Social Green
Interreg Europe

Social Green - Regional Policies Towards Greening the Social Housing Sector

Integrated report:

Conceptual & Methodological Framework

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Foreword

This report is an integrated document of Social Green Conceptual Framework and Social Green Methodological Framework. The first part includes conceptual framework and aims to provide a first overview of social housing within the European Union and present the main learnings from previous project Re-Green (Implemented under Interreg IVC), including the new focus of Social Green project, namely on greening the social housing sector. The second part intends to be the methodologic roadmap for Social Green project and describe the rationale of different deliverable throughout the project.

Social Green project in brief

Social Green is funded by INTERREG Europe between April 2016 and September 2020. It's 1.01 M funding from the European Regional Development Fund (ERDF) is distributed among eight partners in six countries: Tartu Regional Energy Agency (EE), Extremadura Energy Agency (ES), Regional Energy Agency North (HR), CCDR-N - Regional Coordination and Development Commission of Norte (PT), CEiiA - Centre for Excellence and Innovation in the Automotive Industry (PT), Alba Iulia Municipality (RO), City of Mizil (RO) and Nordregio – Nordic Centre for Spatial Development (SE). One advisory partner, Nordregio (Sweden) will provide scientific and technical support to the consortium. The other partners, mainly municipalities, energy agencies and Managing Authorities will jointly work in the development of the main project's activities, namely preparation, implementation and monitoring.

Social Green will promote the greening of the social housing sector through mutual learning and development of improved regional policies. It will provide the opportunity to explore green building practices and significantly reduce GHG emissions through cost-effective means while providing much needed housing in a healthy and sustainable manner. Through interregional cooperation Social Green stakeholder regions will identify, share and transfer innovative methodologies, processes and good practices in developing and implementing greener social housing sector policies, targeting new constructions or retrofitting existing buildings. In this context the project's sub-objectives are:

1. To understand the role of the green building intervention in the social housing sector and the link with fuel poverty;
2. To identify green measures for the social housing sector, specifically including energy efficiency and renewable energy development;
3. To identify, share and transfer experiences and good practices and to develop joint policy tools and instruments related to innovative solutions for greening social housing sector, namely in the areas of fuel poverty and energy efficiency;
4. To develop strategic guidelines and policy recommendations as an integrated toolkit for regional and local authorities,
5. To improve regional/local policies by introducing best practices into EU mainstream programmes in order to contribute towards fostering the competitiveness, sustainability and social cohesion of cities, regions and the EU as a whole.

1. Social Green Conceptual Framework

Although social housing development is generally declining throughout the EU, homelessness, fuel poverty, and housing shortages remain critical issues across the continent. In addition to this challenge, social housing is generally the least energy-efficient portion of a country's housing stock, meaning that the most vulnerable populations are often unable to experience adequate home environments. This emphasizes social housing is a particularly important and sensitive issue for greening strategies and means that retrofitting or renovation programs must be designed and implemented that minimize disruptions and costs to tenants as much as possible. These are issues that lie at the core of the Social Green INTERREG project.

The Social Green project aims to provide an overview of green building/retrofitting in the social housing sector, drawing on knowledge from previous INTERREG projects, case studies, policy documents, and peer-reviewed sources. It will then take this knowledge and apply it through real social housing investment in the project's partner regions, as well as providing wider policy advice for a Europe-wide audience. As a basis for our work, this conceptual framework will provide an overview of social housing within the European Union, alongside a description of greening strategies being currently used in the social housing sector. In total, this text will cover social housing development trends, green building policies, risks of greening social housing, good practices, case studies, and suggestions for planners engaged with these topics. Together, this will provide a base that can guide planners, policymakers, and project partners in the field of green social housing development.

1.1 Understanding green building in the European social housing sector

'Greening' is a broad term that involves the use of "resource-saving and resource-efficient technologies" to reduce the environmental impact of built structures (Lundqvist 2004, 1286). This is an especially critical task when it comes to housing, which is often highly energy-intensive to build and maintain. UN-Habitat, for instance, estimates that "energy consumption in both new and existing buildings can be reduced by about 30-50%" globally, and even simple retrofitting procedures can significantly reduce the environmental impact of many homes (UN-Habitat 2015, 7). Within the EU specifically, "buildings are responsible for 40% of energy consumption and 36% of CO2 emissions" (European Commission 2016). As housing constitutes such a significant (and essential) part of the built environment, this is a major focus for many carbon targets and energy efficiency measures around Europe.

European countries thus face a common challenge in retrofitting and 'greening' the existing housing stock, although the extent of the needed retrofits varies between countries. This greening process has the potential to significantly reduce the amount of energy, water, and other resources consumed by the residential sector. Large portions of the present European housing stock were constructed between the 1950s and 1980s (see Figure 1 & 2), when national energy efficiency regulations for homes were radically different (if they existed at all). Many homes are even older, as "about 35% of the EU's buildings are over 50 years old" (European Commission 2016). This is both a challenge and a clear opportunity for European planners to make dramatic improvements to citizens' quality of life and domestic energy use (see Figure 3).

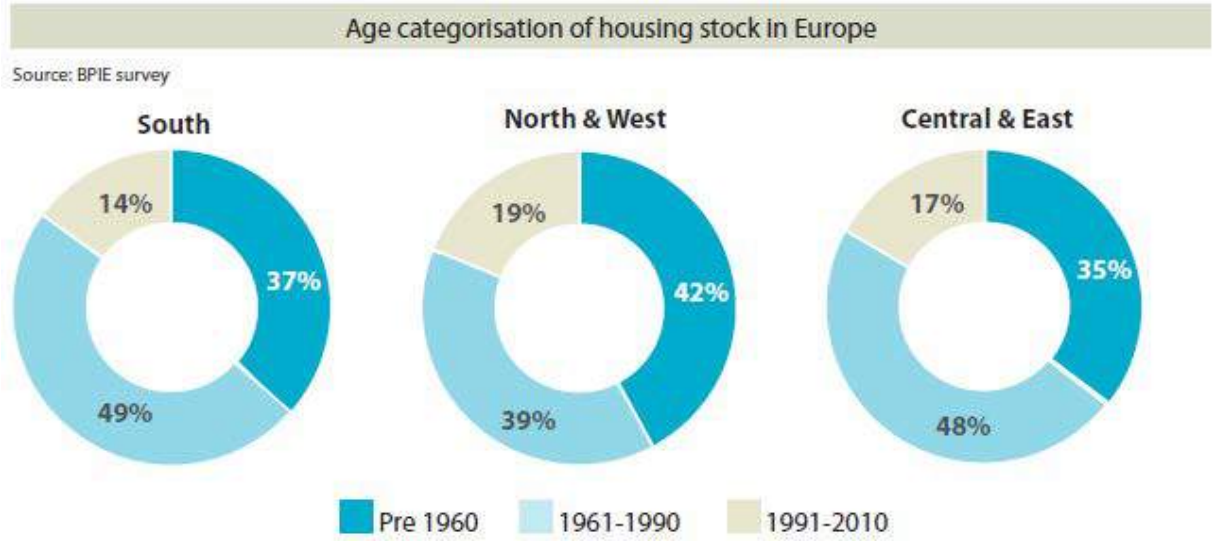

Figure 1: The age of Europe's housing stock, divided by region. Note that these figures are very similar- the age of a dwelling is not necessarily indicative of its quality or energy-efficiency (from BPIE 2011, 9).

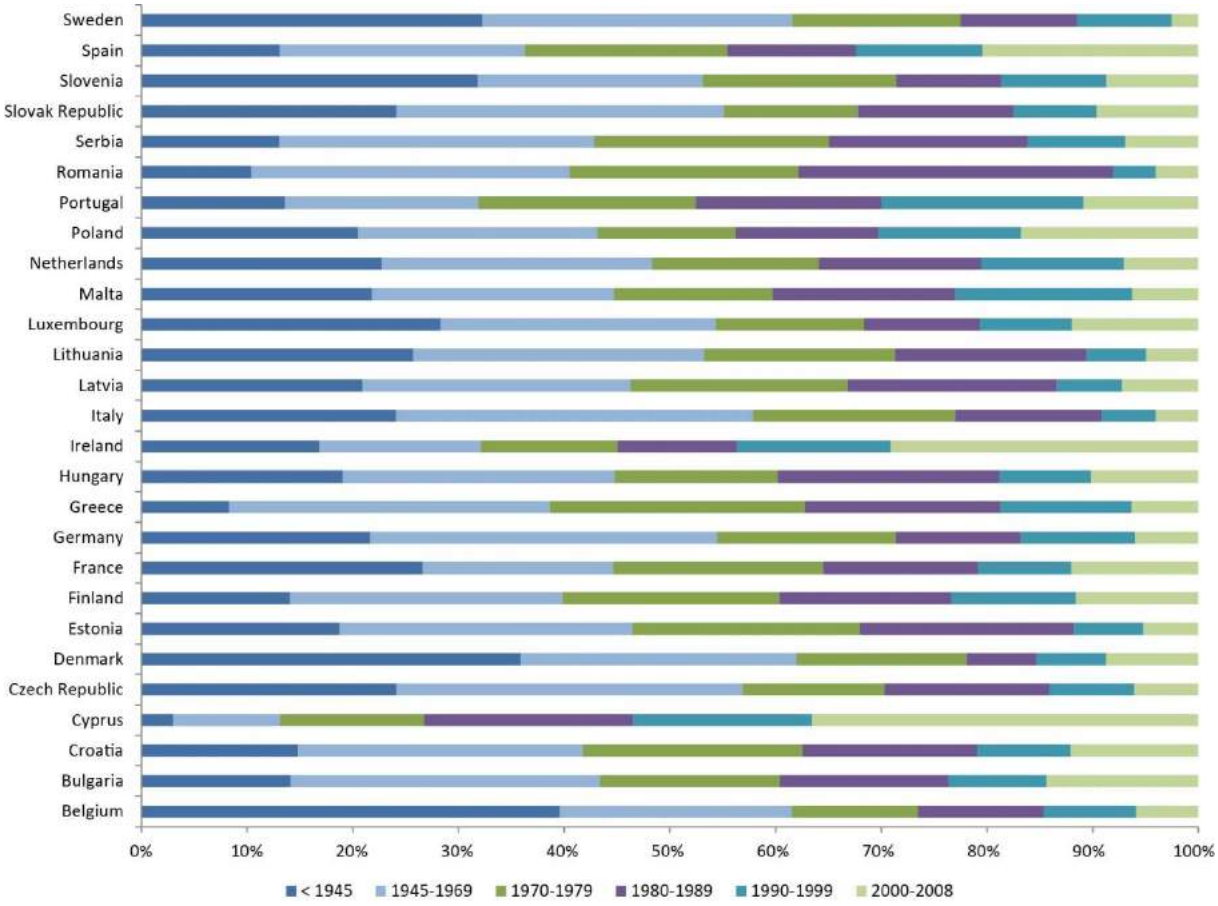

Figure 2. The stock of residential buildings by age and country, 2008 (CEB 2015 & http://www.entranze.enerdata.eu/)

