Evaluative	Normative
Distributional	Where are the injustices?	How should we solve them?
Recognition	Who is ignored?	Who should be recognized?
Procedural	Is the process fair?	Which new processes?

1.4. PED orientation in urban regeneration programmes

An important first step in the PED-JUST project is to understand the extent to which PED objectives are reflected in existing urban regeneration programmes across the three case areas. We do this by analysing the promotion and integration of the three dimensions of PEDs – energy efficiency, energy flexibility, and local renewable energy production – into urban regeneration programmes in the three case areas, and whether a change in priority given to this area can be found over time. We also explore how and to what extent notions of social justice are reflected in the selected urban regeneration programmes. Here, we draw on the three dimensions of justice outlined in Table 1.

We want to study these questions in three European countries with diverse experiences with urban regeneration and promotion of green transition initiatives. Here, Denmark is considered a front runner country with recent experiences of energy-oriented urban regeneration processes and a tradition for bottom-up local alliances and partnerships that tap into national funding resources (Jensen et al., 2022). In contrast to this, in Italy urban regeneration has traditionally been led by National policies and programmes with a focus on physical rehabilitation and a strong link to social housing. Urban regeneration programmes adopted an integrated approaches only in the second half 1990s, with regional variations. The Apulia region, in Southern Italy, embraced a radical innovation pathway in this direction in 2005, and gave it a clear focus on disadvantaged neighbourhoods (Barbanente et al., 2022) and a growing emphasis on green and energy transition objectives within their scopes (Barbanente and Grassini, 2022). In Poland, urban regeneration

efforts have been critiqued as leading to gentrification, with few social and energy benefits being obtained and much criticism coming from climate change activists, as confirmed by recent studies on urban regeneration processes and strategies in Polish cities (Tomczyk and Basińska, 2022; Ciesiółka and Maćkiewicz, 2022). As such, there is an urgency for in-depth research on both substantive and procedural elements of urban regeneration processes in Poland, especially in relation to energy transition and energy justice. The Lower Silesia region of Poland, particularly Wroclaw, faces significant challenges regarding clean energy adaptation in disadvantaged neighbourhoods, due to the continued use of coal.

In Italy and Poland, we will limit the study to the Apulia Region (IT) and Lower Silesia (PL) respectively; in Denmark the whole country will be part of the analysis. In each case, we have identified relevant urban regeneration programmes covering the period 2005-2025. For each programme we have done a policy analysis identifying 1) the main aims of the urban regeneration programme, 2) the PED orientation of the programme, and 3) measures introduced to ensure social justice. The policy analysis has been supplemented by semi-structured interviews with urban regeneration experts and public officials responsible for setting up urban regeneration programmes and distributing funds. A list of all interviewees can be found in the back of the report (Appendix A).

This report is structured as follows. The main body of the report has five chapters - one chapter for each case (Denmark, the Apulia Region and Lower Silesia) which follow the same structure, a comparative discussion chapter, and finally a concluding chapter. In each of the case chapters, we firstly explore the history and organization of urban regeneration programmes in each case, with the aim of understanding the extent to which PED objectives and social justice have been reflected in the programmes. Secondly, we then zoom in on the selected urban regeneration programmes in each country, with the aim of exploring how PED objectives and the dimensions of social justices have been integrated into the programmes. Thirdly, we end the analysis of each country by reflecting on whether there over time has been a change in the priority given to PED objectives and social justice issues. In the concluding chapter, we compare the findings from the three countries, drawing out the key findings of how PED and social justice related aspects are integrated into existing urban regeneration programmes.

2. Urban Regeneration in Denmark

In this section we analyse the PED orientation and social justice considerations in urban regeneration programmes in Denmark in the period 2005-2025. Firstly, we provide a brief introduction to the history of urban regeneration in Denmark and elaborate to what extent PED related objectives and social justice perspectives have been integrated into urban regeneration initiatives. Secondly, as it will become clear, Denmark has not had state-led urban regeneration programmes since the early 2000s. Instead, we have identified four periods, which have been shaped by different government bills, also known as 'housing agreements'. In our analysis we seek to demonstrate how these housing agreements (and the government funding provided in them) have shaped urban regeneration initiatives in Denmark.

2.1. A brief introduction

In Denmark, early responses to increasingly inadequate housing stock took the form of slum clearance. Slum clearance was made possible by the passing of a government bill in 1939, but it was not until after the Second World War that slum clearance became a widespread approach under the auspices of the newly established Ministry of Housing (Gaardmand, 1993; Vestergaard, 2014). To speed up the slum clearance process and rectify the critique of top-down planning, a government bill passed in 1969 led to the creation of local 'slum clearance companies', which in close cooperation with municipalities and central government agencies were managing the slum clearance projects. These projects mainly targeted neighbourhoods (rather than specific buildings), which led to the first area-based approaches to urban regeneration in Denmark (Gaardmand, 1993). However, this approach quickly met large opposition from citizen-led grassroots movements, which began to occupy buildings in protest actions, leading to several violent clashes between these groups and police forces in the 1970s (Gaardmand, 1993). As a result, a 'softer' approach to urban regeneration emerged with the passing of the first urban regeneration law in 1983, which among other things led to a greater involvement of residents (Vestergaard, 2014). The focus moved from slum clearance to upgrade and regeneration of existing housing stocks.

In the 1980s, political focus gradually moved towards disadvantaged neighbourhoods, which displayed several socio-economic, educational and social integration related challenges. It was increasingly recognised that area-based approaches targeting the building stocks as well as the population were needed to improve the areas (Vestergaard, 2014). The area-based approach was officially introduced in 1994 by the government's Urban Committee, which was tasked with the challenge of solving Denmark's so-called 'ghetto problems' (Vestergaard, 2014). In the period 1993-1998 the Urban Committee set up an ambitious programme covering

500 estates. The programme was jointly funded by the National Building Fund and local municipalities. Another important initiative, which was launched in this period, was the Danish Urban Regeneration Programme (*Kvarterløft*) (Vestergaard, 2014). The programme was launched in 1996 with the aim of developing new experimental approaches to urban regeneration. In total 12 areas were selected, 5 in Copenhagen. The aim of the programme financed by the state, local municipalities and third sector actors, was partly to develop the individual areas and partly to develop a model for future urban regeneration initiatives in Denmark (Vestergaard, 2014). A major emphasis was put on resident involvement and direct local decision-making by the establishment of local resident boards supported by decentral urban regeneration officers (Pløger, 2004).

With the election of a liberal government in 2001, the Danish urban regeneration landscape was radically transformed. Although the Danish Urban Regeneration Programme continued until the mid-2000s, state funding for urban regeneration initiatives was largely abolished alongside the Ministry of Housing[1]. Since this period, the urban regeneration landscape in Denmark has been dominated by two larger funding mechanisms targeting non-profit housing areas (funded by the National Building Fund) and medium-sized towns and rural areas (jointly funded by the state and municipalities). If we add to this that Copenhagen Municipality, which was the municipality that benefitted most from the national urban regeneration programme, now operates its own regeneration programme, we have a complete picture of the main funding channels for urban regeneration in Denmark. These funding streams have remained fairly consistent in the period 2005-2025, although we do see some changes in priorities (explained in Section 2.2), mainly resulting from housing agreements passed by the Danish government.

Throughout the 2000s and 2010s housing and integration policies became increasingly aligned, culminating in legislative instruments such as the Ghetto Law in 2010 and Parallel Society Act in 2018 (Olesen & Howells, 2023). The latter forced housing associations and municipalities in the most disadvantaged non-profit housing areas, framed as 'parallel societies', to prepare transformation plans for how to reduce the number of non-profit family housing units to 40% by 2030 (Olesen & Howells, 2023; Howells & Olesen, 2025a).

With the withdrawal of the state from the urban regeneration scene, the National Building Fund gradually took over the responsibility for renewing the housing stock in non-profit housing areas. Being established

[1] A small pot of government funding was reserved for regeneration programmes in medium-sized towns and rural areas, where demolition of abandoned buildings was needed.

already back in 1967, the fund had gradually accumulated considerable capital, as revenue from housing associations over the years had been placed in the fund with the aim of developing a shared financial resource for future renovations and building projects in the sector (Bech-Danielsen & Christensen, 2017). As a result, the non-profit housing sector has now largely become self-financing with the ability to fund its own regeneration projects.

2.1.1. PED orientation in urban regeneration

In the period after the second world war, Denmark grew increasingly dependent on energy import. When the first oil crisis hit the country in 1973, Denmark was importing around 90% of its energy. Energy saving requirements had already been introduced in the Danish Building Regulations in 1961, and these were continuously updated in the following decades (Vestergaard, 2014). It is thus primarily through the continuously updated building regulations that the energy efficiency of the housing stock has been addressed. Furthermore, all houses sold after 1997 have been 'energy certified' and rated according to their energy efficiency – a model which has incentivized property owners to invest in energy sharing measures (Vestergaard, 2014). As a result, there has in general been a large focus on improving the energy efficiency among property owners in Denmark.

The shock of the oil crisis in 1973 also provided the impetus for an early transition of the energy sector in Denmark, which increasingly aimed at becoming self-sufficient. In 1979 the District Heat Supply Act was passed, which led to the creation of large-scale district heating facilities throughout the country based on a non-profit cooperative model of consumer ownership (Johansen & Werner, 2022). This governance model for combined heat and electricity production at city level constitutes today one of the cornerstones in the Danish energy system, and it has recently been singled out as Denmark's key strength for realizing PEDs in Denmark, as it provides a high degree of flexibility (Olesen & Steffansen, 2025). Today, approximately 68% of all private households are connected to the district heating network (Danish Energy Agency, 2024). The ambition of self-sufficiency and an increasing environmental awareness throughout the 1980s led the Danish Government to publish the world's first low carbon energy transition strategy in 1990 (Johansen & Werner, 2022). Since, Denmark has been a frontrunner in the transition towards renewable energy, primarily focusing on the integration of wind-produced electricity into the energy system.

Inspired by the Rio-convention in 1992, Danish municipalities launched a series of experiments to reduce the environmental impacts from households under the framework of 'local agenda 21' in the 1990s. These initiatives represent a turn to an urban ecological approach in urban regeneration initiatives and focused

primarily on reducing heat and water consumption (Nielsen, 1999). However, given the high experimental nature of the projects, they mainly remained as 'demonstration projects' failed to gain large-scale attraction.

2.1.2. Social justice in urban regeneration

As a response to the early demonstrations and protests against the top-down slum clearance programmes in the 1960s and 1970s, attempts were made to address issues of justice and democracy in the urban regeneration programmes in the 1990s. The idea of direct resident involvement and democracy became an integrated part of the Danish Urban Regeneration Programme with the aim of establishing a new culture for citizen involvement in urban regeneration. Decision-making on local matters were largely delegated to local resident boards with the aim of empowering the local community to take responsibility for their own neighbourhood, thus lifting the neighbourhood physically as well as socially (Pløger, 2004). Whilst, this approach was certainly novel at the time inspired by new ideas of collaborative planning, critics have demonstrated how the empowering and consensus seeking agenda also constituted a governmentality, which prevented agonistic voices from entering the debate (Pløger, 2004). One could argue that whilst procedural justice was largely accounted for, the projects failed to recognise and give space for distributional and recognition-based aspects. Larsen (2013) questions for example whether all the efforts to integrate public participation into urban regeneration programmes and develop a collaborative approach has been in vain, since the outcomes and benefits for the residents in the most disadvantaged neighbourhoods remain elusive.

A similar question may rightly be asked about the non-profit housing sector. In Denmark non-profit housing is managed and owned by non-profit housing associations. Housing associations are based on member (tenant) ownership, and direct resident democracy has been institutionalized at all levels of the sector. However, recent government policies to combat segregation and integration challenges in non-profit housing areas, such as the Danish government's so-called 'ghetto policies', has resulted in increasing value gaps between residents and the housing associations administrations (Howells & Olesen, 2025b). Several have questioned whether the Danish model of resident democracy is under threat (Hansen & Langergaard, 2017; Lilius & Nielsen, 2024).

An important mechanism to reduce socially negative consequences in urban regeneration projects within the non-profit housing sector, is the forced collective savings in the national building fund that is restricted for redevelopment purposes, including energy improvements. The mechanism is called 'own withdrawal right' (*egen trækningsret*) and lets the housing associations apply for the funds to cover up to 2/3s of the redevelopment cost. This mechanism was implemented in 1979 along with the new requirements for

improved building standards, including energy efficiency. It among other things ensures that housing associations can carry out required renovations without taking up too large loans.

In parallel with this is another mechanism that aims at keeping the rent from increasing too much after renovation project. Since 1985, Housing associations can apply for rent-support through the National Building Fund if the application is related to a compressive plan for regeneration and associated budget. The level of rent-support is decided based on a series of quantitative measures and a qualitative assessment.

2.2. PED orientation in Danish urban regeneration

In Denmark urban regeneration is structured in three main funding streams, see Figure 1, which target different segments of the housing stock and different geographies of the country. The National Building Fund supports urban regeneration projects in non-project housing areas, the state support urban regeneration initiatives in small town and villages in rural municipalities (funds administered by the Danish Social and Housing Ministry), and Copenhagen Municipality has set up its own urban regeneration programme targeting disadvantaged neighbourhoods. These urban regeneration programmes run continuously, and their aims have remained fairly consist within the 2005-2025 period. We do, however, see some changes in aims and priorities, and it is these changing prioritise that we will trace in this analysis. We have divided the analysis into four periods largely structured by different housing agreements, representing different eras of urban regeneration.

Figure 1 presents an overview of the urban regeneration landscape in Denmark in the period 2005-2025. The identified eras are;

- The Neoliberalisation of Urban Regeneration Policy (2005-2009)
- Urban Regeneration and 'Ghettoes': The 2010 Housing Agreement (2010-2014)
- Renovations Continue: The 2014 Housing Agreement (2015-2019)
- The Green Turn: The Green Housing Agreement 2020 (2020-2025)

Before moving into the analysis proper, it is worth highlighting some features of the overall legislative framework and physical/infrastructural context that provides the backdrop for urban regeneration programs and housing agreements. Urban regeneration in Denmark is governed by a tightly coupled set of energy, housing, and social policies that together frame the scope for sustainable area-based development. The national Building Regulations (*Bygningsreglementet*) constitute the backbone of energy policy in the built environment, setting progressively stricter energy performance requirements for new constructions and

major renovations across the country. These regulatory standards are complemented by targeted state support schemes administered by the Danish Energy Agency, including the Energy Renovation Grant Scheme (*Energirenoveringspuljen*) for building-envelope improvements and the Heat Pump Grant Scheme (*Varmepumpepuljen*) for heating conversions, alongside tax-based incentives for solar photovoltaics particularly in the private housing market. At the same time, urban regeneration policies are strongly conditioned by the Danish housing model[2], in which housing association and rent-regulated private rental housing rely on cost-based rent principles, municipal urban regeneration funding, and phasing-in support to prevent excessive rent increases. In relatively dense cities such as Copenhagen, Aarhus, and Aalborg, where district heating predominates and much of the housing stock consists of older multi-storey buildings, these policies interact with high land values and preservation constraints, increasing both the technical complexity and social sensitivity of energy-oriented urban regeneration.

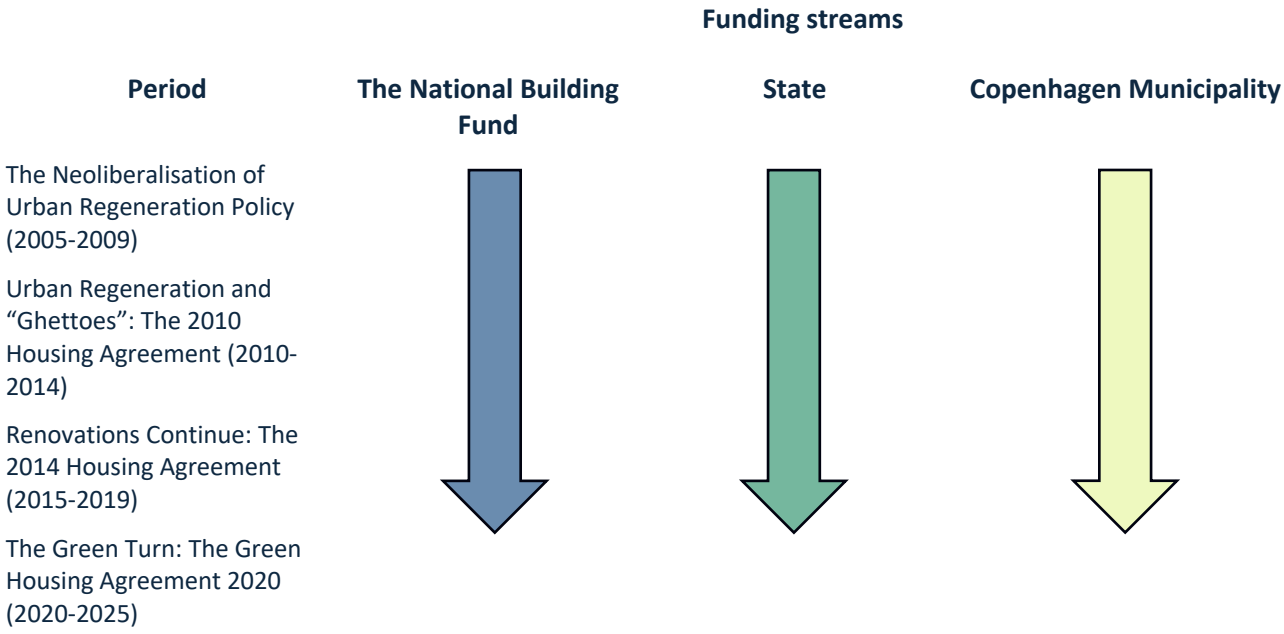

Figure 1: Periodisation of the urban regeneration landscape in Denmark in the period 2005-2025

[2] The Danish housing model is characterised by a large and heavily regulated rental sector: approximately one fifth of the total housing stock (around 640,000 dwellings) consists of non-profit housing association housing, while about 75% of private rental dwellings (roughly 375,000 out of 500,000 units) are subject to rent regulation. This structure places specific constraints on the design of public support schemes, which must account for cost-based rent principles and limits on rent increases following renovation.

2.2.1. The Neoliberalisation of urban regeneration policy (2005-2009)

Table 2: Overview of the neoliberalisation of urban regeneration policy period

Name of funding period	The Neoliberalisation of urban regeneration policy
Time period	2005-2009
Funding Body	National Building Fund, state, and Copenhagen Municipality
Main aim	Restructuring of the Danish urban regeneration landscape
Financial information	n/a
Energy focus	Focus on energy efficiency (improving energy standards when renovating housing units) in all three funding streams Early experiments with energy flexibility and local energy production supported by the 2009 Housing Agreement.
Social justice focus	Distributional dimension: resources targeted to marginalised areas, understood as disadvantaged neighbourhoods (Copenhagen Municipality), non-profit housing areas (National Building Fund), or small towns and villages in rural municipalities (state). Procedural dimension: participatory requirements for the involvement of local residents in the development and implementation of the regeneration projects

The early 2000s marked a decisive turning point in Danish urban regeneration policy, representing a significant shift in policy and governance compared to earlier decades. This was characterised by a clear ideological shift towards neoliberal governance and market-driven interventions; essentially New Public Management (Greve, 2006). When the conservative government came to power in 2001, one of its earliest symbolic and practical moves was to abolish the Ministry of Housing (*Boligministeriet*). This decision signalled a reorientation of national priorities in housing and urban affairs and paved the way for a broader restructuring of funding, governance, and policy objectives across the sector.

Restructuring Funding and Governance Mechanisms

Central to this shift was the reorganisation of financial tools and responsibilities. Funding streams were re-routed, and the National Building Fund's capital was activated as part of a more market-oriented project support agenda (Larsen & Lund Hansen, 2015). A key milestone in this transition was the adoption of the new Urban Regeneration Law (*Byfornyelsesloven*), which came into force in 2004 (Byfornyelsesloven, 2004). The Urban Regeneration Law gives municipalities the capacity to kick-start the (re)development of problematic urban areas, in part through making them more attractive for private investments, with the possibility of up to 50% of the municipal costs in such projects being refunded by the state.

One of the stated aims of this legislation was to create a more targeted and efficient use of public funds. Ærø et al. (2008: 8) describe the law as being focused on:

- directing support towards areas and properties with the greatest need,
- promoting voluntary participation rather than coercion, and
- increasing market orientation in project implementation.

This represented a notable departure from previous urban regeneration policies and ushered in a new era of state support for regeneration initiatives. Between 2004 and 2006, approximately DKK 1.8 billion was spent on urban regeneration projects, spread across 1,100 project decisions—significantly less than the DKK 2.9 billion spent between 1998 and 2000. Of this amount, around DKK 1.6 billion was allocated to renovation activities, including improvements to approximately 5,800 residences (Ærø et al., 2008: 10).

An important legislative change for the non-profit housing sector occurred in 2002. Here, the Housing Association Law (Ministry of Economic and Business Affairs, 2002) was revised and the subtitle 'The Activation of the National Building Fund's Capital' was added. This amendment signalled a shift in responsibility, indicating that state funds would no longer be used, at least to the same extent, for renovation and maintenance within the non-profit housing sector sector.

Linking Urban Development and Energy Policy

Energy policy and the built environment were also linked during this period. The Energy Agreement of February 2008 (*Energiaftale 2008*) (Danish Energy Agency, 2008) introduced ambitious targets for reducing energy consumption in buildings. These included a minimum 25% reduction in energy consumption for new buildings by 2010, a further 25% reduction by 2015, and an additional 25% reduction by 2020, equating to a total reduction of at least 75% by 2020. To support these goals, campaigns were launched to promote energy savings in buildings, with an annual budget allocation of DKK 20 million between 2008 and 2011, followed by

DKK 5–10 million annually thereafter. A "Knowledge Centre for Energy Savings in Buildings" (*Videncenter for energibesparelser i bygninger*) was also established, receiving up to DKK 10 million annually during the 2008–2011 period. The centre was to be evaluated in 2011, and its operation tendered immediately to ensure placement within a professional environment with relevant expertise.

An essential tool for achieving these goals was the national *Building Regulations* (*Bygningsreglementet*) active since 1961, which established the technical standards and compliance mechanisms for energy efficiency in both new and existing construction. By increasing/tightening the requirements for energy efficiency for new residential construction and in renovation projects, the state goes some way to ensuring gradual improvements in energy efficiency.

