JUST TRANSITIONS

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Make the city affordable for all

UIA Cities, Affordability, Accessibility and Just Transitions

Final Report

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ABOUT

Decarbonising the global economy is the primary means of tackling global warming. However, it also implies a disruptive change process which can be costly for social groups already at risk. The social impact of adaptation and mitigation policies has become clear and there is a growing need to reconcile social justice and environmental sustainability goals. Cities have a clear role to play in achieving these goals.

There is a pressing need to identify practical – and just – policy solutions able to inspire locally driven low-carbon transitions in EU cities. Recognising the urgency, the **UIA has led a two-year policy review (2021-2023) to explore a sample of projects run by cities to support just transitions so that no one is left behind.**

The review identifies city-level good practices. It teases out useful policy insights to help urban policy practitioners and managing authorities with the challenges of making Just Transitions a reality in their territories. In this regards, the study focuses on three main key topics: It

- Skills for a Green urban future.
- Accessible and Affordable Green City for All.
- Democratic and Green Transitions.

The review looked at some 86 UIA projects working under 14 topics; it involved an in-depth review of 10 UIA projects and of 1 URBACT city, a literature review, and interviews with key witnesses.

The present report presents the findings of the in-depth case studies for the Accessible and Affordable Green City for All topic. It provides background information and concrete solutions to the challenge of inventing the green city in a way that is both accessible and affordable to all. This report:

- Presents the main issues and the role of cities in the EU policy context, together with the major barriers they face (Table 6 presents the barriers considered).
- Details the Promising Practices implemented by 11 cities.
- Translates the lessons into a set of recommendations for cities keen to implement Just Transitions inspired policies.

1. INTRODUCTION

In its 2022 report, the Intergovernmental Panel on Climate Change (IPCC) spelled out the scale of the impact of human activity on the climate - and the dire consequences of climate change. The report underlined the need to implement immediate effective solutions (IPCC, 2022). For European policymakers, making Europe the first climate-neutral bloc in the world by 2050 is now an explicit policy ambition in line with Europe's commitments under: the Paris Agreement on Climate, the European Green Deal, the United Nations (UN) Sustainable Development Goals, and the Glasgow Climate Pact at the 26th Conference of the Parties.

1.1 Just transitions and cities

According to the European Environment Agency, "*despite efforts to adapt to climate change in Europe, the most vulnerable groups in society are still the most affected.*" Indeed, as further illustrated by the Just Transitions Inception report (UIA, 2021)[1], transitioning to a low-carbon economy implies systemic change which affects *all* citizens and especially those who are already at risk of exclusion. At-risk groups are the most exposed to both the effects of climate change and to the negative social consequences of the transitional processes themselves.

In line with the Sustainable Development Goals (SDGs), the European Green Deal acknowledges the need to leave no one behind in what needs to be a society-wide transition. All citizens should benefit from both '*accessibility*' and '*affordability*' to the amenities and positive consequences of the transitions and receive protection from any potential negative effects.

EU policy frameworks relevant for cities and Just Transitions

The EU's 2014-2020 programming round deployed various types of European Structural and Investment Fund (ESIF) at city level to pursue Just Transitions through local strategies. It pursued a variety of thematic objectives (TO), including:

TO4- Shift towards a low-carbon economy.

TO5-Climate change adaptation, risk prevention and management.

TO6- Environment and resource efficiency.

TO7-Sustainable transport and network infrastructure.

TO9-Social inclusion, poverty, and discrimination.

Many local strategies focused on ageing, diversity, gender equality, migrants, or social inclusion. Further details can be found on the JRC's STRAT-Board.

The new Cohesion Policy for 2021-2027 continues to invest heavily in sustainable urban development with 8% of the European Regional Development Fund (ERDF) earmarked for this

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[1] With Just Transitions we mean the diverse and complementary approaches needed to achieve a fair, inclusive climate neutral and resilient economy, addressing at the same time environmental, social and economic issues. For a more complete definition see the Just transitions inception report here: Inception Report | UIA - Urban Innovative Actions (uia-initiative.eu)

purpose. Policy Objective 5 'A Europe closer to citizens' and Policy Objective 4 'More social Europe' can support urban transformation challenges in a just and fair way by enabling marginalised communities, low-income households, and disadvantaged groups to participate in social and economic life. Through Policy Objective 2, "Greener Europe", cohesion policy can cover a wide range of topics, such as transitioning to renewable energies, mitigating and adapting to climate change, preserving nature and biodiversity or developing green infrastructure and sustainable urban mobility, etc. Moreover, the European 's 'Article 7 cities' (2014-2020 round) and 'Article 11 cities' (2021-2027 round) focus on integrated Sustainable Urban Development, which provides cities with a framework for including all social groups in the green transition.

The European Green Deal (EGD) provides a framework to support Europe's transition to a more carbon neutral society, which decouples economic growth from resource use and leaves no person or place behind (see the Inception Report on Cities, Jobs and Transitions).

Indeed, a vast European policy effort is underway on climate change. This will partially address Just Transitions. The recently selected 100 climate-neutral and smart cities by 2030 will implement the EU Mission on Climate-neutral and Smart Cities, giving a local dimension to the European Green Deal, through a bottom up approach. These cities will act as test beds and will provide blueprints for all European cities to follow. The EU Strategy on adaptation to climate change along with the related European Climate Law, sets out how the European Union can adapt to the unavoidable impacts of climate change and become climate resilient by 2050. This legislation accords cities a specific role: "*Local authorities, in particular, [will be in charge of] making this process inclusive, giving to urban communities - and in particular to the most vulnerable groups - the chance to take part in and influence the changes required to make their city resilient.*"

Ensuring that no one is left behind will contribute directly to the EU's ambitious target to lift 15 million European citizens out of poverty by 2030, as set out in the European Pillar of Social Rights. In parallel, the European Social Fund Plus aims to protect the most vulnerable in terms of employment, education, and training, through social inclusion and social innovation. Support to those most likely to face the greatest transition challenges is also provided by the Just Transition Fund (JTF) (focusing on energy poverty and housing conditions) and the Recovery and Resilience Facility (RRF). In addition, the Climate Action Social Fund (CASF), will play a vital role by supporting vulnerable households and will provide enabling measures and investment to reduce emissions in the road transport and buildings sectors, thus addressing some of the social and distributional challenges of the EU's transition to carbon neutrality.

The European Commission (EC) aims to reduce emissions by at least 55% by 2030 by renovating 35 million energy inefficient buildings, including making this renovation accessible to all. Integrating sustainability and affordability is therefore one of European social housing providers' main areas of research and intervention today. This effort is being supported by a range of policies: the 100 Lighthouse Districts projects under the 'Renovation Wave Strategy' promoted in 2021 to support the Affordable Housing Initiative, for example. by its scale, Next Generation EU shows that energy renovation has become a linchpin of the EU's green recovery strategy. In addition, since 2012, the EU Energy Performance of Buildings Directive has been supporting cities with delivering energy renovations and new buildings that meet a nearly zero energy standard. Also supporting this effort, the Electricity Directive and the Energy Efficiency Directive have been updated and require Member States to address energy poverty. Lastly, on energy renovation for socially deprived groups, the Shape EU Initiative

brings together national social housing providers, construction sector associations, and academic and research institutions to work together to address these challenges.

Turning to mobility, the EU also supports initiatives to make cities accessible for all residents and commuters, including individuals with disabilities and senior citizens. Certain initiatives aimed at specific sections of the population may also have a sustainable mobility dimension. For example, the European Disability Strategy 2021–2030 and the Directive on the accessibility requirements for products and services seek to promote full and equal participation in society for everyone, whatever their disability, by harmonising accessibility standards across several product groups and by including a right to non-discrimination and a right to mobility. The Gender equality Strategy 2020-2025 was designed to enable the EC to integrate a gender perspective in all its major initiatives and it is pursuing several policy objectives under this strategy, including on mobility. Finally, various activities registered under European Mobility week – the flagship awareness-raising campaign on sustainable urban mobility – also focus on vulnerable groups, such as the disabled, women, children, and senior citizens, etc.

These diverse frameworks offer opportunities to capitalise on synergies across funding streams. Cities may seize these funding opportunities and play a major role in ensuring that resources are used effectively to ensure that the green transition is accessible and affordable to all, yet many may lack the ability to do so[2].

Green, fair, and accessible cities

The consequences of climate change affect societies unequally. On the one hand, the uneven distribution of air pollution, noise, and extreme temperatures closely mirrors the socio-demographic differences within Europe regions and at city-scale level (European Environment Agency, 2018). On the other, not all residents are equally impacted by climate change, nor do they benefit from climate policies in the same way. Transition policies can also lead to negative effects for vulnerable groups. In fact, when designed without equity in mind, "*sustainability interventions often fail to benefit all residents, while some economic measures even increase the burden for vulnerable populations*" (For example, greening as a form of revitalisation, increases resilience and improves health. However, increased housing values and cost are uneven and therefore non-distributive and could lead to a loss of belonging (BCNUEJ, 2018) or even "ecological gentrification" when applied in disadvantaged neighbourhoods (Beretta and Cucca, 2019).

In this regard, the United Nations (UN) Foundation has stressed the need to reduce inequalities between people and between groups, leaving "no one behind" and offers the following recommendation: *"A concerted effort to identify and help those who are furthest behind is needed first. This means targeting the most vulnerable people who societies so often miss: from youth, and especially girls; to refugees and migrants; to rural farmers and indigenous populations – and so many others living on the margins of society" (United Nations Foundation, 2016).*

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[2] https://cor.europa.eu/en/our-work/Pages/OpinionTimeline.aspx?opId=CDR-136-2022

Vulnerable populations

Understanding the causes of vulnerability and how they are interconnected is the key to adapting transition policies to those with the highest risk of exclusion. It is important, therefore, to define vulnerability. This report defines it as:

"*the conditions determined by physical, social, economic, and environmental factors or processes that increase the exposure of individuals to multiple risks*" (UNDRR, 2020).

The UN Development Programme identifies 5 risk factors that contribute to individual or group vulnerability:

- they are the target of **discrimination** due to their identity (ethnicity, gender, age, economic and social status, disability, etc.).
- they have a precarious **economic and social status.**
- they are affected by **socio-spatial exclusion processes** limiting their access to rights, institutions, services, spaces, and socio-economic opportunities.
- they are **exposed to shocks and risks** (violence, conflicts, epidemic outbreaks, environmental degradation).
- they are excluded from **governance** processes.

These risk factors vary according to the local context and are highly relevant to the accessibility and affordability challenges facing transition policies. Table 1 below explores them in more detail**.**

Table 1: Types of vulnerability

Types of vulnerability	Description
Discrimination	Some people can be excluded due to factors such as gender and age, but also due to physical and cognitive abilities or language capacity, which directly affect individuals access to services and infrastructures (UrbanA, 2020a). For example, administrative services are usually only available in central locations and in the official language and are not, therefore, accessible to everyone. By default, urban environments and mobility systems are planned to suit the dominant majority; meaning men traveling to and from work (ICLEI, 2022).
	Sustainable urban mobility may also be unequally accessible to racial or ethnic groups due to a lack of infrastructure, high cost, or poor access to information. In the same vein, alternative and more sustainable mobility solutions, such as cycling, are white and male dominated and the planning of cycle lines tends not to consider the constraints that women of colour often face (UrbanA, 2020b).
Socio-economic status	Due to their life situations, some populations might lack the knowledge of public schemes open to them to be able to access them (ICLEI, 2022; UrbanA, 2020a). Residents of disadvantaged neighbourhoods can be excluded from sustainability city infrastructures (e.g., parks, food cooperatives, green roofs,

	regenerated river fronts, sustainable mobility initiatives, etc.) because of the underlying conditions of inequality and distributive, social-identity-related, procedural injustice (UrbanA, 2020c). Densely populated housing estates, often inhabited by the poorest residents, can be difficult to improve through climate-friendly urban planning (UrbanA, 2020d).
	Income inequalities can also limit the efficacy of urban sustainability initiatives by reducing access to sustainable amenities such as redeveloped, retrofitted, and/or more energy efficient housing. In the case of energy retrofitting, increasing property prices can even displace low-income residents. (UrbanA, 2020d).
Geography	The residents of deprived, isolated, or peri-urban areas, can be trapped in unhealthy and unsafe natural environments (contaminated or degraded natural resources preventing them from sustaining livelihoods or the aftereffects of natural disasters), more exposed to pollution sources or to the effects of climatic warming (e.g., heat waves). They may also lack adequate infrastructure, transportation, and public services, limiting their socio-economic opportunities.
Exposure to shocks and risks	People with fewer assets and resources and/or less information, who are marginalised or disadvantaged, are more likely to be affected by climatic events such as floods, droughts, or heat waves. They are also more likely to be affected by crop failures or price spikes and to suffer from the illnesses generated from such events (UNDP, 2018). Moreover, green services and technologies may not exist in neighbourhoods in which the vulnerable live due to the vulnerability factors discussed above, but especially due to inadequate representation in local governance. Urban planning and economic priorities tend also to neglect marginalised neighbourhoods. Moreover, as privileged groups tend to move to neighbourhoods characterised by healthier, greener, and safer environments, other areas become 'social dumps' characterised by pollution, crime, unwelcoming public space, and disease, to where marginalised residents are displaced. These neighbourhoods and their inhabitants can become stigmatised, 'ghetto-ised', systematically unrecognised and excluded from conversations about urban sustainability (UrbanA, 2020e).
	Lastly, policies can have negative consequences. For example, technological approaches to the green transition, such as an increased use of information technologies, might prevent some non-IT literate people from accessing the available services (UNDP, 2018). The digital divide is therefore also a key aspect of a green, fair, and accessible city.

Governance	Poor, disadvantaged and marginalised communities can be excluded from local policies because they are not included in processes, from data collection to decision making (UNDP, 2018). As a result, many local policies suffer from elite capture, as vulnerable groups' specific needs are not considered in the design and governance of green solutions and policies.