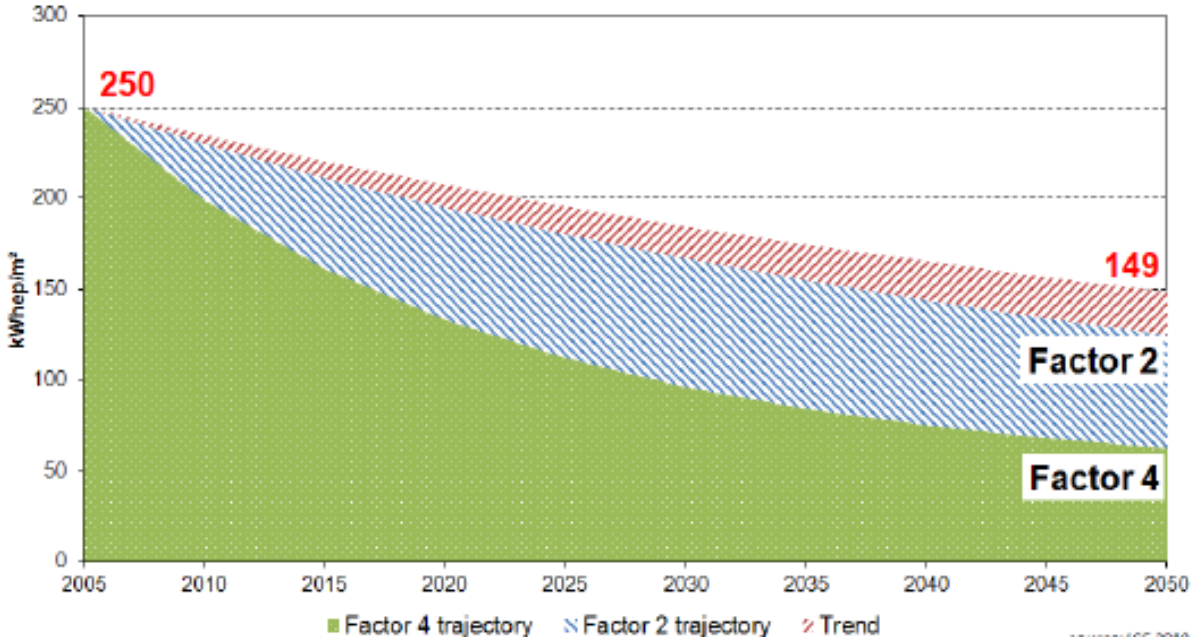

Figure 3: Projected changes of energy consumption in Europe's housing stock. 'Factor 2' and 'Factor 4' refer to different energy efficiency targets. Source: Milin et al 2011, 11.

1.2 Understanding Social Housing

Social housing presents a particularly difficult and sensitive target for retrofitting. Understanding how social housing functions in different EU countries can, in itself, also be a challenging task. Regulations and terms differ considerably within national legislation, and social housing can take multiple forms even within a single country. However, in general, "four dimensions characterise (and differentiate) social housing models and policies: the tenure, provider of the service, beneficiaries, and funding arrangements" (Directorate-General for Internal Policies 2013, 6). In other words, although almost all social housing is supported by the public sector through some mechanism (rent reduction, tax breaks, low-cost services, etc), they can be managed by different actors, be occupied for different amounts of time, and target different segments of the population.

Taking account of the different types of social housing that exist Social Green working definition of social housing is:

> ***Housing and associated housing policy that explicitly serves the needs of low-income and vulnerable residents. Social housing is often built, owned, and/or managed by the public sector, but it also includes privately-owned rental housing or different forms of housing cooperatives.***

This broad definition acknowledges the vastly different forms of housing provision in different European countries, where countries (such as Greece) have no publically-owned housing at all, while other countries (like Sweden) have publically-owned rental housing but it is only marginally cheaper than most private alternatives and is not specifically reserved for low-income people. Therefore, irrespective of ownership, our view of social housing includes any form of housing stock

or associated policy subsidies that provides affordable housing to low-income and vulnerable[1] tenants or disadvantaged people.

Table 1: Social and private rent descriptions from a selection of EU countries in 2007 (from Whitehead & Scanlon 2007, 16).

	Social	Private
Austria	Cost-based.	Also cost based; private < 10% higher (in post-1953 buildings there is de facto no regulation)
Denmark	Cost-based. 3.4% of building cost + bank charges. Average 2005 €6.67/m^2/month	Private rents also regulated. Average €6.83/ m^2/month
Germany	In some regions rents vary with household income. €4-7/ m2/month	Rent on new leases free, but rises regulated
France	Central government decrees maximum rents (vary by region). Cost based related to estate or owner	Rent on new leases free, but rises regulated. 30-40% higher than social rents.
Sweden	Set by annual negotiation between landlords and tenants.	Private rents limited by social rents; private slightly higher.
Netherlands	Rent based on utility value of dwelling and target household income level. Average €353/month.	Also controlled; average rent €419/month.
Hungary	Set by local authorities	Market based
Ireland	Tenants pay % of income in rent. Average rent €155/month.	Rent control abolished 1981 now market determined.
England	Rent restructuring regime based on local earnings and the dwelling price; increases RPI plus 0.5/1%. HAs and LAs must cover outgoings.	Market determined for properties let since 1988

In Austria, the share of 'social housing' is so large that it is open to residents from many different income levels. This considerable diversity within Europe's housing legislation makes direct comparative analysis difficult, although it does open up many possibilities for monitoring and evaluating social housing regimes at the national or regional scale. Therefore, while aware of the

[1] Vulnerable Groups that experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, disabled people, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion, such as low levels of education and unemployment or underemployment. SOURCE: Social protection and Social inclusion Glossary. DG Employment, Social Affairs and Inclusion

significant potential differences, we use the terms 'social housing' and 'public housing' interchangeably for the purpose of this review. 'Subsidized housing' is used more specifically (as in Austria's case) to delineate social housing that has explicit *rental* subsidies.

In almost all cases, social housing targets low-income groups or residents that have no access to other housing choices (Scanlon et al 2015, 6). As shown in Figure 3, different EU countries also have dramatically different shares of social housing within their wider housing stock. The EU states with relatively small social housing sectors (such as Portugal or Estonia) tend to have "rigorous targeting to households in need", while those with larger social housing sectors (such as Sweden and Austria) tend to aim for a 'universalist' model where publically-owned housing is more accessible to the general public (Alves & Andersen 2015, 1). Sweden, for example, opts for *income support* to low-income families *in lieu* of direct rental subsidies for public apartments. Despite this distinction, public housing in Sweden's case is still categorized as 'social housing' in the literature we cite.

While residents of owner-occupied housing can often more readily adapt to small and/or short-term increases in rent or maintenance, this can be a severe problem for those already living on very low incomes. Moreover, the present economic crisis in much of Europe has pushed more residents into unemployment and/or relative poverty, further increasing the need for sustainable and adequate social housing. In most of Europe, the housing market has become increasingly unequal since 2008, as low-income groups are increasingly concentrated in low-quality rental and/or social housing (Whitehead et al 2014). Recent housing development trends have exacerbated this problem, as "privatisation has tended to remove the better-quality housing stock from the social sector" (Whitehead & Scanlon 2007, 10).

The lack of affordable housing in the EU is a severe problem, as can be seen in Table 2 below. Significant portions of the European population spend more than 40% of their disposable income on housing. This problem is most significant – by far – in the rental sector, as tenants (both in market-rate and reduced-rate rental housing) spend higher proportions of their income on housing than those in owner-occupied dwellings. This is the case in every EU state. The current housing shortage is most extreme in Poland, which has "the lowest rate in number of homes for its population (360:1000)" of any country in Europe (Habitat for Humanity 2016). Although this is not shown in the table, the housing cost overburden rate for low-income groups has also increased in the EU since 2013 (Eurostat 2016). These issues are evidence of a large gap between housing development trends and the needs of European residents.

At present, greening existing social housing is a more critical concern than designing green policies for the construction of new social housing.

At present, greening existing social housing is viewed as a more critical concern than construction of new social housing. This is due to a population stabilization (or decline) in most European countries, coupled with an increasing focus on private ownership and flagship housing development in many major cities (Scanlon et al 2015, 11). Consequently, while middle- and high-income groups are already well-served by neo-liberal housing trends in most major cities, there is comparatively little construction for those who are less wealthy. In fact, although private ownership is emphasized in many EU states, rates of home ownership are actually *decreasing*

around the continent (Kern 2013). This lack of new construction also means that social housing tends to be older and less up-to-date with modern energy regulations (Milin & Bullier 2011, 1053). Therefore, new construction of green social housing is still essential if European countries are to provide affordable, accessible housing to all who need it.

Table 2: Housing cost overburden rate (%) by tenure status, 2014 (Eurostat 2015). A household is defined as 'overburdened' if more than 40% of disposable income is spent on housing (which includes rent, energy bills, and maintenance costs). The 'rent at reduced price or free' category roughly corresponds to the social housing sector. This chart shows, broadly, that residents in social housing spend a much larger share of their income on housing costs than residents in other types of dwellings. In Sweden's case, for example, we can see that a majority (60.7%) of people in social housing are overburdened by housing costs. By comparison, a much smaller proportion (17.8%) of tenants in private rentals are overburdened.

