

Hybrid green funding for affordable housing

European good practice examples for Ukraine's recovery



Exemplars for Ukraine: low income new build and renovation projects using hybrid green finance

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Executive Summary

The aim of this publication is to discuss good practice examples of pilot projects which have used hybrid green finance solutions to bring private sector investors to affordable housing. In its six chapters the document introduces European projects with elements relevant to the post-war recovery in Ukraine. Focusing on the financial and other cooperation of public and private sector actors, especially at the local level, the following text offers ideas for making green housing accessible to all income groups in Ukrainian society. Special attention is paid to closing existing gaps in accessibility of affordable and social housing, policy support for homeownership alternatives and highlighting challenges in the post-war reconstruction of the housing stock. This publication can serve as an inspiration for municipal and public administration staff involved in the development of recovery strategies as well as a tool for investors and stakeholders advocating for the inclusion of housing into Ukraine's green recovery.

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Glossary of terms and abbreviations used

Abbreviation / Term	Description
CRS	Catholic Relief Service
EU	European Union

EPC	Energy Performance Contracting
ESCO	Energy Service Company
HoA	Homeowners associations
OECD	Organisation for Economic Co-operation and Development
UNHCR	United Nations High Commissioner for Refugees
USAID	The United States Agency for International Development
WWII	World War II

1 Introduction

The aim of this publication is to discuss good practice examples of pilot projects which have used hybrid green finance solutions to bring private sector investors to affordable housing. In its six chapters the document introduces European projects with elements relevant to the post-war recovery in Ukraine. Focusing on the financial and other cooperation of public and private sector actors, especially at the local level, the following text offers ideas for making green housing accessible to all income groups in Ukrainian society. Special attention is paid to closing existing gaps in accessibility of affordable and social housing, policy support for homeownership alternatives and highlighting challenges in the post-war reconstruction of the housing stock. This publication can serve as an inspiration for municipal and public administration staff involved in the development of recovery strategies as well as a tool for investors and stakeholders advocating for the inclusion of housing into Ukraine's green recovery.

2 Ukrainian Housing Stock and Accessible Housing

2.1 Housing Stock Before the War

Despite privately owned housing being standard in Ukraine, many Ukrainians struggled to provide safe and healthy housing for their family, even before the start of the war. Old and low-quality multifamily apartment buildings in cities, under-developed energy infrastructure in many rural areas, and other legacies of the centrally-planned economy are among the main drivers of high energy poverty levels relative to the EU average.¹

Ukraine's population is highly urbanised. Over 70% of Ukraine's inhabitants live in cities (Kosse, 2023:12). The Ukrainian housing stock consists mostly of multi-apartment residential units. According to State Statistics Service data, 55% of all dwellings are flats, and the share of multi-family units in urban areas is at least 75% (Gorodnichenko et. al., 2022:266). Other sources claim that flats are the dwelling of choice for at least 46% of Ukraine's population (Kosse, 2023:12). Rural inhabitants live mostly in single-family houses.

The Ukrainian housing stock is relatively old and has relatively low energy efficiency. According to a study by the Energy Community, Ukraine's "building stock was mostly built between 1945 and 1970 (49%), with 90% of the building stock [...] built before 2002, when energy saving regulations were established" (Ban and others, 2021:214). Most multifamily units are Soviet-era apartments, with over 90% of units built before 1991 (Gorodnichenko et. al., 2022:266). The ageing building stock in Ukraine contributes to very high energy consumption in the housing sector, and while some city governments do have strategies for the management and upgrading of their building stock, many other municipalities struggle to progress with renovations due to a lack of financial and technical resources. According to local statistics, "in 2022, over 40% of Ukrainian households were living in homes that have never been repaired since their construction" (Anisimov et al., 2023:18).

Most Ukrainians prefer private ownership. According to World Bank data, 94% of Ukraine's 18 million residential units are privately owned (The World Bank, 2022:64-65). However, the real number may be closer to 85-90%, according to other sources (Gorodnichenko et. al., 2022:265). As in other Eastern European countries, a significant portion of Ukrainian housing stock came into private ownership due to the privatisation policies of the 1990s. Strong aspirations for private ownership, cuts in state-funded residential projects in the 1990s together with tax incentives, mortgage schemes for privately financed housing projects, and public subsidies on utility payments for owner-occupiers all heavily contributed to maintaining the popularity of privately owned housing, which has continued to this day. Unsurprisingly, the percentage of private ownership in Ukraine remains significantly above the EU average. As mentioned above, a lack of investment in maintenance and renovations is taking a toll on mostly older housing stock. An underdeveloped framework for coordination of private owners in structures like homeowners associations (HOAs) presents further challenges for the revitalization of housing stock. According to PBL Netherlands Environmental Assessment Agency, since the HOA was introduced into the Ukrainian legal framework in 2000, only 20% of Ukraine's multi-apartment buildings have established an association of owners (Anisimov et al., 2023:18).

¹ In 2019, 6,9% of the EU population suffered from the inability to keep their homes adequately warm (Chlechowicz & Reuter, 2021) while the same year share of energy-poor households in Ukraine ranged between 13% and 18% of all households (Ban et al., 2021)

Moreover, co-owners' limited awareness of their responsibilities often affects their capacity to contribute to the modernisation of multi-apartment buildings (ibidem).

2.2 Social and Affordable Housing

A high percentage of owner-occupied housing has had an impact on the underdevelopment of the social and affordable housing sector. After the era of privatisation, only a minimum of Ukrainian housing stock remained under state and municipal ownership, and the quality of this housing stock was rather poor. The Ukrainian social housing sector was almost nonexistent even before the war due to heavy underfunding. In 2018, only 1% of people lived in state-owned homes. In 2021, Kyiv municipality operated with only 72 social housing apartments in a capital city with 2.8 million inhabitants (Bobrova, 2022). According to 2022 data, only around 1,000 social housing units were available in the whole of Ukraine (Anisimov et al., 2023:18). According to current legislation, the provision of social housing should be a municipal responsibility; however, fulfilment of this role remains difficult due to lack of resources allocated by the state (Anisimov et al., 2023:9). Social housing is also rarely integrated into spatial planning strategies. However, it is fair to say municipal control over housing development and spatial planning, including land use, is quite limited. Ukraine currently does not have any system of municipal housing companies, which means maintenance of municipal housing stock represents an additional burden for local civil servants. Moreover, lack of public housing programs which would be promoting expansion of other than privately owned housing and a complex legal regulation of public housing prioritising several specific population groups (such as public workers) may deter international donors from investing in development of affordable housing projects.