Consolidation of market thinking

The period culminated in the 2009 governmental agreement on the control and financing of the non-profit housing sector (Velfærdsministeriet, 2009). This agreement consolidated neoliberal and new public management approaches within the sector, embedding principles of financial control, efficiency, and accountability. From a social perspective, the agreement also addressed the 'social justice' dimension of housing policy, particularly concerning the mitigation of segregation and 'ghettoisation'. In terms of sustainability, the agreement specifically incorporated the energy targets established under the 2008 Energy Agreement. It required that new housing association construction align with national energy reduction goals—aiming for at least a 75% reduction in energy consumption by 2020. Furthermore, the agreement encouraged the housing association sector to take a leading role in adopting low-energy and sustainable building technologies, such as passive houses and positive-energy buildings.

To facilitate these developments, an energy surcharge was introduced, along with new investment opportunities designed to finance technological and sustainable innovations in new social housing. Importantly, these initiatives were implemented without direct public subsidies, with costs instead recovered through tenants' heating accounts (*varmeregnskaber*).

Within this changing landscape, Copenhagen Municipality emerged as a major actor in urban regeneration and energy transition. With around 10% of the national population and a substantial stock of ageing and poor-quality housing, the municipality devoted significant resources to improving building standards. Historically, the municipality had been active in trying to induce building modernisation. From 1997 onward, it engaged in a series of regeneration programmes (For example *kvarterløft* & *områdeløft*), aimed at triggering positive development in targeted neighbourhoods. Also, in first part of 21st Copenhagen Municipality experienced a population growth of 45% since 1995 (Københavns Kommune 2025: 15). During this period,

inequality (though relative) has also grown significantly. From 1997, Copenhagen Municipality engaged in area renewal policies (*områdefornyelse*) in one or another form (different names; *kvarterløft*, *områdeløft*), with the overall goal of kick-starting and supporting a positive development trend in specific neighbourhoods (Københavns Kommune, n.d.), and while this had a positive effect in these places, many areas not covered by these initiatives were worse than ever by 2008 (Københavns Kommune, 2008).

Overall, the period from 2004 to 2009 represents a transition from a public sector–led model of urban regeneration towards one driven increasingly by market efficiencies, local responsibility, and performance-based governance. At the same time, sustainability, and particularly energy performance, became a stronger requirement within housing policy, driven primarily by technical and economic considerations.

PED/Energy Focus

None of the urban regeneration programmes described above explicitly aimed at promoting PED principles, however energy efficiency (improving energy standards when renovating housing units) was a prominent focus across all three funding streams. The role of buildings (and housing specifically) in the green energy transition was reinforced in all of the key policies mentioned (for example, the 75% reduction in energy consumption by 2020 inscribed in the Energy Agreement from 2008). Additionally, the Housing Agreement in 2009 (Velfærdsministeriet 2009)) also laid the groundwork for more experimental approaches to energy flexibility and local renewable energy production. However, these should still be considered latent ideas during this period.

Social Justice Focus

Although social justice was not an explicit or central objective of the policy landscape during this period, certain elements can be interpreted through that lens. In the urban regeneration programmes, there is in general a strong tradition for community involvement, reflecting a procedural justice perspective. In addition, the emerging policy focus on the most disadvantaged neighbourhoods can be seen as reflecting elements of distributional justice. While there was some attention paid to the issue of rent increases, these discussions remained relatively limited in scope and impact, in all likelihood due to the fact that mechanisms have already been in place to address these issues, especially within the non-profit housing sector. Overall, the dominant tendency was not toward a social justice–driven agenda but rather toward a market-oriented approach, reflecting a broader neoliberal shift in how housing challenges were expected to be solved in Denmark.

2.2.2. Urban Regeneration and 'Ghettoes': The 2010 Housing Agreement (2010-2014)

Table 3: Overview of the urban regeneration and 'ghettoes' policy period

Name of funding period	Urban regeneration and ghettoes
Time period	2010-2014
Funding Body	National Building Fund, state, and Copenhagen Municipality
Main aim	Urban regeneration targeted disadvantaged non-profit housing areas
Financial information	n/a
Energy focus	Focus on energy efficiency (improving energy standards when renovating housing units) in all three funding streams Early experiments with energy flexibility and local energy production supported by the 2009 Housing Agreement.
Social justice focus	Distributional dimension: resources targeted to marginalised areas, understood as disadvantaged neighbourhoods (Copenhagen Municipality), non-profit housing areas (National Building Fund), or small towns and villages in rural municipalities (state). Procedural dimension: participatory requirements for the involvement of local residents in the development and implementation of the regeneration projects

The period between 2010 and 2014, here titled *Urban Regeneration and 'Ghettoes'* was characterized by a continuity in Denmark's emphasis on urban regeneration generally, but also by a sharper and more explicit focus on so-called 'ghetto areas'. During these years, the Danish government began to deliberately target the most marginalised housing estates through area-based interventions, framed as efforts to 'break down isolation' and 'mainstream' disadvantaged areas and residents (Statsministeriet, 2010). In this sense, it is possible to interpret state policy as attempt to direct resources toward the most segregated communities (although with the caveat that these must have more than 1000 residences (Olesen & Howells, 2023), and thus be interpreted positively through a 'social justice' lens. From a more critical perspective, it could also be argued that the underlying discourse was less about integration and more aligned with an assimilation-

oriented policy logic, in which the problem was understood as the social or cultural character of certain neighbourhoods rather than the structural conditions producing segregation (Olesen & Howells, 2023).

This shift was embodied in the 2010 housing agreement, *Strengthened Initiatives in Ghetto Areas and Utilisation of the Non-Profit Sector's Funds* (Social- og Boligministeriet, 2010). The agreement consolidated the emerging policy direction and made renovation the primary area of intervention. Under its provisions, the National Building Fund guaranteed an investment framework of 2,640 million DKK per year from 2013–2016 for renovation in vulnerable residential areas. Due to a growing waiting list for renovation funding in the non-profit sector, an additional 5,000 million DKK was released between 2011 and 2013. This demonstrated a clear prioritisation of physical upgrading as the principal tool for addressing the challenges facing the most disadvantaged neighbourhoods.

At the same time, the agreement acknowledged persistent barriers to energy efficiency renovations. Evidence suggested that uncertainty regarding projected cost savings led many non-profit tenants to vote against renovation proposals (Social- og Boligministeriet, 2010: 7–8). To reduce perceived financial risks, the deal established the possibility of guarantees from the National Building Fund, designed to give tenants greater confidence in the economic viability of energy-saving measures.

Institutional Change in Housing and Urban Policy

The Danish State's institutional landscape also shifted during this period. In 2011 a new Ministry of Cities and Housing (*Ministeriet for By, Bolig og Landdistrikter*) was established; within this, urban redevelopment (*byfornyelsen*) played the role of a central policy instrument for improving the built environment, through which improvements to urban areas in Denmark were to be achieved (Ministeriet for By, Bolig og Landdistrikter 2013: 7). The ministry's work during these years also highlighted an important bifurcation in state priorities. On one hand were the large post-war non-profit housing estates of the 1960s and 1970s, whose regeneration was expected to be financed through the National Building Fund and a series of national housing agreements. On the other hand, were smaller towns and cities facing depopulation and economic decline as a result of centralization and rural-to-urban migration. Dedicated funding programmes were established to support these smaller municipalities, revealing a differentiated territorial strategy in national housing policy.

During this period, the Act on Urban Regeneration and Urban Development constituted a central framework for Danish urban regeneration policy, providing subsidies for both building redevelopment and area-based regeneration initiatives. Under the area regeneration scheme, responsibility for which was located in the

Ministry for Cities, Housing and Rural Areas (*Ministeriet for By, Boliger og Landdistrikter*), public funding was conditional on the active involvement of local stakeholders in the planning and implementation of projects, reflecting a strong emphasis on participatory governance and procedural justice. Within this framework, the Agreement on Green Urban Renewal (*Aftalt grøn byfornyelse*) introduced in 2013 offered targeted grants for energy renovations in private rented housing and was structured as a two-step arrangement: first, an agreement between landlords and tenants on the renovation, and second, a contractual arrangement between the landlord and the energy company delivering the improvements (*Lov om ændring af lov om almene boliger m.v.*, 2014) . Municipalities were also able to strengthen incentives by offering supplementary local subsidies, particularly to limit rent increases resulting from energy renovations. According to interviews with the Ministry of Housing and Rural Affairs, urban regeneration schemes played a much more significant role during this period than they do today, with state support extending to cities of all sizes, including large-scale regeneration projects in Copenhagen, many of which continued to be driven by the municipality even after direct state funding was phased out.

Copenhagen Municipality and the Emergence of Localized Energy Approaches/Planning

Between 2010 and 2014, Copenhagen Municipality also sought to define a more proactive role in the green transition of the existing built environment. This is embodied in the CPH 2025 Climate Plan (Københavns Kommune, 2012), which aims to 'mitigate the effects of climate change and to show that it is feasible to combine growth, development, and an enhanced quality of life with lower CO2 emissions'. This plan is based on four pillars; energy consumption, energy production, mobility with reduced emissions, and city administration initiatives, and divided into three implementation phases between 2013 and 2025. The ambitions of this plan were embodied in a new strategy for sustainable urban regeneration (2013-2017). This strategy incorporated two key approaches:

1. capacity building and knowledge sharing amongst market actors and building owners, and
2. testing and developing the energy efficiency strategy in area-based approaches that coordinate existing programmes and strengthen the horizontal integration of administrative planning practices (Engberg & Warmedinger, 2015).

These approaches produced measurable changes. The number of applications for support for retrofitting projects more than doubled between 2011 and 2014 (Engberg & Warmedinger, 2015: 28). A Flagship example of this approach is the South Harbour (*Sydhavn*) energy district project, an area-based initiative intended to build local ownership of energy initiatives and encourage behavioural change in energy consumption. One of

the main learnings for Copenhagen Municipality from this project was the necessity of a long-term planning horizon.

PED/Energy Focus

Between 2010 and 2014 national housing and urban policy increasingly aligned with principles later associated with Positive Energy Districts; improving energy efficiency, supporting local energy production, and strengthening system flexibility. The 2008 Energy Agreement and subsequent tightening of the Building Regulations (Bygningsreglementet) helped institutionalize measurable performance requirements, with the goal of meeting national targets. Support schemes such as renovation subsidies and sector agreements reinforced a shift toward a more structured governance approach in which buildings were expected not only to consume less energy but to operate more intelligently within the wider energy system. This can be seen in National legislation, including of the National Building Fund, and through the actions of Copenhagen Municipality. While the terminology of PEDs was not yet in use, the policy direction laid the groundwork for district-level energy performance as a collective responsibility and planning problem, rather than an explicitly technical problem per se.

Social Justice Focus

Although social justice was not the dominant policy lens of the period, some elements can be interpreted in those terms. Area-based interventions and the early development of “ghetto discourse” directed attention toward disadvantaged neighbourhoods, framed around improving living conditions and reducing spatial inequality. However, this approach often emphasized the characteristics of communities rather than the broader structural conditions producing inequality, perhaps more assimilation-oriented than socially redistributive. Overall, while aspects of policy touched on social justice concerns, such as neighbourhood disadvantage and rent pressures, the core policy direction remained market- and performance-driven rather than equity-led.

2.2.3. Renovations continue: The 2014 Housing Agreement 2015-2019

Continuing renovations in the HA sector

This period, structured here by the 2014 Housing Agreement, is characterized by a continued focus on competitiveness within the non-profit housing sector, the renovation of non-profit housing, and further liberalisation of state funds for urban regeneration. The goal of the agreement is described in the following: ‘It is therefore important to ensure that there is a continuous focus on improving the competitiveness of the

sector through increased productivity and efficiency in both new construction and the operation of existing housing. The parties agree to implement initiatives that strengthen the focus of municipalities, housing associations and residents on this, so that rents are kept at the lowest possible level' (Social- og Boligministeriet 2014: 2). The Agreement notes that there is a continued need for renovation in the non-pfit housing sector, specifically highlighting 'poor energy standards' amongst other characteristics. As such, the agreement requires the National Building Fund to increase the amount of support given to projects that improve individual department's energy standard/mark to standards required by national building regulations (Social- og Boligministeriet, 2014). In the agreement it was also agreed to strengthen the opportunities to reduce energy use and improve indoor climate by supporting experimental projects- so called 'trial pool' (*Forsøgspulje*). In 2015 this pool was 11 million DKK. This money could be used for various topics: energy consumption, climate change adaptation, digitalization, accessibility, increasing the effectiveness of construction and maintenance, new technologies and sustainability).

Table 4: Overview of the renovations continue policy period

Name of funding period	Renovations continue
Time period	2015-2019
Funding Body	National Building Fund, state, and Copenhagen Municipality
Main aim	Urban regeneration targeted disadvantaged non-profit housing areas
Financial information	n/a
Energy focus	Focus on energy efficiency (improving energy standards when renovating housing units) in all three funding streams Early experiments with energy flexibility and local energy production supported by experimental 'trial pool'.
Social justice focus	Distributional dimension: resources targeted to marginalised areas, understood as disadvantaged neighbourhoods (Copenhagen Municipality), non-profit housing areas (National Building Fund), or small towns and villages in rural municipalities (state). Procedural dimension: participatory requirements for the involvement of local residents in the development and implementation of the regeneration projects

Increased targeting and devolved responsibility for state support

During this period, state support for urban regeneration also changed significantly. As described in the previous section, the Green Urban Regeneration (*grøn byfornyelse*) scheme had been characterised by a relatively strong role for the state, which maintained both oversight and influence over the allocation of financial support and its intended purposes. This model shifted with the reform of the urban regeneration system in 2018, which substantially liberalised and retargeted state support. The revised framework directed funding away from urban growth areas and towards rural municipalities, reflecting growing political concern about spatial inequalities and uneven territorial development (Jensen, 2016: 6). As part of this change, regeneration funds were restricted to towns with no more than 4,000 residents.

At the same time, responsibility for prioritisation and implementation was devolved to the municipal level. Instead of project-based state approval, funding was distributed directly to municipalities based on a set of predefined indicators. This resulted in a marked reduction in state control and limited the state's overall overview of how regeneration funds were ultimately used. While the responsible ministry continues to maintain close dialogue with municipalities and provided guidance and support, decisions regarding the allocation and concrete use of funds rested primarily with local authorities (Interview the Danish Social and Housing Agency, 2025). The state retained knowledge of which municipalities received funding and in what amounts but did not systematically track or regulate the specific activities or interventions financed through the scheme.

Copenhagen municipality carving its own path

As state financial support for urban regeneration declined, Copenhagen Municipality increasingly developed and financed its own area-based regeneration initiatives in order to continue this line of intervention. During this period, the municipality's commitment to area-based regeneration (*områdefornyelse*) was reinforced by its perception of the instrument as both effective and strategically important for urban development. According to municipal representatives, a substantial share of the observed positive outcomes was not attributed solely to the direct effects of public regeneration funding, but rather to the private investments that were mobilised in regeneration areas as a secondary effect of public intervention.

Area-based regeneration has since become a central method in Copenhagen's approach to urban development. While building regeneration (*byfornyelse*) in the municipality encompassed social housing, cooperative housing, and private rental housing, area-based regeneration initiatives were primarily targeted

at social housing areas and particularly vulnerable neighbourhoods. Following the withdrawal of state funding from building regeneration, responsibility for this component increasingly shifted to the National Building Fund (*Landsbyggefonden*).

Each area-based regeneration project implemented by the City of Copenhagen typically operates with a budget in the range of DKK 60–80 million (Københavns Kommune, 2024), reflecting both the scale of ambition and the municipality's long-term commitment to the approach. The model was widely regarded as well proven and was characterised by strong emphasis on resident involvement throughout all phases of the project. This included principles of co-creation with residents, local organisations, and other relevant stakeholders, supported by locally anchored governance structures such as steering groups and thematic working groups. Participation and inclusion serve multiple, interrelated objectives within Copenhagen's area-based regeneration model. These included building trust in the regeneration process, strengthening the legitimacy and quality of project outcomes, and fostering local empowerment.

PED/Energy Focus

During this period, energy-related objectives were increasingly embedded within the renovation of the non-profit housing sector, largely through the 2014 Housing Agreement. While not framed in district-scale energy terms, the agreement reinforced a performance-oriented logic closely aligned with PED principles, emphasizing energy efficiency and productivity as central to sector competitiveness. Poor energy standards were explicitly identified as a key driver for continued renovation needs, and the National Building Fund was mandated to prioritize support for projects that upgraded buildings to meet national Building Regulation standards. The introduction and expansion of the experimental *Forsøgspulje* further supported innovation-oriented approaches, enabling pilot projects addressing energy consumption, indoor climate, digitalisation, and new technologies. Taken together, these measures strengthened a governance framework in which energy performance improvements were pursued systematically across housing departments, reinforcing a building- and portfolio-level logic rather than an explicitly spatial or district-based energy approach

Social Justice Focus

From a social justice perspective, the period was characterized by a more ambivalent trajectory. On the one hand, continued investment in the renovation of non-profit housing and the stated goal of keeping rents as low as possible reflected ongoing concern for housing affordability and living conditions. On the other hand, broader changes to state support for urban regeneration marked a shift away from socially targeted interventions in urban growth areas. The 2018 reform of the urban regeneration system redirected funding

towards smaller towns and rural municipalities, driven by concerns over spatial inequality, while devolving responsibility for prioritization and implementation to local authorities. In Copenhagen, this prompted the municipality to develop its own area-based regeneration model, with area-based regeneration continuing to focus on vulnerable neighbourhoods through participatory and co-creative processes. While these initiatives emphasized empowerment, trust-building, and local inclusion, they operated within a framework increasingly reliant on municipal capacity and private investment leverage, rather than redistributive state support. As such, social justice considerations were present but largely mediated through governance design and local participation, rather than through explicit equity- or redistribution-led policy instruments.

2.2.4. The Green Turn: The Green Housing Agreement 2020 (2020-2025)

Table 5: Overview of the green turn policy period

Name of funding period	The green turn
Time period	2020-2025
Funding Body	National Building Fund, state, and Copenhagen Municipality
Main aim	Focus on promoting a green transition through urban regeneration
Financial information	n/a
Energy focus	Increasing focus on energy efficiency (improving energy standards when renovating housing units) in all three funding streams, supporting by the Green Housing Agreement in 2020. The Green Guarantee supports experiments with energy flexibility and local energy production and includes financial risk bearing
Social justice focus	Distributional dimension: resources targeted to marginalised areas, understood as disadvantaged neighbourhoods (Copenhagen Municipality), non-profit housing areas (National Building Fund), or small towns and villages in rural municipalities (state). Procedural dimension: participatory requirements for the involvement of local residents in the development and implementation of the regeneration projects

Green housing association regeneration

The most recent phase, covering the period from 2020 to 2025, is defined by The Green Housing Agreement 2020 (*Den Grønne Boligaftale 2020*). This agreement, specifically relating to the housing association sector, represents the largest combined housing investment in the history of the Danish state (Transport- og Boligministeriet & Social- og Boligministeriet, 2020).

During this period, the policy focus on renovation has continued, but with a distinct shift toward environmental sustainability. Under The Green Housing Agreement, green initiatives are no longer optional or secondary considerations, they have become a formal prerequisite for receiving funding. In other words, support is now tied not only to the physical need for renovation but also to the integration of energy-efficient and sustainable solutions.

The aim of the Green Housing Agreement was to activate a significant amount of funds (30 billion kroner) from the National Building Fund to facilitate the renovation of housing association properties from 2021-2026. Of this amount, 6 billion kroner was set aside specifically to incite 'energy renovations' through the Green Guarantee (*grøn garanti*). Through this guarantee, the National Building fond covers losses and/or flaws that result from more experimental approaches to renovation. The program also provides a pool of money to support "sustainable projects" in the housing association sector. The deal contains 10 key elements, including 'renovation framework and completion of the waiting list', 'greener housing association residences', 'sustainable and digital housing association construction', and 'an updated and transparent subsidy system'.

The text of the deal uses the term 'green' in varied ways, as a qualifier for elements, transition, screening, and tools, without clearly defining what 'green' entails. The term often appears alongside energy-saving, as in the phrase 'energy-saving and green climate measures'. Notably, the deal stipulates that eligibility criteria for energy-saving initiatives will no longer be tied specifically to building renovation needs. This change opens a new pathway for subsidies targeting energy efficiency, granting housing associations explicit access to funding for energy renovations through the National Building Fund (Transport- og Boligministeriet & Social- og Boligministeriet 2020: 4).

In the deal, energy is presented as/intertwined with renovations more generally. The subject matter of the deal is the targeted channelling of funding to renovate housing association residences. This is not *necessarily* with a focus on energy, although energy-saving measures are a recurrent theme. The deal establishes a pool of 200 million DKK to support sustainable development, with 140 million allocated to sustainable investments, and 60 million to experiments. It is written that the pool can be used to, amongst other things,

provide heat pumps to larger buildings, and to improve indoor climates and digital control of energy use (Transport- og Boligministeriet & Social- og Boligministeriet 2020: 5) .

Green energy as a driver for regeneration in Copenhagen municipality?

Copenhagen Municipality has increasingly positioned energy renovation as a central lever for urban regeneration and climate action. This approach is grounded in the recognition that a large share of the city's existing building stock performs poorly in energy terms, despite high standards in new construction. As stated in a municipal report, approximately 70% of Copenhagen's multi-storey residential buildings are rated energy class D or lower, indicating a substantial untapped potential for both CO_2 reductions and long-term cost savings at the building level (Københavns Kommune, Teknik- og Miljøforvaltningen, Bygningsfornyelse, & Realdania 2023: 3).From a policy perspective, this framing aligns climate objectives with economic rationales, presenting energy renovation as a mutually beneficial intervention for municipalities, property owners, and residents.

In practice, the municipality's focus has extended across different housing types and social contexts. Energy-oriented regeneration efforts have targeted both disadvantaged neighbourhoods (*udsatte boligområder*), as defined in national policy frameworks, and cooperative housing (*andelsboliger*), which often occupy older building stock with significant renovation needs. This dual focus reflects an attempt to balance social priorities with technical and economic feasibility, while also addressing segments of the housing market where energy performance improvements can be most readily realised.