Accessibility and affordability

To achieve a Just Transition that leaves no one behind, it is vital to address the needs of vulnerable people and their vulnerabilities. Only by doing this policymakers will really be able to build more accessible cities. Accessibility implies linking the concepts of 'fair' and 'green', and in practical terms this implies enabling people's "*access not only to places but also to jobs, opportunities and services and thereby increasing overall wellbeing*" (Simon, 2016). Therefore, although the most recognised definitions of **accessibility** focus on **spatial and digital** accessibility, meaning mobility and access to places and services through physical proximity and eliminating the digital divide, accessibility should also encompass **social and equity concerns**, thus linking it to **affordability issues**.

The scope of this report

This report highlights promising practices based on the experiences of 10 UIA projects and 1 URBACT city that support the Just Transitions through the improvement or creation of policy tools, services, or technologies that take the accessibility and affordability into account.

It was therefore guided by three research questions:

- How do cities finance, design, and develop policies that give access to green and innovative solutions to vulnerable groups?

- How do cities ensure that everyone/vulnerable groups can afford green and innovative solutions?

- How do cities ensure that everyone/vulnerable groups can access green and innovative solutions?

An expert review of all 86 UIA projects and some pre-identified non UIA projects, and a series of key witness interviews with other organisations working in this field led to the identification of 11 case studies comprising 10 UIA projects and 1 URBACT city-led project that were deemed to have tested and implemented solutions—'Promising Practices'—that make green solutions accessible and affordable to all.

The research found four policy areas - **climate-friendly urban planning, sustainable energy, sustainable housing, and sustainable mobility**—where the projects studied had sought to address accessibility and affordability.

Their experimental features of the projects can inspire other cities and can be mainstreamed (implemented at a wider scale) or transferred, i.e., implemented in other Member States and cities.

The present report presents the:

- main issues at stake and the role of cities in the EU policy context.
- main barriers cities face in implementing green policies and solutions.
- Promising Practices implemented by 11 cities.
- A concise summary of the lessons and recommendations for city policymakers.

1.2 The four policy areas

The review of the 86 UIA funded projects identified four main areas in which UIA cities had been the most active in ensuring that green solutions are accessible and affordable to all groups of society. These areas were: climate-friendly urban planning, sustainable energy, sustainable housing, and sustainable mobility.

As background to Chapter 2 on the Promising Practices, this section (1.2) will describe the main issues at stake (scope) for each of the four areas as well as the existing approaches to addressing them.

1.2.1 Climate-friendly urban planning

Scope of the issue

Adapting cities and towns to climate change is vital because the population is concentrated—including vulnerable groups—along with assets and economic activities, in urban areas (EEA, 2021a). Yet cities are generally under-prepared for climate change and they lack resilience facing its future impacts (UAP on Climate Adaptation, 2018). In particular, women, children, the elderly, ethnic minorities, and the homeless are more likely to be impacted and less likely to benefit from adaptive services and technologies (EEA, 2021a; UAP on Climate Adaptation, 2018). It is therefore vital to strive for "*an equitable distribution of the benefits and burdens of adaptation measures*"(EEA, 2022a).

In relation to vulnerability, heatwaves affect those on low incomes in cities, as well as the elderly (Kaltsatou et al., 2018; Vandentorren et al., 2006)—who lack the resources to leave the city during summer months and/or have no access to 'cool islands' during peaks of temperature. In particular, the lack of central green spaces and/or lack of access to cars or adequate public transport can prevent some residents from accessing green areas. Parks in low-income neighbourhoods may also be of lower quality and less safe due to vandalism and anti-social behaviour (EEA, 2022b). Women in particular may feel unsafe when seeking to benefit from cooler green spaces (Polko and Kimic, 2022).

Flooding is another urban challenge that costs European residents approximately 3 billion EUR annually. However, the scale of damage is higher for low-income households than for high-income ones (Osberghaus, 2021). This can have an impact on the financial security of vulnerable groups living in flood risk areas. Some insurers may even refuse insurance or charge prohibitively high premiums based on the location of the insured's home[3].

Current policy approaches

Cities have been designing mitigation policies with equity in mind as part of a 'green city for all vision'. They have been investing through integrated greening policies and physical

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[3] Insurance rules vary by Member State but in those countries where building insurance is not mandatory many householders do not have flood options. Between 1980 and 2020 EEA estimates that 450-520Billion EUR of economic damage was caused by flooding. Between a quarter and a third of these losses were insured (European Environment Agency, 2022c)

greening projects. They have also sought to minimise the monetary distributional inequality of the transition to carbon-neutral economies through compensation and relief measures as well as through support for low-income households. Finally, they have aimed to maximise the non-monetary benefits of greening, such as health benefits (the healthy city), by strategically prioritising support, incentives, and compensation measures to specific sectors and social groups, and with the participation of residents in policy processes (BCNUEJ, 2018; Eurofound and EEA, 2021).

1.2.2 Sustainable energy

Scope of the issue

Society's production and consumption of energy accounts for 72% of total greenhouse gas emissions worldwide (Center for Climate and Energy Solutions, 2021). Electricity, for example, accounts for a quarter of all EU greenhouse gas emissions (EEA, 2020). Increasing electricity from renewable sources could enable a net 55% reduction in greenhouse gas emissions by 2050 (EEA, 2021b). Despite this potential, in 2019, the EU-wide share of renewable energy is close to the EU's binding target of 20% for 2020 (short by just 0.5%) (EEA, 2021b). **Currently therefore, sustainable production systems for electricity remain limited in terms of accessibility (available offer) and affordability (prohibiting price for many) but also in terms of potential.**

6.9% of the EU population is unable to afford to heat their homes (Eurostat, 2021) so "*alleviating energy poverty[4] is a key precondition for achieving just transitions towards sustainability*" (EU Energy Poverty Observatory, 2020). Energy poverty has been described as "*the inability to keep homes warm in the winter or the lack of access to sustainable modern energy services and products*" (Majdandžić et al., 2021). This inability is because of limited incomes, low building energy performance, and consumption habits. **Climate change is compounding this situation** as people living in energy poverty may suffer disproportionately from cold in winter and extreme heat in summer. Low-quality housing and energy poverty also lead to negative socio-cultural effects (Eurofound and EEA, 2021).

The people who are most at risk of energy poverty are low-income people, women, people with disabilities, single parents, families with low educational attainment, elderly people, children, migrants, and persons with a minority ethnic background (Energy Cities, 2021; EEA, 2018; Janikowska and Kulczycka, 2021). As around 82 million Europeans spend more than 40% of their income on housing and over 161 million face disproportionate housing expenditure (Housing 2030, 2021), many tenants cannot invest in sustainable energy production or consumption. Furthermore, changing current consumption patterns and habits at individual and industrial level is difficult both for individuals and companies, with obvious implications for the climate.

The cost hurdle is high, yet sustainable solutions could, to some degree, help mitigate the effects of energy poverty. They can do so in various ways. "*First, individual self-consumption based on renewable energy production installations can help to reduce energy bills. Second, an increase in decentralised (off-grid, local) renewable energy production and self-consumption might lead to the sharing of network costs making decentralised costs more accessible to vulnerable categories of consumers who have limited financial means, or no*

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[4] Energy poverty is usually defined as "the inability to adequately heat the home or use the energy needed because the cost is unaffordable" (EU Energy Poverty Observatory, 2020; Majdandžić et al., 2021).

owner access rights to renewable energy production and associated benefits. Third, decentralised renewable energy sources are much less subject to geopolitical tensions, the fluctuations of imports and of prices, and even more so in self-consumption" (Energy Cities, 2021). Demonstrating this last point, the [ongoing war on Ukraine](#) is a current threat to energy security and has increased energy prices.

Current policy approaches

A raft of policy instruments exists to support renewable energy, energy efficiency improvements, low-carbon technologies, and behavioural change. These include:

- carbon and energy taxes to discourage fossil fuel use and encourage energy efficiency
- financial incentives (grants, tax relief, etc.).
- instruments such as energy efficiency standards (e.g., on cars, buildings, cooking appliances, etc.), regulations (e.g., energy labelling).
- education, awareness raising, training.
- technology transfer, R&D.
- public investment in low-carbon and active mobility infrastructure (Eurofound and EEA, 2021).

Unintended regressive effects

Regulatory instruments and industry standards (e.g., energy efficiency labelling, standards for cars, building standards) can have regressive effects. Many measures which are meant to support the shift to sustainable energy sources can lead to increased energy prices (e.g., carbon and energy taxes), which disproportionately affect lower-income households. Vicious circles can be created with some households, who are vulnerable to climate change mitigation policies, accumulating disadvantages. The most advantaged tend to benefit from climate mitigation policies, which also exacerbates existing inequalities. In addition, the redistributive effects of energy and carbon taxes show that these tools alone cannot simultaneously achieve climate mitigation targets while avoiding potential negative monetary distributional outcomes: higher energy prices put more pressure on lower-income households due to the larger share of their budget that they spend on energy bills (Eurofound and European Environment Agency, 2021)

Many Member States have sought to reduce the regressive effects of climate policies such as carbon taxes by addressing the issue of energy poverty with support for the most vulnerable groups. This has included grants and subsidies to help reduce the energy burden on households by making housing more energy efficient and/or installing renewable energy sources[5] (Majdandžić et al., 2021).

Cities can also benefit from the [Covenant of Mayors for Climate and Energy](#)'s specific [activities](#) on energy poverty and the EU [Energy poverty advisory Hub.](#)

1.2.3 Sustainable housing

Scope of the issue

In the EU, buildings account for 40% of energy consumption and [36% of CO2 emissions](#). The EU is aiming for climate neutrality by 2050. Yet, [80%](#) of today's buildings will still be standing, with new ones built over the same period. There is, therefore, a need to increase the energy

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[5] Even these can be subject to debate as when someone struggles paying for their basic bills, they will be unable to invest in energy efficiency solutions.

performance of buildings (Eurocities, 2021). Furthermore, worldwide, 11% of building emissions come from embodied carbon in construction, i.e. the emissions created in construction and demolition (Eurocities, 2021), and the wider supply chain CO2 emissions from buildings have increased to their highest level ever at around 10 GtCO2, or 28% of total global energy-related CO2 emissions worldwide. Including emissions from the construction industry, this share increases to 38% of total global energy-related CO2 emissions (Housing 2030, 2021).

In developed countries, buildings consume over 70% of the electrical power generated and 40% of primary energy and are responsible for 40% of CO2 emissions from combustion (Housing 2030, 2021). **Therefore, buildings have the largest potential for improving energy efficiency (EE) and mitigating greenhouse gas (GHG) emissions**. Renewable energy technology alone cannot meet EE and GHG emission requirements, despite recent improvements (Housing 2030, 2021); **housing energy renovations are therefore essential**.

In the 220 million households in the EU, 87 million people live in poor-quality dwellings (Housing 2030, 2021). These are mostly people facing homelessness, living in overcrowded housing, or risking eviction, victims of domestic violence, women and gender-diverse people disproportionally impacted by loss of income during covid, and refugees and asylum seekers facing discrimination in access to housing. Captive owners or low-income homeowners who may have inherited their home or purchased it with a loan, are also vulnerable as they lack the financial resources to afford energy retrofitting of their homes.

Current policy approaches

There are a number of tools for implementing energy and climate policy in the social and affordable housing sector (Housing 2030, 2021). Cities have implemented national building renovation targets, energy Performance Certificates, revolving funds and auctioning, social impact bonds, tax relief, household appliance contracting, large-scale roll-out of photovoltaic installations in the social housing sector, allowances for low-income people/households, tenant engagement, renovation coaches, etc. (Housing 2030, 2021).

However, there is an unintended consequence that is a cause for concern: 'renoviction' (Grossmann, 2019). This is where ecologically motivated renovation processes end up in rising housing costs and neighbourhood gentrification and, ultimately, to the displacement of lower-income tenants. Instead, renovation processes should aim at preserving affordability while reducing 'energy poverty'. The challenge is therefore twofold:

- *ensuring that renovation does not mean displacement in areas where the housing market potential could encourage speculative investment interest in renovations.*
- *ensuring that a sustained flow of investment reaches the sections of the housing stock located in less marketable locations and where low-income residents are located.*

1.2.4 Sustainable mobility

Scope of the issue

Over 70% of EU residents live in cities that generate 23% of all transport related greenhouse gas emissions and urban sprawl is increasing this effect (OECD, 2018). The EU is aiming to reduce greenhouse gas emissions from the transport sector by at least 55% by 2030 and by 90% by 2050. To achieve this goal, the EU is promoting sustainable urban mobility, such as integrated public transport systems and better transit connectivity throughout Member States. It is also striving to improve quality of life in cities by promoting active mobility

solutions, such as walking and cycling. Cohesion Policy also supports sustainable and green mobility through its Policy Objective 3 "*a more connected Europe by enhancing mobility*".

According to the European Platform on Sustainable Mobility Plan (2020), sustainable mobility means: "*Easy and equal access to convenient, safe, affordable and environmentally friendly means of transport*" and is "*a basic requirement for the comfort of all inhabitants of urban environments and to ensure the balanced functionality of the cities with a high standard of living for all their users.*" However, not everyone has easy and equal access. In relation to mobility, vulnerable groups can be defined as those with temporarily or permanently reduced mobility, children and young people, older people, migrants and ethnic minorities, low income and unemployed, people living in rural and deprived areas, people with no or little IT skills, and people with no access to internet (European Platform on Sustainable Mobility Plans, 2020).

Other vulnerable residents include those in peri-urban and rural areas, where public transport and shared mobility options are lacking. Indeed, "*the reality for many rural areas is few buses, even fewer train stations and an almost total dependence on cars. This obliges people to spend more on travel, and to use private transport at the expense of more sustainable alternatives*" (European Network for Rural Development, 2019).