Besides the lack of official affordable housing programs, the informal and unregulated state of the rental market presents a barrier to safe and stable housing for non-owners. According to local housing experts, most of the local rental market is informal and often focused on renting rooms rather than whole properties (World Bank, 2022:64). The public rental sector is almost non-existent. The lack of regulation creates unequal business relationships between owners and tenants and it does not provide the tenants with any guarantees regarding the price of rent, maintenance, or the provision of additional services. Due to these potential hidden costs and a lack of state energy subsidies for tenants, rental housing is considered more expensive than owner-occupied housing. There are no tax incentives which would encourage development of the rental housing market. As of 2013, only 3.4% of households lived in rental housing (World Bank, 2022:64). According to housing experts and local consultations, however, this official number does not capture the real picture. Sadly, unlike the social housing sector, rental housing reform has not been included in the National Recovery Plan.

2.3 War Damages and Recovery

Due to the ongoing, full scale Russian invasion of Ukraine, it is hard to assess the full extent of damages the Ukrainian housing stock has suffered. In June 2022, total damage to the housing sector was estimated at US\$39.2 billion (World Bank, 2022:64). In February 2023, the World Bank estimated the total cost reached \$50-70 billion.² The National Recovery Plan estimates that rebuilding and modernising housing and associated infrastructure will cost between \$150-250 billion (Mills, Brien and Butchard, 2023:18). Soviet-style apartments in Ukraine's cities

² "The total cost of damage in the housing sector in Ukraine as of February 2023 is estimated at USD 50 billion (25% of 2021 GDP)...The World Bank estimates the total needs for post-war reconstruction in the housing sector at about USD 69 billion, with USD 31.5 billion required for immediate and short-term recovery needs and USD 37.1 billion for medium to long-term recovery needs." (Kosse, 2023:16)

experienced the bulk of the damage. Damage is unevenly spread with Donetska, Luhanska, Kharkivska, and Kyivska oblasts accounting for most of the damage to housing stock in the country.

As soon as the security situation allows, safe and adequate housing will have to be provided to those who have lost their homes during the conflict, including internally displaced persons, returnees, and their host communities. Absent a truce and commitment to acceptable reparations for war damages, continued purchase of Russian fossil fuels in the foreseeable future is not a viable option; necessitating both dramatic improvements in energy efficiency and new fuel sources. An optimistic time frame for reconstruction of all affected dwellings is a period of 10 years (Kornyluk et al., 2022). Post-war recovery will represent an important moment to motivate improvements to Ukrainian housing stock. Post-war recovery will present an opportunity to adhere to the Green New Deal goals and to implement well-planned, complex revitalization of housing infrastructure, including establishment of new regulations for housing assistance and provision.

However, post-war circumstances will present not only opportunities, but also a long list of challenges and substantial changes in housing market dynamics. The most salient of these challenges include an increase of building material prices, a lack of skilled construction professionals, and a veritable Pandora's box of unresolved land ownership claims. These challenges will occur amid a landscape which has experienced a critical drop in house and land prices in the most affected areas. The Good Practices discussed in Chapter 6 have been selected with the aim of confronting these challenges.

2.4 Newly Emerging Policy and Financial Framework for Affordable Green Recovery

In the context of acute and widespread housing needs, it may seem that prioritising a green recovery in Ukraine should be secondary to the provision of immediate solutions. However, many Ukrainian stakeholders, including the government, understand that recovery and resilience must go hand-in-hand: rebuilding Ukraine's housing stock is a critical opportunity to rethink the country's housing strategy, realising affordable green housing solutions that can be delivered in the short-term yet also prove viable over the long-term. In this subchapter we examine several key elements of Ukraine's recovery strategy as well as examples of funding streams which could be used to make it happen. This research shows that Ukraine is already working within a strong enabling framework for implementation of the good practice examples introduced in this catalogue.

Since the early months of the Russian full scale invasion of Ukraine, both the Ukrainian government and the international community have developed policies and international cooperation models which would support a fast, sustainable, and affordable recovery. In July 2020, Ukraine and Switzerland jointly organised a Ukraine Recovery conference in Lugano, bringing together 58 international delegations as well as representatives from the private sector and civil society. At the end of the conference, participating delegations presented the 'Lugano Declaration' – a document outlining the framework for the political process guiding Ukraine's future reconstruction. Importantly, two of the so-called 'Lugano Principles' introduced at the conference were “green recovery” and “to build back better”. That same ambition is echoed in the Recovery Plan introduced at the same conference by the Ukrainian government. The document highlights Ukraine's readiness to synchronise the country's policies with the European Green Deal and the Paris Agreement. For over a decade, Ukraine has engaged with the EU and has shown its intention to align its legislation with the EU green transition standards, including the EU Green Taxonomy. These efforts translated into adoption of key legislation such as the 2020 Law on Energy Efficiency of Buildings and the 2021 Law on Energy Efficiency. Gaining EU candidate status in 2022 made Ukraine's pledge to pursue sustainable development even more substantive. In the same year, Ukrainian President Volodymyr Zelensky set up the National Council for the

Recovery of Ukraine from the Consequences of War, an advisory body under the President of Ukraine. The Recovery plan includes a concrete vision for the housing sector. For example, it envisions \$40 billion of investments into building renovations and a comprehensive modernisation of heat production capacity through sustainable energy sources, as part of a broader campaign to phase out natural gas for heating.

There are also numerous smaller developments which will influence the implementation of the above-mentioned goals at the local level. While delivering emergency services, such as provision of humanitarian assistance, Ukrainian municipalities have shown a tremendous capacity and potential to coordinate large-scale, multi-stakeholder projects. Recent legislative developments show that the Ukrainian government sees municipalities as key implementing partners of the post-war recovery and is likely to continue with the decentralisation reforms introduced in 2014. According to OECD data, “municipalities saw significant increases in municipal planning, budgeting and investment management skills as a result of the decentralisation reforms”, although rural areas have been somewhat lagging behind this trend (Michalun et al., 2022).