At the same time, the use of regeneration funding to support energy upgrades has become increasingly contested. The Urban Regeneration Fund (*byfornyelsespuljen*) has recently attracted renewed public and political attention in national media, particularly in the context of rapidly rising housing prices in Copenhagen[3] (DR, 2025). The debate centres on whether state-supported regeneration initiatives risk disproportionately benefiting private homeowners and landlords, potentially at the expense of maintaining affordable and accessible housing in the city. Critics have argued that directing regeneration funds toward some of the city's cheapest housing segments may contribute to rent increases and value appreciation, thereby exacerbating social inequality (DR, 2025). These concerns resonate with broader discussions of 'green gentrification', in

[3] DR (2025) 'Copenhagen Municipality has been paying for private renovations for years - blue parties call it 'incomprehensible' https://www.dr.dk/nyheder/politik/koebenhavns-kommune-har-i-aarevis-betalt-private-renoveringer-blaa-partier-kalder-det-ubegribeligt

which environmentally driven upgrades and investments unintentionally displace lower-income residents or exacerbate spatial injustices (Gould & Lewis 2016; Rigolon & Collins 2023).

State funding role continues

State support for urban regeneration today largely continues the trajectory established in earlier reforms, with funding increasingly targeted towards rural areas and smaller towns rather than major urban growth centres. Regeneration funding administered by the Danish Agency for Social and Housing Affairs (Social- og Boligstyrelsen) is primarily directed towards landsbyfornyelse and bymidtefornyelse, supporting initiatives such as the renewal of main streets, the upgrading of local social meeting places, and the demolition of substandard housing. In 2023, a total of DKK 187 million has been allocated nationally for these purposes (Social- og Boligministeriet, 2023)

At the same time, state energy-related funding operates largely in parallel to urban regeneration policy. National schemes such as the Energy Renovation Grant Scheme (*Energirenoveringspuljen*) and the Heat Pump Grant Scheme (*Varmepumpepuljen*) support building-level energy efficiency improvements and heating system conversions, but have limited direct relevance for area-based regeneration or district-scale energy strategies. As such, while state funding contributes to decarbonisation objectives, it plays only a minor role in shaping integrated urban regeneration or PED-oriented initiatives in larger cities.

PED/Energy Focus

Between 2020 and 2025, energy considerations shifted from a supporting role to a formal prerequisite in housing-led regeneration policy, particularly through the Green Housing Agreement 2020 (Den Grønne Boligaftale). While the agreement did not explicitly reference PEDs, it embedded energy efficiency, sustainability, and experimentation as core conditions for public investment in the housing association sector. By mobilising up to DKK 30 billion from the National Building Fund—of which DKK 6 billion was earmarked for energy renovations through the Green Guarantee—the agreement significantly strengthened the capacity to pursue energy-oriented renovation at scale. Risk-sharing mechanisms for experimental projects, alongside dedicated funding for measures such as heat pumps, indoor climate improvements, and digital energy management, further reinforced a shift toward more flexible and system-aware energy solutions at the building and portfolio level.

In parallel, Copenhagen Municipality positioned energy renovation as a key lever for urban regeneration and climate action, linking poor energy performance in the existing building stock to both climate and economic

objectives. While these initiatives remained largely building-focused rather than district-based, they contributed to a growing recognition of energy performance as a collective planning concern. However, energy policy, urban regeneration, and district-scale energy integration continued to operate largely in parallel, limiting the emergence of fully integrated PED-oriented strategies.

Social Justice Focus

From a social justice perspective, this period was marked by both continuity and emerging tensions. The Green Housing Agreement's focus on the non-profit housing sector can be interpreted as an attempt to safeguard affordability and living conditions within the green transition. By decoupling energy-related funding from immediate renovation needs, the agreement expanded access to subsidies for energy improvements, potentially reducing long-term energy costs for residents. However, the agreement's broad and loosely defined use of the term 'green' left distributional impacts largely implicit rather than explicitly addressed.

At the urban scale, Copenhagen's energy-led regeneration efforts intensified debates about affordability and displacement. While initiatives targeted vulnerable neighbourhoods and older cooperative housing, rising housing prices raised concerns that energy-driven regeneration could disproportionately benefit property owners and landlords. Public debate around the Urban Regeneration Fund (byfornyelsespuljen) echoed broader concerns about green gentrification, where sustainability investments risk reinforcing socio-spatial inequalities. Meanwhile, state regeneration funding remained focused on rural and small-town contexts, leaving larger cities to address equity concerns primarily through municipal governance rather than redistributive national policy.

Taken together, Copenhagen's use of green energy measures as a driver for urban regeneration illustrates both the transformative potential and the inherent tensions of climate-led urban policy. While energy renovations offer clear environmental and economic benefits, their integration into regeneration strategies raises critical questions about distributional effects, housing affordability, and the social outcomes of sustainability transitions in high-pressure urban housing markets. hh

2.3. Summary

In Denmark the urban regeneration landscape has changed dramatically since the beginning of the 2000s when the large state-sponsored urban regeneration programmes, which had characterised urban regeneration initiatives in Denmark until then, were abolished. As a consequence, urban regeneration in Denmark has in the period 2005-2025 mainly been structured in three main funding streams, funded by The

National Building Fund, the state, and Copenhagen Municipality, respectively. Each programme (or funding agency) target different segments of the housing stock and different geographies of the country. This means that funding for urban regeneration largely is available for non-profit housing areas, disadvantaged neighbourhoods in Copenhagen Municipality, and small towns and villages in rural municipalities.

These urban regeneration programmes run continuously, and their aims have remained fairly consist within the 2005-2025 period. We do, however, see some changes in aims and priorities in this period. To trace these changing prioritise, we divided our analysis into four periods, reflecting these changes. The periods were

- The Neoliberalisation of Urban Regeneration Policy (2005-2009)
- Urban Regeneration and 'Ghettoes': The 2010 Housing Agreement (2010-2014)
- Renovations Continue: The 2014 Housing Agreement (2015-2019)
- The Green Turn: The Green Housing Agreement 2020 (2020-2025)

In general, it is worth emphasising that all three urban regeneration programmes build on the strong tradition of urban regeneration programmes in Denmark, which already in the 1980s implemented citizen participation to strengthen the procedural justice in urban regeneration projects, which in the 1960s and 1970s were heavily criticised. Throughout the period 2005-2025 we continue to see a strong focus on procedural justice in the urban regeneration programmes.

With the increasing neoliberalisation of housing policies and the adoption of more market-based approaches to urban regeneration, we also see an increasing focus on the most disadvantaged neighbourhoods, which are experiencing a range of social, economic, and integration-related challenges. This can be seen as a strengthening of distributional justice – but the policies also tend reinforce the existing territorial stigmatisation of the areas.

Whilst, there in general is a limited focus on recognition-related aspects of justice, such as recognition of special needs groups and minorities, the Danish urban regeneration model has legislation in place, which prevents (or at least seek to counter) that disadvantaged social groups are priced out of their neighbourhood as a consequence of urban regeneration processes. This is especially true for the non-profit housing sector, where price ceilings and the rights of tenants who may be temporary relocated are meant to secure that urban regeneration processes are managed in socially just ways.

Until now energy efficiency and other PED related aspects have not been the centre of attention in urban regeneration programmes in Denmark. In general, there has been a strong and growing focus on energy

efficiency throughout the 2005-2025 period, mainly incentivised by other mechanisms such as the continuous upgrade of building legislation, which specify the energy standard for new build and renovated buildings. It is thus not until the Green Housing Agreement in 2020 that we see an explicit focus on urban regeneration programmes as means to improve energy efficiency. In the same vein, we also see an increasing focus on promoting energy efficiency in Copenhagen Municipality's urban regeneration programme.

Until now focus on energy flexibility and local energy production has mainly been sporadic, with ad hoc experiments being funded as demonstration projects. We have yet to see a more structured and explicit focus on energy flexibility and local energy production in urban regeneration. This also reflects that existing urban regeneration programmes and the energy sector in Denmark seem somewhat disjointed. This constitutes a real barrier if urban regeneration programmes are to act as levers for PED development in the future.

3. Urban Regeneration in Italy (the Apulia Region)

In this section we analyse the PED orientation and social justice considerations in urban regeneration programmes in the Apulia Region (Southern Italy) in the period 2005-2025. Firstly, we provide a brief introduction to the history of urban regeneration in Italy and elaborate to what PED related objectives and social justice perspectives have been integrated into urban regeneration initiatives. Secondly, we take a closer look at five urban regeneration programmes (see Figure 2). These programmes include both regional initiatives, promoted and co-founded by the Apulia Region, and national programmes funded by the national government.

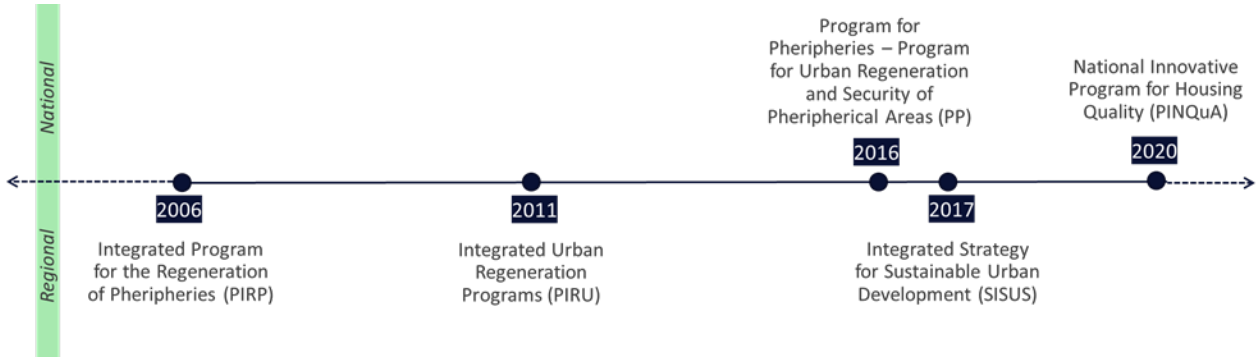

Figure 2: Timeline of the selected regeneration programmes in the period 2005-2025.

3.1. A brief introduction

Urban regeneration in Italy has been primarily driven by a series of fragmented initiatives lacking coordination and coherence. These initiatives have shown an incremental adaptation to dominant European policy paradigms (Allulli and Tortorella, 2013), as a result of evolving frameworks and funding mechanisms as well as changing priorities at the local level (Vinci, 2019). The persistent absence of an explicit urban policy – defined as a systematic set of actions developed by the national government and targeted at cities or parts thereof (Urban@it, 2016) – has contributed to the fragmentation across policy sectors and levels of governance, limiting coordination between different programmes, instruments and policy domains.

Urban regeneration became part of the Italian policy agenda in the 1990s, when the Italian Ministry of Public Works launched the so-called 'Complex Programmes' (Programmi complessi) (Governa and Salone, 2005). These included: the Integrated Intervention Programmes (Programmi Integrati di Intervento, PII, 1992), the Urban Rehabilitation Programmes (Programmi di Recupero Urbano, PRU, 1993), the Urban Renewal Programmes (Programmi di Riqualificazione Urbana, PRiU, 1994), the Neighbourhood Contracts I and II (Contratti di Quartiere, CdQ, 1998 and 2003), the Urban Renewal and Sustainable Development of Territories

Programmes (Programmi di Riqualificazione Urbana e Sviluppo Sostenibile del Territorio, PRUSST, 1998), Urban Italia (2000-2006). The initial phase of these programmes was particularly influenced by the Italian 'urbanism tradition', characterised by a 'strong architectural flavour and concern with urban design, townscape and building control' (CEC, 1997: 37), with a primary emphasis on physical rehabilitation and social housing.

It was only during the second phase of these 'Complex Programmes', particularly with Neighbourhood Contracts I and II, that urban regeneration gradually adopted the integrated approach the European Union had introduced in the EU-funded Urban Pilot Projects (1990-1999), URBAN I (1994-1999) and URBAN II (2000-2006) Community Initiative (CI). This approach had also emerged as a key component of urban regeneration initiatives through European networks of cities, such as 'Quartiers en Crise'.[4] It shifted the focus of urban regeneration initiatives from the mere physical refurbishment of neighbourhoods to addressing 'in a comprehensive way the economic, social and environmental problems' (CEC, 1994: 7) of disadvantaged areas, involving local citizens in the development and implementation of programmes.

In Italy, local practices in the implementation of complex programmes varied widely on a regional basis since funds were allocated to cities following a competitive bidding process, whose criteria were mainly defined and assessed in cooperation with regional governments (Governa, 2004). Some regions fully embraced the integrated approach, while others showed significant resistance to its introduction (Barbanente et al., 2022).

The promotion of regional policies and programmes for urban regeneration increased differences among regions. While some regional authorities promoted their own policies and programmes since the 1990s, others did so much later. The Apulia Region is among the latter, as urban regeneration was not raised as one of its core priorities until after 2005, following a radical change in the regional government. This led to a clear focus on disadvantaged neighbourhoods (Barbanente et al., 2022) and an increasing emphasis on green and energy transition objectives within its policies (Barbanente and Grassini, 2022). The first regeneration initiative launched by the new regional government in 2006 was the Integrated Programme for the Regeneration of Peripheries (Programma Integrato di Rigenerazione delle Periferie – PIRP); this was followed by the Integrated Urban Regeneration Programme (Programma Integrato di Rigenerazione Urbana – PIRU) in

[4] The 'Quartiers en Crise' network was established in 1989, with the aim to discuss the challenges faced by member organisations working in regeneration areas. Also thanks to funds received from the RECITE I Programme, it developed and exchanged know-how and innovation in urban policy, with a particular focus on the development of an integrated approach to the regeneration of deprived urban areas.

2011, and then by the Integrated Strategy for Sustainable Urban Development (Strategia Integrata di Sviluppo Urbano Sostenibile – SISUS) in 2017. The consolidation of the integrated approach and the focus on the most disadvantaged neighbourhoods was supported by the Regional Law no. 21 od 2008 on urban regeneration, which introduced the Programmatic Document for Urban Regeneration (Documento Programmatico di Rigenerazione Urbana – DPRU) as a new planning instrument, specifically devoted to urban regeneration, within the ordinary planning system. This instrument was conceived as a means of overcoming the piecemeal approach to urban regeneration adopted until then. To enforce its development, the regional government decided that only municipalities with this instrument would be eligible for regional funds for urban regeneration.

Following the international financial crisis of 2007–2008 and the subsequent austerity policies, the national government did not introduce new regeneration initiatives until 2012. At this time, a new series of programmes were introduced with a focus on urban regeneration but with different priorities. These were: the City Plan (Piano Città, 2012); the Programme for Degraded Urban Areas (Programma Aree Urbane Degradate, 2014); and the Programme for Urban Regeneration and Security of Peripheral Areas (Programma per la Riqualificazione Urbana e la Sicurezza delle Periferie, 2015). These programmes introduced a new rhetoric on urban security as a key issue in disadvantaged urban areas, and stressed the importance of multiplying economic benefits and the quick implementation of regeneration initiatives. As these are often difficult to achieve in disadvantaged areas, in several occasions funds for regeneration initiatives did not reach the most disadvantaged areas (Vinci, 2019).

This risk has increased alongside the growing complexity of the multi-objective structure of more recent national urban regeneration programmes, such as the National Innovative Programme for Housing Quality (Programma Innovativo Nazionale per la Qualità dell'Abitare – PINQuA, 2020) (Barbanente and Grassini, 2023), where low scores obtained under some criteria may be easily compensated by very good performance under other criteria.

3.1.1. Energy focus in urban regeneration

In Italy, energy efficiency became a national concern in the 1970s, in response to the effects of the international energy crisis. This was marked by the approval of Law 373/1976, which aimed to reduce of energy consumption in buildings. This was followed by other norms (Law 10/1991 and the Presidential Decree 4412/1993), which introduced the Energy Report and defined criteria for the design, installation and management of heating systems. The Italian government then gave full effect to the Energy Performance of Building Directive (EPBD) through the legislative Decree n. 192/2005, with the aim of achieving a fully

decarbonised building stock by 2050. This legislation also introduced energy performance requirements for buildings and energy performance certificates (EPCs). Subsequent amendments of the EPBD have led to national modifications in the national laws and regulations, although the so called EPBD IV (2024) has yet to be incorporated into the Italian regulatory system. This Directive requests that each Member State define appropriate milestones for achieving Zero-Emission Building (ZEB) standards for new buildings, improving the energy performance of existing ones, and developing renewable energy sources on public and private buildings.

In line with the national government's core preoccupation with energy efficiency, several funding programmes have been introduced to improve energy performance. Among these, state incentives such as the 110% Superbonus[5] have played a crucial role, enabling a wide range of renovation projects with energy efficiency components due to the possibility to deduct, in ten years, 110% of expenses incurred for energy efficiency improvement. These incentives were given by the National government on individual basis, independently of considerations on the income of beneficiaries or their place of living. Nevertheless, these incentives, due to their tax-credit design, procedural complexity and reliance on households' financial capacity, largely bypassed disadvantaged neighbourhoods in real case implementations.

Attention on renewable energy production was included later within national policy priorities. It was only at the beginning of the 1990s, with Law 10/1991, that Italy embraced a modern energy policy by combining attention to energy efficiency with an aim to support the development of renewable energy. The Italian government then implemented the European Directive 2009/28/CE with the legislative Decree 28/2011, establishing a national regulatory framework aimed at promoting renewable energy. The most recent national policy on this matter is set out in the Integrated National Energy and Climate Plan (PNIEC) for 2030, which focuses on decarbonisation, energy efficiency and renewable energy.

However, the influence of national policies dealing with energy efficiency and renewable energy production on urban regeneration remains rather limited until today, as implementation measures have mainly supported individual interventions rather than neighbourhood strategies. This also led, in practice, to the very limited use of those measures from the most in need. One of the first urban regeneration programmes with a specific experimental component addressing energy efficiency and renewable energy development was the Neighbourhood Contracts programme, at least in regions such as Apulia, where ad hoc criteria were

[5] This was introduced by art. 119 of the Law Decree n. 34/2020 (Recovery Decree) issued by the Italian Government soon after the covid pandemic.

introduced for this purpose. More recent regional and national programmes have also attempted to support energy efficiency and renewable energy development to varying degrees of success, as will be discussed in the following sections. An evolution in the attention paid to these topics is expected in the near future, thanks in part to the National Building Renovation Plan, whose draft should be submitted to the EU by the end of 2025, followed by the final plan by the end of 2026, in line with the EPBD IV.

3.1.2. Social justice in urban regeneration

Social justice focus was initially introduced into national urban regeneration programmes with a distributive perspective, through a focus on disadvantaged neighbourhoods and social housing. Subsequently, the adoption of an integrated approach strengthened the social justice dimension by introducing a focus on procedural justice, as well as community involvement and participatory approaches, alongside the distributive perspective. This occurred since the implementation of the Neighbourhood Contracts I (1998), although in some regions, such as Piedmont, this shift dates back to the implementation of Urban Rehabilitation Programmes (1994), through the introduction of specific criteria during the negotiations with the national government.

As will be discussed in the following sections, social justice develops across programmes. However, it is worth mentioning that social justice foci never explicitly refer to energy justice dimensions. In this report, these dimensions – distributional, recognition-based and procedural – are therefore used as an analytical framework, as defined in the first part of the report and summarised in Table 1, to interpret how issues of equity and inclusion are implicitly addressed within urban regeneration policies.

Some evolutions on this matter are expected in the near future. As part of the EU and national commitment for equity in the energy transition, the Italian government is currently drafting the Social Plan for Climate (Piano Sociale per il Clima – PSC), as required by EU measures ‘fit for 55’, to mitigate social impact of introducing an emissions trading system for buildings and road transport sectors. Specific measures should be planned, and co-funded by the EU Social Fund for Climate, to combat energy poverty and social vulnerabilities in the transport sector. These measures will include energy efficiency initiatives for low-income families, sustainable mobility solutions, initiatives to combat energy poverty, the development of renewable energy communities, and the active participation of local communities. The PSC for Italy is currently under consultation. The impact of this instrument on forthcoming urban regeneration initiatives, in terms of addressing energy poverty in relation to the building and transport sectors, will be assessed once the Plan is approved.

3.2. PED orientation in urban regeneration programmes

3.2.1. Integrated Programme for the Regeneration of Peripheries (PIRP)

Table 6: The PIRP programme overview

Name of funding programme	Integrated Programme for the Regeneration of Peripheries (PIRP)
Time period	2006
Funding Body	Apulia Region
Main aim	Integrated regeneration of marginalised neighbourhoods with explicit focus on public housing.
Financial information	€93M initial budget (Regional funds) + €205M (National Development and Cohesion Funds - FSC) + €122M (European Regional Development Fund - ERDF 2007-2013).
Energy focus	Energy efficiency as a complementary non-binding evaluation criterion for the projects evaluations (reduction of energy consumption in building, improvement of thermal insulation and inertia, installation of natural cooling systems, use of energy-saving technologies, use of solar thermal systems (≥50% of hot water demand in new buildings). No reference to energy flexibility. Renewable energy production: Project evaluation criteria include the consideration of renewable energy development especially solar thermal systems for hot water in new buildings. General references are made in the criteria to reducing CO_2 emissions and using natural energy sources.
Social justice focus	Distributional dimension: resources targeted to marginalised neighbourhoods; promotion of employment and local entrepreneurship. Procedural dimension: participatory requirements for the involvement of local residents in the development and implementation of the regeneration projects.

The Integrated Programme for the Regeneration of Peripheries (PIRP) was launched in 2006 by the Apulia Region as the first systematic urban regeneration initiative promoted at the regional level within the

framework of the Regional Housing Plan (Piano Casa). The programme was initially financed with €93 million, later increased by an additional €327 million through ERDF and FSC funds. The call attracted 122 municipalities out of 258 in the region, with the submission of 129 proposals.

PIRP represented a major innovation in Italian regeneration policy. Whereas earlier interventions had been fragmented and primarily construction-oriented, PIRP sought to break with entrenched sectoral interests and to shift the focus towards integrated, multidimensional regeneration. In doing so, the programme aligned with European experiences such as the Urban Pilot Projects, aiming to act as a demonstration initiative capable of transferring innovative approaches from one context to another (Barbanente and Grassini, 2019).