Current policy approaches

In its Global Sustainable Report, 2019, the United Nations encourages local authorities to support sustainable mobility through 4 enabling policy fields - *governance, economy, finance and technology*- and by adopting an *Avoid-Shift-Improve* approach (UN, 2021):

- *Avoid*. Reducing transport demand through changes in behaviour, using technology to support new practices (working from home, e-services, etc.) exploring more dense and compact cities and focussing on dense urban forms and patterns.
- *Shift*. Changing the nature of transport demand and supplies by switching away from fossil fuel–intensive modes in favour of active, non-motorised mobility (walking or cycling), public transport, carpooling, or other shared-modes.
- *Improve.* refers to changes in how transport systems and services are provided or managed, through, for example, sustainably charged electric vehicles, safer vehicles with improved technology, safer road design, improved accessibility for under-served populations and geographic areas, and low-carbon transport technologies.

Cities are implementing a wide range of solutions, such as collecting data on gender-based mobility differences, developing elderly people's ICT skills through intergenerational workshops, bicycle training for girls, ensuring safe walking and cycling at all times of the year, etc. (European Platform on Sustainable Mobility Plans, 2020).

Other solutions for isolated areas could be:

- shared mobility solutions, including demand-responsive public transport and carpooling offered by a single coordination unit managing the transport services of small municipalities.
- conventional public transport routes with stops and frequencies based on the needs of the local population - operating mostly during periods of high demand.
- minihub/interchange points close to railway stations or main bus stops offering cycling/car sharing services and where multimodal travel information and payment systems are available.

- local volunteers as drivers or in other supporting roles providing additional community mobility at minimal cost (European Network for Rural Development, 2019).

2. PROMISING PRACTICES

2.1 Introduction

Projects displaying the Promising Practices, in a Just Transitions perspective, Table 2 below summarises the 11 cities, their projects, their goals, and provides some context on them. The full case studies can be found here.

Table 2: Summary of the selected case studies and contextual information

UIA project	City	Population	Main objectives and actions	Target groups (according to vulnerability factors)
Climate-friendly urban planning				
RESILIO	Amsterdam, NL	821,752	To address pluvial flooding by reducing the speed of water runoff by installing blue-green roofs on a range of building types both public & private, but predominantly in social housing.	**Geography**: social housing. **Socio-economic status**: people with low educational attainment, people with language difficulties, people on lower incomes.
GBG_AS2 C	Barcelona, ES	1,636,732	To help the city prepare for high temperatures by creating climate shelters in 11 school buildings in areas of the city that are most vulnerable to the heat island effect and which lack green space nearby.	**Discrimination**: Elderly, women, children, migrants. **Socio-economic status**: people suffering from energy poverty, people with health problems **Exposure to shocks and risks**: fewer green spaces.
PUJ	Prato, IT	192,469	To revitalise 3 districts of Prato affected by severe social, economic, and environmental problems, in a sustainable and inclusive way by creating Urban Jungles.	**Discrimination**: Migrants (especially Chinese, in one of the areas), low-income people. **Exposure to shocks and risks**: fewer green spaces.
Sustainable energy				

UIA project	City	Population	Main objectives and actions	Target groups (according to vulnerability factors)
EPIU	Getafe, ES	180,747	To identify and address hidden energy poverty in Las Margaritas and Alhóndiga, using data analysis, support to residents, and renovation.	**Discrimination**: Elderly, migrants, the energy poor. **Geography**: Neighbourhoods built in the 1970s. **Exposure to shocks and risks**: Risks related to heatwaves and energy poverty.
Vilawatt	Viladecans, ES	66,168	To develop a participative and decentralised renovation model for housing by promoting the energy transition and sustainability in the low-income neighbourhood of La Montserratina, using an innovative energy governance model, carrying out preliminary studies, reaching out to residents, setting up a reward currency and renovating housing.	**Discrimination**: Migrants, women, Single-parent families, the elderly. **Socio-economic status**: People with low-incomes, low educational attainment, micro-companies / self-employed, energy poor; **Exposure to shocks and risks**: Risks related to heatwaves and energy poverty.
Sustainable housing				
ICCARus	Ghent, BE	560,522	To improve the living conditions of captive owners, i.e., homeowners unable to afford to retrofit their homes to make them safer, more energy-efficient and more adapted to evolving needs by offering them tailored support, establishing a revolving fund to enable renovation work to be financed.	**Socio-economic status**: Captive owners, low-income residents, low-skilled residents, people with health issues, the energy poor. **Exposure to shocks and risks**: Risks related to heatwaves and energy poverty.

UIA project	City	Population	Main objectives and actions	Target groups (according to vulnerability factors)
Yes we rent!	Mataró, ES	127,000	To reactivate and energy-retrofit private vacant flats for the rental housing market and make them available at a below-market prices to households in need of affordable housing by setting-up a cooperative.	**Discrimination**: Migrants; **Socio-economic status**: Low-income households, owners of low-quality housing.
Super Circular Estate	Kerkrade, NL	45,642	To deconstruct an existing 10-storey housing block and reusing 75%-100% of its material to construct four houses in the same neighbourhood and testing a sustainable, circular model of deconstruction and reconstruction (recycling) for the social housing sector.	**Socio-economic status**: Social housing tenants.
Sustainable mobility				
INNOAIR	Sofia, BG	1.236 million	To connect an urban area with two peri-urban areas through on-demand green public transport tailored to user's needs, via data analysis, app design, and incentives to reduce the use of cars and promote changes in mobility behaviour.	**Discrimination**: Elderly, low-income residents, families **Geography**: two low density peri-urban areas with poor public transport, poor public services and facilitates (such as medical centres or hospitals), city outskirts.
COMMUTE	Toulouse Metropole, FR	783,353	To reduce traffic congestion to/from the aeronautics industry & airport areas by providing alternative sustainable mobility solutions to commuting employees using a collaborative urban mobility management system, a "Mobility Management Plan" and a digital platform.	**Geography**: Commuter employees working in the aeronautics & airport areas, in the city outskirts blighted by traffic congestion.

UIA project	City	Population	Main objectives and actions	Target groups (according to vulnerability factors)
URBACT Gender Landscape	Umeå, SE	200,000	To achieve gender equality in mobility by collecting gender-disaggregated data on transport use and perceptions and carrying out a series of gender-sensitive sustainable mobility initiatives.	**Discrimination**: Women and girls.

All these projects have implemented inspiring practices to achieve Just Transitions and making these transitions affordable for all. These inspiring practices have been implemented despite encountering many barriers that are briefly mentioned below:

- Barriers faced by cities:
  - Lack of strong vision and/or leadership
  - Lack of a policy delivery mechanism
  - Lack of data and/or knowledge about vulnerable groups and their main problems
  - Lack of an enabling funding framework
  - Lack of municipal funds
  - Lack of cross-departmentalism at city level
  - Lack of monitoring and evaluation of policies and actions
  - A civil servant skills deficit
  - Difficulty with reaching out to vulnerable groups
- Barriers faced by the vulnerable people:
  - Lack of knowledge of opportunities among vulnerable people
  - Lack of adequate provision for vulnerable people
  - Vulnerable people's inability to seize opportunities
  - Lack of personal funds
- Transversal barriers:
  - Wicked socio-economic context
  - Pre-existing urban planning context
  - Intrinsic technological challenges

Section 3 of this report and Appendix 2 provide further details on each of these barriers and how these promising practices have addressed them.

Amsterdam, Barcelona, Prato, Getafe, Viladecans, Ghent, Mataró, Kerkrade, Sofia, Toulouse and Umeå, are the 11 cities and 11 projects that have implemented pilot projects in line with Just Transitions with an emphasis on accessibility and affordability.

The 11 projects display 5 types of promising practice, i.e., those that are in line with Just Transitions, is based on the incorporation **of environmental** (climate-friendly urban planning,

suitable energy, sustainable housing, sustainable mobility) and **social dimensions** (social inclusion and monetary policies ensuring affordability and accessibility of the services). Although none of the UIA cities has an explicit Just Transitions policy, some of them addressed both social and environmental components. This chapter is therefore structured around the following 5 practices:

1. Integrating just and green strategic dimensions in local projects.
2. Identifying the needs of vulnerable groups.
3. Collective infrastructure for green transitions.
4. Tailored solutions for individual households.
5. Enabling financial models.

The discussion of these promising practices is guided by a series of core issues relating to making Just Transitions affordable and accessible to all:

- Policy rationales, drivers, barriers.

- How are cities/projects have got off the ground / how barriers have been overcome?

- Key policy characteristics, added value, lessons.

- The potential for replication and scaling up.

The issues addressed vary depending on the promising practice. A summary of the barriers addressed by the projects, their added value and key lessons is provided in the Chapter 3.

2.2 Promising Practice 1: Integrating just and green strategies in local projects

All of the UIA projects are the emanation of multiple drivers; local leadership first, and it is worth examining the role of European policy initiatives, which have often enabled cities to pursue this Promising Practice by providing enabling policy frameworks and funding. These initiatives help building on the exiting local strategies to achieve just transitions. In the following, we name a few of these local plans that are in line with the overall European objective to achieve just transitions.

Sustainable Energy Action Plan (SEAP) and/or a Sustainable Energy and Climate Action Plan (SECAPS)[6]

The Sustainable Energy Action Plan (SEAP) and/or a Sustainable Energy and Climate Action Plan (SECAP) drawn up by cities as part of their commitment to the Covenant of Mayors

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[6] At the time of writing, the cities of Amsterdam, Barcelona, Prato, Sofia, and Umeå also kicked off their participation in the 100 Climate Neutral Cities programme. Further actions on Just Transitions might be undertaken within this frame as well in the next couple of years.

climate action have brought just & green issues to the forefront of the local policy agenda, effectively, creating initial inclusive green transition roadmaps (see Chapter 3 of this report). Each of the cities in Table 1, except for Kerkrade, prepared SEAPs as part of their SECAP strategy.

In line with its SEAP and SECAP plans, the city of **Viladecans**, Spain, identifies digital and green transitions and social cohesion as cross-cutting goals. The Viladecans 2030 Strategy has 1 strategic goal (out of 6) on "Green & Digital Transition", 17 challenges (out of 25) related to climate neutrality, and 1 mission (out of 5) on "*turning Viladecans into a climate neutral city by 2030*". To ensure a Just Transition, one challenge that stands out is to "*Minimise the risks linked to economic, health, social and environmental adversities, especially among the most vulnerable groups, by transforming the City Council into a proactive, inclusive, digital and open administration, capable of offering high quality services focused on the user*." The city's Local urban agenda includes 7 actions (out of 134) to achieve climate neutrality and one Strategic Objective relating to social cohesion and equal opportunities.

In line with its SECAP, **Barcelona**'s 2030 Climate Emergency Action Plan addresses the heat wave risks facing vulnerable communities. The Plan includes a specific goal: "*Take care of everyone*" and targets those most vulnerable to climate change due to their socioeconomic situation, age, gender, condition, or state of health. It proposes, for example, to gather information about the different impacts the crisis is having on women and the most vulnerable in Barcelona, such as low-income people, migrants, and refugees. Barcelona's UIA 'GBG_AS2C' project falls under in its Priority 6 - climate-based urban transformation. The latter proposes to:

- Analyse impacts on each district, identify risks and vulnerabilities (heat, presence of people vulnerable to climate change, buildings in a poor condition, lack of green spaces, etc.,) and specify what action is required, in line with existing plans, such as the 'Neighbourhood Plan' or the 'Nature Plan Barcelona'.
- Identify areas at risk and characterise this risk (extreme heat, flooding, power cuts, water availability, etc.).
- Draw up an urban planning design guide with sustainability and resilience criteria (based on workshops).
- Protect schools through environmental and road safety measures.

Barcelona's 2030 Climate Emergency Action Plan is fully consistent with current available data and the Spanish policy framework and has a robust delivery system. The city also has specific programmes that focus on the impact of climate change on vulnerable groups. This includes the Climate Shelter Network supported by the Climate Plan 2018-2030, of which the UIA's GBG_AS2C project is part. Climate Shelters The lattercombined two identified complementary needs:

- the city's Patis Oberts ('Open school playgrounds') initiative identified a need to provide leisure spaces for children, young people, and their families in their neighbourhoods, enhancing educational conditions and social interactivity by creating safe spaces
- the Climate Plan identified the need to create spaces that could act as Climate Shelters for the population in anticipation of an increase in episodes of heat waves.

The City of **Ghent** incorporates social and vulnerability components along with energy efficiency in its Social climate policy under its SEAP, which addresses energy poverty (linking

it to the City's Anti-poverty Plan). This climate-energy-poverty nexus is one of the topics Ghent's UIA ICCARus project is seeking to address. With 15% of households facing energy poverty in the city, ICCARus aims to help families, organisations, institutions, and companies to cope with rising energy prices by supporting energy saving measures funded through additional financial resources for low-income families. The city has put several different mechanisms in place to implement its social climate strategy, such as the 'De Energiecentrale' office, which assists residents with the energy products and services offered by the city, including energy efficient living, energy renovation of buildings, support for social housing construction and renovation. All of which seek to improve the access of lower-income groups to more efficient and sustainable housing, etc.

Sustainable Urban Mobility Plans

Since 2018, Sustainable Urban Mobility Plans (SUMPs) have also sought to focus more on vulnerable groups, and this has helped some cities to support Just Transitions in mobility. For example, the City of Sofia's SUMP seeks to develop sustainable transport, which at the same time provides "*easy and safe access to workplaces, schools, public spaces, parks, services and entertainment, regardless of age, sex, health status and one's income*.". The SUMP also identifies areas where little public transport is available and proposes an electronic billing system which would enable a more flexible tariff policy, all of which is addressed in Sofia's UIA INNOAIR project.