The National Recovery Plan highlights the role of local ownership and the support of local businesses, and it further envisions a framework for the establishment of regional development councils and local recovery plans. Municipalities will likely be instrumental partners for damage assessments and the distribution of damage reimbursements, as well as the redevelopment of abandoned areas and the identification of local investment needs. When it comes to the development of housing capacities for vulnerable groups, municipalities could soon be supported by new social housing legislation which reforms the National Housing Fund in order to increase oversight over quality compliance of social housing projects. Such a fund could also provide a useful interface for funding discussions between the state and the local level. Another key initiative for improvement of housing conditions in Ukraine has started only a few months before the start of the Russian full scale invasion and continues to deliver despite challenging conditions. The Energy Efficiency Fund Program **Energdom**³, implemented in cooperation with several international development organisations, provides instruments for thermal innovations in multi-family buildings where homeowners associations were established. The program currently represents the only reliable source of financing for the energy modernization of apartment buildings (ComAct, 2022:67), which are a dwelling of choice for about half of the Ukrainian population.

Not only a strong legal framework, but also significant financial resources will be needed to deal with the recovery of the Ukrainian housing sector. Many international organisations as well as governments have already made substantial financial pledges, and funding is already being allocated to specific projects in the housing sector. For example, last year, the EU invested €100 million into housing for internally displaced persons through the Nordic Environment Finance Corporation (NEFCO, 2022). The World Bank’s HOPE project is supporting over 100,000 families with urgent repairs worth \$232 million (World Bank, 2023). Renovations are ongoing even in the hardest-hit regions. The United States Agency for International Development’s (USAID) Bureau for Humanitarian Assistance is funding repairs on several hundred houses in the Chernihiv region (Global Communities, 2023). Financial involvement is complemented by in-kind and expert assistance from the international non-governmental sector; this aid is crucial for building absorption capacity, especially at the local level. Habitat for Humanity has already delivered minor to medium repairs of several hundreds of single family houses in the Kyiv and Kharkiv Region while providing capacity building for local communities.

This subchapter provides only anecdotal evidence of ongoing recovery efforts currently ongoing in Ukraine, but it suggests that Ukraine's green ambition is here to stay and that, so far, it does not seem to hold back recovery of the housing sector.

³ Project page available at: <https://eefund.org.ua/en/energdim-2/>

3 SMARTER Vision - Hybrid Green Funding of Housing for Vulnerable Families

3.1 Place of Green Housing in Ukraine's Recovery

Ukraine shows a high level of unity and determination to meet and exceed green transition goals in its post-war recovery. Ukraine has already pledged to meet these goals as a part of its alignment with Green Deal legislation and the Paris Agreement; this vision is strongly present in all different areas of recovery plans, including housing.

Alignment with the EU's green goals is not only politically strategic in light of Ukraine's aspiration to accelerate its EU accession process, it is also a decision which may have a significant impact on the wellbeing of the country's citizens. Ukraine has a significantly higher carbon intensity than the EU average. According to the World Health Organization, "Ukraine ranks among the worst countries in terms of deaths attributed to air pollution. The death rate is very close to that of China." (Gorodnichenko et. al., 2022:262). Another important benefit of alignment with EU green goals is attaining energy security. Reduction of Ukraine's dependence on Russian fossil fuels is a top priority for the country as well as for the EU. European institutions have already expressed their intentions to increase renewable energy investments in Ukraine (Abnett, 2023). Finally, green rebuilding represents an untapped potential for Ukraine's economy in the form of job creation and creation of new markets for low-carbon materials and products.

These developments are in line with the SMARTER4EU vision for green transition. SMARTER4EU encourages the banking and investment community to become "heroes" of the green transition and support the inclusion of projects that are truly transformative rather than projects that are merely "less bad". Since its establishment in 2019, the SMARTER initiative (which includes SMARTER4EU's predecessor project SMARTER Finance for Families) has achieved significant positive results, engaging financial institutions and gaining the commitment of 14 European banks to provide green mortgages and green development loans. This success has proven growing interest on the part of private banks in green housing as a sensible investment opportunity. However, neither climate goals nor investment potential are the key reason green housing should be seen as an obvious choice.

The initiative is aware that post-war economic transformation of Ukraine will have to balance needs for rapid economic development along with green commitments; accordingly, it will be the lowest-income citizens (including war survivors, IDPs, and returnees) who may find themselves in the most vulnerable position if such transition does not take their needs into account. All over Europe, it is our lowest income citizens who must often choose between building comfort, food, health and other essential needs. The purchase of a new home, regardless of its energy efficiency level, is understandably among the lowest priorities of low-income households. Yet such households are often most in need of energy savings as well as the non-financial benefits of green housing – its positive effect on health, energy levels, and the ability to focus on work or studies. Balancing speed, sustainability and price in affordable housing development is a challenging (yet not impossible) task. For inspiration, Ukraine can tap into a growing pool of good practice examples from the EU, where the continuous increase of energy prices in recent years has motivated a new wave of innovative projects⁴ as well as the revival of principles which have stood the test of time in initiatives such as the European New Bauhaus.

⁴ For instance projects featured in the Energy Poverty Advisory Hub Atlas, database of the European Commission featuring information about over 250 projects.

3.2 Why Hybrid Funding?

SMARTER4EU is trying to change the perception of green housing as “housing for the rich” and demonstrate that with the right blend of public and private investments, quality green housing with verifiable performance can become accessible even to low-income groups, while staying attractive and low-risk to investors. Good practice examples in this catalogue show that there are many ways good planning can create mutually-beneficial relationships between the public and private sectors, with benefits beyond the housing sector.

Investments into high quality green housing in post-war countries represent a unique challenge. Several obstacles exist, from unstable economic conditions, corruption, and legal uncertainty, to acute demand for fast and affordable constructions. However, in terms of potential investors, there are three main categories of actors to consider: private investors, local and regional government, and the international donor community.

After two years of devastating war, it is clear that Ukraine cannot be rebuilt without the support of international donors and large private investors, whose investment choices will show the direction for others to follow. As explained by the European Bank for Reconstruction and Development in one of its latest reports, “Foreign assistance can help to alleviate funding shortages in the short term and help formulate and enforce structural reform conditionality. In the absence of such conditionality and wider efforts to building strong, robust economic and political institutions, private investment in a post-war context may face bureaucratic gridlock, corruption or a high degree of informality caused by an institutional vacuum” (EBRD, 2023:20).