Innovation was a key principle of PIRP not only in technical terms but also in governance. The programme aimed to build a new culture of regeneration by promoting horizontal learning among municipalities and actors, and vertical transfer across different levels of government. For many Apulian municipalities, PIRP constituted the first experience of integrated urban action, combining physical renewal with social inclusion and environmental sustainability. The programme's governance reflected this ambition. The Department for Territorial Planning of Apulia Region held the political responsibility and coordinated the drafting of the call, engaging social and environmental associations and organising thematic seminars. The Regional Department for Housing Policies had the technical responsibility and took part in the evaluation commission, managing an interactive support website for municipalities. Other regional departments for Sport and Active Citizenship, Welfare and Ecology supported participation and social integration, co-organising seminars, identifying complementary funding and joining the evaluation commission. Municipalities were responsible for the design and implementation of local programmes, while IACP (Autonomous Institute for Public Housing) contributed to the rehabilitation of public housing stock. Finally, trade unions and civil society organisations participated in co-design and monitoring, ensuring that local needs and perspectives were taken into account.

To prevent perverse effects, such as regeneration projects focusing narrowly on physical refurbishment while neglecting social inclusion and broader environmental quality, the PIRP introduced a detailed scoring system. This system assigned explicit weight to social inclusion and environmental sustainability, while also rewarding energy efficiency as a complementary evaluation criterion. Despite these common principles, the design and implementation of PIRP projects varied significantly across municipalities, depending on local capacities, governance arrangements, and the ability to mobilise stakeholders. Nonetheless, PIRP marked a turning point in Apulia's regeneration policy, positioning the region as a laboratory for innovative, integrated approaches that combined physical, social, and environmental goals.

Energy focus

Although the PIRP did not explicitly aim at promoting PED principles, its design and evaluation framework included elements consistent with two of the three PED dimensions, energy efficiency and renewable energy production, while the dimension of energy flexibility was not addressed. With regard to energy efficiency, the call introduced specific evaluation criteria (not binding requirements) rewarding proposals that demonstrated efforts to reduce building energy consumption, improve thermal insulation and inertia, adopt passive cooling systems, and apply energy-saving technologies. These measures were among the innovative aspects of the programme, signalling a growing attention to the environmental performance of the built environment.

Concerning renewable energy production, additional points were granted to projects promoting the installation of solar thermal systems covering at least 50% of hot water demand in new constructions, alongside general references to the reduction of CO_2 emissions and the use of natural energy sources. While energy flexibility was not considered, the inclusion of efficiency and renewable-energy measures among the project evaluation criteria represented an advancement in Apulia's regional regeneration policy. It contributed to reinforcing the attention to environmental performance and energy issues within a broader framework of socially oriented and integrated urban regeneration.

Social justice focus

The PIRP explicitly embedded social justice concerns into its programme design, and these can be interpreted through two out of its three dimensions. Distributional justice was addressed by targeting resources to marginalised neighbourhoods and public housing estates, prioritising areas with the highest disadvantage and promoting employment and local entrepreneurship, alongside physical refurbishment. Procedural justice was introduced through mandatory participation: municipalities had to involve residents, tenants, unions and associations in planning and implementation. While practices varied across contexts, participation became an institutional requirement. Overall, PIRP combined distributive targeting and formalised participation, representing a turning point in embedding justice concerns within regeneration policy.

3.2.2. Integrated Urban Regeneration Programme (PIRU)

The Integrated Urban Regeneration Programme (PIRU) was launched by the Apulia Region in 2011 under the Regional Operational Programme ERDF 2007–2013 (Axis VII), dedicated to enhancing the competitiveness and attractiveness of urban and territorial systems.

Table 7: PIRU programme overview

Name of funding programme	Integrated Urban Regeneration Programme (PIRU)
Time period	2011
Funding Body	Apulia Region
Main aim	Regeneration of urban areas with mixed problems.
Financial information	€52M from the Regional Operational Programme ERDF 2007–2013 (Axis VII – Action 7.1.1)
Energy focus	Energy efficiency: evaluation criteria promoted environmental sustainability and reduction of natural resource consumption, as well as improvements in the quality and performance of the built environment. Projects addressing rehabilitation of degraded areas, urban containment and reuse of existing structures were prioritised. No reference to energy flexibility. No reference to renewable energy production.
Social justice focus	Distributional dimension: focus on urban areas affected by physical, social and economic degradation, as identified in local regeneration frameworks. Procedural dimension: obligation to present a *Framework for consistency with participatory processes* demonstrating prior and ongoing stakeholder involvement.

The initiative represented the regional implementation of Regional Law No. 21/2008 'Rules for Urban Regeneration' (Norme per la rigenerazione urbana), which had established a legal and procedural framework for regeneration policies in Apulia. The law defined urban regeneration as an integrated process addressing physical decay and socio-economic disadvantage, combining interventions on the built environment with actions promoting environmental, social, cultural, and economic improvement.

The PIRU call (Action 7.1.1) targeted medium and large cities with more than 20,000 inhabitants, inviting municipalities to submit integrated plans consistent with tools established by the Regional Law No. 21/2008, such as the Urban Regeneration Policy Document (DPRU) and related local regeneration frameworks. Although primarily addressed to individual municipalities, the call also allowed joint participation through

inter-municipal groupings, provided that the total population of each group did not exceed 20,000 inhabitants, enabling smaller towns to access regional funding for urban regeneration and to develop coordinated strategies within the broader Wider Area (Area Vasta) framework.

Candidate municipalities were required to demonstrate coherence with the objectives of the regional framework and with the participatory processes developed at the local level, as prescribed by the law and the operational guidelines of the ERDF programme.

The call adopted a negotiated evaluation procedure, in which proposals were first assessed for eligibility and subsequently refined through technical discussions between the Region and the applicant municipalities. This process ensured the alignment of projects with the principles of sustainability, integration, and feasibility set by the regional planning system.

Eligible interventions included both physical actions, such as the rehabilitation of public spaces, recovery of degraded or abandoned buildings, redevelopment of peripheral areas, and improvement of urban infrastructures, and immaterial components, aimed at strengthening social inclusion, employment opportunities, and local services. The evaluation criteria also encouraged interventions improving environmental performance, accessibility, and urban mobility, consistent with the integrated and sustainable vision of regeneration expressed in Regional Law No. 21/2008.

Through this framework, the Apulia Region consolidated an approach to urban regeneration that combined environmental sustainability, social inclusion, and territorial cohesion, reinforcing the role of municipalities as key actors in implementing integrated strategies at the urban scale.

Energy focus

Although the PIRU did not explicitly aim at promoting PED principles, its evaluation framework included elements consistent with one of the three PED dimensions, energy efficiency, while energy flexibility and renewable energy production were not addressed.

The call introduced evaluation criteria that promoted environmental sustainability and the reduction of natural resource consumption, as well as improvements in the quality and performance of the built environment. Priority was given to projects focusing on the rehabilitation of degraded areas, the containment of urban expansion, and the reuse of existing structures. Additional criteria encouraged the improvement of environmental and urban quality through the creation of green and ecological networks and sustainable mobility measures, such as pedestrian routes and modal interchange facilities.

These elements reveal a growing attention to environmental performance and resource efficiency within the regional regeneration framework, even though energy issues were not central to the programme's objectives. No reference was made to energy flexibility or to the production of renewable energy, and the energy-related aspects remained confined to the broader field of environmental sustainability.

Social justice focus

The PIRU integrated several aspects related to social justice, and these can be interpreted through two out of its three dimensions.

From a distributional perspective, the programme explicitly targeted urban areas characterised by physical, social, and economic degradation. The evaluation criteria assigned points to municipalities whose proposals addressed the most disadvantaged neighbourhoods, thereby directing regional resources toward contexts most affected by marginalisation and lack of services. Moreover, the PIRU also incorporated mechanisms of procedural justice. Municipalities were required to submit a Framework for consistency with participatory processes, demonstrating how their proposals were coherent with the participatory planning activities already carried out at the local level. This requirement ensured that local communities and stakeholders were involved in the definition and implementation of regeneration strategies.

Through this framework, the PIRU linked the allocation of regional funds to principles of inclusion and participation, embedding social and procedural considerations within the broader policy for urban regeneration in Apulia.

3.2.3. Programme for Peripheries – Programme for Urban Regeneration and Security of Peripheral Areas (PP)

The Program for Peripheries (PP) was launched in 2016 by the Presidency of the Council of Ministers at the national level to promote coordinated and multi-sectoral projects addressing physical, social and economic marginalisation in urban areas. The programme, established by Law No. 208/2015, provided an allocation of €500 million.

Differently from regional programmes such as PIRP and PIRU, the PP was launched as a national open call, addressed to all metropolitan cities and provincial capitals, without thematic or territorial restrictions. Each municipality could autonomously submit projects consistent with its local strategies and planning instruments, often building on initiatives already developed or in advanced planning stages. This flexible framework enabled a wide variety of proposals, fostering the alignment of local regeneration priorities with national urban policy objectives.

Table 8: PP programme overview

Name of funding programme	Programme for Peripheries – Programme for Urban Regeneration and Security of Peripheral Areas (PP)
Time period	2016
Funding Body	Presidency of the Council of Ministers (Government of Italy)
Main aim	Support integrated interventions combining urban renewal, social inclusion, safety and sustainable mobility in metropolitan cities and provincial capitals, addressing physical decay, social marginalisation and lack of services.
Financial information	€500M
Energy focus	General references to energy efficiency and renewable energy production within the broader objectives of environmental quality and innovation. No reference to energy flexibility.
Social justice focus	Distributional dimension: resources targeted to marginalised urban areas with social and economic deprivation and integration of physical regeneration with welfare and inclusion services. Procedural dimension: public-private partnerships not mandatory for projects submission.

The programme's objectives included the regeneration of degraded urban areas, the strengthening of social inclusion and welfare services and the improvement of safety, mobility and environmental performance in urban contexts. Eligible interventions covered a broad range of actions: maintenance and reuse of public spaces and existing buildings; enhancement of territorial safety and urban resilience; development of social and cultural facilities and projects promoting sustainable mobility. Proposals could also allocate up to 5% of total investment to preparatory activities such as feasibility studies, urban or mobility plans and the establishment of public–private partnerships.

The call was open to metropolitan cities, provincial capitals[6], which were encouraged to collaborate with other public and private entities to ensure project feasibility and coherence with regional and European

[6] The call also included the city of Aosta, in line with its special administrative status.

planning frameworks. This approach represented a novel national policy experiment, extending the scale of integrated urban regeneration to the entire country.

The 120 presented projects covered 445 municipalities, reaching a population of nearly 23 million inhabitants. In the Apulia Region, three projects were selected: one in the Metropolitan City of Bari, one in the city of Lecce and one in the city of Andria. They combined physical and social dimensions of regeneration, including the refurbishment of housing and public buildings, the creation of public spaces and green areas, the improvement of mobility networks, and the establishment of new welfare and cultural facilities.

Energy focus

Although the PP did not explicitly aim at promoting PED principles, its framework contained general references to two of the three PED dimensions, energy efficiency and renewable energy production, within the broader objectives of environmental quality and innovation, while energy flexibility was not addressed. Regarding energy efficiency, the programme encouraged projects aimed at the rehabilitation, reuse, and functional adaptation of existing public buildings and spaces. These actions implicitly supported improvements in environmental performance and the reduction of energy consumption, aligning urban regeneration with broader goals of sustainability and resilience. Energy-related measures were not the main focus but emerged as complementary aspects within the integrated regeneration strategies proposed by municipalities. In relation to renewable energy production, the programme rewarded proposals demonstrating quality and innovation from an ecological and environmental perspective. Although no specific reference was made to renewable energy generation, projects could include technological or architectural solutions improving overall environmental performance. No reference was made to energy flexibility, and energy issues remained embedded in a wider framework of urban innovation and sustainability rather than being addressed through dedicated energy transition measures.

Social justice focus

Although the PP did not explicitly refer to energy or social justice frameworks, its objectives and evaluation criteria included general references to equity, inclusion and participation that can be interpreted through the lens of energy justice. From a distributional perspective, the programme aimed at directing resources toward urban areas characterised by physical, social and economic deprivation, explicitly defined as peripheries within the call. The intention was to reduce spatial and social inequalities by financing integrated projects that combined physical renewal with social and economic revitalisation.

In terms of procedural justice, the programme included only general mentions of participation and collaboration. The call invited metropolitan cities and provincial capitals to design proposals autonomously and to promote partnerships with other public and private actors. While not mandatory, this framework fostered voluntary cooperation and multi-level governance, giving municipalities the opportunity to define their own strategies in response to local needs.

Overall, the programme incorporated justice concerns as general principles guiding the regeneration process rather than as formalised criteria, embedding inclusiveness and equity within a broader framework of sustainable and integrated urban development.

3.2.4. Integrated Strategy for Sustainable Urban Development (SISUS)

The SISUS was launched by the Apulia Region in 2017 within the Regional Operational Programme ERDF–ESF 2014–2020, under Axis XII 'Sustainable Urban Development'. The initiative aimed to promote sustainable urban regeneration through integrated strategies combining environmental, social and economic objectives in line with the EU Urban Agenda and the European Structural Funds regulations (Reg. EU No. 1301/2013 and 1303/2013).

The programme represented the regional translation of the European principle of integrated urban development, requiring municipalities to design local strategies, the SISUS, that combine interventions in different policy areas to improve urban liveability, social cohesion and environmental performance. Eligible strategies had to address multiple thematic objectives (OT) identified in the Partnership Agreement 2014–2020: OT IV: Sustainable energy and quality of life, OT V: Climate change adaptation, prevention and risk management, OT VI: Environmental protection and enhancement of cultural and natural resources, OT IX: Social inclusion and poverty reduction.

Municipalities could apply individually or as associations, forming Urban Areas and designating an Urban Authority responsible for the implementation of the selected strategy. In line with Regional Law No. 21/2008, each candidate Urban Area was required to have an approved Urban Regeneration Policy Document (DPRU), which served as the strategic and planning framework for the proposed SISUS.

Each Urban Authority acted as an Intermediate Body, within the regional governance structure, ensuring consistency between the local strategy, the DPRU and the thematic objectives of the ERDF/ESF Operational Programme.

Table 9: SISUS programme overview

Name of funding programme	Integrated Strategies for Sustainable Urban Development (SISUS)
Time period	2017
Funding Body	Apulia Region
Main aim	Support sustainable urban development through integrated strategies addressing environmental sustainability and territorial cohesion.
Financial information	€108.1M from the Regional Operational Programme ERDF-ESF 2014-2020 (Axis XII "Sustainable Urban Development"): €25.4M for sustainable energy and quality of life (OT IV); €5.6M for climate adaptation and risk management (OT V); €1M for environmental protection and cultural enhancement (OT VI); €61M for social inclusion and poverty reduction (OT IX).
Energy focus	Energy efficiency: explicit objective under OT IV, supporting the upgrading of public buildings and infrastructures to improve performance and reduce energy consumption. Energy flexibility: explicit reference to "smart energy management in public infrastructure" (Priority investment 4e), supporting real-time optimisation, monitoring and control systems and potentially energy demand management in buildings. Renewable energy production: promotion of renewable energy use within public infrastructures and local systems, in line with low-carbon development priorities.
Social justice focus	Distributional dimension: focus on urban areas with physical, social and economic marginalisation and inefficient resource use. Procedural dimension: mandatory participatory processes involving citizens and stakeholders in the design of local strategies.

The programme had a total budget of €108.1 million, with resources distributed across the four thematic objectives (€25.4M for OT IV; €5.6M for OT V; €1M for OT VI; €61M for OT IX). Funds supported actions such

as energy efficiency improvements in public buildings, renewable energy use, sustainable mobility, green infrastructure, cultural and environmental enhancement, and measures for social inclusion and poverty reduction. The combination of these actions was meant to strengthen urban resilience, reduce resource consumption and foster social and spatial equity within the regional urban system.

The design and implementation of each strategy required a mandatory participatory process, involving citizens, social organisations and stakeholders at all stages, from problem identification to project selection. This requirement reflected the regional commitment to inclusive governance and the alignment of local strategies with community needs.

In total, 89 Urban Areas were selected and financed across the region. Among them, four municipalities - Monteroni di Lecce, Barletta, Cerignola and Gallipoli - were identified as Urban Authorities in the definitive ranking approved in 2018. Each of these municipalities acted as the lead city for its respective Urban Area, responsible for coordinating the SISUS and managing the allocated funds.

Through this framework, the Apulia Region consolidated its role as a key actor in promoting a place-based model of sustainable urban development. This approach sought to integrate environmental transition with social inclusion and participatory governance, by enhancing local administrative capacities, encouraging inter-municipal cooperation and fostering the co-design of urban strategies that reflected the specific social and territorial contexts of each area.

Energy focus

The SISUS explicitly integrated energy and environmental objectives within the regional framework for sustainable urban regeneration. Within this framework, elements related to the three dimensions of the PED concept can be identified, as discussed below. For energy efficiency, the programme supported the renovation and upgrading of public buildings and infrastructures to improve performance and reduce consumption, in line with Thematic Objective 4 ‘Sustainable energy and quality of life’. These measures aimed to enhance environmental quality, comfort and resource efficiency.

Regarding energy flexibility, SISUS promoted the ‘smart energy management in public infrastructure’ (Priority investment 4e), supporting real-time optimisation, monitoring and control systems and potentially energy demand management in buildings. In relation to renewable energy production, the programme encouraged the adoption of renewable energy technologies in public infrastructures, contributing to the transition towards low-carbon and resilient urban systems. Through these combined objectives, SISUS aligned urban

regeneration policies with regional strategies for sustainability and climate adaptation, embedding energy transition goals within an integrated urban development framework.

Social justice focus

The SISUS programme incorporated principles consistent with the framework of social justice, combining distributive and procedural dimensions within its integrated approach to sustainable urban development. From a distributional perspective, it targeted urban areas affected by social and economic marginalisation, physical decay and inefficient resource use, aiming to reduce disparities and improve quality of life through actions linking environmental and social goals. In terms of procedural justice, the programme required a participatory process involving citizens, associations and local stakeholders in the definition and implementation of strategies, strengthening local ownership and accountability. Overall, SISUS embedded justice principles within its sustainability framework, aligning energy transition objectives with inclusion, participation and social cohesion.

3.2.5. National Innovative Programme for Housing Quality (PINQuA)

The PINQuA was launched in 2020 by the Ministry of Infrastructure and Transport with the aim of promoting new models of social housing and urban regeneration in Italian cities. Established under Law No. 160/2019 and implemented through Decree No. 395/2020, the programme was later integrated into the National Recovery and Resilience Plan (PNRR) as Mission 5, Component 2, Investment 2.3 'Innovative Programme for the Quality of Living', with a total budget of €2.8 billion for the period 2021–2026.

The programme's main objective was to address housing dilapidation and urban decay by improving the quality, accessibility and sustainability of the built environment. The call was open to regions, metropolitan cities, cities in the metropolitan cities, provincial capitals[7] and municipalities with more than 60,000 inhabitants. Each eligible entity could submit up to three proposals, including large-scale pilot projects and smaller ordinary projects. This design aimed to stimulate innovation and encourage collaboration between national, regional and local institutions, alongside partnerships with the private and third sectors.

Proposals could include a broad set of actions: the regeneration of public housing and degraded urban areas; the reuse of abandoned or underutilised spaces; the improvement of accessibility, safety and local services and the promotion of new forms of social inclusion and welfare. The programme also required compliance

[7] The call also included the city of Aosta, in line with its special administrative status.

with environmental sustainability principles such as the 'Do No Significant Harm' (DNSH) criterion, the zero soil consumption approach and the use of green infrastructure and Nature-Based Solutions.

Table 10: PINQuA programme overview

Name of funding programme	National Innovative Programme for Housing Quality
Time period	2020
Funding Body	Ministry of Infrastructure and Transport
Main aim	Promote integrated urban regeneration and social housing interventions, with explicit attention to social housing, accessibility, safety, sustainable mobility, and adaptation to climate change.
Financial information	€2.8 billion from the National Recovery and Resilience Plan (PNRR) Mission 5, Component 2, Investment 2.3: €477M from national resources and €2.3 billion from EU Recovery and Resilience Facility funds.
Energy focus	Energy efficiency: explicit objective promoting energy-efficient building refurbishment, environmental sustainability and the adoption of high energy-performance standards in housing and public facilities. Renewable energy production: inclusion of renewable energy use among project evaluation criteria and impact indicators, encouraging solar, geothermal and other renewable sources within housing and neighbourhood regeneration projects. Energy flexibility: no reference to energy management or system integration.
Social justice focus	Procedural: voluntary and competitive participation of municipalities and regions through an open national call, encouraging multi-level collaboration and partnerships with third-sector actors.

Out of 290 proposals, 159 projects were selected for funding (including 8 pilot projects), with 40% of total resources allocated to Southern Italy. The projects cover an overall surface of 9.8 million m² of regenerated public space and 1.3 million m² of public housing, with estimated reductions of 38% in energy consumption and 31% in CO_2 emissions compared to baseline conditions.

In Apulia Region, 21 projects were financed, which is the highest number among Italian regions; they have been proposed by the Regional Government, the Metropolitan City of Bari and several municipalities including Bari, Lecce, Foggia, Taranto, and Trani. These projects build on previous regional experiences in urban regeneration and social housing, reflecting the continuity of Apulia's integrated approach to sustainable development and inclusion.

Energy focus

The PINQuA programme integrated energy and environmental sustainability objectives within its scopes, addressing two of the three dimensions of the PED concept, energy efficiency and renewable energy production, while energy flexibility was not explicitly included. These objectives were also translated into operational criteria for proposals' evaluation. Nonetheless, it's worthwhile mentioning that the evaluation of project proposals followed a multicriteria approach, with no minimum threshold set for individual criteria. This means that funded projects could also fail to address any specific criterion if they could compensate that low score with high scores received under other criteria. Overall, all environmental indictors had a weight of 15 points over 100.

Concerning energy efficiency, the programme promoted the renovation and energy upgrading of public and social housing in line with the 'Do No Significant Harm' (DNSH) principle of the EU Recovery and Resilience Facility. The specific indicator used to evaluate this goal was the 'indicator of energy efficiency', which could range from 0 to 3 points. In total, funded projects included measures to improve building performance, insulation and the use of sustainable materials, contributing to an average 38% reduction in primary energy consumption and 31% in CO_2 emissions compared to baseline levels (MIMS, 2022: 6).