	Total population	Owner occupied, with mortgage or loan	Owner occupied, no outstanding mortgage or housing loan	Tenant — rent at market price	Tenant — rent at reduced price or free
EU-28	*11.4*	*7.4*	*6.8*	*27.1*	*12.7*
Euro area (EA-18)	*11.4*	*7.5*	*5.6*	*26.2*	*11.7*
Belgium	10.4	3.1	1.8	38.1	13.3
Bulgaria	12.9	9.3	11.3	40.8	17.9
Czech Republic	10.5	8.3	6.2	29.9	7.0
Denmark (')	15.6	5.2	7.1	32.9	:
Germany	15.9	11.3	9.6	23.1	16.6
Estonia (²)	7.2	9.2	4.8	25.6	10.4
Ireland (²)	4.9	1.4	1.7	17.8	6.8
Greece	40.7	29.2	37.6	55.8	47.5
Spain	10.9	9.0	2.8	47.5	10.8
France	5.1	1.1	0.7	15.8	9.3
Croatia	7.5	21.0	6.2	41.3	7.7
Italy	*8.4*	*5.6*	*2.9*	*31.9*	*10.2*
Cyprus	4.0	6.0	0.7	19.3	1.3
Latvia	9.6	15.2	8.2	15.1	9.7
Lithuania	7.1	6.8	6.4	37.3	9.2
Luxembourg	6.8	0.7	0.9	26.3	8.2
Hungary	11.4	26.0	5.8	40.1	15.9
Malta	1.6	2.8	0.6	26.6	0.7
Netherlands	15.4	11.8	3.9	24.8	14.0
Austria	6.6	1.8	2.6	15.6	6.8
Poland	9.6	18.0	8.0	25.5	10.9
Portugal	9.2	7.4	3.8	33.8	6.7
Romania	14.9	31.2	14.4	31.6	37.3
Slovenia	6.4	9.7	3.6	27.4	8.2
Slovakia	9.0	26.2	6.1	14.9	6.5
Finland	5.1	2.3	2.6	16.8	9.6
Sweden (')	7.8	2.9	5.6	17.8	60.7
United Kingdom	12.1	6.3	4.3	33.2	15.7
Iceland (²)	8.8	6.8	7.0	17.9	14.4
Norway	8.2	5.1	4.0	34.2	16.8
Switzerland (²)	10.6	5.6	5.1	15.2	9.2
FYR of Macedonia (²)	17.6	10.3	17.1	62.4	20.2
Serbia (²)	28.0	33.4	25.2	62.4	33.1

(') Tenants — rent at reduced price or free: unreliable.
(²) 2013.
Source: Eurostat (online data codes: ilc_lvho07c and ilc_lvho07a)

Greening should thus be seen as an essential component of social housing construction and renovation. Although greening is often discussed in a technical or environmental sense, in this project we will also link the environmental effects of greening with the social aspects as well. Green building policies should not just be focused on carbon emissions or energy efficiency, but should also incorporate the social, economic, and health-related impacts of greening on social housing tenants. In doing so, European countries can move towards housing sectors that are socially, environmentally, and economically sustainable.

There is evidence of a large gap between housing development trends and the needs of European residents.

Closely related to questions of affordability and environmental sustainability in social housing is the concept of *fuel poverty* (also referred to as 'energy poverty'). As a core response objective of this project, fuel poverty occurs when "a household is unable to afford basic levels of energy for adequate housing, cooling, cooking, lighting and use of appliances in the home" (EU FNP 2016). Although the concept first gained traction in the UK and Ireland, it is now widely used as an indicator of poverty and/or poor housing quality. European populations that are at-risk-of-poverty (i.e., making below 50% of their respective median national income) are particularly affected. The exact parameters of what constitutes fuel poverty within a country can vary considerably, but the BPIE (Buildings Performance Institute Europe) provides a useful figure below (Table 3) that incorporates many of the most common indicators.

Table 3: Percentage of people at-risk-of-poverty affected by fuel poverty as reflected by three related indicators (from BPIE 2014, 4).

Country	Arrears on utility bills (%)	Inability to keep home adequately warm (%)	Dwellings with leakages & damp walls (%)	Country	Arrears on utility bills (%)	Inability to keep home adequately warm (%)	Dwellings with leakages & damp walls (%)
Bulgaria	50.7	70	29.5	Estonia	20	9.6	30.3
Hungary	58.8	33.9	53	Belgium	14	18.8	26.2
Greece	54.4	47.6	21	Ireland*	27.5	12.5	16.2
Latvia	39.5	35.1	43.3	France	17.8	15.2	22.1
Cyprus	25.9	50.6	34.6	Czech Rep.	19.4	15.3	20
Slovenia	37.5	17.3	46.1	Spain	17.9	18.2	17.9
Italy	24.5	44.1	30.1	Slovakia	18.3	13.6	19.7
Romania	41.5	25.4	30	Netherlands	8.6	8.7	27.4
Lithuania	22.8	38.2	28.6	Germany	8.6	14.8	21
Portugal	14.5	43	28.4	Denmark	5.5	7.1	25.3
Croatia	40.9	21.8	19.9	Luxembourg	6.6	2.2	28.9
Poland	30.1	27.6	20	Austria	11.3	7.7	15.2
Malta	19.4	32.1	12.4	Finland	13.7	3.8	8.6
UK	20.3	19.4	21.4	Sweden	10.3	3.5	11

Fuel poverty occurs when "a household is unable to afford the most basic levels of energy for adequate housing, cooling, cooking, lighting and use of appliances in the home" (EU FNP 2016).

European fuel poverty could be reduced noticeably if social housing was more energy efficient. It is widely recognized that "the most efficient and sustainable way to deal with fuel poverty is [to reduce] the energy demand of the building through renovation" (BPIE 2014, 8). Greening social housing in this regard can also have various improvements for tenants' health and quality of life (UN-Habitat 2015, 9). However, in some cases, renovation projects can push vulnerable households into fuel poverty by raising rent or service costs (see section 4 for more details). To prevent this from happening, greening projects should be designed with long-term affordability in mind, placing the health and economic needs of social tenants foremost within the process.

1.3 EU social housing development trends

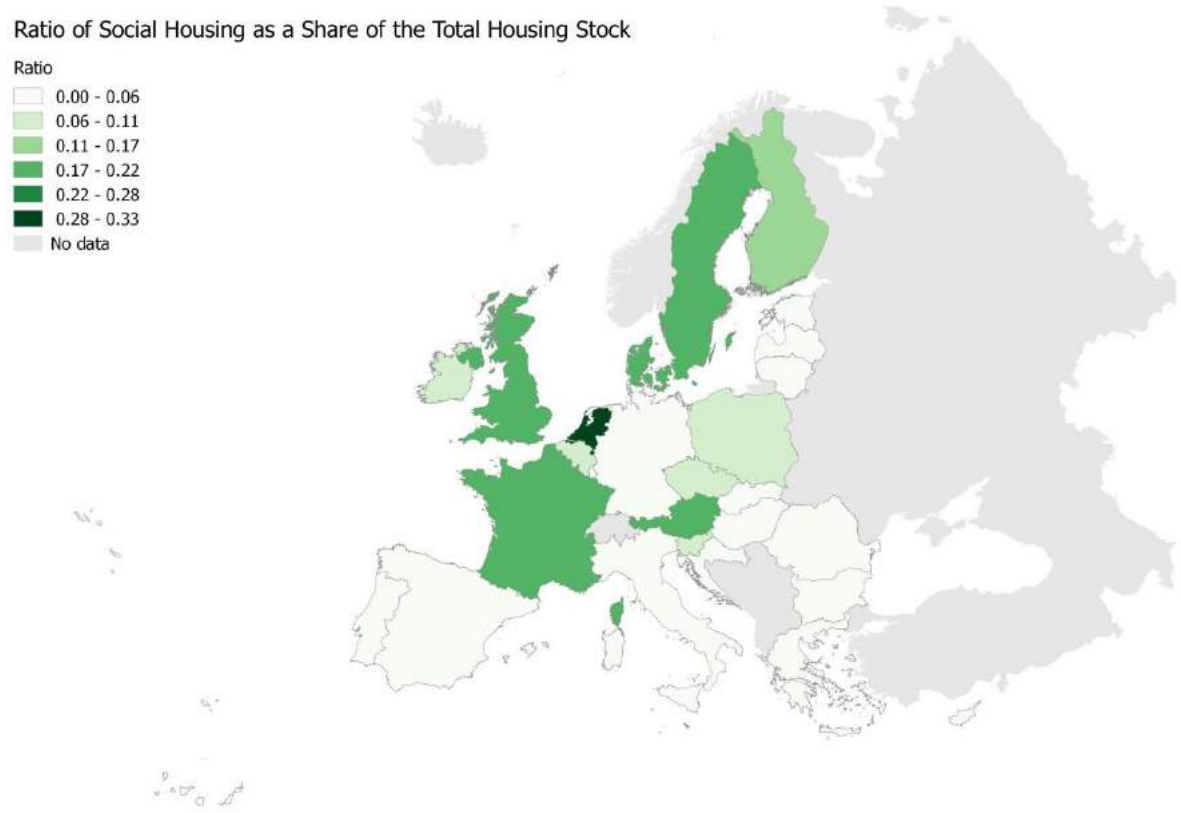

Figure 4: Share of social housing as a ratio (percentage) of total housing in each EU state[2] (Map by Nordregio)

Although the quality of the social housing stock in Europe varies considerably, most of it was constructed in the latter half of the 20th century, coinciding with the development of modern welfare states within the continent. From the 1990s onwards, the construction of social housing slowed significantly, as financial concerns and large-scale housing privatizations changed the national housing strategies of many European states.

The low quality of the housing stock, combined with small-scale welfare states and a scarcity of social dwellings, has made housing provision a more severe problem in CEE countries when compared with Western and Northern European states.

Northern and Western European states contain the highest proportions of social housing within their housing stocks (Figure 3). In comparison with Southern or Eastern Europe, these countries are generally higher-income, and have had a more stable tradition of public-sector involvement in the housing market.

Post-Socialist Central and Eastern European (CEE) countries, however, have faced a markedly different trajectory in housing development. Under the Socialist economic system, social housing was equivalent to 'state housing', as "the state controlled both the demand and supply side of the

[2] Data sourced from Pittini et al (2015), Housing Europe (2010), Scanlon (2016), Snieškienė & Dulinskienė (2014)

housing sector and did not allow the market to act as an integrating social mechanism" (Hegedüs 2007, 165). Following their transition to market-based economic systems, these countries have faced a uniquely rapid decline in the availability of social housing over the past few decades. Signs of this can be seen in Figure 3, where Latvia, Estonia, Hungary, and Croatia are shown to have some of the smallest social housing stocks in Europe. Although social housing was extensive in these countries throughout much of the 20th century, it "almost disappeared" after the 1990s due to give-away privatization (Lux & Sunega 2014, 502). New attempts to build and provide social housing on a large scale in most Post-Socialist states have been generally unsuccessful and financially unsustainable (Lux & Sunega 2014; Constantinescu 2011; Valceanu & Suditu 2015). Politically weak municipalities, a black market for housing contracts, a socialist legacy in allocation schemes, and a broad lack of public finance have been described as the key reasons for this lack of success (Lux & Sunega 2014, 515).