While international stakeholders are vital to kick-start the recovery, the construction of sustainable long-term housing for middle- and low-income families cannot happen without the close collaboration of state and local public administrations. In addition to the involvement of the public sector, Ukraine’s tradition of private ownership demands financial models that take into account the reasonable involvement of small private investors and future tenants, which will also provide investors with guarantees of future returns. Financial involvement of future inhabitants also increases their motivation to maintain value of the property.

Cooperation between these three stakeholders is therefore beneficial to all. International donors provide derisking for private investors, and private investors increase cost efficiency. Beyond financing, the private sector drives on-time delivery and contributes management know-how and access to technological expertise (EBRD, 2023:20).

Involvement of state and local administration can further increase sustainability of financing, for example through legal guarantees and their role in spatial planning. A balanced combination of public subsidies and market-based financing is also vital for the sustainability of long term financing of affordable housing. In the long term, in order to enable access to green housing to as wide a demographic as possible, public funding should be used primarily to support the creation of soft credits enhancing appeal and accessibility of market-based funding for those who can afford it. Instead of fixed subsidy schemes, public bodies should think of solutions which can be tailored to the needs of different homeowners and allow for instance different mix of subsidies within one multi apartment house. Furthermore, providing a discounted cost of financing relative to the local financial market in return for superior energy efficiency and other green performance can enable private actors to organise for and drive innovation.

With whole villages and urban neighbourhoods destroyed, Ukrainian public bodies, especially municipalities, will play a key role in ensuring that private developers include affordable housing in their developments. To ensure that future

reconstruction of housing stock is sustainable, inclusive in materials and design, and oriented on overall life-cycle costs, it is essential to involve local communities and stakeholders in the decision-making process. Local public bodies also play a crucial role in communication campaigns and consultancy services needed for successful implementation of affordable green housing projects with characteristic complex funding and stakeholder structures. Additionally, the more local communities participate financially, the more these groups can expect to influence development projects and collect financial returns. For all these reasons, hybrid funding (blending of several sources of public and private funding) represents an ideal financing model for the recovery of Ukraine.

The SMARTER4EU partners believe hybrid funding is a necessary element to achieve a fast, green, and affordable recovery in Ukraine, especially as adjustment of market conditions and cooperation among stakeholders can make green housing accessible even to low income groups. Therefore, all good practice examples selected for this catalogue have hybrid funding principles at their core. The appropriate balance of private-sector and public-sector involvement has proven essential in prior post-war reconstruction of Europe; therefore, special attention is paid to examples from other post-conflict zones. Our intent is to demonstrate that energy poverty solutions are “bankable” by private-sector banks, provided they are supported with well-designed, hybrid solutions, and provided banks are supported with an easy-to-use method of measuring green performance.

4 Short-term recovery - Challenges Ukraine faces and good practices which can address them

4.1 Introduction

At the beginning of 2024 there were 3,509,147 internally displaced people in Ukraine (IOM, 2024a) and over 5.9 million Ukrainians who fled their country to seek safety in neighbouring European countries (IOM, 2024b). According to data from 2023, nearly 1.5 million homes have been destroyed (UNDP, 2023), a number which keeps growing every day of the war. It is clear that the first step of the housing stock recovery needs to include fast and affordable emergency housing solutions. There is a common misconception that emergency housing must compromise quality and sustainability in the name of speed. However, this chapter will demonstrate that there are tested solutions which can deliver on both.

As previous conflicts have taught us, striving for the best possible quality is important not only to provide the best immediate care to survivors of the war, many of whom have or will have special health needs. Sometimes, despite all efforts, interim solutions tend to be used for housing for many years after the end of the conflict (as it is the case for many refugees who left Crimea and Donbas in 2014), and often these temporary solutions may serve as the foundations for a long term dwelling. Therefore, the design of emergency housing should be treated with the same considerations as the rest of recovery plans.

4.2 Emergency housing examples

4.2.1 Repurposing of existing buildings into short-term housing facilities

For the sake of both speed and sustainability, emergency housing solutions should strive to use existing structures, with an emphasis on the use of existing, vacant buildings. For example, in Eastern Ukraine, unused commercial properties and state-owned holiday resorts and summer camps are still relatively common, as many of these remained under state management even after privatisation (Gorodnichenko et. al., 2022:271). Such structures can be transformed into communal housing facilities at relatively low cost using resources from international development programs blended with contributions from the state or municipality. Habitat for Humanity's **Empty Spaces** concept (Habitat for Humanity GB, 2023), can serve as an inspiration for such redevelopment. In the past years, the organisation has piloted its easily replicable model in several countries including the United Kingdom, Poland and Romania and proved applicability for both refugee housing and mid-term social housing purposes. The Empty Spaces project works closely with local municipalities on targeting empty buildings such as old dormitories or office spaces in public ownership and transforms them into temporary housing facilities which can bring life to formerly depopulated areas.

4.2.2 Modular housing from natural materials

Where municipalities and private developers have available land, new temporary construction can be the best solution. In particular, modular houses made from natural locally resources materials such as wood and straw would

enable Ukrainian citizens to self build in a matter of days a passive house quality construction with almost no expertise needed. In the case of professionally built structures, single family dwellings can be erected on site in less than a day. Although emergency housing modules built from natural materials are more expensive than the usual plastic or metal containers, and their price per square metre is closer to brick structures, their health and comfort benefits, as well as their lifespan and durability, easily exceeds even brick and concrete structures. Modules which are factory-prepared and transferred to the building site in panels can provide affordable housing thanks to their simple design and replicability. Whereas traditional emergency housing units often leave behind environmental burden, modules from natural materials can have several times longer life-span and can be easily deconstructed, transported, or stacked into multi-storey buildings. This means they can be reused for the same purpose in a different location or expanded and serve as a basis for future long-term dwelling.