A common barrier in addressing cross-cutting or interrelated issues is the historical departmentalism in public policy, often referred to as policy silos. Yet, cross-departmental and multi-stakeholder governance is key to delivering integrated urban projects, especially when complex interconnected issues are involved – 'affordable and accessible green transitions' falls into this category. Coordination between different departments of a city administration and with local stakeholders strengthen the shared understanding and the focus of projects. An inclusive approach brings stakeholders on board and is key to smooth project delivery.

All the UIA projects studied in this report designed specific governance mechanisms, such as committees and working groups combining stakeholders with different specialisations (public, private, academic) and expertise (social, environmental, etc.). City of Viladecans with the Vilawatt project set up a Public-Private-Citizen Partnership and Toulouse Metropole with the COMMUTE project set up a Local Mobility Committee, for example. Yet, the specificity of the projects studied is that they were also strongly embedded within an integrated and cross-cutting governance mechanism, which may remain after the end of UIA projects *per se*.

For example, in the City of Viladecans, the Environment Department, the Social Department, the Steering Committee of the Ecological, Economic and Urban Transition and the Vilawatt team collaborated closely. They also worked with local stakeholders in a quadruple helix approach. Other stakeholders, representing organisations, residents, and experts in climate change, were also involved via a Local Climate Emergency Board, set up under the Viladecans Climate Pact.

In RESILIO, **Amsterdam** also created a cross-sectoral policy instrument on Climate Change Adaptation (CCA), through which different departments can collaborate:

- The Planning and Health Services departments collaborate closely on heat reduction.

● The Planning department and Waternet (the local water supplier) work closely with the Traffic and Open Space departments to coordinate works at the interface between the building and street level, and the sewer system.
● The city's Ecology Programme is also very active.

Gender Equality Policy

Changing the values of all departments for Just Transitions is a powerful way to get all departments on the same page. An example of a Just Transition policy with a gender perspective on sustainable mobility comes from the City of **Umeå**, which leads the URBACT Gendered Landscape network. The City of Umeå believes that challenging norms and behaviours, through a gender-sensitive approach, is as important as new technology, if Just Transitions is to succeed.

At the national level, Sweden has an overarching Gender equality policy, which seeks to ensure that women and men have equal power to shape society and their own lives in 6 areas (equal division of power and influence, economic equality, equal education, equal distribution of unpaid housework and provision of care, equal health, and 'men's violence against women must stop'). The city has adopted the same goals. In 2008, it signed the European Charter for Equality of Women and Men in Local Life and as a follow-up, it designed its own Strategy for gender equality work in the Municipality to take gender equality forward. The strategy supports local committees and aims to influence the City's policy goals and indicators.

In terms of an integrated approach, gender equality officers have been stationed in the urban planning department since 1989. They support the promotion of gender equality in the city's built space and cooperate with other departments to promote goals related to gender equality in the city. The goal is to grow sustainably to 200 000 people by 2050 and to ensure that this growth does not undermine social, ecological, cultural, and economic sustainability. All the decisions made by the City Council must be informed by a gender analysis and implementation is monitored. This includes for decisions related to public transport, defined in the Comprehensive Plan for Umeå Municipality (which also integrates the City's SUMP) which seeks to make the city a 'Five-kilometre City—high-density city' with corresponding sustainable mobility infrastructure. Actions on sustainable mobility therefore involve all the departments concerned with this goal (e.g., on public transport, smart solutions, climate neutrality) plus the gender equality officers. Working groups are set up for each new line of action. There is also close consultation with residents and co-creation of solutions.

Social Inclusion Strategy

Cities can use national and regional legislation and funding to help them deliver Just Transitions, with Europe acting as a catalyst and in doing so, create synergies between the national and regional policy frameworks and European funding. UIA funding helped the city of **Getafe** to deliver its EPIU project, which harnesses opportunities offered by existing national and regional policy resources to support their residents, in an integrated way, through both social and environmental policies. In its Social Inclusion Plan, the city identified its population's welfare needs in the different areas that determine inclusion and quality of life (housing, social services, education, health) leading to actions to improve welfare. In addition, the regional government's Social Inclusion Strategy 2016-2021 includes an aid

program for vulnerable families to pay their electricity and gas bills with the collaboration of the main electricity suppliers. As for the environmental component, there is a financial aid program, the Urban Regeneration and Rehabilitation Areas, to improve energy efficiency in homes. At the national level, recent regulations and a new Royal Decree 15/2018, have led to new policies to address Energy Poverty such as an energy price cap to protect vulnerable consumers, prohibiting the cutting off of energy supplies, and improving energy efficiency in homes. The UIA project EPIU has contributed to Getafe's effort to steer local policies to address energy poverty in a more sustainable way.

Furthermore, UIA projects have contributed to the EU's strategic priorities for regional and local development and with the various thematic and policy objectives of the EU's Cohesion Policy.

A few examples:

- RESILIO supports 7 of 11 ERDF Thematic Objectives (TO) and 12 corresponding Investment Priorities (IP), including: strengthening research, technological development, and innovation (TO1, IP1a), Enhancing access to, and use and quality of, information and communication technologies (TO2, IP2b).
- PUJ contributes to **TO5 - promoting climate change adaptation, risk prevention and management** (especially IP (a) supporting investment for adaptation to climate change, including ecosystem-based approaches). It also supports **TO6 - preserving and protecting the environment and promoting resource efficiency** (in particular to IPs: c) preserving and protecting the environment and promoting resource efficiency; (e) taking action to improve the urban environment, to revitalise cities, regenerate and decontaminate brownfield sites (including conversion areas), reduce air pollution and promote noise-reduction measures; (f) promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution); and, **TO9 - promoting social inclusion, combating poverty and any discrimination** (in particular IP (b) providing support for physical, economic and social regeneration of deprived neighbourhoods).
- In PUJ, Prato, 'urban jungle' oriented investments in one of its three districts complemented previous investments under Article 7.
- Four of UIA's innovating cities are expected to be funded under Article 9 of the new ERDF regulation: Amsterdam, Barcelona, Prato, and Getafe.

Cohesion policy has enormous potential to support the Just Transitions agenda, so it is worth discussing the current relationship between the UIA and the Cohesion policies. Interviews with UIA cities and selected Managing Authorities (MA) and Intermediate Bodies (IB) indicate that there has been little mutual awareness and therefore limited collaboration between them. Some cities struggled to identify their relevant MAs, whereas one Intermediate Body struggled to identify the UIA programme and the UIA projects in its area. MAs were, however familiar with the overall process initiated at the EU level to co-develop innovative urban projects, even if indirectly in the case of UIA projects.

Moreover, MAs see the full potential of UIA projects, including supporting them but also in terms of the UIA methodology for innovative urban projects. There is therefore scope for lessons from UIA projects to inform Cohesion programmes, both in terms of strategy, operational programmes, and projects.

In line with UIA goals and potentially learning from some of its projects, Managing Authorities'

Smart Specialisation strategies could support the implementation of Cohesion Policy's first two objectives: 1 - A more competitive and smarter Europe; and 2 - A greener, low-carbon transitioning towards a net zero carbon economy - which hinges on the idea that regional economic growth can be decoupled from resource use and emissions thereby reduced (European Commission, 2020).These goals are shared by the EU's mainstream programmes and initiatives.

Finally, as an innovation-supporting programme, the UIA is ready to take on and cover the risks inherent in cities' experimental activities, in compliance with EU programme rules. While this implies risks in terms of investment, this is what is needed to develop and test bold and creative solutions. MAs could adopt this innovation methodology by including – possibly at mid-term in the current funding round – innovation requirements in their operational programmes and the UIA experience could help them with the specifics of the approach[7]. This is precisely what the UIA programme is about. It has pioneered affordable and accessible solutions to the transition that may inspire new departures in policy across Europe. The new programming period (2021-2027) offers an opportunity to mainstream these approaches.

Added value (including the barriers addressed) of Promising Practice 1: Integrating just and green strategies in local projects

- Making the connections between issues and designing projects that seek to exploit synergies

  Ensuring that all residents benefit from climate-friendly urban planning, sustainable energy, sustainable housing, or sustainable mobility addresses a range of local policies, often involving a social inclusion dimension. Most of the policies, strategies, and governance models presented above (e.g., use of SECAPs, gender officers, etc.) cover different aspects of the green transitions, but even more, stress their complementarity and inter-linkages: climate-friendly urban planning and energy, housing and energy, mobility together with housing and energy, etc. Designing targeted local policies for specific groups and/or areas can further strengthen a necessary integrated approach. Integrated approaches directly address common barriers such as a lack of cross-departmental working or integration in the administration and the difficulty of reaching out to vulnerable groups.

- Putting Just Transitions on cities' agendas

  The cities studied wish to exploit the strategic funding frameworks available to them, including regional, national and, through the UIA, European frameworks. They have benefitted from strong local leadership to focus on specific needs and design novel solutions working with the relevant stakeholders, from users to private companies. Cities can drive the local agenda on Just Transitions **where local policy capacity is sufficient** to harness available policy opportunities, such as the UIA programme or other EU programmes, where policymakers wish to do so.

- Clear monitoring process
  Addressing the complex, and indeed wicked challenge of accessibility and affordability faces numerous barriers. By engaging in UIA projects, the cities studied have been able to overcome certain common barriers such as a lack of a policy, delivery & evaluation

system, policy silos, a lack of an enabling financial framework, a lack of municipal funds. One of the benefits of participating in an EU funded project is that programme procedures ensure that local policies have clear objectives, robustly designed actions, and a framework to monitor results. Feedback from monitoring is used to adjust to improve the policy framework and actions.

Replication potentials of Promising Practice 1:

- <u>Adjusting local policies to support accessible and affordable green transitions</u>

- As the UIA projects show, cities have put social and green goals on their policy agendas. Depending on local needs, the focus or relationship between these goals may vary. In each case, there is **an existing institutional architecture,** so any project addressing more than one policy area must operate within this architecture - institutional change being unlikely - which may mean setting up cross-cutting stakeholder task groups, cross-departmental working, etc.

- These projects have different facets but existing policy frameworks can support a wide range of themes so a sophisticated understanding 'funding opportunities' is important and cities must ensure that any policy action they are envisioning can be planned to fit with formal policy objectives and reporting frameworks.

- <u>Governing horizontally with all relevant stakeholders</u>

  Innovative governance models for complex projects are not necessarily 'plug & play'; time and effort may be necessary to bring in the relevant stakeholders. The bespoke organisations put in place in the UIA cities can be replicated partially or entirely with adjustments to local circumstances. Capacity-wise, larger urban areas could easily adopt the organisational models developed by the UIA city project.

2.3 Promising Practice 2: Identifying the needs of vulnerable groups[7]

Identifying the target group

Cities need to identify the profiles and needs of groups they are providing services for. Understanding how residents use and engage with public spaces, policies, and organisations is the first step in being able to address disparities and shape better green solutions. Yet cities are not always well-equipped to do this. Indeed, among the common barriers in this regard are:

- difficulty reaching out to vulnerable groups.
- a lack of data and knowledge on vulnerable groups and their main problems.
- a lack of monitoring and evaluation of policies and actions.
- a lack of skills among civil servants.

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[7] *The participation and involvement of target groups and co-creation will be covered by the third strand of this Just Transition capitalisation work entitled "Democratic Transition for All".*

Some of the UIA projects **started by identifying their specific target group(s), before identifying their needs and the best solutions**, which they would co-design with them.

This was the case for the city of Getafe. At the start of its EPIU project, **Getafe**'s sustainable energy policy did not address a specific vulnerable group, rather it addressed all groups equally. It was therefore seen as crucial to identify the target group more precisely. A first sociodemographic analysis (covering parameters such as neighbourhoods, income, needs, etc) was conducted through a survey carried out in the target neighbourhoods. This received 700 respondents and was enriched with data from the Red Cross. In addition, engagement with social workers, NGOs working in the social issues and/or energy poverty fields, and NGOs from Africa and Eastern Europe also provided useful data. The result was a better identified group characterised by their energy poverty needs. This group was made up of three sub-groups:

- Women, as there is a 'feminisation' of energy poverty in the most deprived communities (because of single-parent families, shadow economy work, etc.).

- The elderly, who are severely impacted by energy poverty.

- Migrants, who often do not access public subsidies because they are below the radar of public administrations or because there are barriers (not registered as residents, language, culture, trust, knowledge, etc.).

Data analysis and projection

Investigating for relevant data and improving the quality of analysis, policy and the power to predict is an important starting point. A lack of good local data makes it a challenge for cities to design appropriate targeted policies. Collecting disaggregated data is important to be able to tailor public services to real needs. Cities such as Umeå have used disaggregated data on the socio-economic situations of specific groups to better identify their needs. The data used comes from national and municipal statistics, e.g., on residential areas, the use of public transport, work location, etc. At the local level, gender-sensitive data has been collected for decades through dedicated surveys. Recent data has revealed the following:

- 56% of women travel sustainably compared with 42% of men.
- Women have less access to private cars than men: they therefore rely more on public transport.
- Women are more likely to engage in multi-stage and multidirectional trips within cities (e.g., buying the groceries and picking up the children, for example), whereas men tend to make unidirectional trips only.
- Women are more numerous in some types of work and therefore more concentrated in some areas of the city (e.g., in hospitals, certain service sectors such as retail).

Based on this data, the City of Umeå developed solutions to help women navigate the city more safely and efficiently, especially by public transport. Importantly, the gender perspective is not only aimed at creating solutions for women, rather, it is about understanding the underlying gendered structures and how they affect mobility (among other issues). When it comes to public transport, the numbers imply, for example that, if the city

wishes to reach its goal for sustainable mobility (bus, cycling, walking), it needs to place extra focus on men's travel patterns and seek to change their behaviours.

The initial analysis carried out by Getafe for its EPIU project contributed to the design of a Predictive Energy Poverty Tool. The objective was to use machine learning to better detect situations of energy poverty, and more efficiently and proactively address these through appropriate solutions. The data gathered from analysis, surveys, and the Red Cross as well as real data from users using the municipal service, the Healthy Households Office (OHS), also fed energy poverty-related information (parameters, data) into the tool. The tool is thus constantly updated and made more relevant.