Following large-scale privatization, the quality of housing (both public and private) in CEE states has generally declined. In Romania, for example, the UN estimates that 40% of homes are in need of renovation (Amann 2015). Similarly, in Bulgaria, many large blocks of flats (built 40-50 years ago) are "rapidly deteriorating" as their owners cannot afford proper maintenance and renovation (Habitat for Humanity 2016). The low quality of the housing stock, combined with small-scale welfare states and a scarcity of social dwellings, has made housing provision a more severe problem in these countries when compared with Western and Northern European states.

More specific information on social housing in each EU country (including charts that indicate different characteristics and regulatory authorities) can be found in the Annex to this paper.

1.4 Green building concepts and certifications

What constitutes *green building* is dependent somewhat on the context of national policies and targets. The 'greenness' of green buildings can also be described in a number of different ways: For instance, we can describe it in terms of *building usage*, which focuses on the technical, managerial and behavioural interventions that improve the resource performance of new and existing buildings. We can also describe it in terms of *processes*, emphasising issues of design, construction, operation, renovation, deconstruction, and even reuse of land as main issues. In general, green building can be identified by the following six traits (from Weber et al 2014, 23*)*:

1. Green buildings are designed for resource efficiency
2. Green buildings aim for environmental sustainability
3. Green buildings involve efficient building management
4. Green buildings are healthy environments for human beings
5. Green buildings rely on a life-cycle perspective
6. Green buildings contribute to green growth

However, even after renovations take place in a given building (or when a new building is constructed), there is a need for evaluation of how effective the greening process was. Most EU countries do this via *building environment assessment methods* or *certification schemes*, which "evaluate the environmental performance of a building against an explicit set of criteria" (Rademaekers 2014, 15).

At present, there are a variety of green building certification systems around Europe, although it has proven difficult to design effective EU-wide schemes. Current schemes centre on energy usage and efficiency, only rarely taking into account social or managerial aspects. National certifications include Entreprise Ecodynamique (Belgium), NF Bâtiment tertiaires HQE (France), Miljöbyggnad (Sweden), and Minergie-Eco (Switzerland). These schemes most commonly cover certifications and standards both for new buildings and for retrofitting existing structures (Rademaekers 2014, 28). However, many of these certification schemes focus mainly or exclusively on commercial buildings. Minergie-Eco is an exception, as it covers both residential and non-residential structures. Regardless, there is a need for new certification schemes within Europe that can address the specifics of social housing. At present, EU legislation largely neglects this field (see Figure 4). New certification schemes and legislation could include, for instance, a more pronounced engagement with social sustainability, incorporating evaluations of changes in cost for tenants.

There is also potential for greater harmonization of existing certification schemes, which could form the base of a more comprehensive European strategy on social housing renovation. In fact, the need for this coordination was stressed in a recent (April 2016) European Parliament Initiative Report on poverty and increasing household costs (Housing Europe 2016). This report moreover asserts the "fundamental right to housing assistance" and recommends the "[development] of a common definition of energy poverty" within the EU (Housing Europe 2016).

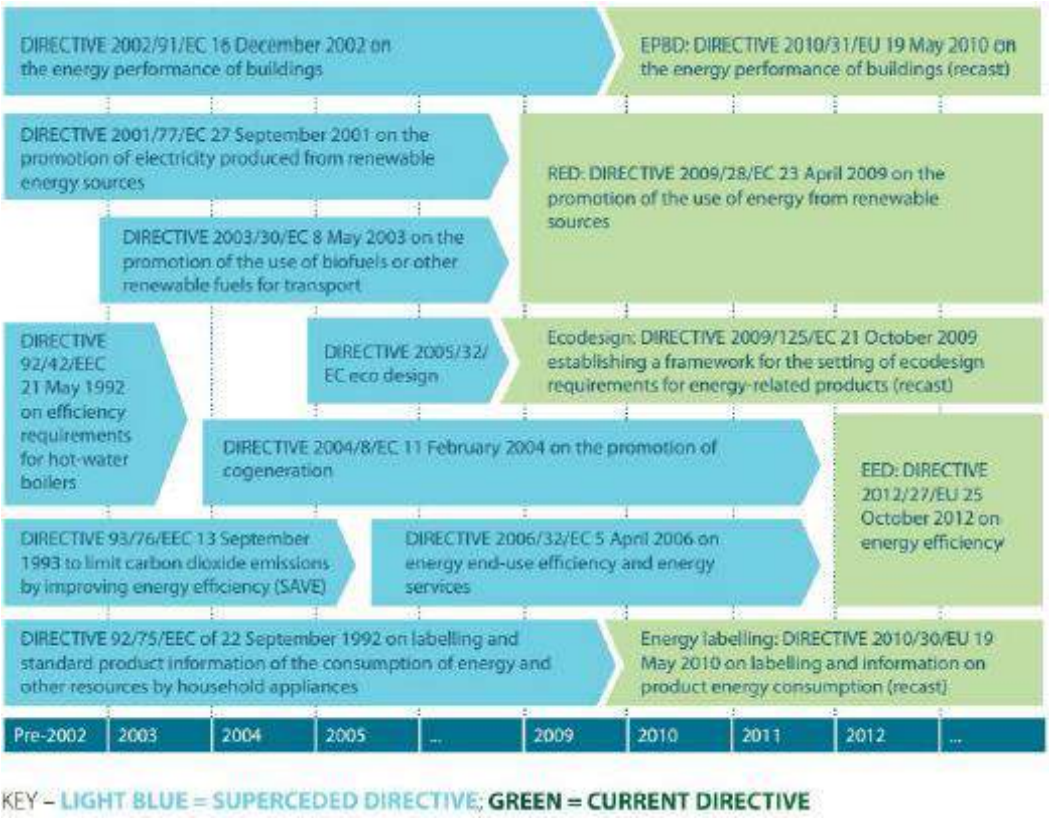

Figure 5: Timeline of key EU legislation affecting energy use in buildings (from Episcope 2016, 5). Note that this legislation is very general and does not make specific reference to social housing. The most important policy here is the EPBD, which implemented "requirements for [building] certification, inspections, training, or renovation" in EU Member States (BPIE 2011, 12).

1.5 Risks of greening social housing

1.5.1 Gentrification

One of the key social risks involved with greening is gentrification. Gentrification, as Manzi (2010, 43) describe, involves "a combination of middle-class colonization… [and] working-class displacement". In other words, by upgrading areas and making them more desirable and expensive, the risk is that low-income groups are displaced. In most cases, this means that low-income groups within existing social housing could be economically pushed to move to even poorer parts of a city due to increases in rent or changes to their rental contracts. Quastel (2009, 697) terms this process "eco-gentrification", as many greening or sustainability projects can have gentrification as a side effect (or, on occasion, as an intended effect). A home that is more energy-efficient will almost always have a higher market value, and this also makes them more vulnerable to privatization in the long-term. Although these processes may make the area more desirable for new residents, gentrification reinforces segregation and socioeconomic inequalities within a city as a whole.

There is potential for greater harmonization of existing certification schemes, which could form the base of a more comprehensive European strategy on social housing

Copenhagen and Stockholm each provide illustrative cases of how social housing renovation can spur gentrification and have negative societal outcomes. In Copenhagen, Alves & Andersen (2015) note that the city has privatized large parts of its rent-controlled housing stock since the 1990s, ostensibly to improve management, housing quality, and energy efficiency in these dwellings. This resulted in many formerly public apartments being sold to tenants as 'right-to-buy' properties. While some residents were able to afford the purchase of their housing property, many more were unable to afford the purchase and struggled with increases in rent. This trend, alongside the substantial material improvements that Copenhagen's poorest neighbourhoods have seen in recent years, has turned "former slum districts into highly attractive and expensive neighbourhoods" (Alves & Andersen 2015, 13). While these were positive changes environmentally, gentrification has transformed large sections of the inner-city. Moreover, "many at the margins of the labour market found it difficult to cope with the rent of new dwellings", even in 'rent-controlled' properties (Alves & Andersen 2015, 13).

Low-income groups within existing social housing could be economically pushed to move to even poorer parts of a city due to increases in rent or changes to their rental contracts.

Stockholm has faced similar problems, as the share of public housing in the city has shrunk dramatically since the 1990s. The renovations needed in Stockholm's poorest suburbs (where public housing is still dominant) necessitate increases in rent that many low-income households have found difficult to afford. Sweden's approach to greening public dwellings has thus come under critique from several researchers (such as Gustavsson & Elander 2016 and Andersson & Turner 2014), who contend that the Swedish conception of 'sustainable public housing' does not place enough emphasis on the needs of low-

income tenants. Focusing on public housing renovations taken under the 'My Green Neighbourhood' brand in Örebro, Gustavson & Elander (2016, 1), argue that residents have not been properly consulted or informed about the types of renovations done. Moreover, most of the tenants were unable to return to their renovated apartments, largely due to significant increases in rent that followed the 'green' improvements (Gustavson & Elander 2016, 1).

Although Gustavson & Elander's case study centres on a single estate, affordability has been a common issue concerning renovations for Sweden's now-aging (and shrinking) public housing stock. Retrofitting projects have often coincided with social mix and tenure mix policies, which can also spur gentrification. To counteract these trends, "decision makers have to be very observant of the different time perspectives linked to the structural positions and interests of the various stakeholders, for example a building company's desire to make short time profits through major reconstruction, sitting tenants' demand for sustainable maintenance and cautious refurbishment, local politicians´ wish to create another social mix in the area, and a public housing company's attempt to reconcile the views of different actors" (Gustavsson & Elander 2016, 1).

1.5.2 Energy Cost Recoupment

An additional (though less common) risk can stem from the *recoupment of energy savings from tenants*. This occurs because those involved in paying for renovation projects (e.g., investors, contractors, and public organizations) often do not benefit financially from the energy savings that tenants enjoy. As a response, investors can occasionally 'recoup' some of their expenses by charging tenants for the energy they save as a result of renovations. As a result, tenants may end up saving less (or nothing at all) on their energy bills, as they in effect pay for energy they do not use. Although this practice is politically contentious and prohibited in many EU states, it is permitted in France and Italy. In France's case, this recoupment of energy savings can occur without the agreement of tenants (Milin et al 2011, 20).

This is a challenging issue, especially in the case of social housing, as low-income residents may lose out on savings that could improve their quality of life considerably, and actually reduce fuel poverty. Another risk of the energy recoupment strategy is that there may be no incentive for tenants to reduce their energy consumption if they do not benefit financially from doing so. This means that retrofits might not lead to the expected reduction in energy use and carbon emissions.