The wooden modular house industry is well developed in the neighbouring countries of Ukraine, however great examples can be found in the country itself. Worth highlighting is the **Ukraine System**⁵. This project by balbek bureau, an architecture and interior design studio, pilots a modular housing model for 15 displaced families which combines spacious and light private spaces with communal indoor and outdoor facilities in order to preserve dignity and a sense of community even in temporary settings. Prefabricated wood-framed units with a lifespan of up to 20 years represent a low-cost, scalable and adaptable solution that is already in the process of being rolled out at 10 sites in the country (balbek bureau, 2022). Moreover, “at least 75% of construction materials could be reclaimed and reused at another site after disassembly” (O’Sullivan, 2022). In Ukraine, prefabricated wooden modular houses as emergency accommodation have been already piloted in 2022 by UNHCR (Andrievska, 2022).

Straw bale modules (straw bales covered in clay to form panels) and compressed straw (stawmit-like) panels are another green and low-cost alternative to plastic portable containers used in Ukraine during the 2014 refugee crisis. Besides their good structural capability, straw buildings perform well in terms of resistance to fire and moisture, and they therefore provide safe shelter at comparable or even lower costs than conventional brick structures. When prefabricated in controlled factory conditions⁶, straw structures can achieve passive house quality. Straw is a low-cost material available in Ukraine in large quantities (Kuznetsova, 2010). Historically, straw dwellings are well represented in Ukrainian tradition. In the present day, however, straw is often undeservedly perceived as an inferior building material associated with poverty. Lack of trust in this material could be the cause of scant interest by Ukrainian building professionals to use it. Nonetheless, as demonstrated on the website of the European Straw Building Association (ESBA, 2024), there are many successful good practice examples from which other parts of Europe and Ukraine can draw inspiration. For example, an Austrian project, **Vivihouse**⁷, is designed to enable the construction of up to six-storey office and residential prefabricated buildings combining straw, clay and wood (Fürst et al., 2023). Vivihouse buildings can be easily disassembled and reused on a different site. Vivihouse’s pilot project is the world’s first openly licensed modular construction system for multi-storey straw bale construction (ESBA, 2019). Although elements for one housing unit can be professionally produced in less than a day, Vivihouse can be also be self-built in less than 9 days with little or no previous craft experience (Fürst et al., 2023). To enable wide use of its technology, Vivihouse provides workshops on construction of its elements as well as step-by-step building manuals instead of conventional plans. Such acquired knowledge enables builders to maintain their buildings themselves. The relatively quick learning curve of Vivihouse, even for inexperienced builders, was successfully proven by several other projects; for example, the Bosnian **Student Pavilion**⁸ pilot, an early-zero energy building built

⁵ Project page is available at: <https://www.balbek.com/reukrainepilot-eng>

⁶ For example Lithuanian brand EcoCocon. Project page is available at: <https://ecococon.eu/gb/>

⁷ Project page is available at: <https://www.vivihouse.cc/>

⁸ Project page is available at: <https://green-council.org/projects/student-pavilion/>

by university students during a summer workshop (Green Council, 2024), or the international project **StrohNatur**⁹ which has provided workshops to owner-builders since 1998 (StrohNatur, 2015).

⁹ Project page is available at: <https://www.strohnatur.at/strohballenhaus-oberoesterreich/>

5 Long-term Recovery - Challenges Ukraine faces and good practices which can address them

5.1 Introduction

The following section is focused on sharing good practices for complex and comprehensive reconstruction of the Ukrainian housing stock. Unlike temporary emergency housing solutions, medium-to-long term post war reconstruction plans need to pay significantly more attention to urban design, the creation of social structures, and spatial planning related to repurposing of destroyed and depopulated areas. In the case of Ukraine, post war reconstruction needs to focus also on the restructuring of the almost non-existent social and affordable housing system and deep renovation of the housing stock. As benefits of natural materials and green housing have been already discussed above, this chapter will primarily focus on the financial and non-financial roles of different stakeholders in residential projects for low-income families. Municipalities, especially, will have to increase their capacities in land management and housing finance to plan and oversee construction, rent collection, and maintenance of municipal housing stock. However, to succeed in their new roles, municipalities will need structured support (such as a national housing agency) to easily access national and international finance (Anisimov et al., 2023:9).

5.2 Affordable Housing in Municipal Ownership

5.2.1 Municipalities as housing managers

Municipally-owned housing stock with at least part of dwellings rented for below-market prices is a necessary component of social housing. However, smaller municipalities might lack capacity or experience to manage their housing stock themselves. In this case, establishing a management company covering the needs of several municipalities may be a good way to decrease costs and gain insight into housing property management. The Finnish project **Kunta-asunnot Oy**¹⁰ might serve as a good example of such an arrangement. In this project, 40 municipalities transferred over 9,000 rental apartments to a jointly-owned non-profit management company which handles financial administration services and resident selection (Housing Europe, 2020). The majority of their apartments are government-funded or purchased using a subsidised loan (KAS Assunot, 2020). Such a service could be beneficial, especially for municipalities with a high influx of refugees. In Warsaw, **Habitat for Humanity** has piloted¹¹ its own social rental program, leasing units and then renting them at affordable rates to vulnerable groups of tenants. “Habitat ensures rents are paid and that units are returned in a condition no worse than at the beginning of the lease” (Habitat for Humanity, 2022). The organisation is now tailoring the program to needs of refugees and plans to share the model with municipalities interested to create their own management companies.

¹⁰ Project page is available at: <https://kas.fi/en/home>

¹¹ Project page available at: <https://www.habitat.org/newsroom/2022/habitat-humanity-helps-refugees-move-ukraine-and-those-need-shelter>

It is important to mention that non-profit management companies can help municipalities with much more than solving an administrative burden of renting. They can provide many additional services creating thriving neighbourhoods. One of the biggest challenges of post-war social housing strategy will be the provision of an inclusive and welcoming environment for vulnerable groups such as IDPs, returnees and war survivors who will be rebuilding their lives in a new community; often far away from their original home. Since many municipalities will be developing social housing projects for the first time, it is no less important to avoid creation of socially excluded areas. Lessons to learn can be found in Austria, which has one of the most developed social housing systems in Europe. In the **City of Vienna** alone, over 50% of the population lives in a municipal flat or subsidised dwellings built and managed by non-profit or limited profit organisations. “The large share of social housing contributes towards more affordable prices for a major proportion of the entire housing market” (The City of Vienna, 2023). Striving for an equitable community that involves both the middle class and lower-income groups, the municipality of Vienna in all its buildings mixes for-profit and low-profit tenants. Private developers too need to include affordable housing alongside other types of real estate (ibidem). Furthermore, Vienna’s housing fund strives for embedding social housing into all city quarters including the city centre. It also supports various neighbourhood based NGOs offering various activities strengthening cooperation among members of their community while bridging social, religious or generational differences. NGOs play similar roles in **the Netherlands**, where three-quarters of the rental housing market are regulated social housing units. These are rented to tenants mostly through non-profit commercial organisations which influence rental market prices and standards and prevent social zoning by diversification of tenants in each building. In 2016, **Trudo Housing** launched a scheme supporting integration of refugees into the Dutch society offering rent discounts to tenants volunteering in refugee integration programs (UNECE, 2021:27).