Regarding renewable energy production, the programme encouraged the use of solar, geothermal and other renewable sources in housing and public facilities, included among the environmental indicators for project evaluation. The corresponding indicator used for the evaluation of project proposals was the 'Indicator of energy sustainability', which could range from 0 to 3. No reference was made to energy flexibility.

Overall, PINQuA consolidated energy efficiency and renewable energy use as structural components of housing and urban regeneration, linking environmental performance with social and spatial inclusion goals.

Social justice focus

The PINQuA programme incorporated principles consistent with the framework of energy justice, addressing distributional, recognition-based and procedural dimensions through its integrated approach to housing and urban regeneration. Also, in this case it is worthwhile mentioning the multicriteria approach for project

proposals' evaluation. Overall, the indictors referred to the disadvantages of the target area had a weight of 15 points over 100.

From a distributional perspective, it mostly targeted degraded and vulnerable urban contexts, focusing on social housing districts and disadvantaged peripheral areas. By directing resources to these areas, the programme aimed to reduce inequalities in access to adequate housing, services and public spaces. In terms of procedural justice, participation was voluntary and competitive, encouraging multi-level collaboration among institutions and partnerships with public, private and third-sector actors. This framework empowered local authorities to design context-based regeneration strategies responsive to community needs. Overall, the programme embedded justice principles within sustainable housing and regeneration policies, aligning environmental and social goals with inclusion and participatory governance.

3.3. Summary

Over the last two decades, the five programmes implemented in Apulia reflect a gradual incorporation of energy and social justice focus in urban regeneration policies, with some differences depending also on the orientations and priorities of the National and Regional governments developing them. While none of these initiatives was explicitly designed to promote explicitly PEDs or to operationalise energy justice principles, all of them introduced elements that can be interpreted as energy- or justice-related, albeit in partial and fragmented ways.

The early regional programmes (PIRP and PIRU) focused mainly on the rehabilitation of public housing and degraded neighbourhoods, combining physical renewal with measures for social inclusion and welfare. Energy aspects were broadly related to environmental concerns and circular economy and were operationalized as reward criteria in the evaluation of project proposals. They were mainly linked to energy efficiency of building and, in the case of PIRP, also for renewable energy development. Both programmes required the active involvement of residents and local actors in the design and implementation phases, showing a mix of distributional and procedural focus on social justice issues.

The national Programme for Peripheries (PP) broadened the thematic scope of regeneration, by including specific attention to safety, accessibility and sustainable mobility. In this programme, energy and environmental references remained general, without dedicated objectives, while justice concerns were addressed through the focus on marginalised urban areas and the inclusion of welfare and social services, with no specific attention for participation of local communities and procedural justice. With SISUS, the link between environmental sustainability and inclusion became more structured. The programme, which was

developed by the regional government, explicitly promoted energy efficiency, renewable energy use and climate adaptation within integrated strategies funded under the ERDF/ESF Regional Operational Programme. Participation was mandatory in the preparation of local strategies, reinforcing the relationship between environmental and social goals and a procedural focus on social justice.

Finally, the national programme PINQuA consolidated these orientations within a broader national framework combining social housing, accessibility, safety, sustainable mobility and climate adaptation. The call explicitly included environmental and energy sustainability among its evaluation criteria, in line with the 'Do No Significant Harm' principle of the EU Recovery and Resilience Facility. Funded projects promoted energy-efficient refurbishment and the integration of renewable sources, contributing to an average 38% reduction in primary energy consumption and 31% reduction in CO_2 emissions compared to baseline conditions (MIMS, 2022: 6). Participation was voluntary, and the competitive call encouraged collaboration among institutions and third-sector actors.

Taken together, the five programmes reveal a fragmented incorporation of energy and social justice considerations into urban regeneration policy with an unclear evolutionary trend (Figure 3 and Figure 4). In general, energy efficiency evolved from isolated mentions to more structured sustainability objectives, while renewable energy production emerged only in the most recent initiatives and energy flexibility remained almost absent.

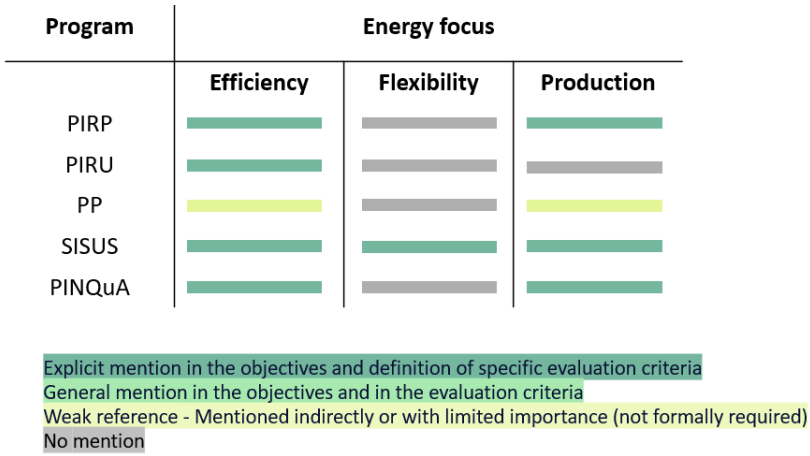

Figure 3: Energy-related dimensions (PED orientation) across the five urban regeneration programmes.

As for social justice dimensions were present in all programmes, as these consistently targeted disadvantaged areas, integrated social and service functions and required some degree of citizen involvement. Nevertheless, the social justice focuses mainly implied a distributional perspective on equity concerns in the national programmes, and limited attention was given to the recognition-based dimension. These experiences

nonetheless provide the foundation for future programmes to more explicitly connect PED orientation towards just energy transition within integrated urban regeneration policies.

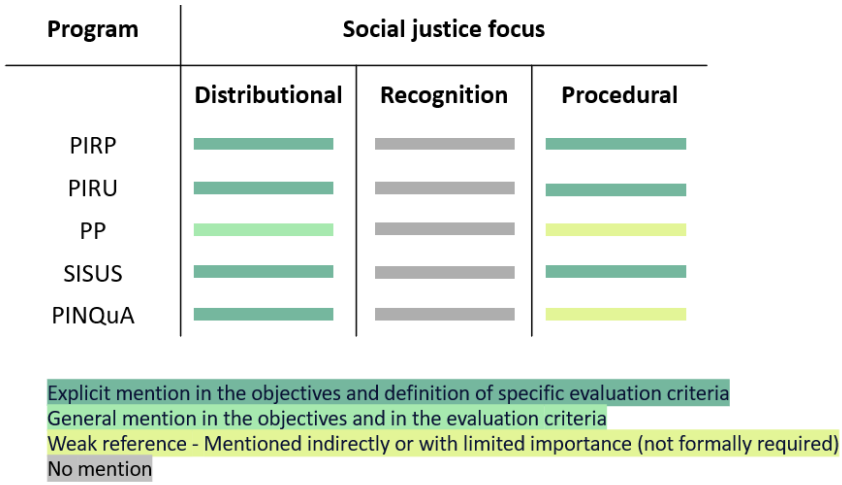

Figure 4: Social justice dimensions across the five urban regeneration programmes.

4. Urban Regeneration in Poland (the Lower Silesia Region)

In this section we analyse the PED orientation and social justice considerations in urban regeneration programmes in the Lower Silesia Region in Poland in the period 2005-2025. Firstly, we provide a brief introduction to the history of urban regeneration in Poland and elaborate to what PED related objectives and social justice perspectives have been integrated into urban regeneration initiatives. Secondly, we zoom in on three urban regeneration programmes administered by the Lower Silesia Region and the state, respectively.

4.1. A brief introduction

The process of urban regeneration in Poland must be understood through the lens of the urban transformations that have occurred in the country over the past several decades. Polish cities faced immense war-related devastation after 1945. It is estimated that, on average, 30% of the building fabric in Polish cities was destroyed; however, in the case of many major urban centres, particularly those directly affected by military action, such as Warsaw, Gdańsk, Wrocław, and Szczecin, the damage reached near-total levels, with losses of up to 90% of the built environment. Post-war reconstruction in Poland represents a unique phenomenon in the European context. It emerged not only from the urgent need to restore cities shattered by conflict but also from a profound commitment to preserving their historical identity. As early as the 1940s and 1950s, a distinctive approach took shape, combining reconstruction with conservation. This was exemplified in the rebuilding efforts in Warsaw, Gdańsk, and Wrocław. From post-war reconstruction practices concept of a 'Polish school of conservation' emerged (Zachwatowicz, 1946), grounded in respect for the authenticity of historical fabric while simultaneously reconstructing destroyed urban and architectural structures in a manner faithful to historical models. The Polish school of conservation gained international recognition, and the reconstruction of Warsaw's Old Town was inscribed on the UNESCO World Heritage List as an outstanding example of symbolic and cultural reconstruction.

A significant proportion of urban building stock in Poland, however, was never reconstructed, leaving behind vast, undeveloped areas for many decades after the IIWW. Urban regeneration was not considered a priority at the time; instead, the focus lay on the intensive urbanisation of the country, primarily through the construction of large, prefabricated housing estates. War-related destruction, industrial expansion, and the influx of rural populations into cities necessitated the development of large-scale residential complexes on an unprecedented scale. This trend was characteristic of urban development across Central and Eastern European countries that were part of the so-called 'Eastern Bloc'. Between 1945 and 1989, Poland, like other

states in the 'bloc', was formally sovereign, yet the political dominance of the Soviet Union substantially curtailed its autonomy. The political breakthrough of 1989, preceded by widespread social unrest and strikes, ushered in systemic transformation, marking the shift from a centrally planned economy to a market-based one. These changes laid the foundations for the development of numerous social and economic sectors, including the emergence of modern approaches to urban regeneration.

Until the early 1990s, Poland remained largely excluded from the European discourse on urban renewal (Jadach–Sepioło, 2017). Following the systemic transformation, however, the topic began to gain prominence. In the initial phase of implementing regeneration measures in Poland, the prevailing approach remained predominantly technical in nature, focusing mainly on the modernisation of housing stock, the renovation of historic structures, and the regeneration of public spaces. It was not until the second half of the 1990s that interest in urban regeneration intensified, and planned interventions began to incorporate a social dimension, accompanied by objectives linked to local development (Leszkowicz Baczyński, 2019). By this time, awareness of the deteriorating condition of cities and the risk they posed was already well established in Poland. This prompted the initiation of work on a draft legislative act intended to regulate the renewal of degraded urban areas (Nowakowska et al., 2019). Several draft bills were prepared during this period, yet none were passed into law (ultimately, the first formal act on regeneration was not adopted until 2015).

The earliest urban regeneration programmes in Poland were therefore implemented under challenging conditions: there was a lack of formal procedures, financial resources, qualified personnel, and, above all, political will among local authorities to undertake remedial action in degraded urban areas (Ciesiółka, 2020). In the absence of a national programme and a coherent, dedicated legal framework, municipalities developed their own local regeneration instruments (Muzioł-Węcławowicz, 2009). They utilised available European Union funds, including pre-accession financing, which was allocated based on locally prepared municipal programmes (for example, in Szczecin, Sopot, Płock, Lublin, and Bielsko-Biała) (Leszkowicz-Baczyński, 2019; Maciejewska, 2018).

Poland's accession to the European Union in 2004 marked a new phase in the development of urban regeneration efforts (Leszkowicz-Baczyński, 2019). This stage may be broadly defined as covering the years 2004 to 2015. In the first EU programming period available to Poland (an abbreviated cycle spanning only the years 2004–2006), urban development issues were incorporated into the Integrated Regional Development Operational Programme (Measure 3.3 'Degraded post-industrial and post-military urban areas'), financed through two Structural Funds: the European Regional Development Fund (ERDF) and the European Social

Fund (ESF). This programme was administered at the national level, and funding was allocated on a pilot basis, intended for a limited number of projects (in the Lower Silesian Voivodeship, for example, six projects received support during this period, with a total value exceeding EUR 14,93 million) (Ratuszniak, 2011). A prerequisite for receiving support was the preparation and approval of Local Revitalisation Programmes (LRPs) by municipal authorities. Between 2004 and 2006, LRPs encompassed a wide range of initiatives, including housing projects. Their financial arrangements drew not only on EU funds but on a mix of funding streams, such as the national Social Housing Programme (Społeczne Budownictwo Czynszowe, SBC), municipal budgets, and other available financial instruments. The limited scope of housing-related interventions was later recognised as one of the shortcomings of early regeneration efforts during Poland's initial phase of EU membership (Kułaczkowska and Jarczewski, 2019).

During the subsequent EU budgetary period from 2007 to 2013, the volume of financial support available to Poland increased substantially. A significant development during this time was the enhanced autonomy granted to regional self-governments (voivodeships) in allocating EU assistance funds. The regions were responsible for determining the distribution of resources based on independently developed Regional Operational Programmes, which the European Commission then approved. Of the 16 voivodeships, 15 chose to establish dedicated funding streams specifically to support urban regeneration initiatives. The voivodeships also maintained complete autonomy in defining the rules for awarding regeneration grants. Although Local Regeneration Programmes (LRPs) remained the mandatory documents for all applicants, the regions independently determined the procedures for their preparation, including the criteria for delineating the boundaries of areas eligible for support.

In sum, the period from EU accession until around 2014 brought a significant revival in the field of urban regeneration. Each year saw a growing number of municipalities developing LRPs and applying for funding. However, the absence of a national legal framework setting out shared standards for the regeneration process posed a considerable obstacle (Leszkowicz-Baczyński, 2019). Another persistent challenge was the lack of integration between physical investment measures and social interventions, primarily due to the separate rules and timelines governing access to funding from the ERDF and the ESF. This discouraged potential beneficiaries from undertaking comprehensive, systemic actions addressing entire areas in need of support. As a result, activities labelled as 'urban regeneration' or similar were focused mainly on building renovations and isolated interventions, while support for local entrepreneurship, which required separate funding instruments, was often marginalised.

The adoption of the Act on Revitalisation in 2015 marked the beginning of a new phase in Poland's approach to urban regeneration. It established formal, standardised procedures for preparing a new type of local programme—henceforth referred to as Municipal Revitalisation Programmes - MPR (rather than the previous Local Regeneration Programmes -LRP)—and formally embedded them within the national legal system.

Revitalisation was granted a legal definition as 'a process of bringing degraded areas out of a state of crisis, conducted in a comprehensive manner through integrated actions addressing the local community, space, and economy, territorially focused and carried out by revitalisation stakeholders based on a municipal revitalisation programme.' (Art. 2 of the *Act on Revitalisation).* The Act also defined the notion of a 'crisis condition', which refers to the coexistence, within a given territory, of negative phenomena in the social sphere and, additionally, in at least one of the remaining spheres: economic, environmental, spatial-functional, or technical.

Furthermore, the Act introduced a special intervention instrument known as the Special Revitalisation Zone (Art. 25(2) of the *Act on Revitalisation*), which authorises municipalities to apply specific facilitative measures within these areas, particularly regarding property management, renovation, and private investment. The Act also amended the Spatial Planning and Development Act by introducing a new planning instrument: the Local Revitalisation Plan (LRP) (Art. 37f–37n. *Act of Spatial Planning and Development*). This plan was conceived as a specific type of local spatial plan, directly linked to the Municipal Revitalisation Programme and valid for no longer than the programme itself. The MRP was better adapted to the needs of revitalisation areas, allowing for a more flexible and integrated approach compared to conventional local plans.

The organisation of regeneration policy, particularly in terms of standardising the conditions and procedures for implementing operational programmes, was further supported by the development of unified national 'Guidelines on Revitalisation within Operational Programmes for 2014 -2020'. Local authorities also received substantive support in the form of a Commentary on the Act, as well as access to a wide range of supplementary initiatives aimed at facilitating urban regeneration processes. These included, among others, grant competitions for pilot projects, assistance in preparing Municipal Revitalisation Programmes (MRPs), the publication of expert materials, and participation in training sessions and conferences (Popławska, 2014).

Concluding, from 2015 onwards, Poland has been engaged in attempts to develop a more modern approach to urban regeneration processes. The 2015 Act put an end to the previous programme-related disorder by

standardising the principles for the preparation and implementation of regeneration initiatives across the country. For the first time, unified definitions of a degraded area and a revitalisation area were introduced, along with requirements for social and spatial diagnosis, as well as for consultation and coordination of actions. In place of the diverse and often incomparable Local Revitalisation Programmes (LRPs), Municipal Revitalisation Programmes (MRPs) emerged – documents of a standardised structure, developed in line with common criteria and subject to quality assessment by the Managing Authorities.

It is worth noting, however, that the instruments developed at the national level have only been partially implemented. Compared with the more than 2,000 LRPs prepared in the earlier period, just around 500 GRPs were created after 2015. Special Revitalisation Zones have been used only in exceptional cases, and only one Local Revitalisation Plan has been adopted nationwide in Poland. Furthermore, the goal of popularising a holistic approach, one that integrates various forms of action within revitalisation areas, has not been fully achieved. There is still a general tolerance for managing urban regeneration through isolated investment projects. However, an increasing number of cities are now implementing exemplary, successful, and integrated programmes in their designated areas of intervention.

4.1.1. Energy focus in urban regeneration

Energy regeneration has not, to date, been widely regarded in Poland as an integral component of urban regeneration processes. Actions in this area were typically undertaken independently and financed through support mechanisms other than those linked to urban regeneration. In the Regional Operational Programmes, separate funds were reserved for these activities, and they were subject to allocation rules distinct from those applied to urban regeneration. Although pro-energy measures were indeed incorporated at the regional level, the key distribution of funds nevertheless took place at the national, via national-wide Operational Programme Infrastructure and Environment (POIiŚ). There were also numerous additional nationwide initiatives aimed at supporting the positive energy transition, and the main actor in this system was the National Fund for Environmental Protection and Water Management, which not only managed the above-mentioned Operational Programme Infrastructure and Environment, but also co-financed many of these initiatives. Further information about the urban regeneration experiences in Poland (the Lower Silesia Region) can be found in Appendix B.

It is important to note, however, that pro-energy measures were often promoted within the evaluation of regeneration project applications. This prioritisation was reflected in the relevant programme guidelines at the national, regional, and local levels. However, it should be emphasised that these criteria varied across different periods, years, and territorial contexts.

Although actions supporting the energy transition were not initially a priority in the conceptualisation of regeneration in Poland, the approach to energy-related issues within urban regeneration has undergone a noticeable evolution from the earliest LRPs implemented under the Integrated Operational Programme for Regional Development (IRDOP) 2004–2006 to contemporary urban strategies.

In the initial phase, revitalisation activities in Poland were primarily infrastructural and social in nature, focusing on the modernisation of public spaces, the renovation of buildings, and social activation. Energy-related topics appeared only marginally, typically in the form of isolated thermo-modernisation projects, most often involving public buildings, or the upgrading of street lighting. These were rarely conceived as deliberate strategies for improving energy efficiency, but rather as incidental outcomes of broader renovation works. At the time, revitalisation was understood chiefly as a tool for urban recovery and socio-economic revitalisation, rather than as an instrument of environmental (and energy) transformation.

During the 2007–2013 financing period, with the growing dissemination of cohesion policy principles and the increasing importance of sustainable development objectives, programme guidelines began to incorporate issues related to energy efficiency gradually. Initial provisions appeared requiring the analysis of energy consumption and CO_2 emissions within the diagnostic sections of Local Revitalisation Programmes (LRPs), as well as the first projects that combined technical modernisation with environmental considerations. In practice, however, these measures remained fragmented and technical in nature – mainly limited to building insulation or the replacement of heating systems. There was a lack of integration between revitalisation policy and energy strategies, with climate goals being pursued primarily through separate sectoral programmes. Yet, in many municipalities, a new awareness began to emerge that energy could function not only as a cost of maintaining infrastructure but as a factor influencing the overall quality of the living environment.

It was not until the 2014–2020 programming period, reinforced by the 2015 Act on Revitalisation, that a noticeable shift in approach emerged. The requirement to include energy-related aspects in the diagnosis and project selection processes of the new MRPs led to a gradual integration of energy efficiency into revitalisation planning. In many cities, energy modernisation of public buildings, schools, cultural centres, and municipal housing became linked with social and economic interventions. At the same time, Low-Emission Economy Plans and climate adaptation strategies were developed, serving as complementary documents to the MRPs. As a result, revitalisation began to merge social, spatial, and environmental objectives, although the energy dimension remained largely supportive in nature.

In the emerging 2021–2027 programming period, the topic of energy has gained greater prominence, particularly in the context of the European Green Deal and the National Recovery Plan. Regeneration is increasingly viewed not merely as a tool for social intervention but as an instrument of climate and energy transformation. 'Green regeneration' projects are beginning to appear, integrating spatial renewal with investments in energy efficiency, water retention, and blue-green infrastructure. Energy is thus becoming a unifying factor across various dimensions of urban policy, including technical, social, and ecological. Ultimately, one can speak of a shift from renovation-based to climate-oriented regeneration. In the earliest programmes, energy was treated marginally; in subsequent phases, it emerged as an essential technical component; and today, it is increasingly recognised as a strategic urban resource, shaping quality of life and social cohesion.

4.1.2. Social justice in urban regeneration

From the outset of regeneration policy development in Poland, there was a noticeable emphasis on social issues. In the first Local Revitalisation Programmes implemented under the Integrated Regional Development Operational Programme (IRDOP) 2004-2006, the prevailing approach was centred on the socio-economic revitalisation of degraded neighbourhoods. Regeneration, at least at the level of policy recommendations, was understood primarily as a process of restoring social functions and fostering the integration of local communities, rather than merely modernising physical space. Programme documents and guidelines for municipalities clearly emphasised the need to involve residents, non-governmental organisations, and local businesses. In practice, however, social participation was often formal and limited in scope, while social initiatives tended to be secondary to infrastructure investments. Typical projects included the renovation of municipal buildings, the establishment of community centres, and the organisation of activation activities for children and older adults.

In the 2007–2013 programming period, the 'social focus' of regeneration was clearly strengthened through efforts to integrate interventions funded by the European Regional Development Fund (ERDF) and the European Social Fund (ESF). Hard measures, such as renovations, redevelopment, and the renewal of public spaces, were complemented by soft programmes, including skills training, career counselling, support for the unemployed, and assistance for individuals at risk of social exclusion. This period also saw the introduction of mandatory public consultations, which began to acquire a more substantive and meaningful form. Increasing emphasis was placed on the principle that regeneration should be inclusive and integrated, and that infrastructure projects should not be an end in themselves, but rather a means of enhancing residents' quality of life.