However, a recoupment strategy, if set up responsibly (and with the agreement of tenants), can still be a positive way for builders, investors, and social housing organizations to fund renovations. These payments could be capped for tenants, for instance, or be grouped with rent payments as part of a "warm rents" system that spreads costs over an extended period of time (Milin & Bullier 2011, 1057). Regulating energy recoupment at a fixed cost alongside a performance guarantee can also give tenants more stability and reassurance regarding long-term recoupment. In essence, tenants can still get an improved living environment and better service facilities at no net cost to them.

1.5.3 Negative Regulatory Incentives

Reid & Houston (2013), reflecting on low carbon housing legislation in the UK, also argue that greening policy can be short-sighted and counterproductive if it ignores the socioeconomic needs

of vulnerable tenants. They contend that the UK's ambitious carbon reduction targets, coupled with housing shortages in major cities and the increasing privatization of the housing stock, have created an unjust housing system that uses 'sustainability' as a mask for gentrification and liberal reform. Partly due to the costs of aligning with low carbon policy, social housing development has slowed and more low-income households have had to rely on temporary accommodation (McManus et al 2010). The UK's system thus "penalises the most vulnerable in the rush to reduce emissions" from housing (Reid & Houston 2013, 6).

The UK's case exemplifies another of the potential problems of green social housing development. Complying with up-to-date emissions regulations can mean that social housing is significantly more expensive to develop. This can create a strong *negative incentive*, as builders, planners, and investors may be hesitant to spend the money required to develop or retrofit green social housing.

In many European countries, "technical and economic paradigms dominate media discourse on low carbon housing, marginalising social and behavioural aspects" (Cherry et al 2015, 302). These discourses can obscure the negative incentives created by expensive building standards. This is, of course, not to say that green development is harmful *per se*, but if it takes place within an already expensive, liberal housing market, it can potentially have detrimental social side effects and negative incentives for developers.

1.6 Good practices and case studies

Two past INTERREG IVC projects, SERPENTE and IMEA, have also dealt with greening housing, although IMEA lacked an explicit focus on social housing and SERPENTE did not engage directly with the potential socioeconomic consequences of retrofitting. Despite this limitation, SERPENTE did identify multiple examples of good practice in greening social housing in Cork, Brussels, and Bordeaux. Critically, however, most of their examples do not give adequate information about potential long-term changes in rent or contract status for tenants. Discussed below are three successful cases where increases in rent were avoided.

In one of SERPENTE's Belgian cases (Atelier Mommaerts in Brussels), an extensive renovation was completed in 14 months, financed by the Brussels-Capital Region (SERPENTE 2014, 1). Most impressively, this greening process was completed without any increase in rent for tenants in the social housing complex. The net housing cost for residents was decreased, as the price for heating and other services was reduced significantly. At Atelier Mommaerts, which contains 15 flats and 2 shops, a solar water heater was installed, in addition to improvements in insulation, window quality, air filtration, ventilation, overall building quality. Although exact comparisons with energy consumption before and after renovation are not possible to make due to a lack of data, project leaders estimate that energy consumption in the flats has been reduced by 50%. Despite the relatively small scale and high cost of the project (€1,715,000), the green renovations made and the commitment to tenant affordability are impressive.

The largest-scale project included in SERPENTE was a €7 million social housing renovation initiative in Bordeaux. Over the course of 14 months, 212 flats were retrofitted with high-quality insulation, double-glazed windows, and improved ventilation. The project was financed by a mixture of ERDF funds and designated eco-loans, which (at least at the time the report was published) meant that

rents were not subject to increase after the renovation. A social housing upgrade scheme in Cork, Ireland (also included as a good practice example within SERPENTE) was also completed without increases in rent for tenants. Although less ambitious than the aforementioned projects in Brussels and Bordeaux, it ran on a notably lower budget (€322,723) and made significant improvements to insulation and heating performance in 18 social houses.

Despite the success of the projects detailed above, they mostly represent fairly small-scale, isolated instances of greening. It is not clear how these projects (especially given their expense) could be transferred to other urban settings, particularly in poorer countries where public financing is more limited. There are, consequently, few positive examples of green social housing from Central or Eastern Europe. Private ownership is dominant in these states, and the countries that do have a significant stock of social housing (like Poland and the Czech Republic) have had limited success with their social greening strategies.

However, *Power House Europe*, an online platform for social landlords and their residents, does display several good practice examples from Bulgaria and Estonia. One of these, the *Radomir 1* case study from western Bulgaria, details an effective retrofitting project that improved energy efficiency in 21 social apartments. The improvements, which included updates for thermal insulation, windows, heating, and appliances, reduced energy consumption in the dwellings by 46% (Power House Europe 2010**)**. Although no details are given in regards to changes in rent or service cost to residents, the project organizers estimate that similar energy saving measures could be very cost-effective on a large scale.

Concerning greening policies for social housing (usually in the form of retrofitting or renovation to apartment blocks), they take different forms around Europe, both in regulation and in practice. One advantage to retrofitting dense social housing – as compared to retrofitting detached, owner-occupied housing – is that construction tends to be relatively uniform. Especially in Eastern Europe, where large apartment blocks have been built to a nearly identical layout, there is potential for well-organized greening programs to be extremely cost-effective for builders.

The Netherlands stands out as a cost-effective example of social housing retrofit. Energy-efficient social housing is particularly critical in the country, as more than 30% of the Dutch housing stock (see Figure 1) is publically regulated (though managed by housing associations) and subsidized. The Dutch government, in its recent 'Construction 2025 Strategy', has sought to dramatically lower the energy consumption of these residential buildings and reduce carbon emissions in the construction industry by 50% (Hasan 2015). Alongside its ambitious energy-reduction targets, the Netherlands utilizes a government-supported programme called 'Energiesprong' to facilitate extensive off-site retrofitting for social dwellings (Housing Europe 2015). The manufacturing of new materials for homes (which can include new walls, windows, and appliances) is completed at a facility before being brought to a building for renovation. This allows retrofitting to done relatively quickly, cheaply, and at minimal disruption to tenants. This retrofitting is financed using a fixed-payment scheme to housing associations that allows tenants to benefit from their reduced energy costs.

Vienna represents a unique case of widespread, green social housing in an urban setting. The majority of Vienna's housing stock – about 60% - consists of subsidized social housing (Häupl 2013, 1). Environmental standards for subsidized housing are also stringent, requiring all new apartments to be built with high-quality insulation to ensure low energy consumption. Between 20 and 30% of social homes built post-2010 are also designed according to "passive house standards", meaning that no heating is necessary to keep the dwelling at a comfortable temperature year-round (Häupl 2013, 1). However, in line with developments in other European cities, the number of new homes receiving public grants/subsidization has been gradually decreasing post-2008 (Housing Europe 2010). The prevalence and quality of the city's social housing stock also means that it is open to residents from a wide range of income levels. Different providers of subsidized housing (both public and private) must apply different income limits in line with federal legislation (Housing Europe 2010). Low-income groups are prioritized, but middle-income groups can access social housing as well.

1.7 Planning and investing for a green social housing sector

Although there are examples of good practice in several European cities (outlined above), transferring these successes to other national (and even other urban) contexts can be difficult. The critical test for public actors is the act of *planning* for the development of green social housing. This stems from: 1) Inadequate financial support for building green social housing and/or retrofitting social housing; 2) The widely varying (and often outdated) standards that govern the provision and quality of social housing around the EU; and 3) The sheer scale of renovations that would need to be done on social housing throughout the EU to have an appreciable impact on overall energy consumption and carbon emissions.

The table below, although it compares only six countries, gives a sense of the national legislative barriers that can make green social housing policy costly, protracted, and difficult to harmonize across borders.

National legislative barriers can make green social housing policy costly, protracted, and difficult to harmonize across borders.

Public investment, at the local, national, and EU levels, is vital to the sustainability of European social housing. However, with the high costs of both building and retrofitting green social housing in mind, it is also critical that the private sector work in coordination with the public. This may take the form of green public procurement (GPP) and/or public-private partnerships (PPPs). *Public-private partnerships* refer to a wide variety of "arrangements between government and private actors with the objective of providing public infrastructure, facilities and services" (Bel et al 2013, 303). For these types of investments and partnerships, efficient and effective public monitoring is crucial, as is the need for strategies that acknowledge the particular benefits and risks of building or renovating social housing.

INSTITUTIONAL / ORGANISATIONAL / SOCIAL BARRIERS		BE	BG	CZ	EE	ES	NL
Energy supply is contracted and paid at appartment level. No energy management at condominium building-level	institutional		X				
Lack of medium to longterm policy		X					
Fragmentation of energy policy		X					
Agreements on max. rents for low income groups between local authorities and housing associations impede quality investments (that raise rents).							X
The high demand for social housing leads to a focus on new construction instead of renovation		X					
Cooperation between administrations and home owners is limited and in initial stage	cooperation		X				
No integral approach or teamwork for building and renovation		X					
Insufficient administrative support for homeowners to get involved in energy saving retrofitting process	complex procedures		X				
Demanding administrative work in meeting the requirements for state support				X		X	
Low professional level of management and administration of small housing coops and associations of flat owners	knowledge			X			
Not enough detailed and current data available to evaluate the buildingstock		X				X	
Different level of understanding about energy systems and saving possibilities					X		
The combination of co-operative ownership and an association of flat owners makes it very difficult to come to an agreement on renovations.	social			X			
Moving tenants during renovations		X				X	
Different social background of general meeting members					X		
Main interests of tenants are not focused on energy savings but in improving comfort, health and safety related building qualities				X			X
Motivation to renovate a building is not present for a variety of reasons among (some) owners of a dwelling stock				X			
Different objectives and interests		X					

Table 4: Institutional, organisational, and social barriers for renovating (or greening) social housing (from RESHAPE 2009, 25).

In a broader sense, PPPs in some form might be essential for many public actors to secure funding for the large-scale greening of social housing. In the aftermath of the 2008 economic crisis, most European countries have implemented stiff public expenditures cuts (austerity) and supplemented this with more liberal, market-oriented housing development strategies (Reeves 2013). However, there are risks for utilizing PPPs within social housing development: competing interests, risk-averse practices, and profit-seeking can result in externalized costs and inflated expenditures for the public sector (Demirag et al 2012, 1336). These costs might then be passed on to vulnerable residents within social housing.