The post war recovery expenses that Ukrainian municipalities will face are enormous, and the possibility of stranded assets in the form of unpaid rent may deter them from renting out housing stock in their ownership for a purpose of social housing. Non-profit management companies can play a role of a guarantor of paid rent and reimbursement of any damages to municipal or private owners of dwellings. With the support of state and international donors, non-profit management companies can offer owners additional financial guarantees and individual social work with tenants to decrease risks associated with renting. Such cooperation has been successfully implemented in Denmark, where a state revolving fund enables sustainable management of affordable housing communities. Denmark’s **National Building Fund** (Landsbyggefonden)¹², established in 1967, provides affordable housing funded by rent paid to non-profit housing organisations which provide their tenants with maintenance services as well as education consultations and employment opportunities through partnerships with local schools and community centres (LBF, 2024). The National Building Fund cooperates with mortgage banks which raise capital by issuing bonds. Bonds are purchased by investors such as pension funds and commercial banks. Loans provided by the National Building Fund are 90% funded by private capital and 10% by governmental funds (Anisimov et al., 2023:31).

5.2.2 Municipalities as developers of renovation projects

Postwar renovation of Ukrainian housing stock presents an opportunity to improve the quality of old housing stock, particularly energy efficiency. Reconstruction of damaged buildings needs to be coordinated as much as possible by municipalities. As described in greater detail in chapter six, municipalities will play a crucial role in ensuring redevelopment of heavily damaged neighbourhoods is done in line with EU standards Ukraine pledged to follow as well as long term city development strategy in mind.

¹² Project page available at: <https://lbf.dk/>

Renovation of old buildings plays an important role especially in the first phase of recovery when the need for additional housing facilities in densely built-up locations will be especially high. One of the fastest options for increasing the housing stock is the addition of floors on the top of multi-apartment buildings. Wood-based additions which can be built in a matter of days provide a quality green housing solution which, due to its light construction, does not compromise the structural integrity of an existing building. Building of additional floors presents an opportunity for renovation of the rest of the building and increase of affordable housing options in the centre of the city, allowing vulnerable groups with access to amenities and job opportunities.

The City of Brussels EU-funded project **Savonnerie Heymans Public Housing** created 42 low-energy public housing units renovating a derelict former soap factory using natural materials such as wooden cladding and hemp insulation on new extensions while keeping its industrial heritage alive (Metz, 2016). It is a rare example of high quality social housing in a highly demanded city area. A low-energy standard was reached by simple low-maintenance solutions such as glass-enclosed bioclimatic loggias serving both as meeting spaces and an additional thermal and sound insulation layer protecting tenants from the city centre's noises (Housing Evolutions, 2021). Similarly to Savonnerie Heymans, the Paris project **Tête en l'air Social Housing** represents another example of a crumbling building turned into sustainable social housing thanks to a deep renovation. A complex of 15 existing and 15 new units was constructed using only laminated plywood. The project uses lots of natural lighting and photovoltaics to increase energy independence. Although the existing construction was in very poor condition, additional insulation and wooden cladding allowed unification of the whole complex and good energy performance (Pittau, 2015). Both Savonnerie Heymans and Tête en l'air created an inner yard with shared green spaces increasing community spirit.

Providing a sense of community and belonging cannot be underestimated, as these can be key ingredients for long-term sustainable maintenance of social housing projects. Municipalities are often reluctant to invest into renovation of their social housing properties in areas where tenants seem to lack motivation to care for their dwelling and its surroundings. In such cases, in kind involvement of residents could be a way to secure their engagement and trust of their municipality.

5.3 Associations of homeowners

In a country with such a high level of dwellings in private ownership, legal and financial incentivisation for coordination of homeowners into associations can be a great way to collect funds needed for reconstruction and expansion of multi-apartment houses. For banks as well as state administration, associations represent a lower-risk client as opposed to smaller developers. Hence, associations can more easily receive loans or apply for additional subsidies. However, the bigger and more diverse the group of homeowners, the more difficult it can be to reach an agreement. Moreover, some low-income owners may find it difficult to equally participate in reconstruction costs and need additional support. Therefore, public or non-governmental programs providing additional mentoring, mediation, administrative and legal support are a crucial component of successful development projects by associations of homeowners, even more so in Ukraine, where these associations do not have a strong tradition.

Habitat for Humanity's **REELIH**¹³ project which is currently implemented in Eastern Europe and Central Asia, specialises in such support of multi-apartment house owners. Similarly to Ukraine, green/energy efficiency mortgage market in REELIH project countries as well as state support of affordable housing is very limited. REELIH renovation projects are therefore financed mainly through individual or collective commercial homeowners loans with additional support from municipalities. These most often contributed either in the form of financial subsidies (for example in

¹³ Project page available at: <https://getwarmhomes.org/our-approach/>

Armenia and Bosnia and Herzegovina). In several cases, REELIH provided support with applications for non-profit zero interest loans. Besides support with obtaining necessary finance, REELIH project facilitated the discussion and decision making among homeowners as well as other stakeholders including municipalities and banks. During and after the reconstruction process REELIH, helped owners to find reliable construction companies and trained them in maintenance of energy efficient buildings. In REELIH's experience, despite complex deep renovations making more sense both from energy and financial perspective, sometimes the step by step approach turned out to be more beneficial for long-term success. As owners and loan providers saw the bankability of small scale interventions, their trust in more extensive investments grew.