In practice, however, especially in smaller towns, investment-focused projects continued to dominate, with social initiatives often relegated to a supplementary role. Integrating different types of measures remained challenging due to the separate funding calls for ERDF and ESF support, which frequently hindered the implementation of comprehensive interventions tailored to areas affected by a multidimensional crisis.

The institutionalisation of the pro-social approach (social focus) was brought about by the 2015 Act on Revitalisation and the programmes implemented during the 2014–2020 financial perspective. The Act introduced the concept of a regeneration stakeholder, the obligation to ensure participation in the preparation and implementation of Municipal Revitalisation Programmes (MPRs), and the requirement to carry out social activities alongside investment measures. In many cities, local activity centres, intergenerational integration programmes, as well as educational and cultural initiatives, were established. Regeneration began to be regarded as a social process whose success depends on the long-term engagement of residents rather than solely on completed infrastructure projects. This period also saw the emergence of the first comprehensive models of social regeneration, based on local community animation and the formation of cross-sector partnerships.

In the new 2021–2027 programming period, the social dimension of regeneration has not diminished in importance but has instead continued to expand. In summary, one can speak of both continuity and deepening of the social approach in Polish regeneration policy: from the initial, largely declarative focus on social integration, through integrated social and infrastructural interventions, to the contemporary approach in which the social dimension forms the foundation of a sustainable and just urban transformation.

4.2. PED orientation in urban regeneration programmes

4.2.1. Operational Programme of the Lower Silesian Voivodship 2007-2013

In the Regional Operational Programme for the Lower Silesian Voivodeship (ROPLSV) for 2007–2013, support for regeneration projects was available under a dedicated Priority 9: Cities. The aim of this priority was to counteract the marginalisation of urban areas in the Lower Silesian region, where negative social and economic phenomena were intensifying and the physical condition of urban space was deteriorating.

The priority included two types of actions:

- 9.1. Renewal of degraded urban areas in cities with more than 10,000 inhabitants.
- 9.2. Support for housing-related projects in cities with fewer than 10,000 inhabitants.

Table 11: Overview of the Operational Programme of the Lower Silesian Voivodship (2007-2013)

Name of funding programme	**Operational Programme of the Lower Silesian Voivodship**
Time period	2007-2013
Funding Body	ERDF/ESF resources distributed by Managing Authority i.e. Lower Silesia Region with local
Main aim	Measure 9.1: Renewal of degraded urban areas in cities with more than 10,000 inhabitants. Measure 9.2: Support for housing-related projects in cities with fewer than 10,000 inhabitants.
Financial information	ERDF/ESF support: 9.1 - approximately €109.8 million 9.2 – approximately €6.5 million
Energy focus	Energy efficiency – partial (a complementary non-binding evaluation criterion for the projects evaluations) Energy flexibility – no focus Renewable energy production: no focus
Social justice focus	Distributional dimension: resources targeted to areas designated for revitalisation in Local Revitalisation Programmes Procedural dimension: participatory requirements for the involvement of local residents in the development of the Local Revitalisation Programmes.

At the time, the region contained 91 cities, of which 54 had fewer than 10,000 inhabitants, and 37 had populations exceeding this threshold. A substantial 92.2% of the total support budget (approximately €98.8 million) was allocated to the larger cities, while the smaller ones were assigned €8.4 million (7.8% of the total funding). This distribution was reflected in the number of supported projects, with 87% targeting cities with over 10,000 inhabitants.

A wide range of entities were eligible for support, including municipalities, religious institutions, counties, higher education institutions, building administrators, and police headquarters. However, research

(Wałęga and Urbanek, 2013) indicates that in most cities, the primary beneficiaries during this period were municipal authorities.

A fundamental requirement for obtaining support under the programme was the adoption of a Local Revitalisation Programme (LRP) and the designation of specific areas for regeneration measures. The ROPLSV established guidelines and principles for preparing these programmes, including the method for defining support areas and the concentration of ERDF funds within those designated zones. The LRP was defined as a comprehensive, multi-year process of spatial, technical, social, and economic transformation, initiated by local authorities to bring a given area out of crisis and assign it new development functions based on its endogenous conditions.

The guidelines also emphasised the need to address energy efficiency issues and the needs of persons with disabilities, migrants, and minority groups within the diagnostic phase. The support area was to be designated by comparing statistical indicators for the entire city with those for the proposed regeneration area. A set of mandatory indicators was specified, along with a requirement to engage socio-economic partners and conduct public consultations. Attention was also drawn to the need for the implementation of social projects accompanying infrastructural investments, as well as the obligation to conduct strategic environmental impact assessments for LRP projects.

According to the guidelines, support areas in towns with fewer than 10,000 inhabitants were required to meet at least 3 of 5 specified delimitation criteria:

- high levels of poverty and social exclusion,
- high rates of long-term unemployment,
- elevated levels of crime and offences,
- low business activity rate, and
- comparatively low value of the housing stock.

In these smaller towns, the support area could encompass the entire administrative boundary, and 28% of funded municipalities took advantage of this option. The support available in such localities was restricted solely to the housing sector, and its scope was limited to:

- renovation of common areas in multi-family residential buildings, including measures aimed at improving energy efficiency, and

- preparation of modern, good-quality social housing units for use, owned either by public authorities or non-profit entities.

In larger cities (those with more than 10,000 inhabitants), a more diverse range of projects was eligible for funding, and the designation of support areas could be based on different criteria depending on the area category. One such category included former military and post-industrial sites, for which the indicator-based delimitation criteria did not apply. Naturally, these cities were not permitted to designate their entire territory as a support area, due to the requirement to follow the principle of territorial concentration. The most common support areas in this group were inner-city zones and historic city centres.

Although the Managing Authority stipulated in its guidelines that regeneration should be a comprehensive and coordinated process, the programme's structure did not ensure such an approach. On the contrary, it resulted in a significant fragmentation of urban renewal projects, with most applications concerning single, isolated investments. It was assumed that programme effectiveness in degraded areas would be achieved through the cumulative impact of multiple, even modest-scale, In summary, during the 2007–2013 period, over 72% of cities in the Lower Silesian Voivodeship received funding for regeneration projects under ROPLSV, including all cities with more than 10,000 inhabitants. Residential building projects accounted for the largest number of funded initiatives (nearly 40%), although their financial value amounted to less than 10% of the total project value. By contrast, projects involving public utility buildings represented the largest share in terms of economic value (over 35% of the total).

The financial value of regeneration projects per inhabitant ranged from PLN 54 (~€13) to PLN 1,091 (~€260). The highest total value of projects was recorded in Wrocław, exceeding PLN 65.3 million (~€15.6 million), of which PLN 35.9 million (~€8.6 million) was funded by the EU.

The considerable flexibility afforded to local governments in defining support areas and planning regeneration processes enabled different urban needs to be addressed. However, there were relatively few examples of projects carried out in an integrated manner, supported by a strategic vision for the renewal of entire districts. The programme's structure and the relatively modest financial resources did not favour such an approach. Moreover, coherent actions related to energy regeneration were largely absent.

Energy focus

Overall, in the Operational Programme of the Lower Silesian Voivodship 2007-13 the interventions related to energy and emissions were present but remained fragmented across different environmental and

infrastructure priorities rather than forming a coherent low-carbon agenda. The implemented measures addressed two of the three PED dimensions. First, energy efficiency was strengthened through the modernisation of public buildings, including thermal retrofitting, improved insulation, and upgrades to heating systems, as well as the modernisation of district heating networks to reduce losses and emissions. Second, selected actions contributed indirectly to energy production, particularly where projects supported cleaner heat sources or encouraged the use of more efficient or renewable-ready technologies. In contrast, energy flexibility—understood as the capacity to adjust demand or integrate decentralized energy management—was not yet part of the programme's logic. As a result, while the period marked an important step toward improved environmental performance, it still lacked an integrated framework that would address all three PED dimensions in a cohesive and strategic manner.

Social justice focus

In the 2007–2013 Regional Operational Programme for Lower Silesia Region, the social-justice orientation was present but relatively underdeveloped. In terms of distributional justice, support was primarily channelled into projects targeting disadvantaged urban areas, often through infrastructure upgrades that indirectly improved living conditions; however, funding remained fragmented and uneven across territories. Procedural justice was limited: although consultations were formally required, participation mechanisms were modest and did not significantly empower communities in shaping project priorities. Recognition-based justice was only marginally addressed, with little explicit attention given to vulnerable or under-represented groups; instead, social needs were treated broadly without differentiating between diverse local experiences. Overall, while some redistributive intentions were visible, the approach remained predominantly technocratic, with weak citizen involvement and limited sensitivity to social diversity.

4.2.2. Operational Programme of the Lower Silesian Voivodship 2014-2020

In the years 2014–2020, one of the most significant instruments for financing regeneration programmes in the Lower Silesian Voivodeship was Measure 6.3, 'Revitalisation of Degraded Areas', under the Regional Operational Programme of the Lower Silesian Voivodeship 2014–2020. As part of competitive calls, over 300 contracts were signed, with a total value co-financing exceeding 100 million euro.

The approach to regeneration in the Lower Silesian Voivodeship during the 2014–2020 period revealed a significant shift from the previous programming period, both in terms of process organisation and the conceptualisation of degraded urban renewal. Unlike the 2007–2013 financial perspective, which was largely

based on Local Revitalisation Programmes (LRPs), municipalities were now required to adopt an entirely new model rooted in the 2015 Act on Revitalisation.

Table 12: Overview of the Operational Programme of the Lower Silesian Voivodship (2014-2020)

Name of funding programme	Operational Programme of the Lower Silesian Voivodship
Time period	2014-2020
Funding Body	ERDF/ESF resources distributed by Managing Authority i.e. Lower Silesia Region with local
Main aim	Measure 6.3: Revitalisation of Degraded Areas,
Financial information	Overall ERDF/EFS support: €103.6 million Including: Horizontal call for the whole region: €49.6 million Integrated Territorial Investments for Wroclaw Metropolitan Region: €21.0 million Integrated Territorial Investments for Jelenia Góra Subregion: €12.4 million Integrated Territorial Investments for Wałbrzych Subregion: €20.6 million
Energy focus	Energy efficiency – partial (a complementary non-binding evaluation criterion for the projects evaluations) Energy flexibility – no focus Renewable energy production: partial (a complementary non-binding evaluation criterion for the projects evaluations)
Social justice focus	Distributional dimension: resources targeted to areas designated for regeneration in Local Revitalisation Programmes and Municipal Regeneration Programmes Procedural dimension: participatory requirements for the involvement of local residents in the development of the Local Revitalisation Programmes and Municipal Revitalisation Programmes

The LRPs from previous years were primarily formal documents—often prepared merely to satisfy the requirements of funding competitions, rather than to manage a comprehensive regeneration process. In place of these, the 2015 Act introduced Municipal Revitalisation Programmes (MRPs), based on unified principles applicable nationwide. For many local authorities in Lower Silesia, this represented a turning point that demanded a shift from a 'competition-oriented' project mindset to a focus on genuine, integrated regeneration processes.

The implementation of this substantial change was not entirely successful, as most municipalities, particularly smaller ones, did not undertake the challenge of preparing entirely new and complex documents within a short timeframe. Instead, they continued to rely on their existing Local Revitalisation Programmes (LRPs). The Managing Authority was ultimately compelled to accept this situation and allowed applicants using LRPs to participate in the funding competitions.

At the same time, additional regional competition requirements were introduced through a qualitative system based on so-called A and B lists. In simplified terms, projects that were fully defined and costed, and included in a MRP or LRP, were placed on the preferential A list, while B-list projects were those proposed but still in preparation. In practice, this resulted in clear preferences for hard (substantive), infrastructure-oriented projects. Almost all soft (procedural), socially oriented projects were classified under List B.

A second, more noticeable element of the new approach was the incorporation of regeneration into the logic of Integrated Territorial Investments (ITIs) – an instrument introduced by the European Union as part of cohesion policy for the 2014–2020 period. In the Lower Silesian Voivodeship, three ITI structures were established:

- WrOF ITI (Wrocław Functional Area ITI) – comprising the regional capital, Wrocław, and 12 surrounding municipalities,
- AW ITI (Wałbrzych Agglomeration ITI) – integrating post-industrial towns including Wałbrzych, Świebodzice, and Jedlina-Zdrój,
- AJ ITI (Jelenia Góra Agglomeration ITI) – linking the city of Jelenia Góra with the surrounding tourist municipalities.

The ITIs were intended to enable the joint implementation of projects by groups of municipalities forming the functional areas of major cities, in order to counteract the fragmentation of interventions and strengthen metropolitan linkages. Although they did not constitute separate operational programmes in the legal sense, they each had their own 'ITI Action Plans', which functioned as local sub-programmes within the ROPLSV

2014–2020. These documents defined the thematic scope, types of projects, and selection criteria for initiatives financed within a given functional area, as well as their alignment with the objectives of the ROPLSV.

The Managing Authority remained the Marshal's Office of the Lower Silesian Voivodeship, while the ITI Associations served as intermediaries — responsible for preparing project lists, assessing their compliance with the ITI strategy, and recommending them for funding. In practice, this meant that regeneration projects implemented within the ITIs were financed from the same pool of ROPLSV funds, but through separate calls and specific allocation limits designated for each functional area.

Under Measure 6.3, alongside projects implemented by ITIs, horizontal competitions were also conducted — open calls for all beneficiaries in the region, both within and outside ITI areas (Sub-measure 6.3.1). These competitions primarily targeted the so-called Areas of Strategic Intervention (ASI) — territories designated by the regional government as requiring additional development support.

Among these were, for example:

- ZOI – Western Intervention Area, comprising municipalities in the western part of the region along the German border, characterised by weaker economic and demographic structures,
- OIDB – Barycz Valley Intervention Area, including environmentally and agriculturally oriented municipalities, where revitalisation focused on improving quality of life and preserving natural and cultural heritage;
- and other ASI areas, such as the Sudetes or the South-Eastern area of Lower Silesia, affected by issues of peripherality, depopulation, and infrastructure degradation.

These competitions aimed to ensure territorial balance and enable the implementation of regeneration projects in smaller towns and municipalities not covered by ITIs. In practice, they served to complement the broader regeneration system, offering support to areas with socio-economic characteristics different from those of urban agglomerations. The number and value of supported projects are presented in Table 13.

Table 13: Value and level of funding for revitalisation projects in ITI areas under the RPOWD 2014–2020 *Source: Author's own elaboration based on RPOWD competition materials obtained from the Marshal's Office of the Lower Silesian Voivodeship.*

Pathway	Number of selected projects	*Approximate total value (in million EUR)*[8]	*Approximate value of funding (in million EUR)**
6.3.2 ITI WrOF	68	31,5	20, 7
6.3.3 ITI AJ	24	19, 6	12,2
6.3.4 ITI AW	142	33, 5	20, 3
Projects in other areas	71	77,9	49, 0

An evaluation of Measure 6.3 carried out in 2022 (Dyspersja, 2022) revealed, among other findings, that:

- Of the 119 revitalisation programmes adopted in the Lower Silesian Voivodeship, only 12 were fully compliant Municipal Revitalisation Programmes (MRPs). For most municipalities, preparing such a document proved too time-consuming and costly. Many developed programmes primarily to access funding, rather than as part of a sustained development strategy.
- Revitalisation areas were defined based on the accumulation of crisis phenomena (unemployment, poverty, low civic activity, poor housing stock, inadequate public spaces, and limited social services), yet in practice, the coherence between diagnosis and action was limited. Regeneration focused mainly on infrastructural investments, with social activities playing an auxiliary role.
- The majority of completed projects were road-related (72% from list A), while only 30–40% concerned residential buildings. Soft projects and those involving public facilities reached completion rates of 55–57%, and residents of the regenerated areas constituted the majority of participants in only 21% of projects.
- Improvements were made in public spaces, safety, and accessibility for persons with disabilities. Intervention indicators met or exceeded their targets: issues related to inadequate public space were resolved in 69–88% of the affected areas.
- Social outcomes were more difficult to achieve, e.g., homelessness was reduced in 20% of affected areas, and substance abuse in 24%. Better results were achieved in urban municipalities, particularly in reducing unemployment and improving neighbourly relations.

[8] Calculated using the average PLN–EUR exchange rate from 2017 (1 EUR = 4.26 PLN).

- Although housing associations carried out 63% of projects, 80% of ERDF funding went to municipalities, which implemented larger infrastructural projects.

Energy focus

Although the energy agenda in Lower Silesia was only indirectly connected to urban regeneration—mainly through projects improving the energy performance of public buildings located in revitalisation areas—most energy-related interventions were implemented under separate low-carbon and environmental priorities. Within this framework, the region developed a clear energy focus structured around three PED-related dimensions. In terms of energy efficiency, the programme strongly supported deep retrofitting of public buildings, upgrades of municipal energy systems and measures reducing local emissions. Regarding energy production, funding targeted small-scale renewable installations (especially solar PV and solar thermal) that could complement regeneration efforts by lowering operational costs of public facilities. The dimension of energy flexibility remained marginal, limited to selective modernisation of district heating networks and smart-control systems, without broader systemic integration. Overall, while only loosely tied to regeneration, the programme strengthened the low-carbon profile of municipal investments across the region.

Social justice focus

In relation to regeneration, social-justice goals in the 2014–2020 regional programme were only indirectly connected with the dedicated regeneration axis and were mostly addressed through separate social-inclusion and labour-market priorities. From the perspective of distributional justice, support focused on directing funding toward disadvantaged groups, improving access to social and community services, and mitigating spatial concentrations of deprivation in urban areas. Procedural justice was reflected in the requirement for local consultations and participatory diagnostic processes embedded in integrated territorial instruments and municipal revitalisation programmes, although participation remained uneven across municipalities. Regarding recognition-based justice, the programme increasingly acknowledged the specific needs of marginalised groups—such as long-term unemployed people, seniors, and residents of degraded neighbourhoods—yet this recognition operated mainly through targeted eligibility criteria rather than deeper empowerment. Overall, while social justice concerns were present, they remained only partially aligned with regeneration and were operationalised mostly through separate social-policy axes rather than through a fully integrated regeneration approach.

4.2.3. Model Urban Revitalization

Table 14: Overview of the Model Urban Revitalization and Pilot Projects for Regeneration

Name of funding programme	Model Urban Revitalization and Pilot Projects for regeneration
Time period	2014-2020
Funding Body	Cohesion Fund, ERDF (Technical Support Programme) + national budget (15%)
Main aim	To strengthen the quality, coherence and effectiveness of local regeneration policies by supporting municipalities in developing integrated, participatory and evidence-based regeneration models that could later be replicated by other cities.
Financial information	Overall: €14.8 million, including: Model Urban Revitalization: €10.4 million Pilot Projects for regeneration: €4.4 million
Energy focus	Supportive dimension
Social justice focus	Meaningful social-justice focus, particularly in redistribution and recognition, while procedural justice remained the weakest link—mirroring broader patterns in Polish urban governance.

In the second half of the 2010s, regeneration policy in Poland entered a new phase. In response to the need for a renewed approach, the then Ministry of Infrastructure and Development launched two parallel support instruments that together laid the foundations for a modern approach to urban renewal: the *Model Urban Revitalisation* programme (Modelowa Rewitalizacja Miast, MRM) and *Pilot Projects* (Projekty Pilotażowe, PP). Both initiatives were financed from the Technical Assistance Operational Programme 2014–2020.

The *Model Urban Revitalisation* (MRM) programme was announced in 2015 as an open competition, with a primarily methodological and educational focus. From among 240 submissions, 20 cities were selected to represent a diverse range of regions, sizes, and socio-economic conditions. Their task was to develop model tools, procedures, and documents enabling effective planning and coordination of regeneration processes in accordance with the new Act on Revitalisation of 2015. MRM did not finance on-site investments, but supported the development of strategies and thematic pilots, ranging from process management (e.g., in Żyrardów) to housing (Wrocław) and social participation (Starachowice). The outcomes included regeneration programmes, procedural toolkits, educational materials, and publications disseminated by the National Revitalisation Knowledge Centre. The competition thus served as

a laboratory for urban innovation, testing various methods of governance, community engagement, and cross-sector policy integration in support of degraded urban areas (Jadach-Sepioło, 2017)

The total value of projects amounted to approximately PLN 48.5 million (ca. €10.4 million), of which PLN 43.7 million (ca. €9.4 million) constituted public funding (90% of eligible costs), co-financed by the Cohesion Fund under the Technical Assistance Operational Programme 2014–2020 and the state budget. Each project under the competition consisted of two main components:

- Part I – Development or update of a revitalisation programme, including the diagnosis of crisis areas, analysis of conditions, and preparation of comprehensive action plans based on the principles of the new regeneration approach (social, spatial, economic, and environmental integration).
- Part II – Model pilot, involving the preparation and testing of specific solutions within a selected thematic area. These activities included the development of model procedures, implementation documentation, management mechanisms, and tools for social participation, as well as the preparation of educational and promotional materials.

In the Lower Silesian Voivodeship, one of the beneficiaries of the programme was the municipality of Wrocław, which obtained funding for the project 'Four Corners on the Triangle'. The project was implemented in Przedmieście Oławskie, a historic district located between the railway tracks and the Oder River, colloquially known as the 'Bermuda Triangle', long regarded as one of the most socially troubled and spatially degraded areas in the city. The project was carried out between 1 April 2017 and 30 June 2019, with a total value of PLN 3.06 million (approximately €718,300), of which PLN 2.75 million (€645,000) was public funding.

The Wrocław project had an interdisciplinary character. Its main objectives can be summarised in three key points:

- Enhancing the quality of the residential environment through the development of guidelines for tenement house renovation, courtyard redesign, and improvements to the accessibility of shared spaces.
- Strengthening social capital through educational initiatives, workshops, consultations, and animation activities for residents, children, and local organisations.
- Disseminating knowledge and good practices in the form of publications, reports, and materials that other cities could adapt engaged in revitalisation.

The project was conceived as a process of mutual learning between the city administration and its inhabitants. Rather than a regeneration project in the classical sense, it served as a social experiment, an attempt to develop ways in which residents could become co-creators, rather than mere recipients, of change.