Developing intervention methods that address everyone's needs would imply individualised solutions, which is neither transferable nor practical. Therefore, the EPUI project clustered the population based on the common features characterising sub-groups to enable solutions to be designed that would be tailored to these sub-groups. NB: Technical requirements for the design of the tool, as well as data protection and GDPR related issues, were addressed via a data management strategy, which is essential for any project involving the merging of large amounts of data from the city council databases.

Context analysis based on the collected data

Cities have also carried out studies to identify the scale of the sustainable urban planning issues they are facing. In Barcelona, the GBG_AS2C (Climate Shelters) project decided on its priorities after studying vulnerabilities in relation to the impact of climate change in the city's neighbourhoods. Heat maps were developed to show the areas where the heat island effect is the most extreme. Vulnerability maps looked at the age of local buildings, the heat index, the age of the population and the socio-economic characteristics of the neighbourhood (average income numbers of migrants, etc.). Based on this study, the project drew up measures to ensure residents' health, survival, and quality of life and selected the schools that would participate in the project.

To optimise its retrofit strategies, Viladecans, Spain, undertook two key studies for its Vilawatt project: a characterisation of the building stock in the project area and energy studies on the building typologies identified. To build up a fine-grained picture of energy needs of the buildings in the project area, the city used the following methodology:

- define the most relevant building and urban indicators.
- select and adapt data processing software (Enerhub).
- collect field data, visualise, and interpret.
- define building typologies according to survey results, urban legislation, and each building's existing energy technologies.

As a result, the building stock was grouped into 5 types[8], and the following conclusions were drawn:

- the compact and dense urban district form generates advantages (low energy losses, technically easy for façade renovations) and drawbacks (low solar gains).

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[8] -Typology 1: buildings built before 1955 (5% of the total), Typology 2: buildings built between 1956 and 1970 (38% of the total), Typology 3: buildings built between 1971 and 1980 (26% of the total), Typology 4: buildings built between 1981 and 2010 (31% of the total), Typology 5: buildings built after 2010 - only 2 units

- whilst most buildings have low exposed surfaces and reduced solar gain potential, individual buildings display significant differences, so energy renovation strategies will need to adapt to each situation.

- given the compact urban form, the influence of the surroundings might be greater than building parameters themselves (i.e., buildings with a similar geometry and thermal envelope may have very different energy needs depending on the height of neighbouring buildings).

Once the building stock had been characterised, a sample of buildings for each category underwent dynamic thermal simulation to verify their energy performance. Their thermal properties were simulated using both a comfort conditions approach (i.e., standard use) and real conditions approach (i.e., current use) and under both as-built and retrofitted conditions (identified by a set of construction and operational parameters). This enabled Vilawatt to establish work priorities.

In the case of Super Circular Estate, in **Kerkrade**, a study was carried out to identify the amount of material which could be reused in the building of circular social housing. The different material types from the 10-floor high 100-apartment housing block that would be deconstructed was inventoried as follows:

- Design of a materials database creating material codes to be able to track and trace materials during the deconstruction and construction phases. The database also contains information about quantities and weight of materials as well as their embodied energy and embodied CO2 and reuse options.
- Based on the material database system, it was possible to calculate the embedded energy and carbon emissions related to the harvested materials.

According to this study, an existing 10-storey high apartment block consists of 2.3E03 Giga joules embodied energy and 2.9E03 tons of embodied CO2 (Ritzen et al., 2019). This was used as a basis for the embodied energy and CO2 impact analyses of the new designs of the houses in the project.

Identifying the digitalisation's benefits and risks

In terms of the digital transition, cities are at different stages of development. The digital transition offers both benefits (efficiency, data, etc.,) but also brings risks (exacerbating the digital divide). In relation to urban development, not only can digitalisation save time and resources, but it also supports the essential cross-departmental governance needed in multi-facetted projects. As making a green city affordable and accessible covers a range of themes and departments, the digitalisation of data can help to obtain a complete and more fine-grained understanding of realities.

Some UIA cities have used digital platforms to collect, store, and share relevant data between project partners. In **Toulouse Métropole**, the COMMUTE project developed a digital platform to help partners improve their collaboration and to develop smart solutions to local mobility. Information from the solutions (e.g., apps) piloted in the project were centralised and translated into 50 mobility indicators. This enables user evaluation of the mobility services and the gathering of feedback on user experience in terms of congestion and pollution. The platform also supports collaborative decision-making and the analysis of modal shift and mobility flows. It helps to understand and measure mobility performance and to predict the

impact of policy actions on mobility. The platform enables project managers to understand the impact of mobility schemes on the home-to-work journeys of participating company employees, which in turn helps managers to identify new ideas for improving mobility practices.

The work on the platform also focused on ensuring compliance with GDPR rules. As the key to data security and privacy, GDPR also makes it possible to define effective and scalable smart solutions that rely on user protection.

In the Vilawatt project in Viladecans, energy (electricity and gas) and air quality (CO_2 concentration) monitoring systems were installed to assess the added value of the collective renovation works. These were installed one year before the works to provide a baseline for assessing impacts. The data collected enabled managers to assess real-life behaviours and changes of behaviour occurring because of the monitoring solutions, thus allowing managers to introduce refinements.

Take-aways of the Promising Practice 2: Identifying the needs of vulnerable groups:

- Ensures the relevance of local policies

   When cities identify the needs of vulnerable groups, they can better design solutions that meet their needs and that are accessible—in practical terms—and affordable. This makes local policies relevant and ensures public money is well spent and in areas relating to energy can support the achievement of carbon neutrality goals.

- Makes the vulnerability visible

   Vulnerable groups may remain hidden (hidden poverty) due to a lack of political interest, lack of data, etc. This Promising Practice improves the visibility of vulnerability groups, ensuring that they are adequately taken into consideration in the design of local policies. This can be done using good data, which means developing relevant data collection and monitoring systems as well as conducting studies and research.

- Promoting data unification and the digital transition in city operations

   This Promising Practice implies unifying, storing, and digitalising available information in a comprehensive manner at city level. This promotes the use of unified databases which hold all the information relevant to the specific policy field, fostering cross-departmental working. This is an enabling activity which may require investment in human resources (skills development in the public sector) and partnerships with the private sector.

Replication potentials of Promising Practice 2:

- Using existing tools in other fields

   Methods such as surveys, housing stock analysis, or data digitalisation can be used to analyse many other fields of the green transition such as financial poverty (social services, education, health), unemployment (local economy, social services, education), climate change (environment, mobility, energy, consumption, etc.). These

tools combine different types of data to provide a more complete picture based on cross-sectorial and more fine-grained analysis of vulnerable groups' situations.

- <u>Replicating the approaches and content of Promising Practice 2 in other cities</u>

   This Promising Practice, based on data gathering and exploitation, can be replicated. Data needs may vary, are existing data sets sufficient or is there a need for new tools? what stakeholder involvement is needed, what are the technical needs/opportunities? (e.g., in terms renovation, energy efficiency solutions, etc.). Cities need to be cognisant of the human resource, cost and GDPR implications of data gathering, management and use.

- <u>Implementing existing tools at higher governance scales</u>

   The Promising Practice can be implemented at other governance levels (e.g., regional): while keeping its fine granularity, the data gathered could enable the design of macro-level policies and/or specific and targeted initiatives.

- <u>Making the data available to other sectors (e.g., from public to private)</u>

   While respecting GDPR, the data gathered about vulnerable groups and needs could be useful to other stakeholders (academic institutions with an interest in the topic, construction companies to identify energy inefficient homes and buildings, and energy suppliers to identify homes without installations or inefficient buildings) and to support the design of other public policies in the city.

2.4 Promising Practice 3: Collective infrastructure for green transitions

Infrastructures for whom?

The concept of 'collective infrastructure' covers a range of types of infrastructure. This section focuses on just two, green infrastructure for climate change adaptation and green transport infrastructure. In the UIA projects these infrastructure needs combine with accessibility and affordability issues. To do this, they have addressed a wide range of barriers:

- Existing urban planning realities
- Difficulty reaching out to vulnerable groups
- Lack of knowledge of opportunities among vulnerable people
- Lack of provision in policy addressing the needs of vulnerable people
- Vulnerable people's inability to seize opportunities
- Wicked socio-economic context
- Intrinsic technological challenges

Planning green infrastructure that benefits vulnerable groups indirectly

If it is left to the market to develop and implement green solutions, the most profitable neighbourhoods, with the highest return on investments, will be served first, possibly exclusively. Cities therefore have a role to play in ensuring the delivery of a public service available to those at risk of being left out. Several UIA projects designed solutions to reduce

the impacts of climate change in deprived neighbourhoods. Although residents cannot access the newly built green infrastructures in this 'indirect' category, they will benefit from their positive impact as the following examples show.

The city of Prato's Urban Jungle project aimed to re-nature several neighbourhoods home to high rates of migrants and low-income residents by testing the creation of 'urban jungles', designed to provide 'cool islands' during heatwaves but also to improve air quality in deprived areas. The project increased the permeable and green surfaces by 14,200 m2, with the creation of urban jungles in two public pilot areas of the city by transforming yards, roofs, buildings, walls, barriers, etc into natural places. For example, a shady green roof structure was built over the covered market in the Macrolotto zero area, and a vertical garden was built in the St Giusto social housing district. The project has also transformed 4800 m2 of vacant industrial grounds / surfaces into green gardens, with the creation of a network of planted areas.

Amsterdam's RESILIO sought to reduce flooding in deprived areas. It targeted several social apartment blocks and carried out a large-scale test of the smart blue-green roofs approach designed to reduce flood waters and cool upper floors. The project prioritised neighbourhoods exhibiting the highest level of water stress, i.e., those that are most vulnerable to flooding during heavy precipitation. This vulnerability was examined using maps that show the areas most at risk of flooding during periods of heavy rain. In total, 10,000sqm of roofs were converted into blue green roofs, which use valve technology to control the storage and release of water. They reduce the runoff in times of heavy rain in key locations and create a localised cooling effect for the upper floor apartments. They are also beneficial to biodiversity.

Planning green infrastructure that is *accessible* to vulnerable groups

Some UIA cities have developed solutions that are physically accessible to all, and at no cost to residents, and which they can enjoy. This is the case of GBG_AS2C in **Barcelona**, where the courtyards of 11 schools were transformed into 'neighbourhood climate shelters', through the installation of three main categories of measures:

- Blue measures, these are water features, such as drinking fountains, or separate areas for playing with and handling water.

- Green measures, to increase green areas, improve the vegetation in schools and create shaded areas, with green walls, more space for gardens, trees to create shaded areas and green fences and arbours.

- Grey measures, adapting school buildings to improve insulation, with roofs, awnings, façade protection, and cross ventilation.

These measures tackle the climate emergency and high temperatures by creating surroundings that provide greater thermal comfort. The shelters may also be used by the public during the summer, in the event of a heatwave. These initiatives have helped to reclaim around 1,000 m^2 of natural land with plants in school playgrounds, replacing concrete surfaces, and 2,213 m^2 of new shaded areas have been created with arbours and awnings. A total of 74 trees have also been planted, and 26 new water points installed.

Designing accessible public transport to all

In this study, two UIA cities and one URBACT city implemented sustainable mobility projects to provide public services that are accessible to all and at a reasonable cost:

[Sofia's INNOAIR project](#) will re-connect the suburbs and peri-urban areas with the city centre, where connection had previously been lacking. It is doing so by putting in place on-demand green public transport. This service will pick up passengers from three target neighbourhoods, from the nearest corner to a user's home in less than 5 minutes and take them to the closest bus or train station. Users can book and pay for their ride through an online application incorporated in the public transportation management system. This new public service **used artificial intelligence** to determine the optimal routes for the on-demand e-buses. It exploits data (information/data from the city, number of registered cars, presence of services— schools, hospitals, etc.) and data collected in the field through urban walks with residents and participatory processes. In July 2022, five pilot electric on demand buses, with a capacity of 20 persons, began a one-year trial. Sofia's residents can use their existing annual public transportation pass (at no additional cost) or buy a single journey for under 1 Euro.

In Toulouse Metropole, the COMMUTE project promoted carpooling, cycling, and walking as alternatives to cars, targeting employees working in the aeronautical industry & airport area—an area lacking in public transport. This was possible through the design of a common mobility strategy through a collaborative 'Mobility Management Plan' to boost the shift from private car use to public transportation, car-pooling, cycling, and walking. In addition, each of these services have been further developed:

- an inter-company carpooling scheme involving the largest stakeholders in the airport area and substantially expanded to include 40 000 employees, an efficient and user-friendly ICT application supporting the service, as well as parking areas, electric charging facilities, and carpooling spots.

- cycling services, workshops and campaigns, as well new cycling lanes and a cycling Hub.

- trials with walking.

- establishing mobility managers in companies to promote behavioural change.

Finally, Umeå has developed a gender-sensitive approach to improve access to public transport for women and girls. Umeå recognises that women and girls have different ways of using public transport compared with men. A [Climate smart bus station](#) close to a Hospital, where many women work night shifts, was transformed to make it safer but also more convenient to use for both users and buses (electric or fossil fuel with doors located in different places.) The station features personal 'pods' which hang from a giant timber roof and create a personal space to give shelter and comfort while waiting. The [Lev Tunnel](#), which connects the city centre with the Haga neighbourhood, also undertook massive renovation to make it more accessible, practical, and safer. It is now wider and has more light, with optimised light inflow at all entrances. An additional entrance in the middle and rounded corners increase the perception of safety. This user-friendly design was enhanced by artists with recordings users can listen to and continuous sounds of nature.

Take-aways of Promising Practice 3; Collective infrastructure for green transitions:

- Making the green city accessible to all

All the cities reviewed here have implemented solutions that provide useful services to their target groups giving them access to the energy and green transition or protecting them from the impacts of climate change.