Facilitating access to affordable loans as a means to encourage private investments into reconstruction has been proven as a successful method in previous projects. Similarly to Ukraine, Estonia used to struggle with renovation of old energy intensive apartment blocks mostly built prior to 1980. Until 2008, there were no legal obligations to improve energy performance of buildings (BPIE, 2015:22). In 2009, the Estonian government introduced the **KredEx**¹⁴ revolving fund, “the first of its kind to use EU Structural Funds to provide low-interest loans to housing associations and municipalities” (BPIE, 2015:22). Combining resources from the European Regional Development Fund, the Council of Europe Development Bank and the Estonian Government, KredEX provides housing associations with state-backed loan guarantees and reconstruction grants. The majority of apartment units within a building need to be owned by natural persons to be eligible. Besides provision of guarantees, KredEX coordinates relationships between banks and associations of homeowners while associations of homeowners bear responsibility for organising homeowners, managing the project proposal, providing reports to the lender and collecting loan repayments. KredEX serves as a great example of leveraging the full potential of cooperation with international financial institutions in channelling financing towards building renovations. Institutions such as the European Bank for Reconstruction and Development and the European Investment Bank can either cooperate with governments on development of revolving funds providing low to zero interest loans to end users or provide guarantee instruments and credit lines directly to local banks to extend their offer of products for green renovations.

Besides public subsidies and private loans, energy performance contracting can be another way to secure funds for renovation investments. Energy Performance Contracting (EPC) is an alternative financing method which allows funding of energy efficiency improvements from cost savings. EPC is a contract between owners of multifamily residential buildings and energy service companies which provide investment into energy performance. This funding method, which allows repayment of investments through savings over a long period of time, is widely used in the EU. There are several types of contracting models which can include additional saving and repayment guarantees. As explained by the EU's Joint Research Centre, EPC can be a great solution for cash-poor yet creditworthy homeowners for whom such funding brings many more advantages than mere funding: “EPC is a means to deliver infrastructure improvements to facilities that lack energy engineering skills, manpower or management time, capital funding, understanding of risk, or technology information” (E3P, 2013).

The Latvian project **SUNShiNE**¹⁵ is an example of EPC used for the renovation of old Soviet-era residential block apartments commonly known as Khrushchyovka. In this EU funded project, an energy efficiency service provider (ESCO) took a bank loan and residents repaid deep renovation costs to their ESCO. The project enabled 31 projects across Latvia, triggering renovation investments worth 25.5 million EUR. Renovations aimed at decreasing energy consumption by 60% and increasing the life span of renovated buildings by several decades (European Commission, 2022). The project provides fast and long term access to renovations even to families which otherwise would not be

¹⁴ Project page available at: <https://www.kredex.ee/en>

¹⁵ Project page available at: www.sharex.lv

able to afford them. According to the project coordinator, instead of acting upon complaints, ESCO now proactively performs scheduled maintenance. (European Commission, 2020)

For Ukraine, which has a small but growing ESCO market, cooperation with ESCOs presents an investment opportunity both for the public and private sector. To stimulate the market, the Ukrainian government could establish a so-called Super ESCO. A state owned structure which would “address industry challenges by aggregating numerous EPC projects, attracting investors, and providing funding to local ESCOs.” (Tzanev & Stanisheva, 2024:10). Where cooperation with ESCOs is not an option, on-bill funding represents a comparably user-friendly mechanism. Associations of homeowners which are able to receive a long term loan, can simply decide to add its repayment to monthly energy bills or payments into repair funds.

5.4 Municipality as a PPP developer

Development of new affordable housing dwellings in public-private partnerships can be easily considered as one of the most challenging yet very rewarding and sustainable ways of financing affordable housing. In examples described in this chapter so far, municipalities played a role of a financial injection or a financial safety net for projects which would be - without such support - considered too risky for the private sector. There are however cases when affordable housing can be a part of a highly bankable and for-profit project. Two London examples below show that development of affordable housing can go hand in hand with commercial construction. As more described in chapter six, technical and financial cooperation of municipalities and private developers increases municipal influence over construction projects and therefore prevents wild exploitation of land in prime locations which is often present in post-war spaces.

In 2019, The City of Westminster introduced a mixed tenure housing project combining flats to buy and to rent with an aim to create socially mixed housing similar to the Viennese projects discussed above. The City of Westminster’s **Luton Street Residential-Led Project** developed 171 dwellings in a joint venture with a local private developer including 62 homes for social and intermediate rent in the centre of London which remained in the ownership of the city council. The city council invested into the project via its own development company established for management of such projects (LGA, 2022). Luton Street development was part of a larger neighbourhood revitalization project which provided the construction with access to green spaces and other community facilities (City of Westminster, 2023). Such elements of healthy housing can be easily sidelined for the sake of increased housing space when development in prime locations is fully in the hands of private developers.

Another joint venture example shows that a private investor does not necessarily have to be a rich investment company. In 2021, London based joint venture **More Homes Project** collected £88 million needed to purchase and refurbish 365 properties in London Borough by issuing bonds to private pension fund investors (LGA, 2022). Together with a private repairs & maintenance company Mears, the Waltham Forest City Council developed the site to use it for the next 40 years as a temporary emergency accommodation for people without homes, saving £3.4 million a year on temporary emergency accommodation in hostels with standard market rates. The City Council is currently leasing properties from the joint venture which uses its returns to pay back its investors. After 40 years homes will revert to the ownership of the Council and continue to serve as affordable housing (Mears, 2021).

5.5 Single family houses - vulnerable owners

Asset-rich and cash-poor owners of single-family dwellings are a group highly exposed to risk of energy poverty. Like in many other Eastern European countries, house owners in the Ukrainian countryside are particularly at risk. Long-term low interest loans and mortgages which could be at least partially repaid from energy cost savings are among the most affordable ways to increase access of private house owners to renovations. Accessibility can be increased even more with the use of guarantees from the public or non/governmental sector providing backing to lenders who would be otherwise considered by financial institutions as risky. As a result such guarantees encourage creation of new financial products such as green mortgages and more widespread participation in green housing. Although this type of public support is not very developed in Central and Eastern Europe, successful examples of a national guarantee fund can be found in Slovakia and Lithuania (Tzanev & Stanisheva, 2024:8).