The *Pilot Projects* (PP) programme was launched a year earlier, in 2014. The Ministry selected three cities—without a competitive process—to test a complete regeneration cycle in practice: from diagnosis and social and planning activities to actual investments. The selection was based on the scale of social and spatial challenges, focusing on large urban centres with complex socio-economic structures, representing different types of urban crises:

- Łódź – a large post-industrial inner-city structure with an extensive fabric of tenement buildings. The focus was on regeneration the city centre and testing the "Area-Based Regeneration of Łódź City Centre" model, which combined tenement block modernisation with social initiatives.
- Bytom – a mining city characterised by high levels of infrastructure degradation and spatial poverty, which developed a regeneration management system based on monitoring and the integration of European funds.
- Wałbrzych – a medium-sized post-industrial city marked by the closure of coal mines and dispersed miners' housing estates, where mechanisms for social activation (streetworking, microgrants, local partnerships) were tested, resulting in a model for engaging residents in the renewal of degraded mining neighbourhoods. (Jadach-Sepioło & Kułaczkowska, 2018).

The pilot projects functioned as 'living laboratories' for new tools, going beyond planning to include diagnosis, the creation of local partnerships, social initiatives, infrastructural investments, and evaluation.

In Wałbrzych, located in the Lower Silesian Voivodeship, the pilot regeneration programme covered six sub-areas (former mining estates): Biały Kamień, Stary Zdrój, the City Centre, Sobięcin, Nowe Miasto, and Podgórze. Together, these areas were inhabited by 31,761 residents, accounting for nearly 30% of the city's population, and covered a total area of 4,103,139 m² (4.8% of the city's territory). The primary focus of the pilot project was spatial planning and urban design, supported by the thematic pillars of housing and financing regeneration activities. Wałbrzych tested mechanisms for social activation, including street working, micro-grants, and local partnerships, thereby developing a model for involving residents in the renewal of degraded post-mining neighbourhoods.

From a systemic perspective, the MRM and PP programmes operated synergistically, forming two complementary levels of regeneration policy:

- Model level – within the MRM framework, templates, procedures, and training materials were developed and made available to all municipalities, providing intellectual and procedural resources for cities.
- Operational level – within the PP framework, these tools were tested in practice under challenging real-world urban conditions, demonstrating that the new instruments could be successfully applied.

This structure enabled the Ministry to compare theoretical models with actual implementation, and the lessons learned informed the preparation of guidelines for Regional Operational Programmes and the national regeneration support system beyond 2020. Both programmes contributed to the professionalisation of regeneration management in Poland, shaping a contemporary understanding of the process as an integrated, multi-dimensional, and socially grounded tool for urban renewal.

In financial terms, the *Model Urban Revitalisation* programme was of a moderate scale (approximately €11.6 million for 20 towns), aimed primarily at developing methods, documents, and tools. In the *Pilot Projects* in Łódź, Bytom, and Wałbrzych the projects had a strong implementation focus. Although the programme itself provided approx. €4.4 million for three towns (funded at a level of 84–85% from the Cohesion Fund under the Technical Assistance programme), these funds leveraged additional funding streams, bringing the total investment to €28.7 million (Jadach-Sepioło & Kułaczkowska, 2018).

Energy focus

The MRM and PP programmes did not address energy regeneration. They were not traditional urban regeneration programmes; rather, they functioned as capacity-building initiatives and social experiments in the field of urban renewal governance.

Social justice focus

At the core of the entire programme was a strong social focus: combating exclusion, supporting groups in crisis (including unemployment, poverty, and low social competences), activating local communities, and building partnerships with NGOs, social services, and cultural institutions. Interventions centred on creating local activity centres, community courtyards, and day-support facilities, accompanied by inclusive and participatory procedures. Across all pilot cities, three justice dimensions were clearly highlighted: *procedural justice* through meaningful participation, *distributional justice* through directing benefits to areas and groups with the greatest needs, and *recognition justice* through

acknowledging marginalised residents as legitimate actors in the regeneration process. Overall, the social focus was highly structured and constituted the principal objective of the intervention.

4.3. Summary

Regeneration in Lower Silesia over the past two decades has evolved from fragmented, 'renovation-oriented' interventions to a more structured, though still not fully integrated, system of public action. The 2004–2006 period initiated pilot experiences (IRROP), while the years 2007–2013 brought regeneration to scale (RPOLSV, Priority 9), resulting in a visible resurgence in urban areas – albeit with a strong dominance of infrastructural projects and limited coordination. The 2015 Act on Revitalisation introduced new binding instruments – the Municipal Revitalisation Programmes (MRP), Special Revitalisation Zones (SRZ), and the possibility of developing new planning tools such as Local Revitalisation Plans (LRP). Yet these instruments were not widely adopted in practice. Although the 2014–2020 financial perspective promised a renewed logic of regeneration support, it still largely favoured dispersed infrastructural projects. One innovation was the use of territorial mechanisms (ITI), but these did not fundamentally contribute to a territorially concentrated regeneration effect. The integration of infrastructural, social, and climate-energy components remained more aspirational than real, and in many municipalities was replaced by a 'project-for-competition' logic.

The logic of a 'cumulative effect' was observed only in larger cities, such as Wrocław's Nadodrze district, where many smaller initiatives (housing, education, safety, shared spaces) together produced a significant territorial transformation. At the same time, the experiences of the Model Urban Revitalisation and Pilot Projects programmes (such as the post-mining areas in Wałbrzych) confirmed that, as crucial as financing is, so too is process management: tailored diagnosis, outcome-based contracting, monitoring, and institutional learning.

In the evolution of regeneration processes in Poland and Lower Silesia, a notable shift has occurred in the social dimension, marked by a gradual institutionalisation from declarative participation - understood as formally required, largely symbolic consultation practices with limited influence on decision-making— to the creation of activity centres, partnerships, and community-animation programmes. This progression reflects an incremental strengthening of social justice across its three recognised dimensions: distributional justice (directing resources to the most disadvantaged neighbourhoods), procedural justice (expanding participatory mechanisms, though unevenly across municipalities), and recognition justice (increasing awareness of the needs of marginalised and under-represented groups). Yet evaluations show that while it is

easier to improve public spaces and accessibility, it is more difficult to address structural unemployment, homelessness, or addiction sustainably. Better results are achieved where long-term soft measures and local partnerships accompany investments.

In the energy dimension, the development path has moved from incidental thermal retrofits to more deliberate forms of 'green regeneration'. Over time, regeneration activities gradually incorporated elements of energy justice, although unevenly. In terms of *distributional justice*, energy-efficiency improvements tended to reduce energy costs in degraded areas, but benefits remained fragmented and largely dependent on parallel sectoral programmes. In the realm of *procedural justice*, energy projects were only rarely embedded in participatory regeneration processes, limiting resident involvement in shaping local energy solutions. *Recognition justice* emerged slowly, mainly where energy poverty and vulnerability were acknowledged within diagnostic processes or linked with social programmes. Although these elements signalled progress toward a more holistic approach, energy concerns too often remained secondary rather than central to regeneration logic.

Four systemic conclusions can be drawn from these observations:

- From isolated investments to integrated projects. It remains essential to shift emphasis from individual investment actions towards integrated packages (social + infrastructure + energy-climate), planned and accounted for territorially within comprehensive regeneration projects.
- Territorial contracting in MRP. Municipal Revitalisation Programmes should function as binding 'contracts' – with mapped projects, milestones, responsible actors, and budgets. Competitions should reward programme coherence, not just the maturity of individual applications.
- Standardisation of social and energy outcomes. Beyond output indicators, comparable results indicators are needed (e.g., reduction of energy poverty, employment sustainability, improvement in neighbourly relations), with mandatory ex-ante/ex-post monitoring.
- Institutional capacity and partnerships. Continued strengthening of expertise (regeneration brokers), inter-municipal networking, and cooperation with NGOs and the housing sector is key to sustaining impacts, especially in smaller and more peripheral cities.

Lower Silesia now possesses a comprehensive set of tools, including legal frameworks, territorial instruments, pilot experience, and a growing awareness of social- and climate-energy issues. The next step is to weave these elements into programmes that move beyond a mosaic of interventions to form a coherent trajectory of transformation – socially just, place-based, and climate-resilient.

5. Conclusion: The PED-Justice Nexus in European Urban Regeneration Programmes

In this concluding chapter we analyse the PED-justice nexus in the selected urban regeneration programmes in the three selected areas in Europe: Denmark, Italy (Apulia Region), and Poland (Lower Silesia Region). Firstly, we assess to what extent urban regeneration programmes have adopted PED-perspectives in the three case areas. Secondly, we analyse how the three dimensions of social justice are reflected in the analysed urban regeneration programmes. In conclusion we reflect on the status of urban regeneration programmes and to what extent existing urban regeneration programmes are likely to produce energy justice.

5.1. PED-perspectives in urban regeneration

PED is a relatively new policy concept in the European discourse on how to promote climate neutral cities. It is therefore no surprise that the analysed urban regeneration programmes do not refer explicitly to PEDs or address the three PED dimensions in a comprehensive manner. One of the strengths of the PED framework is exactly that it brings together different aspects of energy planning, which may not have been linked or collectively addresses previously. Our analysis will therefore give an indication of how 'PED ready' existing urban regeneration programmes are in the three case areas.

If we look at urban regeneration programmes in the last 20 years in the three case areas, it is striking how little focus there has been on energy related issues. In Denmark, which in our study was considered a front runner country, energy related matters have seldom been addressed explicitly in urban regeneration programmes. Whilst urban regeneration projects in most cases would lead to improved energy efficiency in the housing stock, this transition is rather led by standards set in the national building legislation (*bygningsreglementet*). Denmark has been also at the forefront of the building sector in Europe. With the adoption of the EU Energy Efficiency Directive (EED) in 2012 (and the later updates), we would expect other countries in Europe to make similar improvements to the housing stock, however it is important to remember that cultural and institutional differences mean that exact replication is unlikely. Also, in Poland and the Lower Silesia Region, we see how initiatives promoting energy efficiency have been mainly promoted by the national Thermomodernisation and Renovation Fund, before energy-related issues were integrated in the urban regeneration programmes. We see a similar situation in Italy.

Having said this, we see a growing focus on energy related issues across the three case areas. Here, the Danish Green Housing Agreement from 2020 represents the clearest example of how concerns about energy

efficiency, provision and costs can be integrated into urban regeneration programmes. Also, in the Apulia Region (IT) there are considerable experiences with integrating energy efficiency requirements into urban regeneration programmes. Although the focus and requirements for energy efficiency vary in the analysed period, we see clear attempts to support the PED agenda through urban regeneration when it comes to energy efficiency. In Poland urban regeneration programmes did not exist until the 2007, and whilst most attention was dedicated to building up the urban regeneration apparatus in the first period, we see an increasing energy focus from 2014 and onwards. In the most recent urban regeneration programme 2021-2027 the focus on energy has gained further prominence with the focus on 'green revitalisations', integrating investments in energy efficiency, water retention, and blue-green infrastructure into the urban regeneration programmes.

Whilst we see a growing focus on energy efficiency in the analysed urban regeneration programmes across the three case areas, we find in general little reference and attention to energy flexibility and measures promoting local renewable energy production. In the Apulia Region (IT) we do, however, see attempts to promote local renewable energy production in the analysed urban regeneration programmes. One example is the PIRP programme, which promoted the implementation of solar thermal systems for hot water in new buildings. In general, we can conclude that whilst urban regeneration projects represent a clear opportunity to support the implementation of PEDs, so far this opportunity has not been reflected in the setup of the urban regeneration programmes providing the overall frameworks for urban interventions in the three case areas.

5.2. Social justice in urban regeneration

On the contrary to the sparse focus on energy related issues, there has been a much stronger tradition of integrating social justice perspectives into urban regeneration programmes in the three case areas. The urban regeneration programmes analysed in this study all target disadvantaged neighbourhoods. There is thus an inbuilt distributional focus in the programmes in the sense that they all seek to address injustices, which spatially are concentrated in certain 'left behind' neighbourhoods. This approach of area-based initiatives has a long tradition in urban regeneration programmes in several European countries, including Denmark, dating back to the 1980s. In Italy we see the first area-based urban regeneration initiatives in the 1990s, and in Poland the area-based approaches to urban regeneration became dominant after the country joined the EU in 2004.

When it comes to procedural justice there is also a long tradition of involving residents in urban regeneration processes with the requirement of resident / public participation dating back to the early area-based initiatives. Over time the requirements for resident / public participation have been formalized further. In this context, the Danish urban regeneration programme for non-profit housing entities represents a special case, as resident democracy constitutes one of the cornerstones of the Danish non-profit housing system. Whilst the idea of procedural justice is reflected in the urban regeneration programmes, local practices might deviate from the good intentions. In Poland for example, a participatory approach to urban regeneration was not fully institutionalised until the 2015 Revitalisation Act. In this context, the Italian practices of resident involvement can be placed between the culture of resident involvement in Denmark and Poland.

Whilst the analysed urban regeneration programmes in the three case areas largely incorporate the dimensions on distributional and procedural justice, we find that little attention is paid to recognitional justice. The urban regeneration programmes mainly target disadvantaged neighbourhoods with little reflection on who the disadvantaged groups in the neighbourhoods are, why they are disadvantaged and which needs they have in relation to their vulnerabilities. In general, we find that these more individualized perspectives are absent in the current urban regeneration programmes in the three case areas.

5.3. Energy justice in urban regeneration

As outlined above, we find that the analysed urban regeneration programmes in general have incorporated goals of social justice and more recently also have started to focus on energy efficiency. However, often the social and energy related goals remain disconnected. There is no explicit focus on energy justice as such in the analysed urban regeneration programmes. However, we do see an increasing awareness of the need to bridge the two domains and develop an explicit focus on energy justice in the three case areas. One could therefore expect that future urban regeneration programmes will incorporate a focus on energy justice one way or the other. Here, it is important to stress that if future urban regeneration programmes are to embrace the dimensions of energy justice, they must also find ways to address the recognitional aspects of justice. This remains an important challenge for urban regeneration programmes today and in the future.

5.4. Just energy transition potential

We conclude this report by reflecting on how urban regeneration programmes can support a just energy transition. Existing urban regeneration programmes hold considerable potential for promoting PED development and energy transitions more widely. However, as demonstrated throughout this report, energy-related aspects so far been integrated only to a limited extent. As a result, there remains significant untapped

potential both to strengthen the energy focus in urban regeneration programmes and to enhance the role of urban regeneration programmes' in promoting PED development.

One of strengths of contemporary urban regeneration programmes is that they adopt an area-based approach, which seeks to improve the quality of life in disadvantaged neighbourhoods through a holistic perspective that integrates various topics and challenges across sectors. In this respect, urban regeneration programmes can act as an important vehicle for promoting PED development. Moreover, existing urban regeneration programmes already reflect a strong focus on various social justice aspects, as we have demonstrated in this report. Coupling these social justice dimensions with a more explicit focus on energy transitions therefore represents a relatively low-hanging fruit that could contribute to more socially just energy transitions.

At present, energy transitions and PED development initiatives pursued outside the framework of urban regeneration programmes risk contributing to unjust outcomes, including processes of green gentrification. There is thus a clear need to raise awareness of social justice considerations in relation to energy transitions. In our assessment, urban regeneration programmes could provide an effective framework for securing just energy transitions, provided that existing programmes are further developed and tailored to explicitly promote this focus.

6. References

Act on Revitalisation of 9 October 2015 (Journal of Laws 2015, item 1777, as amended). (Poland).

Act on Spatial Planning and Development of 27 March 2003 (Journal of Laws 2003, No. 80, item 717, as amended). (Poland).

Allulli, M., & Tortorella, W. (2013), Cities in Search of Policy. The Urban Issue in the Italian National Political Agenda, *Métropoles*, 12, pp. 1–18.

ANCI & Urban@it (2017), *Rigenerazione urbana: un progetto per l'Italia* [U*rban regeneration: a project for Italy]*, Bologna: Centro Studi Urban@it.

Anguelovski I., Connolly J., Garcia-Lamarca M., Cole H., Pearsall H. (2018). New scholarly pathways on green gentrification: What does the urban 'green turn' mean and where is it going? Progress in Human Geography, 43(6), 1064–1086. https://doi.org/10.1177/ 0309132518803799.

Barbanente A., & Grassini L. (2023), Alla ricerca delle ragioni di un successo: La risposta pugliese al bando PINQuA tra coerenze, ambiguità e distorsioni [In search of the reasons for success: Puglia's response to the PINQuA call for proposals amid consistency, ambiguity and distortions], *Territorio*, 105, pp. p. 39-46.

Barbanente, A. & Grassini, L. (2019), "Gli impervi percorsi dell'innovazione nelle politiche di rigenerazione urbana: un'analisi multilivello dell'esperienza pugliese" [*The challenging paths of innovation in urban regeneration policies: a multi-level analysis of the Apulian experience*], in Proceedings of the XXII National Conference SIU, Italian urban planning and Agenda 2030. Leading territories and communities towards sustainability and resilience. Matera-Bari, 5-6-7 June2019, Rome-Milan: Planum Publisher.

Barbanente, A. & Grassini, L. (2023), "Alla ricerca delle ragioni di un successo: la risposta pugliese al bando PINQuA" [In search of the reasons for a success: the Apulian response to the PINQuA call], *Territorio*, 105, 39–45.

Barbanente, A., & Grassini, L. (2022), "Integrating nature-based solutions into urban planning and policies: learning from the Apulia case study", in La Rosa, D., & Privitera, R. (Eds.), *Innovation in Urban and Regional Planning, Vol. 2*, Lecture Notes in Civil Engineering Series, 242, Springer, Cham, pp. 12-21.

Barbanente, A., Caruso, N., Grassini, L., & Pede, E. (2022), Innovation Dynamics in Regional Policies for Urban Regeneration: Experiences from Italy, *Planning Practice & Research*, 37(6), 673-698.

Bech-Danielsen, C., & Christensen, G. (2017). *Boligområder i bevægelse: Fortællinger om fysiske og boligsociale indsatser i anledning af Landsbyggefondens 50-års jubilæum*. Landsbyggefonden.

Byfornyelsesloven [Urban Renewal Act] (Act no. LTA 2003/1234). Retsinformation. Retrieved from https://www.retsinformation.dk/eli/lta/2003/1234 (Denmark)

Carley, S., Konisky, D.M. (2020). The justice and equity implications of the clean energy transition. Nature Energy, 5(8), 569-577.

CEC (1994), Community Initiative concerning Urban Areas (URBAN). Explanatory Memorandum, Brussels: COM(94) 61 final.

CEC (1997), The EU Compendium of Spatial Planning Systems and Policies, Regional Development Studies No. 28, Luxembourg: Office for Official Publications of the European Communities.

Ciesiółka, P. (2020). A brief history of Polish revitalization. *Planner's Review*, 6.

Danish Energy Agency (2024). Danish Experiences on District Heating. Retrieved from: https://ens.dk/en/our-responsibilities/global-cooperation/experiences-district-heating.

Danish Energy Agency. (2008, February 21). *Aftale mellem regeringen (Venstre og Det Konservative Folkeparti), Socialdemokraterne, Dansk Folkeparti, Socialistisk Folkeparti, Det Radikale Venstre og Ny Alliance om den danske energipolitik i årene 2008–2011* [Agreement between the Government (Venstre & Conservative People's Party), Social Democrats, Danish People's Party, Socialist People's Party, the Radical Left and New Alliance on Danish energy policy in the years 2008-2011]. Folketinget. https://www.ft.dk/samling/20151/almdel/EFK/bilag/100/1575941.pdf (Denmark).

DUT (2025) PED Framework 3.0. A policy guide to advance Positive Energy Districts in Europe. DUT. https://dutpartnership.eu/news/ped-framework-30-policy-guide-advance-positive-energy-districts-europe

Dyspersja (2022). *The Impact of Revitalisation Activities Implemented under the Regional Operational Programme for Lower Silesia 2014–2020 on Improving the Situation of Degraded Areas. Final Report* – Study Commissioned by the Marshal's Office of the Lower Silesian Voivodeship.

Engberg, L. A., & Warmedinger, C. (2015). IMEA Change Cases: A strategic approach to promoting energy efficiency in the built environment. SBI forlag. SBI No. 2015:22

European Union (2015). Integrated Regeneration of Deprived Areas and the New Cohesion Policy Approach. An URBACT Contribution to the European Urban Agenda. http://urbact.eu/sites/default/files/20150909_urbact_deprived-areas_gb_md_1.pdf.

European Parliament & Council of the European Union. (2024). *Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (recast), Official Journal of the European Union, L* 2024/1275. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024L1275

Fraser, N. (2014). *Justice interruptus: Critical reflections on the" postsocialist" condition*. Routledge.

Gaardmand, A. (1993). Dansk byplanlægning: 1938-1992. Copenhagen: Arkitektens Forlag.

Governa, F. (2004), Scegliere, decidere, apprendere. Approcci e criteri nella valutazione dei programmi complessi [Choosing, deciding, learning. Approaches and criteria in the evaluation of complex programmes], in Regione Piemonte (Ed), *Valutare i programmi complessi*, Savigliano: L'Artistica Editrice, pp. 39–49.

Governa, F., & Salone, C. (2005), Italy and European spatial policies: polycentrism, urban networks and local innovation practices, *European Planning Studies*, 13(2), pp. 265–283.

Gould, K., & Lewis, T. (2016). *Green gentrification: Urban sustainability and the struggle for environmental justice*. Routledge.

Greve, C. (2006). Public management reform in Denmark. Public *Management Review,* 8(1), 161–169. https://doi.org/10.1080/14719030500518956

Hansen, A. V., & Langergaard, L. L. (2017). Democracy and non-profit housing. The tensions of residents' involvement in the Danish non-profit sector. *Housing Studies*, *32*(8), 1085-1104.

Hearn A.X., Sohre A., Burger P. (2021), Innovative but unjust? Analysing the opportunities and justice issues within positive energy districts in Europe. Energy Research & Social Science, 78, 102127.

Howells, M., & Olesen, K. (2025a). Affordable housing between market and state: the development of social housing in Denmark. In *Planning for Urban Sustainability* (pp. 37-50). Edward Elgar Publishing.

Howells, M., & Olesen, K. (2025b). Housing Associations as Urban Entrepreneurs? A New Role for Housing Associations in Danish Urban Governance. *Housing, Theory and Society*, 1-21.