- Contributing to long-term urban planning

Collective green infrastructures at the scale of a housing block, block of houses or neighbourhood enhance local urban areas immediately, at low cost, and for the long term. The effects will impact the future of the location with positive spillover effects (biodiversity, health) and are likely to induce imitation.

Replication potentials of the Promising Practice 3:

- Being more creative with nature-based solutions and envisaging collective infrastructures

Recent heat waves across Europe have shown the value of nature-based solutions, especially intensive tree planting, in reducing the urban heat island effect and improving air quality. Every city has the potential to increase forest cover, whether by lining streets with trees or by following Prato's urban jungle approach using dense vegetation cover in different urban settings. Every city has schools that could be adapted to provide climate shelters. Other places could be transformed into shelters: libraries, community centres, care homes, etc.

- Using artificial intelligence (AI)

INNOAIR tested AI and found it useful in the development of services to peri-urban areas, such as in the design of on-demand public transport. This could be either replicated directly or further tested to involve more criteria and to test its usefulness for other green solutions.

- Implementing a gender-sensitive approach

Umeå's gender sensitive approach, including its Gender Strategy, and gender sensitive transport innovations, can be applied in other areas and other [urban policies, planning, and services](#).

2.5 Promising Practice 4: Carefully tailored outreach solutions for target publics

The concept of 'outreach' refers to effectively engaging with hard-to-reach target groups. This section focuses on how cities have gone about achieving this in their UIA projects. 'Wicked' accessibility and affordability issues and carefully crafted outreach are a clear focus in several of these projects, and to achieve results they have had to overcome a wide range of barriers, such as:

- Lack of data about vulnerable/reticent target groups, their main problems, engaging with them with tailored policies.
- Lack of knowledge, time, capacity to engage with opportunities among vulnerable people.
- Lack of personal funds preventing investment in home improvements.

Providing complementary solutions through one-stop shops

Providing clear, understandable, and accessible information about sustainable opportunities and services is key to reaching vulnerable groups. Amongst the solutions proposed by cities, was a physical presence in the heart of target neighbourhoods, where beneficiaries can access generic information as well as tailored support with existing opportunities (schemes, etc.).

In Getafe, for example, the EPUI project set up the Healthy Households Office (OHS) to provide residents with accessible support without using technical and bureaucratic language, one they could trust. The OHS provides information and advice on energy bills, as well as help with contractual issues to residents willing to take up Energy Efficiency and Renewable Energy measures. It also explains the 200 tailor-made solutions available to its visitors.

These solutions include:

- for households: energy audits, energy efficiency kits, use of smart sensors to monitor and reduce energy consumption, supply cut management, or the installation of small and medium-scale passive solutions.
- for buildings: whole building rehabilitation, use of smart sensors to monitor and reduce energy consumption and boost efficiency, self-produced energy and upgrading of heating facilities.

Getafe will also organise an architectural competition to develop an urban initiative on cooling to improve comfort through heat-island mitigation in specific neighbourhoods.

OHS beneficiaries have mostly been people in structural poverty who are already supported by social services, as well as elderly people whose housing and economic conditions do not provide thermal comfort. Particular attention is being given to residents suffering from power supply cuts and debt issues due to the difficulties of dealing with such extreme debt situations. In addition, the service has also identified situations of hidden energy poverty in Getafe and this information feeds into the project's data analytics system.

Similarly, the Vilawatt project's Information Point is a one-stop agency to help the residents of Viladecans to better understand their electricity and gas bills and to identify possibilities for home energy improvements that are tailored to the needs of each user. It is also via this

service that users can benefit from a scheme enabling the collective purchase of energy by customers as well as the Reward currency developed by the project (see link in footnote)[9].

Getting owners on board with tailored support

Building renovation is crucial for both sustainable energy consumption and sustainable houses, so owners are a key target group. In some cities, such as Ghent, in Belgium, homeownership no longer guarantees stable, high-quality housing because a homeowner who may have inherited their home or purchased it with a loan may be unable to afford to upgrade it. Such owners are known as 'captive owners' and there are around 6,000 in Ghent. Captive owners can also be in a state of vulnerability and may suffer from energy poverty. They may be unable to modernise their homes, even in their own longer-term interests. Moreover, the incentive to upgrade may be low, as any additional property value from improvements is perceived as a mid-to-long term gain. The immediate gain in thermal comfort or on bills is a low incentive if owners are not also occupiers.

To support owners with renovation, some cities have gone a step further than one-stop shops, by providing tailored assistance to individual owners for the entire renovation process. This is the case in Ghent, in the ICCARus project. On top of an attractive financial package (see 2.6 below) captive owners could either benefit from tailored support in the form of guided renovation or they could let the city renovate and rent out the flats. The project also offered temporary housing during the renovation work. For the guided renovation, social workers played a key role in facilitating the process and providing emotional support. They identified captive owners, dealt with the registration process and the practical side of the renovation, and strengthened the social support for participants by organising group gatherings and community building activities. Social workers assisted by explaining the complex regulations and work phases and by giving sufficient time to each family. A 'technical counsellor' oversaw the entire renovation process: contacting contractors, asking for tender documents, checking renovation works, etc.

Lastly, owner-participants were involved in the design and decision-making of the renovation. Such a co-design approach ensures that the renovation meets the owner's needs, and it teaches owners valuable home improvement skills. The most common renovation works were as shown in the table below.

Table 3: The most common renovation works in ICCARus by improvement category

	Safety	Living quality	Energy efficiency
Installing smoke detectors	x		
Updating the electrical system	x		
Renewing and insulating the roof		x	X
Replacing single/old double glazing		X	X

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[9] https://www.uia-initiative.eu/en/news/vilawatt-currency

| Installing central heating | | X | X |
| Updating or renewing bathrooms | | X | |

In the case of [Yes, We Rent!,](#) the focus was on ensuring an optimal use of the existing building stock, which also helps to limit urban sprawl and therefore land consumption. Many of Mataró's empty dwellings are concentrated in certain peripheral areas characterised by poverty and the socio-economic dynamics of immigrant segregation. The project involves dialogue with owners to ensure a satisfactory level of energy efficiency and of overall housing standards. To support them, an architect visited 36 flats to assess their renovation needs. In addition, the project produced a booklet aimed at owners describing the statutory standards (state, region, city levels) applicable to rehabilitation works and energy efficiency.

Based on the architect's assessments, the city sent a proposal to the owners detailing any compulsory and/or recommended renovation works needed. This included information about any subsidies or other benefits the owner was eligible for, or the conditions they would be subject to under Yes, We Rent. For example, they were informed about the duration of the assignment of the flat to the 'Yes, We Rent!' housing scheme and the maximum monthly rent under the scheme. Based on the proposal, at the time of writing, 11 owners had submitted a grant application and 7 had handed over the management of their flats to the city. Four owners had started their own rehabilitation works on their empty flats with a view to letting them after the project.

The owner then had the choice between having works carried out with up to 20 000 euros of funding and/or of delegating the works to the city. 50% of the owners chose to carry out the works themselves. In addition, the project also developed a template for a rental contract between the owner and the tenant to make it easier for owners to rent the flats with legal security. The arrangement is that once renovated, the flats become part of the cooperative for at least 5 years.

Renovating collective buildings

Cities have also developed specific schemes to support the renovation of collective buildings directly, through the retrofitting carried out by the city in liaison with the building owners. This was the case in Getafe (EPIU project) and Viladecans (Vilawatt project), which, as mentioned above, promoted energy upgrading via their one-stop shop offices to explain the process to tenants and to act as an intermediary where necessary.

In Viladecans, three residential buildings (demonstrator buildings) underwent deep renovation to boost energy savings, aiming for a 70% energy saving in each of the buildings and the generation of 50% of the demand through renewable energies, organised through available suppliers. The buildings were identified based on the initial research. The social profile of the tenants and residents was very diverse - elderly and working-class people - as was the levels of energy efficiency awareness. The buildings selected were those with significant potential for energy efficiency improvement. They were modest in construction quality and were built between 1960 and 1980 at a time when energy efficiency was not a concern (facades and roofs had no insulating air chambers, nor any other kind of thermal insulation). The buildings were environmentally modelled. This included a study on the deep renovation measures needed, assessing building characteristics and calculating energy

demand, and drawing up 'before and after' scenarios. The retrofit of the three demonstrator buildings included both passive and active measures, as listed below[8]:

- Passive systems renovation

    o Insulation of facades and roofs
    o Change wooden components (window frames and doors).
    o Replacement of single glazing by double glazing
- Active systems
    o New conditioning systems
    o New heaters
    o New ventilation systems
    o Change to LED bulbs
    o Replacement of refrigerators by those with a triple A rating

The subsequent renovation of 55 dwellings took a total of 24 months.

Participants in Spanish energy retrofit schemes are faced with fiscal burden, even if they do not engage in the process directly but merely benefit from energy efficiency improvements. In many countries, the taxation system requires that any subsidies received for home energy renovation be added to the taxable base of rent. In the case of Vilawatt and EPIU, it was essential to evaluate the impacts of the funding for rehabilitation in advance, including the fiscal barriers and any impact on beneficiaries' tax situations. They were low-income beneficiaries and not obliged to declare their incomes as they were below the limit. One of the **lessons** *from this project is that it would be difficult to replicate all the services as originally conceived so flexibility is needed to adapt the concept to context. The unexpected tax impact (around € 5,000 per home) turned out to be a negative impact, particularly in the cases when residents did not previously have to file income tax return because they did not reach the minimum income.*

If a scheme places people into a situation of tax liability where none existed before, it creates a clear disincentive to vulnerable households' participation in energy efficiency improvement schemes. This effect needs to be taken seriously by public authorities at all levels, particularly by national fiscal authorities, if ambitious targets for the refurbishment of the housing stock are to be met. Cities are still investigating new approaches to compensate or offset the income taxes that residents must pay when in receipt of in-kind subsidies.

Take-aways of Promising Practice 4, Carefully tailored outreach solutions for target publics:

- <u>Addressing the complexity of the Just Transitions for all challenges</u>

    The socio-economic phenomena cities are addressing are the result of complex and interconnected macro and micro factors and are not easy to change. For example, where energy upgrading is concerned, changing energy consumption behaviour is hampered by a variety of social, cultural, and financial barriers such as - comfort related behaviours (e.g., the comfort single-use cars or of high temperature at home in winter), - the statuses of target families (e.g., residents need specific medical equipment's/environments or large families), - the types of infrastructures in question (types of building construction, mobility network), - financial constraints (difficulty

residents may have in paying bills preventing them from investing in new technologies to reduce their energy consumption), - a lack of information or trust in the process (e.g., allowing strangers to enter homes to carry out renovation), or in the system (e.g., change in tenants). A key lesson is that tailored support is better at engaging effectively with target groups and addressing many of the socio-cultural barriers in play.

- Using residents' feedback in local policies

  Providing direct coaching and support to vulnerable groups can generate feedback which in turn enables policymakers to better understand needs, realities, and difficulties, which can improve the design of local policies.

- Developing an in-kind subsidy system

  In many instances, subsidies for renovation of both private and collective housing are paid after completion of the work. Low-income owners may therefore be reluctant to use such funding, in turn undermining the overall retrofitting effort. However, when support is provided directly in the in-kind form of renovation work paid for by a city, more residents will implement the necessary works, as they do not need to advance the money.

The replication potentials of Promising Practice 4:

- Establishing one-stop shops

  The Vilawatt Information Point and EPIU's OHS are an outreach format that can be adjusted to support the delivery of other city policies (e.g., expanding the services in relation to energy, or linking them to social issues). They are an effective delivery mechanism for tailored services in cities or neighbourhoods of any size. They can provide information, counselling/coaching, promote services, as well as provide feedback to policymakers, which can help improve policy design.

- Designing a methodology for tailor-made solutions

  The methodology for EPIU's tailor-made solutions was to determine a package of measures appropriate for each population cluster. Other cities can learn from the criteria used, which link each tailor-made solution to the variables that define the demographic they target. At the same time, some measures (such as advice on energy habits or bill optimisation) are universal and can be applied independently of the specific needs of a household or building.

- Carrying out in-depth legal and fiscal work

  The legal and fiscal work undertaken to ensure that residents can benefit from the renovation schemes without paying additional tax, is a key lesson, both in its specific detail in the case of the Vilawatt project in Spain, but also in principle, as an essential feature of policy designed for vulnerable individuals or groups, in the case of other countries.

2.6 Promising Practice 5: Enabling financial models

This section focuses on how cities have been creative in developing enabling funding & policy delivery frameworks to overcome 'wicked' accessibility and affordability barriers – not only those faced by people lacking personal means but also the creation of novel public funding mechanisms.

Giving vulnerable groups the financial means to participate in the transition using creative funding models and subsidies

In traditional subsidies and tax-related incentives it is often the case that eligible activities must be completed and paid for before the paperwork for reimbursement can be processed. Lacking own resources, vulnerable groups, therefore, essentially have no access to such schemes. Some UIA cities trialled funding mechanism to address this problem.

In its ICCARus project, the city of **Ghent**, developed **a revolving fund** to support the renovation of private households with up to 30,000 euros per renovation. This fund is a long-term financial tool based on the principle of subsidy retention. Under this principle, recipients of the subsidy pay it back to the fund when the property is sold, let, or sublet, along with a portion of any surplus value generated. This creates a sustainable stream of resources to support further renovations while ensuring public value-capturing and mitigating speculative behaviours, which can make housing more expensive and speed-up gentrification. To guarantee this payment, a mortgage is taken out on the house, which is lifted after repayment.

The fund is available to low-income owner-occupiers based on various criteria. The work is either procured or, under certain conditions, the homeowner may perform them. The contribution may only be spent on a list of renovation works that is drawn up by the technical counsellor and agreed on by signing the renovation agreement.