Public participation in green building has also been underutilized. Incorporating public participation strategies (direct consultations, workshops, online forums, etc) both before and after the greening process can provide planners and builders with clear guidelines and feedback. This method could be combined with PPPs for a '4P' strategy that harnesses both the desires of citizens and the financial support of the private sector. '4P' is shorthand for 'public-private-people partnership'. The 4P concept places public input and transparency as key factors to the success of a

partnership. The "people" in a 4P can refer to the general public as well as other stakeholders such as NGOs, professional groups and academia (Zhang and Kumaraswamy, 2012). Public participation can also balance against some of the risks of private sector involvement, as the needs of residents can be given more weight within the development of a public-private project.

Energy performance contracting (EPC) is another strategy that can provide more security to stakeholders in the greening process. An energy performance contract "is a contractual arrangement under which an energy services company designs and implements an energy retrofit with a guaranteed level of energy performance" (Milin et al 2014, 14). This reduces financial risk for investors and may make it easier for PPPs to function, as payment to stakeholders is based on clear energy targets. Energy performance contracts can "serve as a basis for a business model where intangible energy savings are transposed into a secured cash flow" to private-sector partners (Milin et al 1014, 15).

Another source for financial support for building green social housing and/or retrofitting social housing is the European Structural and Investments Funds. In the new programming period 2014-2020 there is €23 billion allocated to investments in retrofitting and construction of buildings, which have opened up greater opportunities for regional and local authorities around Europe to use European money as a catalysator for retrofitting housing stock in an affordable way. The financial instruments within the framework of the Cohesion Fund aim to be used as a tool at both national and/or regional level. The available grants should primarily target to support market failures or support innovative investments that go "beyond minimum legal requirements for energy performance so that reductions in energy usage and greenhouse gas emissions are greater than the savings achieved through business-as-usual". The Energy performance contracting model can be used as model for using the Cohesion Policy funding in an optimal was. The figure below illustrates potential options of Managing Authorities (CEB 2015).

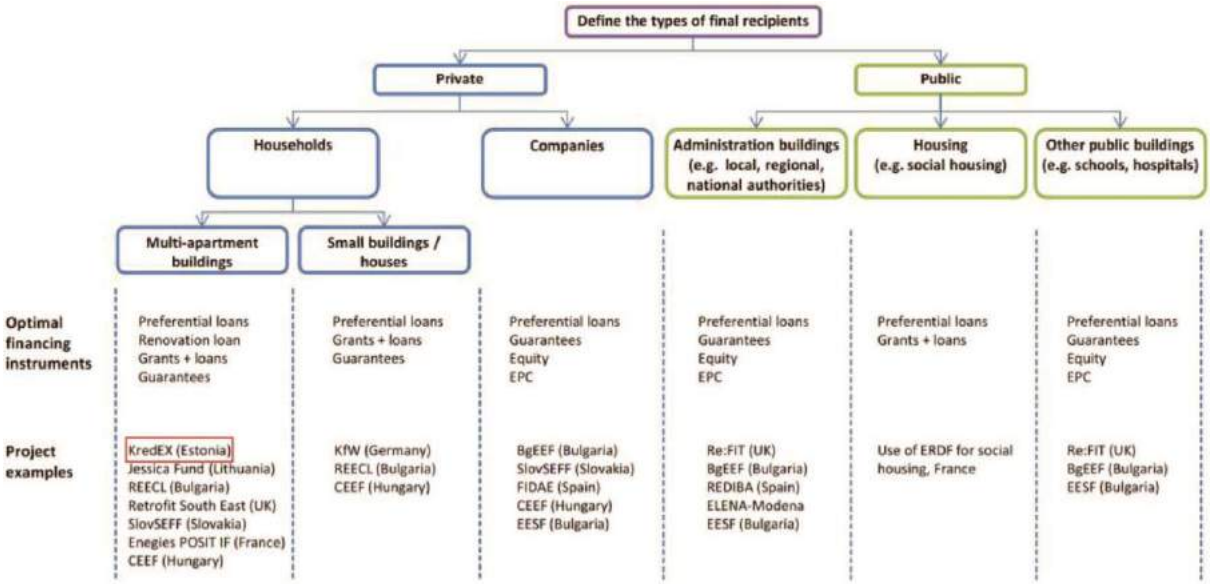

Figure 6. Financing options available to managing authorities depending on the final recipient (CEB 2015).

Although it is not specific to social housing, the European Commission maintains a Green Public Procurement (GPP) Toolkit intended to guide public actors through the process of designing, purchasing, and evaluating green goods and services. However, standard GPP evaluation methods in the realms of construction, building, and retrofitting can be inappropriate or insufficient when applied to social housing. A narrow focus on carbon reductions or life-cycle costing can prove detrimental to tenants if the costs of upgrading are passed down to social tenants.

In general, it is important to develop a resilient GPP approach to green building and social housing in particular. Based on the results of Re-Green I, this includes four main principles:

1. Specifically acknowledges local building characteristics and the needs of tenants.
2. Is flexible, in order to support actors from the bottom-up. For example, revolving funds agreements with specific public actors can motivate them to take charge of their own situations and grow them into larger (and perhaps ultimately more transferable) projects.
3. Explicitly and proactively engages the key actors. This could include community groups, NGOs, local action groups, private contractors and construction companies, other departments in your authority, etc. These people are crucial to the success of a strategy. Not only do actors need to feel like they have a vested interest in the success of a project, they need to be provided with the right knowledge and tools to succeed.
4. Is underpinned with a clear economic rationale, so as to support political buy-in.

1.8 Conclusion

Planning for social housing that is both environmentally and socially sustainable is challenging, often requiring flexibility and creativity from both public and private actors. Within this framework, we have attempted to outline the complexity and urgency of greening social housing, touching on the ecological, social, institutional, and economic concerns that intersect with the issue.

From the literature cited in the first half of this framework, it is clear that Europe has been facing a decline in its social housing stock since the 1990s, most dramatically in CEE countries. At the same time, fuel poverty, housing shortages, rising home prices, and aging social dwellings are growing problems in many major cities. Greening social housing – by improving insulation, energy use, and the domestic environment – can cut carbon emissions while improving quality of live for low-income groups. However, current practices and certification schemes lack harmonization, and regulatory differences between countries can make the greening process slow and costly. There are additional social risks of greening social housing, as renovations can increase rental costs for tenants and contribute to gentrification.

Despite significant challenges, there are good practices and tools that can provide inspiration to planners and policymakers wanting to engage with green social housing development. These include public-private partnerships, green public procurement, public participation, and energy performance contracting. However, there remains a need for knowledge exchange, action plans, stakeholder involvement, and clear indicators to monitor. Using this framework as a starting point, the Social Green project will facilitate all of these steps to improve policy instruments that comprehensively link together social housing and green building interventions. In the coming phases, Social Green partners will utilize this knowledge base (alongside more good practice cases and trans-national events) to design locally-embedded Action Plans related to green social housing. These plans can respond to the challenges and strategies identified in this Framework to ensure that green building interventions are as effective and socially sustainable as possible.

2. Social Green - Methodological Framework

This 'roadmap' intends to guide and organise the main deliverables of the project. It is rooted in a *systems perspective* where, instead of one-to-one causes and effects, actions can have diverse impacts that magnify certain outcomes or induce a series of indirect consequences. This calls for holistic, place-based and integrated planning and policy approach to dealing with the broad range of sustainability issues covered by the project. In this case, Social Green utilises feedback, research, local cooperation, and monitoring to contribute an evidence-based and sustainable approach to green social housing.

Although the framework takes inspiration from the conceptual work in *ReGreen project (supported by the INTERREG IVC programme)*, the present focus on social housing requires a retooled methodology. The project has three main components 1) project management and coordination; 2) communication and dissemination; and 3) interregional policy learning. **Component 3** is the core of Social Green activities in relation to the projects and aim scope. In this case, we have developed a framework of four sub-components of component 3 that will guide the different phases of the project:

Information & Education – Planning – Implementation – Monitoring.

These sub-components will follow a broad order within the project, but they should not be treated as isolated working blocks or steps in the framework. Rather, they connect and inform each other in a reflexive manner, meaning that lessons from later sub-components should be used to clarify results from earlier sub-components. Phases, sub-components and deliverables are explained in next chapter.

The diagram below (next page) illustrates the relationship between the main components and the sub-components. An accompanying table (on page 23) provides more detail on the deliverables for each sub-component.

2.1 Phases, sub-components and deliverables of Social Green

Social Green is structured in two main phases:

- **Phase 1** (Period 1-5, 30 months): corresponds to the interregional learning and exchange of experiences process, and sub-components of *Information & Education* and *Planning*. This phase is dedicated to the exchange of experience among Social Green partners and developing coordinated strategies. The learnings and findings from this phase are transformed into pilot actions in the action plan.

- **Phase 2** (Period 6-9, 24 months): refers to monitoring the implementation of the action plans, and sub-components of *Implementation* and *Monitoring*. In practice this means that each partner is responsible for implementing their action plan and Nordregio is responsible for monitoring the progress of the implementation of the action plan.

Below follows a more detailed description of each sub-component and the key deliverables, how it fits into to phase 1 and 2. **Please note that all deliverable are not described in detail and**

further guidelines/templates will be developed throughout the project. The table on next page also provides information on which period the task and deliverable are foreseen to be conducted.