Jadach-Sepioło, A. (2017). The reefs of the revitalization process – theory and Polish experiences. *Economics in Practice and Theory*, 49(4), 23–39.

Jadach-Sepioło, A. & Kułaczkowska, A. (Eds.) (2018). *Revitalisation in Practice: Model Solutions as Results of the "Model Revitalisation of Cities" Competition and Pilot Projects in the Field of Revitalisation.* Warsaw–Kraków: National Institute for Spatial Policy and Housing.

Jenkins, K., McCauley, D., Heffron, R., Stephan, H., & Rehner, R. (2016). Energy justice: A conceptual review. *Energy research & social science*, *11*, 174-182.

Jensen, J. O. (2016). *Kommunernes strategiske brug af byfornyelsen*. (1. udg. udg.) SBi Forlag. SBI Nr. 2016:22 (Denmark).

Jensen, S. R., Gabel, C., Petersen, S., & Kirkegaard, P. H. (2022). Potentials for increasing resident wellbeing in energy renovation of multi-family social housing. *Indoor and Built Environment*, *31*(3), 624-644.

Johansen, K., & Werner, S. (2022). Something is sustainable in the state of Denmark: A review of the Danish district heating sector. *Renewable and Sustainable Energy Reviews*, *158*, 112117.

Københavns Kommune. (2008). *Det socioøkonomiske Københavnerkort* [PDF]. https://www.kk.dk/sites/default/files/agenda/b53ddd4c1bb402899c7244c0ddac636017cbb8cf/4-bilag-4.PDF (Denmark).

Københavns Kommune. (2012). *CPH 2025 climate plan: A green, smart and carbon neutral city* [PDF]. https://kk.sites.itera.dk/apps/kk_pub2/index.asp?mode=detalje&id=983 (Denmark).

Københavns Kommune. (Det Tværgående Analysekontor & Klimaenheden) (2025). *Status på København 2025* [PDF]. Københavns Kommune. https://www.kk.dk/sites/default/files/2025-08/Status%20p%C3%A5%20K%C3%B8benhavn%202025%20UA.pdf (Denmark).

Københavns Kommune, Teknik- og Miljøforvaltningen, Bygningsfornyelse, & Realdania. (2023). *EREPO: Energirenoveringsporteføljer* [PDF]. https://realdania.dk/publikationer/faglige-publikationer/erepo (Denmark).

Københavns Kommune (2024) Områdefornyelse. TMU temamøde 19. januar 2024. Københavns Kommune. https://www.kk.dk/sites/default/files/agenda/14d5dc58-bb61-468e-95db-55fcc1305a00/4ae83df8-cdd0-4b83-a9ca-64aa0e114d8a-bilag-3.pdf

Københavns Kommune. (n.d.). *Områdefornyelsernes København 1997–2017* [PDF]. https://kk.sites.itera.dk/apps/kk_pub2/pdf/2051_bccf8550567b.pdf

Kułaczkowska, A., Jarczewski, W. (2019). *Revitalization. Report on the condition of Polish cities. Kraków: Institute for Urban and Regional Development*, Ministry of Investment and Development. (Poland).

Larsen, J. N. (2013). Area-based approaches to urban regeneration: Innovation in vain?: A comparison of evidence from the UK and Denmark. In *The Routledge companion to urban regeneration* (pp. 401-410). Routledge.

Larsen, H. G., & Hansen, A. L. (2015). *COMMODIFYING DANISH HOUSING COMMONS*. Geografiska Annaler. Series B, Human Geography, 97(3), 263–274. http://www.jstor.org/stable/43966311

Leszkowicz-Baczyński, J. (2019). The evolution of revitalization activities in Poland: An overview of the issue. *Lubuski Yearbook*, 45(2).

Lilius, J., & Nielsen, R. S. (2024). Alive and kicking? Resident democracy in Nordic social housing: The cases of Denmark and Finland. *Tidsskrift for boligforskning*, *7*(1), 50-63.

Maciejewska, A. (2018). Revitalization and its significance in the context of spatial policy implementation in the Mazovia Province. *Mazovia Regional Studies*, (25), 71–89.

McCauley, D., Rehner, R., & Pavlenko, M. (2015). Assessing the justice implications of energy infrastructural development in the Arctic. In *Delivering Energy Law and Policy in the EU and US*. Oxford University Press.

MIMS (2022), Programma Innovativo Nazionale per la Qualità dell'Abitare (PINQuA). Progetti e prime evidenze [National Innovative Programme for the Quality of Living (PINQuA). Projects and initial findings] (Italy).

Ministeriet for By, Bolig og Landdistrikter. (2013). *Byfornyelsesatlas DK2* (Version 1) [PDF]. Social- og Boligministeriet. https://www.sm.dk/media/24843/byfornyelsesatlas-dk2-1.pdf (Denmark).

Ministry of Economic and Business Affairs (2002): 'lov om ændring af lov om almene boliger samt støttede private andelsboliger m.v. (Aktivering af landsbyggefondens midler)', Økonomi- og erhvervsministeriet copenhagen [online]. URL: https://www.folketingstidende.dk/samling/20021/lovforslag/L53/20021_L53_som_vedtaget.pdf (Denmark)

Ministry of Funds and Regional Policy / NFOŚiGW (2022). *Improving the Energy Efficiency of Residential Buildings in Revitalised Areas. Toolkit.* Institute of Urban and Regional Development, Warsaw–Kraków.

Moulaert F., Martinelli F., Swyngedouw E., Gonzalez S. (Eds.) (2010), Can Neighbourhoods save the city? Community development and social innovation. Abingdon and New York: Routledge.

Muzioł-Węcławowicz, A. (2009). Revitalization of downtown districts. In W. Jarczewski (Ed.), *Spatial aspects of revitalization – downtown areas, housing estates, post-industrial, post-railway and post-military areas* (pp. 25–88). Kraków: Institute of Urban Development. (Poland)

Nielsen, S. B. (1999). Urban ecology and transformation of technical infrastructure. *International planning studies*, *4*(2), 253-265.

Nowakowska, A., Legutko-Kobus, P., Walczak, B. M. (2019). From rehabilitation to social inclusion – a contemporary approach to revitalization processes. *Studies of the Committee for Spatial Economy and Regional Planning*, 7–8. Warsaw: Polish Academy of Sciences, Committee for Spatial Economy and Regional Planning.

Olesen, K., & Howells, M. (2023). The territorial stigmatization of non-profit housing areas in Denmark during COVID-19. In *The 'New Normal'in Planning, Governance and Participation: Transforming Urban Governance in a Post-pandemic World*(pp. 257-269). Cham: Springer International Publishing.

Olesen, K., & Steffansen, R. N. (2025). Barriers and Potentials for Implementing PEDs in Denmark. Aalborg: Aalborg University.

Pløger, J. (2004). Strife: Urban planning and agonism. *Planning Theory*, *3*(1), 71-92.

Popławska, J. (2014) *Systemic support for revitalisation in Poland: experiences and recommendations*. Warsaw: Ministry of Infrastructure and Development.

Presidenza del Consiglio dei Ministri (2016), Programma straordinario di intervento per la riqualificazione urbana e la sicurezza delle periferie [National Programme for Urban Regeneration and Security of Peripheries] (Italy).

Ratuszniak, I. (2011). Renewal of degraded urban areas: The example of the Regional Operational Programme for the Lower Silesian Voivodeship 2007–2013. In: Spatial Management in the 21st Century – New Challenges. *Research Papers of Wrocław University of Economics*, 152, 458–467.

Rawls, J. (1971). *A theory of justice. Rawls*. The Belknap.Regione Puglia (2006), Programma integrato di riqualificazione delle periferie (PIRP) [Integrated Programme for the Regeneration of Peripheries (PIRP)]. Bollettino Ufficiale della Regione Puglia (BURP), n. 81, 22 June 2006 (Italy).

Regione Puglia (2011), Avviso pubblico per la presentazione delle candidature per l'attuazione delle Azioni 7.1.1 e 7.2.1 del P.O. FESR 2007–2013 – Piani integrati di rigenerazione urbana e territoriale (PIRU/PIRT) [Public call for the implementation of Actions 7.1.1 and 7.2.1 of the ERDF Operational Programme 2007–2013 – Integrated Urban and Territorial Regeneration Plans (PIRU/PIRT)]. BURP n. 61, 22 April 2011 (Italy).

Regione Puglia (2017), Bando pubblico Asse XII "Sviluppo Urbano Sostenibile" (SISUS) [Public call for the selection of Urban Areas and Urban Authorities – Axis XII "Sustainable Urban Development" (SISUS)] (Italy).

Rigolon, A., & Collins, T. (2023). The green gentrification cycle. *Urban Studies*, *60*(4), 770-785.

Social- og Boligministeriet. (2010, November 8). *Boligaftale 2010: Aftale om styrket indsats i ghettoområderne og anvendelsen af den almene boligsektors midler* [PDF]. https://www.sm.dk/media/25024/boligaftale-2010.pdf (Denmark).

Social- og Boligministeriet. (2023, September 13). *Fornyelse af bymidter og landsbyer*. https://www.sm.dk/nyheder/nyhedsarkiv/2023/sep/fornyelse-af-bymidter-og-landsbyer

Statsministeriet. (2010). *Ghettoen tilbage til samfundet: Regeringens ghettostrategi* [PDF]. https://stm.dk/media/umscl4ci/ghettostrategi.pdf (Denmark).

Transport- og Boligministeriet & Social- og Boligministeriet. (2020, May 19). *Grøn boligaftale 2020: Landsbyggefondens rammer 2021–2026 og fremrykket indsats i 2020* [PDF]. https://www.sm.dk/media/25050/groen-boligaftale-2020-final-a.pdf (Denmark).

Tubridy F. (2021), The green adaptation-regeneration nexus: innovation or business-as-usual?, European Planning Studies, 29:2, 369-388.

Urban@it (2016), *Rapporto sulle città. Metropoli attraverso la crisi [Report on cities. Metropolises through the crisis],* Bologna: il Mulino.

Velfærdsministeriet. (2009, March 26). *Boligaftale 2009: Aftale om den almene boligsektors styring og finansiering* [PDF]. Social- og Boligministeriet. https://www.sm.dk/media/25021/boligaftale-2009.pdf

Vestergaard, H. (2014). From physical improvement to holistic renewal: the Danish experience. In *Renewing Europe's Housing* (pp. 21-40). Policy Press.

Vinci, I. (2019), How the EU regional policy can shape urban change in Southern Europe: learning from different planning processes in Palermo, *Urban Research & Practice*, Published online: 05 Oct. 2019

Wałęga, A., Urbanek, Ł. (2013). Revitalization projects for Lower Silesian towns supported by the Regional Operational Programme 2007–2013. *Urban Development Issues*, 53–69.

Ærø, T., Andersen, H. S., Højgaard Jensen, E., & Abitz, J. (2008). *Evaluering af lov om byfornyelse og udvikling af byer samt helhedsorienteret byfornyelse efter lov om byfornyelse*. SBI forlag. SBI No. 2008:03

Zachwatowicz, J. (1946) *On the Polish school of reconstruction and conservation of monuments*. Ochrona Zabytków, 1(1), pp. 3–12.

Ærø, T., Andersen, H. S., Højgaard Jensen, E., & Abitz, J. (2008). Evaluering af lov om byfornyelse og udvikling af byer samt helhedsorienteret byfornyelse efter lov om byfornyelse. SBI forlag. SBI Nr. 2008:03 (Denmark).

7. Appendix A. List of Interviewees

Denmark:

1. **Birger R. Kristensen**, senior advisor to the National Building Fund (LBF). Head of the organisation from 1990-2021.
2. **Birgitte Kortegaard**, urban planner and team leader in Copenhagen Municipality.
3. **Erik Hagelskjær Lauridsen**, urban planner and regeneration specialist in Copenhagen Municipality
4. **Jesper Ole Jensen**, senior researcher at BUILD (AAU) who has previously researched the use and impacts of urban regeneration schemes.
5. **Morten Elle**, Professor Emeritus at Aalborg University with experience working with urban regeneration and sustainable energy in Copenhagen.
6. **Pernille Ventzel Hansen**, Special consultant at the Danish Social and Housing Agency.
7. **Øystein Erik Leonardsen**, planner working for Copenhagen Municipality specialising in the green transition in disadvantaged areas.

Italy:

1. **Angela Barbanente**, former Deputy Governor for Housing Policy (2005-2015), Apulia Region and Full Professor of Urban and Regional Planning at the Polytechnic University of Bari.
2. **Luigia Brizzi**, Director of the Housing Policy Section, Apulia Region.
3. **Marco Carbonara**, Official, Landscape Protection and Enhancement Section, Apulia Region.
4. **Maria Teresa Cuonzo**, Official, Housing Policy Section, Apulia Region.
5. **Pietro Augusto De Nicolo**, Sole Director of ARCA Puglia Centrale.

Poland:

1. **Aleksandra Kułaczkowska**, Senior Specialist, Local Government Support Unit, Department of Support Programmes, Ministry of Funds and Regional Policy.
2. **Łukasz Waszczuk**, Senior Specialist, Department of Regional Programmes, Ministry of Funds and Regional Policy.
3. **Sebastian Habiński**, Head, Development and Revitalisation Support Division, Regional Development Unit, Department of Economy and Promotion, Marshal's Office of the Lower Silesian Voivodeship.

8. Appendix B. Urban Regeneration in Poland

Appendix B provides further information about the urban regeneration experiences in Poland (the Lower Silesia Region).

Table 15: The Energy- and Emission-Related Measures in the Regional Operational Programmes for Lower Silesia Region

Programming periods	**Description**
2007-13	**Overall profile:** Energy-efficiency activities were present but not yet grouped into a dedicated low-carbon priority; measures were dispersed across environmental and infrastructure priorities. **Examples of relevant measures:** • Modernisation of public buildings aimed at improving energy performance (thermal retrofitting, insulation, modern heating systems). • Upgrading and modernisation of district heating systems to reduce transmission losses and emissions. • Selected projects related to air quality improvement, including replacement of outdated heat sources.
2014-2020	**Overall profile:** Clear shift toward a strategic low-carbon policy, aligning with EU 2020 climate and energy targets, with dedicated funding and integrated approaches. **Explicit priority:** **Priority Axis 3 – Low-Carbon Economy** Covered measures included: 1. Development and installation of renewable energy sources (RES) and related distribution systems.

	2. Modernisation of heat and power generation, including high-efficiency cogeneration and trigeneration. 3. Upgrading and restructuring of district heating networks to reduce energy losses and emissions. 4. Thermal retrofitting of public and residential buildings. 5. Projects aimed at reducing low-stack emissions (“niskiej emisji”). 6. Promotion of energy-efficient technologies and reduction of greenhouse-gas emissions.

Table 16: Operational Programme Infrastructure and Environment – Three EU Funding Periods (2007–2013, 2014–2020, 2021–2027)

Period	**Sources of funding**	**Main areas of support**	**Programme characteristics**
2007–2013	• Cohesion Fund (CF) • European Regional Development Fund (ERDF)	• Transport infrastructure (roads, railways) • Water and wastewater management • Environmental protection • Energy infrastructure	• Strong focus on “hard” infrastructure • Support for large-scale, nationally strategic projects
2014–2020	• Cohesion Fund (CF) • European Regional Development Fund (ERDF)	• Low-carbon economy • Energy efficiency • Protection of natural and cultural heritage • Energy security	• Shift toward climate-oriented and environmental projects • More integrated and sustainability-oriented approaches
2021–2027	• Cohesion Fund (CF) • European Regional Development Fund (ERDF)	• Climate neutrality and energy transition • Renewable energy deployment • Low-emission mobility • Circular economy and resource efficiency • Adaptation to climate change • Environmental protection and biodiversity	• Stronger emphasis on decarbonisation and energy transition • Support for resilient, climate-adaptive infrastructure • Integration with national energy and climate policies (NECP) • Greater territorial targeting and just transition mechanisms

Table 17: Most important initiatives aiming at energy transformation (2007 – to date)

	Programme name	**Period**	**Main obiective**	Funds
1	**100 Kamienic (100 tenements)**	2007–2011	To improve housing standards and preserve the historical character otenement buildings through renovation addressing their poor technical condition.	City budget
2	**KAWKA Plus (KAWKA Plus)**	2020–2024	To improve air quality by supporting residents through subsidies for replacing stoves with environmentally friendly heat sources, in line with anti-smog policy.	City budget
3	**Termo KAWKA (Thermo KAWKA)**	2020–2024	To improve energy efficiency and air quality by replacing windows and enhancing insulation following stove removal, complementing KAWKA measures.	City budget
4	**Program pilotażowy KAWKA (Kawka Pilot Programme)**	2014–2020	To reduce emissions by replacing outdated stoves and modernising heating systems in line with national and EU climate and energy policy.	National Fund for Environmental Protection and Water Management + state budget
5	**Ciepłe Mieszkanie** **(Warm Apartment)**	2020–2025	To increase energy efficiency and living comfort through thermomodernisation, installation upgrades, and resident education, while promoting environmentally friendly heat sources and reducing heating costs.	National Fund for Environmental Protection and Water Management + EU funds + state budget
6	**Lokalny Program Osłonowy (Local Protection Programme)**	2018–2023	To reduce the financial burden of heating for low-income families while supporting anti-smog policy and lowering emissions through subsidies after stove replacement.	State budget
7	Program wsparcia socjalnego (Social Support Programme)	2021-…	To support low-income households by providing one-off heating vouchers, reducing their financial burden amid rising energy prices.	State budget
8	Grantowy program Legnicko-Głogowski (Legnica–Głogów Grant Programme)	2014–2020	To reduce pollutant emissions and promote renewable energy by providing subsidies for replacing high-emission heat sources.	EU funds

9	Czyste Powietrze (Clean Air)	2018–2029	To reduce emissions and improve energy efficiency in single-family homes through stove replacement, thermomodernisation, and energy audits, while supporting the use of environmentally friendly heat sources.	National Fund for Environmental Protection and Water Management + EU funds + state budget
10	Modelowa transformacja energetyczna ZIT WOF (Model Energy Transition of the WOF ITI)	2024–…	To improve air quality, reduce heating costs, and lower emissions in housing cooperatives through thermomodernisation, installation upgrades, and the replacement of outdated heat sources.	EU funds

Table 18: Relation of social – oriented priority axes in Operational Programme of the Lower Silesian Voivodship 2007-2013 to urban regeneration

Priority Axis (PA)	**Type of Social Actions**	**Relation to Urban regeneration**
PA 7 – Social Infrastructure	Construction and modernisation of schools, cultural institutions, sports facilities, health and care infrastructure.	Indirect – improved local services but not embedded in integrated revitalisation frameworks.
PA 9 – Education	Improving education quality, training programmes, school equipment.	No direct link.
PA 10 – Social Inclusion (ESF)	Labour market activation, support for vulnerable groups, childcare services, integration programmes.	Indirect – activities later became part of integrated municipal programmes.
PA 8 – Health and Prevention	Preventive health programmes, services for elderly and disabled populations.	No direct connection.
PA 5 – Regional Cohesion	Support for local development projects in lagging areas; infrastructure + soft components.	Closest to revitalisation, although not formally integrated with area-based revitalisation rules.

Table 19: Relation of social – oriented priority axes in Operational Programme of the Lower Silesian Voivodship 2014-2020 to urban regeneration

Priority Axis (PA)	**Type of Social Actions**	**Relation to Revitalisation**

PA 9 – Social Inclusion	Activation programmes, social services, community work, local integration initiatives.	**Strong link** – part of Integrated Territorial Investments and Municipal Revitalisation Programmes.
PA 6 – Regional Labour Market	Training, employment programmes, entrepreneurship support.	Indirect.
PA 7 – Education	Development of education services, preschool support, equipment.	No direct link.
PA 8 – Health	Public health programmes, access to services for vulnerable groups.	No direct link.
PA 3 – Low-Carbon Economy	Soft components in energy efficiency campaigns.	Not related.
PA 10 – ICT and Public Services	E-services, digital inclusion, accessibility of public services for residents.	Indirect.
PA 11 – Technical Assistance	Support for management and implementation systems.	Not related.
**PA 13 – *Integrated Territorial Investments (ITI)* and *Community-Led Local Development (CLLD/Leader)* **	Area-based local development combining hard and soft measures.	**Directly linked to revitalisation** – used to implement Municipal Revitalisation Programmes and socio-economic regeneration of degraded areas.

9. Appendix C. PED-JUST Team

9.1. Coordinator

Organisation	Type of organisation	Country	Logo
Politecnico di Bari (Polytechnic University of Bari – POLIBA)	University or Other Educational Institution	Italy	Politecnico di Bari

9.2. Partners

Organisation	Type of organisation	Country	Logo
Comune di Bari (Bari Municipality – BARI)	City Authority/ Municipality	Italy	COMUNE DI BARI
Regione Puglia (Apulia Region – PUGLIA)	Other Public/ Governmental Institution	Italy	
Arca Puglia Centrale	Other Public/Governmental Institution	Italy	ARCA PUGLIA CENTRALE Agenzia Regionale per la Casa e l'Abitare; Eurhonet
Aalborg Universitet (University of Aalborg – AAU)	University or Other Educational Institution	Denmark	AALBORG UNIVERSITET
Aalborg Kommune (City of Aalborg – AAK)	City Authority/ Municipality	Denmark	Aalborg Kommune
Himmerland Boligforening (Himmerland Housing Association – HIM)	Other Non-Profit Organisation	Denmark	HIMMERLAND BOLIGFORENING
Politechnika Wroclawska (Wroclaw University of Science and Technology – WUST)	University or Other Educational Institution	Poland	Wrocław University of Science and Technology

Wroclaw Miasto (Municipality of Wroclaw – MOW)	City Authority/ Municipality	Poland	www.wroclaw.pl

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Organisation	Country	Logo
Ministero dell'Universita' e della Ricerca (MUR)	Italy	MUR
Innovationsfonden (IFD)	Denmark	Innovationsfonden
The National Centre for Research and Development (NCBR)	Poland	NCBR National Centre for Research and Development
DUT		
European Union		

9.4. Contact

Project Coordinator

Organisation: Politecnico di Bari (Polytechnic University of Bari – POLIBA)

Name: Laura Grassini

Email: laura.grassini@poliba.it

Project website: PED-JUST | Green Hub Denmark