In **Mataró**'s Yes We Rent! Project stakeholders sought to tackle the market under-supply of affordable (defined as no more than 40% of income) rental accommodation for the city's low-income residents. The city knew there were numerous vacant flats and that the cost renting was rising. Yes, We Rent! therefore provided **financial and organisational support** to landlords to renovate and energy retrofit their properties.

In the first instance, the city invites the owners of vacant flats to participate in the Yes, We Rent Scheme as an alternative to the payment of a vacancy tax (levied on vacant properties). For those willing to participate, it determines the renovation needs and a subsidy of up to 20 000 € per flat is available, plus a guarantee in the case of rent arrears. Once the owner joins the initiative, a tender for the renovation is organised. The city drew up model contracts for the renting of the **renovated/energy efficient** flats, at rates below the market rate. In return for participation, owners let their flats for a minimum of 5 years to the 'Yes, we rent!' housing scheme at below market rates.

A question mark remains regarding inflation and the value of the fund in the next couple of years. Inflation is an important parameter for the management of revolving funds in terms of fund value, membership, and the viability of the business model. It is especially so in a period of much higher inflation caused by the energy shock and a supply chain crisis which can quickly diminish the value of the funds.

The value of creative incentive systems and housing cooperatives in delivering affordable housing

The project included handing over the management role to a housing cooperative '*Bloc Cooperatiu*'. The Yes, We Rent! Housing cooperative plays an important role by taking out personal home insurance plans and intends to set up a rent guarantee fund.

The cooperative concept acknowledges a range of barriers (trust, skills, capacity, outreach) in the incentive system that would be addressed by participants themselves. The cooperative will itself provide and manage the affordable housing (and tenants for the owners) and a range of services to improve living conditions (e.g., support for personal home insurance plans) and take care of private rental flats (condition, owner-tenant relationships).

Setting up such a cooperative is challenging and requires significant local efforts and capacity building. In terms of the cooperatives internal functioning, the lower rents allow the cooperative to fund its organisation and activities.

- User members pay 100 EUR/month to the cooperative. 20% of this payment is used for a Social Fund which can be used by the cooperative to cover diverse costs such as minor repairs/needs arising.
- Moreover, renting members pay a fixed fee of 12% of the rent to support the functioning of the cooperative and the consolidation of the model. The monthly fee may be reduced according to the tasks carried out by the member within the cooperative.

Engagement within the cooperative is ensured through novel incentive systems. For example, Flats are allocated to members depending on seniority in the cooperatives and points, received for fulfilling tasks/work for the cooperative (e.g.) or for social needs (e.g., mobility problems - flats with lift or on ground floor), for a number of household members (i.e., larger apartments) or low income (i.e., flats with a rent lower than 400 EUR/month).

The cooperative has attracted residents with quite different social backgrounds, from people with a high social and cultural status attracted by the idea of a fairer relation between owners and tenants and of a new model of housing 'consumption', to others more driven by their need for affordable housing. The latter is dominant and includes people who have suffered discrimination in the rental market, which is traditionally risk averse. The project therefore supports vulnerable groups very directly.

At the time of writing, the cooperative has 67 members and more than 100 on a waiting list. It manages 25 flats, in which 32 members of the cooperative live. The long-term financial viability of the current model beyond the initial 5-year rental agreements may not be sustainable (it will be difficult to maintain lower than market rents and therefore the cooperative's financial model) and this is being addressed by local stakeholders.

Determining the costs of technical solutions for the reuse of building materials
Delivering policy solutions with a complex technological component, such as the use of recycled material in the construction of social housing, running a fleet of electric vehicles, etc. is expensive. The UIA enabled some cities to trial new approaches and develop technological solutions with the potential to roll out on a much larger scale, notwithstanding their (current) high cost for the city and price for the users.

One such a solution was to test the feasibility & cost of reusing construction materials, i.e., in a circular way, to build social housing. This was the goal of the Super Circular Estate project, in **Kerkrade**. The project built four pilot housing units with different reuse/recycle techniques using materials acquired from the circular demolition of a 10-floor high-rise social apartment building. The harvested materials were turned into resources in 24 material flows (e.g., timber was restored for reuse/recycling). Using recovered materials, a social plinth (a new collective area) was also created in a second apartment building. The second building will be renovated and transformed into 110 apartments after the completion of Super Circular Estate.

The quality of the harvested materials was tested. A coding system and a material passport were developed. Each design proposal was dependent on the judgement of the deconstruction contractor regarding their ability to recover materials with minimum damage and to characterise the properties of the existing materials. Regulative obstacles, i.e., policy and regulatory gaps related to the reuse of materials, were also addressed to find ways to overcome them.

While the project estimated that 75%[10] of construction material ordinarily required when using non-circular techniques would be saved in such a project and energy consumption reduced by 34% than standard construction, the costs would remain higher than standard construction, preventing the competitiveness of such a solution on the market as long as the carbon price is low. If the carbon price were to rise sufficiently, the financial viability of recycling may increase. Further research is therefore needed to assess the financial viability of this approach.

Take-aways of Promising Practice 5; Enabling financial models:

- Making Just Transitions financially accessible

    All the UIA projects discussed in this section 2.6 have found novel ways to address complex accessibility and affordability challenges.

- Empowering vulnerable groups

    As house prices have risen in almost all major cities, people on low incomes often spend a high proportion of their income on housing costs. Low-income residents have often little choice, and if they can buy, they are likely to buy a property whose quality does not meet required standards. Properties lack insulation and efficient heating systems. This Promising Practice 'enabling financial models' offers low-income homeowners (e.g., ICCARus) a way to increase the quality of their property and in doing so the fund aims to contribute to their health, quality of life, and reduce their environmental footprint.

- Correcting market failures - Bringing the owners and occupants of rented properties into a renovation process

    Owners who let their accommodation often feel disconnected from any renovation

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[10] In the Netherlands there is also the Villa Welpeloo house constructed by Superuse using around 60% of recycled materials but using a different method and with a focus on upcycling. See https://ellenmacarthurfoundation.org/circular-examples/finding-and-utilising-waste-materials-for-construction-purposes

needs if they do not live in the accommodation. Bringing owners and tenants together under an incentivised renovation process can spark mutual commitment; in Yes, We Rent!, a commitment lasting for at least 5 years was created

Replication potentials of Promising Practice 5; Enabling financial models :

- Addressing the technical, legal, fiscal, and economic aspects of the models

   Each of the above financial models for the Just & Green Transitions, i.e., revolving funds, cooperatives & renovation incentives, or costing the circular reuse of building materials has faced a series of technical, legal, fiscal, and economic constraints and challenges. Not all of these were overcome. Other jurisdictions, national or local, may however overcome them or may decide that reforms to standards or funding is necessary to achieve certain goals, such as energy efficiency, affordable housing, etc. These are political decisions. The UIA projects identify barriers and offer grounded and creative solutions which can inform and inspire policymakers in cities and other governance jurisdictions grappling with similar challenges.

- Developing new policy models (funding)

   Funding is always a key challenge. The promising practices discussed here may not all be financially viable in the long run. Yet, they have enabled cities to try out creative solutions, which point to possible policy models for the future. Yes, We Rent! may, for example, be continued through *Bloc Cooperatiu*; it may be abandoned and/or the city may conduct new research on the cost/benefits of building of new housing.

This report has focused on affordability and accessibility as part of a Just Transitions. Much of course depends on national governments and national policy. Further research to compile examples of national policies would be useful and could interest regional and local policymakers. A brief example might be the Scottish LIFT scheme, which widens access to home ownership by supporting first-time buyers. There are also new options emerging outside of public policy in the private building sector, which may offer low-cost solutions. The 'Tiny House' approach for example is worth examining in terms of its accessibility, affordability, and environmental benefits.

In relation to funding opportunities, the reader is referred to section 1.1 and the paragraph 'The EU policy frameworks for cities relevant for Just Transitions' for a list of EU sources of funding and policy ideas. Further research is required on these new and emerging policies, which will remain beyond the scope of this report.

3. Affordable and Accessible Green Cities: Recommendations and a roadmap for cities

This final chapter:

- Sets out all the barriers that were addressed by the Promising Practices that UIA projects have tested (see Table 3 below). This will be of particular interest for any city that will start their Just Transitions to be able to see all potential obstacles that Promising Practices may face;
- Proposes a roadmap for a Just Transition that can be replicated in other urban contexts, based on the above-mentioned barriers. These guidelines are potential responses to overcome the barriers; and,
- Summarises all the added value, main lessons learnt and the replication potentials that were implemented by the UIA projects.

3.1 The barriers addressed by cities to make the Just Transition a reality

This report identifies a series of barriers (see definitions in Appendix 2), which can prevent cities from addressing accessibility and affordability needs in their green actions/projects. As a summary of Chapter 2 on Promising Practices, Table 4 below shows which barriers each of the Promising Practices addressed. This table is intended to help cities identify which Promising Practice may be of interest to them considering their own specific context and given the barriers they may be facing.

Table 4: Promising Practices and the barriers they address

	Promising Practice 1: Integrating just and green strategic dimensions in local projects	Promising Practice 2: Identifying the needs of vulnerable groups	Promising Practice 3: Collective infrastructure for green transitions	Promising Practice 4: Tailored solutions for individual households	Promising Practice 5: Enabling financial models
Barriers facing cities					
Lack of strong vision / leadership	X				
Lack of a policy / delivery mechanism	X				
Lack of data / knowledge about vulnerable groups and their main problems		X		X	
Lack of an enabling funding framework	X				X
Lack of municipal funds	X				X

	Promising Practice 1: Integrating just and green strategic dimensions in local projects	Promising Practice 2: Identifying the needs of vulnerable groups	Promising Practice 3: Collective infrastructure for green transitions	Promising Practice 4: Tailored solutions for individual households	Promising Practice 5: Enabling financial models
Lack of cross-departmentalism at city level	X				
Lack of monitoring and evaluation of policies / actions	X	X			
A civil servant skills deficit		X		X	
Difficulty with reaching out to vulnerable groups	X	X	X	X	
Barriers facing vulnerable people					
Lack of knowledge of opportunities among vulnerable people			X	X	X
Lack of adequate provision for vulnerable people			X	X	X
Vulnerable people's inability to seize opportunities			X	X	
Lack of personal funds				X	X
Other barriers					
Wicked socio-economic context			X	X	
Pre-existing urban planning context			X	X	
Intrinsic technological challenges			X		

The inspiring UIA projects and the URBACT city remain as inspiring practices that their novel approaches and ideas have led the emergence of innovative thinking and a source of

inspiration for cities to think outside of the box in the face of their urban challenges. Although not all projects may be financially viable in the current governance and economic landscape, nevertheless they remain a source of inspiration.

3.2 Roadmap and factors of success for city-level action on Just Transitions (affordability, accessibility, green goals)

The route to Affordable and Accessible Green Cities has many obstacles, yet it is one that cities should take, wherever possible, notwithstanding the significant number of political, economic and other situational barriers they may face that have not been discussed here as they lie beyond the scope of this report. To overcome the obstacles they may face, cities should consider 2 main elements to this challenge:

1. The prerequisites to action
   a. Committed leadership from public authorities.
   b. Sufficient administrative capacity.
   c. Prerequisites linked to the specific solutions for accessible and affordable green transitions.
2. The available solutions—trialled by UIA and URBACT cities or from other sources as part of the policy design process.

These points are elaborated on in the paragraphs that follow.

Prerequisites

The following points address the accessibility and affordability aspects of green transitions, mindful of the needs of vulnerable groups:

Committed leadership from public authorities

Join up the vision

It is challenging to develop a project combining both social inclusion and energy transition concerns. Goals need to be well-defined, and policymakers must be committed to supporting the policy process as there will be hurdles. The goal needs vision, one that stresses the need that a green transition is essential and that to be successful it must include society's vulnerable groups. Elected representatives could also take the lead and join an ambitious movement, led by people like the Mayor of Getafe, who makes the case of going beyond an idea of energy poverty to an idea of a 'right to energy', which would be a fundamental human right to affordable, reliable, renewable, and sustainable energy.

Link priorities and funding opportunities

All cities face human resource and financial constraints. Yet, the green transition is no longer an optional course of action. Extending the reach of policy to ensuring that no one is left behind has a cost and cities need to gear up, i.e., acquire the resources they need. While cities themselves must decide how they can best address their competing priorities, and act within their national contexts, their engagement may be a key factor in a successful Just Transition. Participation in EU programmes and initiatives can help cities to gear up (through capacity building, benchmarking, funding, etc.) (see '**Pre-identifying challenges and issues**' below).

Limit any unexpected negative impacts caused by Just & Green policies

Improving the quality of life (e.g., nature-based solutions for climate-friendly urban planning, improving housing, new public transport services, going digital, etc.) might have negative impacts on some. There may even be direct benefits for some vulnerable groups (e.g., owners in the case of building renovations), but the same policy might also generate some displacement (e.g., of tenants unable to pay higher rents). Gentrification and 'renoviction' are a risk. Policymakers should be sufficiently aware of this and account for it in policy design.

Sufficient administrative capacity

Foster interdepartmental working

This report highlights the interconnections between several key Just Transitions policy areas (climate-friendly urban planning, sustainable energy, sustainable housing, sustainable mobility). In a Just Transitions' perspective, cities should address these issues in an integrated way, which implies cross-departmental working and partnerships with stakeholders.

Use an agile methodology

The proposed solutions display creativity: in the methodology they use, the technologies, and in the cross-departmental and inclusive way the cities have chosen to work. The best laid plans rarely anticipate all contingencies so, in addition to committed leadership, cities need to use an agile methodology, i.e., based on projects and achieved through collaboration, if they are to be able to adjust to difficulties and overcome them, not least where the policies are experimental and risky.