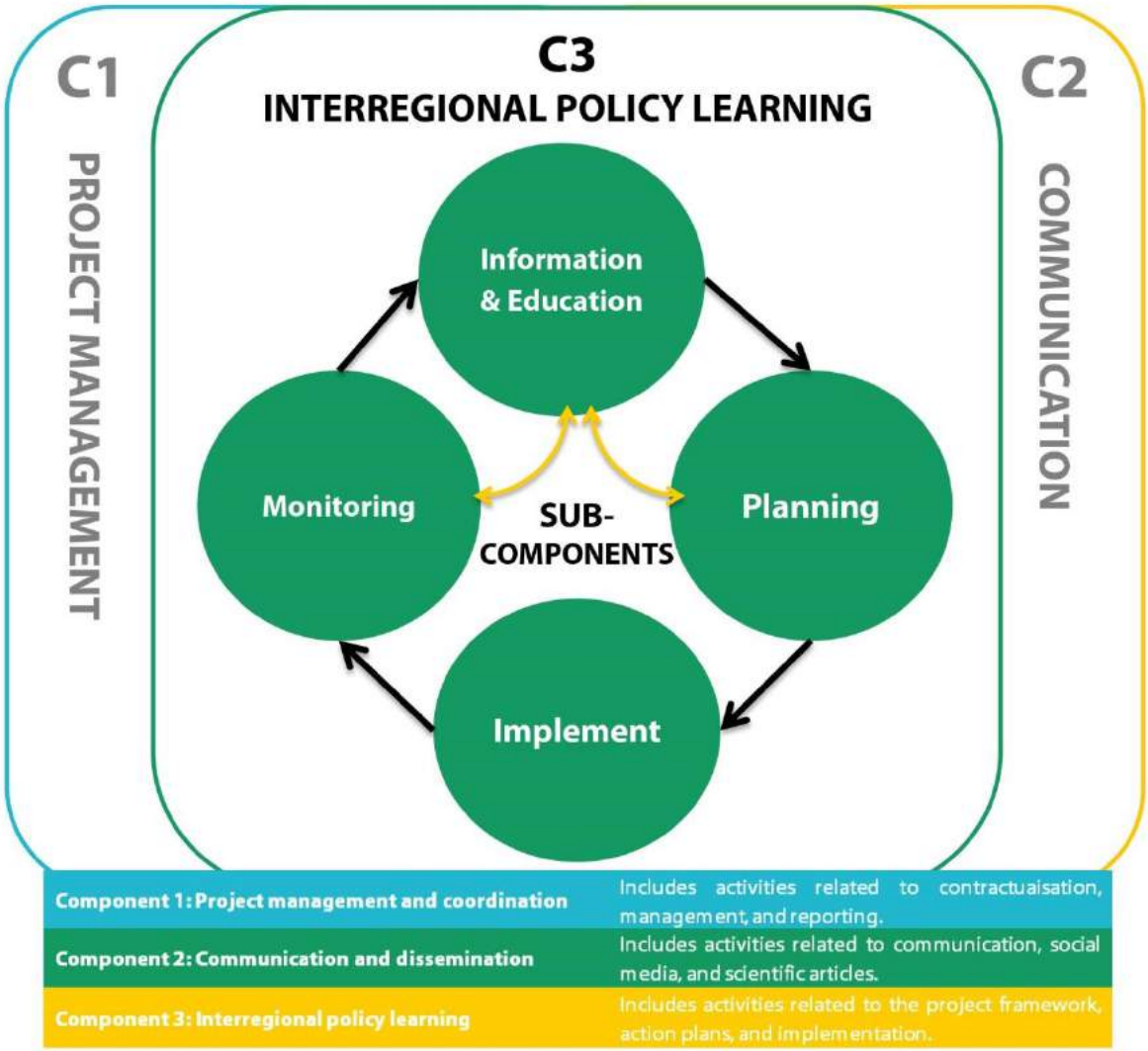

Figure 7: A visualisation of the Social Green methodological framework. The core component of Social Green is Component 3: Interregional policy learning, which is facilitated by two supporting components of C1: Coordination and C2: Communication. The sub-components of component 3 are Information & Education, Planning, Implementation and Monitoring. Note the feedback loops between several key sub-components. They are described in detailed below.

2.1.1 Sub-component 1: Information & Education

Information & Education is the foundation for each subsequent component of Social Green. The activities aims to create a framework for exchange of experiences and good practices among project partners, as well as facilitating broader knowledge creation through conceptual reports, technical scientific articles and communication activities.

The most important deliverable/activities in this sub-component are:

Key deliverable: Green Social Housing: conceptual framework and trends in EU

This incorporates the literature review and theoretical framework, which provide information on European social housing and relevant greening strategies that are currently used. The conceptual framework will provide an overview of social housing within the European Union, alongside a description of the main greening strategies being currently used in the social housing sector. In total, it will also cover social housing development trends, green building policies, and risks of greening social housing.

Key deliverable: Good practices catalogue

During the mutual learning and knowledge transfer process partners will collect and share within each other their good practices, as well as examine transferability and adaptation methods. The process will be enhanced by Study Visits organised by the regions involved. At the end of the process a Good Practice Catalogue will be produced and a Good Practice Workshop will ensure the effective knowledge sharing on adaptability.

Key deliverable: Report on policy recommendation for green social housing

The aim of this deliverable is to develop strategic guidelines and policy recommendations as an integrated toolkit for regional and local authorities, fostering greening the social housing sector, oriented to new and retrofitting existing buildings.

Key deliverable: Communication strategy

The communication activities of the project will be coordinated by AGENEX in collaboration with the other partners. The communication strategy will be based on the following components: brochures: newsletters: press releases: conferences: video: communications in seminars: technical/scientific articles: and policy learning platforms: other communication materials. A key communication channel for the project will be Social Green website: http://www.interregeurope.eu/socialgreen/.

Key activity: Peer-review processes of regional action plans

The peer reviewing is used as a key method for carrying out the exchange of experiences regarding regional action plans in Social Green. It aims to support regional action plan preparation and support of policy improvement and capacity building among Social Green Partners. Nordregio will organise the process to ensure the consistency and quality of the regional action plans developed by each stakeholder region. It includes continuous mentoring work with a final quality control process of the regional action plans. It also includes opportunities for regional partners to provide feedback and learn from to each other. The peer-reviewing process is a key activity for the following sub-component of *planning*.

	Sub-component	Key deliverables and activities	Responsible organisation	Contributing organisations	Period for activity
PHASE 1	**INFORMATION & EDUCATION**	Conceptual framework and trends in EU	Nordregio	All partners	2
		Collection of good practices	Nordregio	All partners	1-2
		Five study visits	Event organisers	All partners	2-4
		Communication strategy	AGENEX	All partners	1-2
		Peer-review processes of regional action plans	Nordregio	All partners	2-5
		Handbook for stakeholder involvement	Nordregio	All partners	1-2
		Scientific Technical Articles	CEIIA & Nordregio	All partners	4-5
		Report on policy recommendation for green social housing	CEIIA	All partners	4-5
	PLANNING	Local Stakeholders Groups	Regional partners	All partners	2-5
		Self-assessment reports guide	Nordregio	All partners	2-3
		Self-assessment regional reports	Regional partners	All partners	2
		Review and integration of the Self-Assessment reports	Nordregio	n.a	2
		Action plan guide/template	Nordregio	All partners	2
		1 Action plan per region	Regional partners	All partners	2-5
PHASE 2	**IMPLEMENTATION**	Action plan implementation	Regional partners	All partners	5-9
	MONITORING	Monitoring of action plan implementation	Nordregio	All partners	6-9
		Mid-term meetings to discuss action plans	Nordregio	All partners	7
		Elaboration of result report – summary of achievements	Nordregio	All partners	9

Figure 8: This chart indicates where each key deliverable for Social Green fits into our methodological framework in relation to sub-components of component 3 and the two phases the project.

2.1.2 Sub-component 2: Planning

The *Planning* phase is centred on establishing local stakeholder groups, production of self-assessment reports and drafting of the regional action plans by regional partners. Time-wise, *Planning* is the longest stage within Social Green with revision of the Action Plans to the end of phase 1. The planning sub-component is supported by the information and education activities in Sub-component 1, but it will also feed back into Sub-component 1: information & education, as the communication and drafting can sharpen educational tools for project partners.

The most important deliverables/activities in this sub-component are:

Key activity: Local Stakeholder Group and meetings

Setting up Local Stakeholder Groups is a key activity. These should be continuously involved during the project's lifetime and participate in regional (local stakeholders meetings) as well as inter-regional meetings. The involvement of stakeholders will contribute to local project implementation in three ways: firstly, stakeholders will gain relevant knowledge and experience for direct participation in the project activities; Secondly, local stakeholders meetings will be able to foster the realisation of a regional bottom-up approach, and though on project level an integrated approach and lastly, and finally, Action Plans will incorporate the expertise and needs of the relevant stakeholders.

A handbook for institutional/stakeholder involvement process will be developed by Nordregio, which should support the stakeholder involvement.

Key deliverable: Self-assessment report

The self-assessment guide is prepared by Nordregio and aims to support partners preparing their respective regional self-assessment reports. The self-assessment report should evaluate the current status of housing deprivation and energy efficiency in the social housing sector in partner regions. The self-assessment should also include a SWOT-analysis and be conducted by partner regions. The SWOT analysis is a structured planning method used to evaluate strengths, weaknesses, opportunities and threats.

Key deliverable: Action Plan

The Action Plan will detail how the lessons learnt from the self-assessment report, stakeholder participation and findings from *Information and education* will be implemented in order to green social housing in the region. These Action Plans should also be sensitive to respective local characteristics, aspirations, and needs in the realm of green social housing. The effectiveness of this overall project within the stakeholder regions will ultimately depend on the extent to which the general principles and ideas brought forth in Social Green can be situated in the local context to guide development.

2.1.3 Sub-component 3: Implementation

Done primarily by local partners, *Implementation* involves the implementation of action plans and strategic investments. The specifics of this sub-component are rooted in the policy goals of each project partner defined in the application. In general, these policy goals involve improvements to energy efficiency in the social housing sector, but also achieve greater social cohesion, improved

governance, and support the transition to a low-carbon economy. For example one policy goal could be defined as to allocate ERDF funds for the retrofitting of existing social housing, owned by Regional Government, or investment in new social housing with higher energy efficient standards. These policy goals are also interlinked with investment lines in Regional Operational Programmes, which for example could support objectives, such promotion of social inclusion and fight again poverty.

2.1.4 Sub-component 4: Monitoring

Shortly after drafting the Action Plan, a system of indicators will be developed in order to inform decision-making, monitor progress, identify shortcomings and re-tune plans towards the vision of each local partner. These indicators are the foundation for monitoring the action plan implementation. This will provide planners with clear data and indicators to reveal the housing/greening situation in a given region. Energy use in social housing, carbon emissions, rent prices, and projected retrofitting costs could all be gathered to provide a coherent dataset.

The Monitoring sub-component is crucial to the success of Social Green. The indicators used and the knowledge gained throughout this process should stimulate knowledge transfer on the topic of green social housing. In this way, we can facilitate planning processes to become more resilient and sustainable even in the face of real world changes and uncertainties.

As the last formal step of Social Green, *Monitoring* also incorporates final meetings with local stakeholders and elaborations of result reports. These activities will take place in the 9th (concluding) reporting period, and will be taken together to provide a 'summary of achievements' that will reveal extensive knowledge and critical lessons for future INTERREG projects in the field of green building.

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Annex I: Overview social housing stock, owners and characteristics

Data in Annex: Data sourced from Pittini et al (2015); Data for Czech Republic from Scanlon (2016); Data for Bulgaria, Latvia, and Malta from Housing Europe (2010); Data for Lithuania from Snieškienė & Dulinskienė (2014).

Country	**Social housing as % of total housing stock**
Austria	20,1
Belgium	6,5
Bulgaria	3
Croatia	1,8
Cyprus	0
Czech	8
Denmark	20
Estonia	1,7
Finland	14
France	17,4
Germany	4,2
Greece	0
Hungary	3
Ireland	10,3
Italy	5,5
Latvia	0,4
Lithuania	1,4
Luxembourg	2,7
Malta	6
Netherlands	33
Poland	7,6
Portugal	2
Romania	1,5
Slovakia	3
Slovenia	6
Spain	2,4
Sweden	19
UK	18,2

Table 5: Owners and managers of social housing in each EU state

Country	Municipal /local provision	Regional provision	State provision	Cooperatives /housing associations (not for profit & limited profit)	Public companies (not for profit & limited profit)	Private/contracted provision (limited profit & for profit)
Austria	X			X	X	X
Belgium		X		X		
Bulgaria	X					
Croatia	X					
Cyprus	NA	NA	NA	NA	NA	NA
Czech	X					
Denmark				X	X	
Estonia	X					
Finland	X			X		X
France				X		X
Germany	X	X		X	X	X
Greece	NA	NA	NA	NA	NA	NA
Hungary	X					
Ireland	X			X		
Italy	X		X			
Latvia	X					
Lithuania	X					
Luxembourg	X					X
Malta			X			
Netherlands				X		
Poland	X			X		
Portugal	X			X		
Romania	X		X			
Slovakia	X					
Slovenia	X			X		
Spain				X	X	X
Sweden	X					
UK	X					X

Table 6: An overview of social housing characteristics in each EU state

Country	Rent control/Rental subsidies	Rent negotiation	Income-adjusted rent	Tenancy limits	Owner-occupied option	Right-to-buy
Austria	X				X	X
Belgium	X				X	
Bulgaria	X					
Croatia	X					
Cyprus**	NA	NA	NA	NA	NA	NA
Czech	X					
Denmark	X	X				
Estonia	X					
Finland	X					
France	X		X			
Germany	X		X			
Greece**	NA	NA	NA	NA	NA	NA
Hungary	X					X
Ireland	X		X			X
Italy	X		X			
Latvia***	X			X		
Lithuania	X					
Luxembourg	X				X	
Malta	X				X	X
Netherlands	X		X		X	
Poland	X				X	
Portugal	X				X	
Romania	X					
Slovakia	X					
Slovenia	X					
Spain	X				X	
Sweden		X				X****
UK	X		X	X	X	X

	**There is no publicly funded/social housing in Greece or Cyprus	***There is very little social housing in Latvia (0.4% of the housing stock)	****Right to buy in Sweden involves a change from municipal to co-operative ownership			

ANNEX II: Country Profiles: Social Green partners countries

(Definition of social housing in this annex refers mainly to publically owned and/or subsidised housing in various forms, source: www.housingeurope.eu)

Country	What is social housing?	Who provides social housing?	How is social housing financed?	Who can access social housing?
Romania	In Romania, the term social housing is officially defined as "public dwellings with subsidized lease, allocated to individuals or families whose financial position would not otherwise allow them access to tenements leased on the market". There are also other housing programmes aimed at fulfilling specific social needs like housing for young people and young specialists, necessity housing for people who are evacuated from dwelling due to seismic risk etc. but they are not considered as social housing according to the legal definition. The stock of social housing is entirely owned by local authorities and represents 2.3% of the national housing stock.	The construction of social houses is a shared responsibility between the authorities of the local public administration and the central public administration. The requests for social housing are submitted to the authorities of the local public administration. This information is periodically centralized and sent to the Ministry of Regional Development and Tourism in order to establish the total housing need and to plan the investments for social housing construction within the limits of the approved budget. The authorities of the local public administration can also build social houses entirely from their own funds and they can buy houses from the free market and use them as social houses. The amount of public stock is very small, as mass privatization resulted in an increase in private housing from 67.3% in 1990 to over 90% in 1993, up to 96% today.	Public housing is generally financed from local budgets and transfers from the state national budget through transfers to the Ministry of Regional Development and Tourism budget. As the money allocated from the state budget doesn't represent a big amount, the number of social dwellings built each year is low.	According to the Housing Law, the families or persons with a monthly average net income per person below the overall national monthly average net income on total economy are entitled to social housing. Social housing units are allocated by the authorities of the local public administration according to their criteria, determined annually. The following categories of persons can benefit from social housing: persons and families evacuated or that are to be evacuated from the houses retroceded to the former owners; young people of maximum 35 years old; young people leaving social care institutions; disabled and handicapped; retired people; veterans and widows of war; beneficiaries of the provisions of the Law 341/2004 on the acknowledgement of the martyr heroes and warriors that contributed to the victory of the Romanian Revolution in December 1989, as well as of those who died or suffered from the anti-communist insurrection from Brasov in November 1987 and beneficiaries of the provisions of the Law no. 118/1990 regarding the rights for politically persecuted persons by the dictatorship

				since March 6th, 1945 as well as for the people deported abroad or prisoners.
Spain	The right to housing is guaranteed by the Spanish Constitution. Social housing in Spain consists of the so-called Vivienda de Proteccion Publica (publicly protected housing). It is characterized by a peculiarity compared to social housing models in most EU countries, in that it is housing provided almost entirely for owner-occupation. Only a small proportion of this housing, currently on the increase, is offered for rent. The main characteristic of protected housing is that construction, renovation and buying are subsidized by the State through reduced interest loans to providers. In exchange for this, dwellings complying with a number of conditions concerning size and quality are sold or let at prices below market to people with revenues below certain income ceilings. The entire home-ownership sector represents 85% of the total housing stock in Spain, while the rental sector is the smallest in Europe, corresponding to 11% of the total housing stock, and it is concentrated quite exclusively in few big cities such as Barcelona and Madrid. Just about 2% of the stock is social rental housing.	Public support for protected housing is dwelling-based, and open to all sorts of providers: public developers, commercial developers as well as not for profit organisations and cooperatives, as well as individuals who alone or collectively want to buy or rehabilitate a home.	Protected housing is mainly financed through funding from the National Housing Plan and to a lesser extent from regional plans as well as borrowing from private credit institutions. The state stipulates agreements with credit institutions, which commitment to providing loans at favourable conditions. Besides access to favourable loans, protected housing in some cases can also benefit from direct public aid in form of grants or subsidisation of loans.	On the basis of income distribution, depending on the type of VPO, broadly speaking over 80% of households virtually has access to this type of housing. The person who buys / is allocated / builds for personal use the dwelling: must not own or have a permanent right to use another dwelling, must not have obtained financing from the Housing Plan over the previous 10 years, and must have an income below certain levels. Disabled people and depended persons have the priority, and the regional governments can establish other types of requirements.
Portugal	The term "social housing" is largely used by authorities and institutional bodies in Portugal, with a legal concept based on 1983 legislation defining social housing as housing built and bought with the financial support of	In Portugal there are promoters and managers of social housing both in the public sector, as in the cooperative sector or voluntary sector. Municipalities are the main providers of social housing in Portugal. Housing	Social Housing is one of the decentralized powers in the Municipal Councils with programmes emanating from the Government (IHRU) through initiatives that support municipal or cooperative entities. The support	There are various programmes in Portugal which contain different kinds of criteria for eligibility and priority to access to social housing: PER Rehousing Programme that gives priority to people living in shanty

	the State, through fiscal benefits and financing for acquisition of land, construction and promotion of housing. It includes the provision of housing for sale or rent to persons/households below a certain income as well as measures related to specific groups which are targeted by housing and urban renewal programmes. This task can be made by public bodies, cooperatives, Private and social institutions. Social housing represents 3,3 % of the national housing stock.	co-operatives, co-financed by the State, provide housing at controlled costs. Finally, in the voluntary / non-profit sector there are organisations whose primary mission is not to provide social housing, but they do so for historical reasons or for reasons related to their main activity. There are no private landlords acting on a for-profit basis involved in social housing provision.	usually provided by municipalities by IHRU is translated into a financial contribution of the investment in construction that may be of two types, the grants and subsidized loans. Cooperatives receive similar support from IHRU plus by rule and where there are protocols of cooperation in support of the municipalities, which is most often done through the transfer of land for construction for a certain period. An insufficient level of public support combined with low rents which often don't cover construction costs make the current financing system for social housing in Portugal rather unsustainable.	towns in the major metropolitan urban areas, PROHABITA - the priority is given to people whose income is lower than three annual minimum salaries, that do not own any dwelling in national territory and that are not beneficiary of any kind of public financial support for housing purposes. "Porta Jovem" – support to young people to access rented housing. One of the criteria for granting this allowance is that the gross monthly income of the household "should be adequate to the interval between 1 and 4 times the maximum rent admitted in the area". Urban Rehabilitation Programmes that concern the rehabilitation of rented dwellings affected by the long period of rental freezing and therefore suffered severe degradation. NRAU – the New Urban Renting Regime establishes a housing rent allowance benefiting low-income households with rental contracts prior to 1990, in order to counteract the updating of frozen housing rents.
Estonia	According to the National Housing Development Plan 2008-2013, social housing in Estonia consists of rented housing provided mainly by municipalities to households in need and in disadvantaged situation, who are unable to secure housing for themselves and their families. It should be pointed out though that often the term „social housing" is used with a	Local governments are responsible for evaluating the need for social housing services and provide housing to those in need. Rental social housing is currently provided only by municipalities, despite the fact that the legal framework would allow for other types of providers as well.	Social housing is financed by municipalities through transfers from the central government or through grants provided by the Estonian Credit and Export Guarantee Fund (KredEx), a public limited company which can finance up to 50% of a project cost. In 2006, 81% of the funding for housing services came from local government budgets, 18% was own financing by	Access to the service is organised via social welfare departments of local district administrations all over Estonia. In 2006, the number of inhabitants in social dwellings was 4020 (1394 in Tallinn). Out of a total 1682 inhabitants in social housing in 2006, 1630 were of pension age and 1070 were persons with special needs.

	wider meaning in national housing support programmes, to include residential buildings and housing associations. Due to the high privatization rate, a large part of less advantaged groups are owners of their dwellings and live in condominiums organized in housing associations, about 60% per cent of the population are members of such associations. Social rental housing in Estonia currently represents only about 1% of the total housing stock in the country and the overall rental sector is very small. About 96% of the dwelling stock is currently in private ownership.		the recipients and 1% came from the state budget. Furthermore, the state allocates housing allowances to unemployed people and to families with many children. People with very low income can get support for utilities payment like electricity, water, etc.	
Croatia	N/A	N/A	N/A	N/A