Pre-identify challenges, issues, and benchmark for solutions

To an extent, projects can call on the experience of previous projects. Forward planning and benchmarking will be essential. There are many sources of policy inspiration within the European initiatives and programs, including but not limited to the Promising Practices discussed here under the UIA and URBACT initiative. Benchmarking for solutions and ideas is best practice and may require expert input. The main challenges will be related to technology, finance (including fiscal), legal, or human (resource, capacity, etc.) aspects. A risk mitigation strategy should also be put in place and updated throughout the project planning stage.

Cities can access support from the Covenant of Mayors

By signing the Covenant of Mayors for Climate and Energy, one in eight of all EU cities have committed to adopting a Sustainable Energy Action Plan (SEAP) and/or a Sustainable Energy and Climate Action Plan (SECAP) to implement the EU climate and energy objectives[11]. The idea is to mainstream climate adaptation across all urban policies including the 4 areas of vulnerability addressed in this report. The Covenant of Mayors provides an Adaptation Support tool to help cities identify the most relevant measures they can undertake for specific target groups, in poorer neighbourhoods, for example, based on the following policy categories:

1. 'Soft' adaptation measures, including the following:
   - Managerial (e.g., introduce flexible working hours work during heat waves).

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[11] of which 7500 have actually adopted action plans

- Strategic (e.g., commission new buildings with climate resilient design as part of planned urban building programme).
  - Temporary (e.g., use shade to reduce temperature increases)
2. Technical/technology / 'grey' (e.g., refurbish buildings; enhance physical flood defences, increase capacity of sewage systems).
3. Ecological / 'green' (e.g., creating or expanding green infrastructure for water runoff management or microclimate management initiatives).

Deploy of specialised human resources

Considering the complexity of the challenges of designing and implementing Just Transitions projects, cities are likely to have to invest in capacity-building, training, together in some cases with ad hoc external assistance, including through project-oriented partnerships. The question of capacity applies from the outset and throughout project preparation, implementation, and project follow-up.

Prerequisites linked to the specific solutions for accessible and affordable green transitions

Consider digital solutions

Digitalisation is high on smart cities' agendas due to its potential for increasing efficiency and for making services more user-friendly for users. Here again, cities should ensure that they do not increase the digital divide by neglecting vulnerable groups in communication, interactivity, and other digital uses.

Limit the risks

The solutions proposed in this report cover a range of technologies. Some are approved technologies (e.g., energy efficiency systems, digitalisation of data, etc.,). Some involve financial and legal aspects that may vary depending on the jurisdiction and that requirement for further study (e.g., cooperatives, renovations, circularity of buildings, etc.,). Cities should be aware of such complexities and limit any potential negative consequences.

Combine hard and soft solutions

All the proposed solutions combine hard (technical) and soft components (support to and engagement of vulnerable groups, behavioural change, economic and legal considerations etc). This complementarity gives a holistic approach to the project, its solutions, and its impacts in the city.

Reach out to, engage with, and support vulnerable groups

Vulnerable groups are the targets of the solutions. They should be involved in the process, even if top-down, to ensure that solutions match their needs. Vulnerable groups should also be included in co-creation and co-implementation processes, via grassroots mobilisation.

3.3 Promising Practices: Added Value, Lessons, and Replication Potentials

Table 5 below provides a summary of the different Promising Practices described in Chapter 2, their added value, their main lessons, and their replication potentials. Following the description of the barriers faced by each of these Promising Practices in Section 3.1, and the

roadmap provided to cities in Section 3.2 of this report that are in their journey towards Just Transitions, the table below summarises the main learnings and added value of each of these projects.

Table 5: Summary of Promising Practices

	Promising Practice 1: Integrating just and green strategic dimensions in local projects	Promising Practice 2: Identifying the needs of vulnerable groups	Promising Practice 3: Collective infrastructure for green transitions	Promising Practice 4: Tailored solutions for individual households	Promising Practice 5: Enabling financial models
UIA and URBACT projects	RESILIO GBG_AS2C PUJ EPIU Vilawatt ICCARus INNOAIR Umeå	GBG_AS2C EPIU Vilawatt Super Circular Estate COMMUTE Umeå	RESILIO GBG_AS2C PUJ INNOAIR COMMUTE Umeå	EPIU Vilawatt ICCARus Yes, we rent!	ICCARus Yes, we rent! Super Circular Estate
Added value	Recognising issue complementarity Putting Just Transitions on cities' agendas Monitoring local policy actions	Ensuring the relevance of local policies Making vulnerability visible Promoting data unification and the digital transition in city operations	Making the green city accessible to all Contributing long-term urban planning	Addressing the complexity of the transitions for all challenge Using residents' feedback in local policies Developing an in-kind subsidy system	Giving vulnerable groups the financial means to participate in the transition Empowering vulnerable groups Bringing the owners and occupants of rented properties into a renovation process
Main lessons	Integrating Just Transition goals in	Identifying target groups	Planning green infrastructure that benefits vulnerable	Providing complementary solutions	Giving vulnerable groups the

	Promising Practice 1: Integrating just and green strategic dimensions in local projects	Promising Practice 2: Identifying the needs of vulnerable groups	Promising Practice 3: Collective infrastructure for green transitions	Promising Practice 4: Tailored solutions for individual households	Promising Practice 5: Enabling financial models
	existing strategies Catalysing local actions using national and regional policy frameworks Fostering interdepartmental governance	Looking under stones for relevant data, improving the quality of analysis, policy, and the power to predict Undertake thorough research to understand context Supporting digitalisation	groups indirectly Planning green infrastructure that is accessible to vulnerable groups Designing public transport that is accessible to all	through one-stop shops Getting owners on board with tailored support Renovating collective buildings	financial means to participate in the transition using creative funding models and subsidies The value of creative incentive systems and housing cooperatives in delivering affordable housing Determining the costs of technical solutions for the reuse of building materials
Replication potential	Adjusting local policies for the accessible and affordable green transitions Cross-departmental working and governance in cooperation with relevant stakeholders	Using existing tools in other fields Replicating the approaches and content of the Promising Practice in other cities Implementing existing tools at higher governance scales Making the data available to other	Being more creative with nature-based solutions Using Artificial Intelligence Implementing a gender-sensitive approach	Implementing one-stop shops Designing a methodology for tailor-made solutions Carrying out in-depth legal and fiscal work	Understanding the technical, legal, fiscal, and economic aspects of the models Developing new policy models (funding)

	Promising Practice 1: Integrating just and green strategic dimensions in local projects	Promising Practice 2: Identifying the needs of vulnerable groups	Promising Practice 3: Collective infrastructure for green transitions	Promising Practice 4: Tailored solutions for individual households	Promising Practice 5: Enabling financial models
		sectors (e.g., from public to private)			

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Appendix 2: What barriers do cities face in ensuring their transitions are accessible and affordable to all?

Even if the need for cities to further support their transition and to make it affordable and accessible to all is now clear, they are facing major barriers and challenges. As a background, this research analysed key barriers identified by cities, through interviews as well as during an event organised by UIA on 27 and 28 April 2022 in Seville, Spain, on "EU cities acting for just transitions and climate adaptation". The 15 individual barriers are divided in three categories: Barriers faced by cities, by residents and other barriers. The definitions are given in Table 6 below.

Barriers encountered by cities

Disclaimer: many of these barriers refer to difficulties encountered by municipalities for a range of local issues and local policies, especially in sustainable integrated development, beyond Just Green Transitions. They have been studied at length elsewhere. Here, this work focuses on the specificities of Affordable and Accessible Green Transitions, and the relevance of these barriers under this topic.

Table 6: Barriers: definitions

Barriers encountered by cities	
Lack of strong vision / leadership	The climate emergency and the need for Green Transitions is high on the agenda for almost all cities, which acknowledge their role in delivering solutions. Yet, not all elected representatives share this inclusive vision; the complexity of the issues & challenge as well as a lack of knowledge can partially explain this. For example, sustainable energy policies need to consider that the needs and barriers of individuals in energy poverty are peculiar and cannot be addressed with the traditional approaches to the sustainable energy transition: leaders should be aware of the need for new methods.
Lack of policy / delivery system	Cities share the concern about inclusivity in the Green Transition. Yet too often there is a lack of strategy or a local plan which clearly include this goal. Any such plan would need to be aligned and/or complementary to regional and/or national frameworks. Therefore, no action is being taken. For example, action to ensure that everybody can access nature-based solutions to address climate adaptation, requires policies targeted at specific neighbourhoods (e.g., with limited green space) and/or specific vulnerable groups.
Lack of data and knowledge on vulnerable groups and their main issues	Too often, municipalities do not fully grasp the issues at stake or the current situation, the neighbourhood concerned, the people concerned, the implications for the neighbourhoods and their residents, the short and long-term effects on society and the

	climate. For example, women use public transport more and in a different way to men, which prevents them from making the most of existing services. However, few cities have gender breakdowns on service use and better data is needed.
Lack of an enabling funding framework	In some instances, cities seek to implement innovative & inclusive solutions to support the green transition but are hindered by the existing financial framework (budget, spending rules and/or procurement rules) Some cities need to learn how to navigate and make the most of policies or legal opportunities to intervene. For example, procurement rules can make it difficult to bring the most relevant renovation company into a social housing initiative.
Lack of municipal funds	Surprisingly, in the survey in Seville, only a quarter of the respondents mentioned funding as an issue for implementing solutions. Yet, it is clear that municipalities face competing objectives and priorities as well as limited and declining budgets to deliver policies. For example, economic priorities might be prioritised over sustainability, which could be in turn be prioritised over sustainable actions *for vulnerable groups*.
Lack of cross-departmentalism	Public administration often works in silos, making a holistic view or holistic delivery of local suitably tailored and joined-up solutions very difficult.
Lack of monitoring & evaluation of the policies & actions	Municipalities also often lack a monitoring framework that ensures iterative evaluation and improvement of solutions against clearly identified objectives. For example, a public transport strategy designed without follow-up monitoring of the types of people who use it (women, disabled, etc), in which areas (urban-peri-urban), the time of use, frequency of use, prevents the service from being improved and in tune changing needs.
A civil servant skills deficit	Readjusting the ways municipalities work requires project management skills, but also skills in design thinking, risk management, participative methods, & social innovation. Such skills are often missing. For example, involving vulnerable groups in the design of green solutions and addressing their needs require co-creation skills.
Difficulty with reaching out to vulnerable groups	For some cities, it is difficult to identify vulnerable groups or communicate with them, in a way that is meaningful to them. There might also be a lack of 'bridges' or 'intermediaries' (e.g., NGOs, mediators, translators, etc.) to reach out to them. For example, in terms of energy poverty, migrants are often off the

	radar and there are barriers (language, culture, trust, knowledge, …) that limit their ability to benefit from public support.
Barriers encountered by residents	
Lack of knowledge of the offer by the vulnerable people	Information on the proposed solutions is not always known to all the potential beneficiaries, communication channels are not relevant and/or the information not understandable in a clear and meaningful way, relevant to the needs of the specific groups. For example, renovation funds might not be widely communicated and might require individuals to look for the information, which does not come directly to them, even if in need.
Lack of adequate provision for vulnerable people	If solutions fail to account for the realities and needs of the target groups, the latter will have no interest in seeking to access them. For example, captive owners are specific types of low-income people, who, although they own their homes, cannot afford to renovate them and face increasing threats of energy poverty. They have specific characteristics, including specific financial, cultural, or social difficulties with engaging in renovation work and they require targeted actions.
Vulnerable people's inability to seize opportunities	Many solutions/services require residents to have some skills, resources, and the time/availability to understand them and/or to access/use them. For example, increasing the use of alternative means of transport requires being able to use them, e.g., the ability to ride a bicycle, which, surprisingly, not everyone knows how to do.
Lack of personal funds	Too many solutions still require large personal investments even if the return in the long run is beneficial to the residents. Many cannot afford it. At the same time, there can be a lack of financial incentives that would also help individuals who would like to upgrade the energy performance of their homes. For example, homeowners also have other financial priorities preventing them from embarking on home renovation.
Other Barriers	
Wicked socio-economic context	The proposed solutions are part of a wider socio-economic context to which they need to be tailored. For example, many cities interested in the green transition, seek to transition from a carbon-intensive manufacturing industry to a green, digital, and high-value industry that can generate sustainable and high-quality

	jobs. It's a colossal challenge and many cities lack the resources to influence the mechanisms in play.
Pre-existing urban planning context	Many cities were built under past construction, mobility, and urban planning standards, which do not comply with current standards of sustainability. For example, housing stock built in the 1960-70s are often low quality and in need of total refurbishment.
Intrinsic technological challenges	Many of the solutions needed for green transitions are innovative and not yet mature. They face different inherent challenges that still need to be addressed. For example, technologies for blue and green roofs have required numerous adjustments in recent years.

Appendix 3: Key Witnesses

Table 7: Key witnesses

Key witness	Organisation	Topic
Anja de Cunto	Eurocities - Big Buyers	Public Procurement
Richard Harding	Co-author of a JRC Study on Smart Specialisation	Smart Specialisation
Elena Donnari Teresa Aristegui	DG ENER - Renovation Wave	Energy poverty
Brooke Flanagan	Eurocities - Net Zero Cities	Energy
Eugenia Mansutti Anna Iafisco	Eurocities—Covenant of Mayors + Social Affairs	Climate Energy Housing
Karel Vanderpoorten	DG GRWO - Affordable Housing Initiative	Housing
Michaela Kauer	UAP on Housing (City of Vienna)	Housing
Dara Trunbull Joao Goncalves	Housing Europe	Housing
Piotr Rapacz Madeleine Kelley	DG MOVE	Mobility
Peter Saelens	Eurocities	Mobility
Ivone Pereira	European Environment Agency	Climate Adaptation

Appendix 4: Sounding Board Members

Nuala Morgan—URBACT
Pia Laurila and Janis Krainis – European Commission, DG REGIO
Nathalie Guri—Eurocities
Carlotta Fioretti—European Commission, Joint Research Centre
Amelie Cousin—UIA
Ophelie Tainguy – UIA