One of many countries betting on a combination of public subsidies with long-term low interest state mortgage loans is Germany. The German **KfW Development Bank** was established by the German government and the Federal States, secures funding from the capital market, and uses state subsidies to provide 100% covered low interest loans through cooperation with local banks which offer renovation loans to clients they select. KfW funding can cover up to 100% of renovation expenses and can be used both for private residential and municipal housing projects. Loans with a maturity of up to 30 years can be used for a wide range of energy efficiency interventions from window exchange to deep renovations and therefore allows house owners to invest in stages as their trust in the system grows. Repayment bonuses and additional grants are used to further incentivize deep renovations (BPIE, 2015:29)

A unique funding solution focused on long-term renovation loans is **EuroPACE**¹⁶, a Horizon 2020 funded project coordinated by the Centre for Social and Economic Research in Poland. Between 2018 and 2021 the project piloted affordable financing that is attached to the property rather than an individual person. It also provided owners inexperienced with renovations with logistical and technical assistance and quality control. The EuroPACE loan fund combined public subsidies to spur demand and a public guarantee fund to lower risks (and therefore interest rates) of private investors and private capital. Initially piloted in the Spanish municipality of Olot, the project has - according to its own research - potential to be implemented in other European countries. The program offers up to 100% financing for energy efficiency renovations and improvements in the area of renewable energy and water conservation. Loans are provided for a long term period, up to 25 years and can be transferred to a new property owner upon sale. The financing is repaid as a special charge added to the property tax bill. Through attachment to the property and long term repayment period EuroPACE tries to help especially vulnerable groups ineligible for more traditional loans.

Loan guarantees can also affect the amount of minimum down payment. For example, the previously discussed Estonian **Kredex** fund offers housing loan guarantees to young families seeking to reduce their down payment obligation. The Kredex guarantee allows a loan with as little as 10% self-financing. The loan makes it possible to buy or renovate a dwelling or buy a plot of land with an intention to build a private house. The amount of a loan guarantee can be between 20,000 to 50,000 EUR depending on several criteria including energy efficiency of a dwelling in question or number of borrowers' children (Kredex, 2024).

Long-term loans can be a great solution for young families. However, economically inactive groups of citizens such as seniors or persons with disabilities and their caretakers can easily fall through the cracks of renovation support programs. It is therefore advisable to allocate part of renovation funding to targeted funding lines for people with

¹⁶ Project page available at: <https://www.case-research.eu/en/farewell-europace-101858>

special needs. An example for this can be the Czech program **Green Savings Light**¹⁷ which is, unlike its much more robust “older brother” Green Savings, focused on smaller energy efficiency interventions such as roof insulation or front doors replacement. Groups eligible for Green Savings Light are single family house owners who are beneficiaries of housing benefits, disability pension or retirement pension.

Finally, even with a possibility to secure a loan, house owners with no renovation experience often see deep renovation as a challenge they would rather avoid. In such a situation, owners of houses based on shared, standardised plans have an undeniable advantage, as they can share information and replicate successful projects or even decrease their costs by renovation of multiple houses of the same type in one joint project. Such cooperation brings savings on material purchased in bulk or in shared architectural plans. An example of a deep renovation project with replication potential is **RenovActive Slovakia** by private company Velux. RenovActive Slovakia is originally inspired by a Belgium pilot reconstruction which turned a semi-detached 1920s workers’ colony house to a modern passive building (Velux, 2024). The pilot was later implemented in 86 similar homes owned by Le Foyer Anderlechtois, a social housing company in Belgium, which proved replicability of this renovation within a limited budget (Velux, 2016). The Slovak example is even more interesting as the standardised building chosen for this project – a detached, square, single-floor brick construction from 1950-1970s—is similar to architecture common in Ukrainian countryside. The project is also interesting by development of three variants of materials and technological solutions “designed to ensure the necessary functionality, and at the same time, to correspond to the financial possibilities” (Velux, 2020:7). The renovation has been divided into seven parts which can be implemented independently allowing deep renovation in phases. All project documentation is now available for free and can be used in hundreds of thousands of similar houses in Slovakia. Replication of solutions for such standardised houses as these presents an opportunity for cooperation between Ukrainian developers and public bodies.

¹⁷ Project page available at: <https://novazelenausporam.cz/nzu-light/>

6 Affordable Housing in Post-war Recovery - Lessons Learned in Previous Conflicts

6.1 Introduction

In the past century, the European population has suffered through two World Wars and several brutal regional conflicts. These tragic events in European history present an opportunity to see different approaches to war reconstruction and their development over time. While examples of recovery in Western European cities bombed in the Second World War (WWII) provide a chance to see long term results of city planning projects initiated almost 80 years ago, cities affected by the still relatively recent Balkan wars can share valuable experience with challenges of sustainable reconstruction influenced by international stakeholders as well as a fast-changing political environment. This chapter focuses mainly on the role of municipalities and the public sector in general in setting quality standards, pioneering technologies and balancing fast reconstruction with long-term wellbeing of all citizens.

6.2 Decent housing for everyone

The case of Western Balkans could serve as an important learning reference for Ukraine given the similarities in the housing markets following privatisations in the 1990s. High level of private ownership, neglected Soviet style apartment houses, and an underdeveloped social housing sector focused rather on specific categories of people than blanket provision of affordable housing. On top of these challenges typical for many Central and Eastern European countries, after the end of armed conflicts in 1990's the Western Balkans struggled with the necessity to provide sustainable accommodation options to millions of war survivors who lost their homes. With many specific categories of vulnerable citizens it often proved challenging to address specific needs without leaving anyone behind. In Bosnia Herzegovina, Serbia and Kosovo, governments slowly developed state housing programs and social housing legal frameworks addressing the needs of vulnerable groups. Despite redevelopment of the housing market and increasing prices of properties in all three countries, many citizens still live in inadequate housing and energy poverty. An underdeveloped rental market, limited construction of public sector owned housing units for rent or subsidised sale, lack of affordable mortgage schemes, and long waiting periods for sustainable housing replacing temporary constructions and IPD centres were key challenges. These are some of the challenges Ukraine recovery will have to tackle from day one in order to mitigate them. The Western Balkan experience also highlights the necessity of a long term strategy for a gradual switch from fully funded externally supported programs to a regulated housing market.

6.2.1 Bosnia and Herzegovina

In Bosnia and Herzegovina, over 30% of privately owned housing stock has been destroyed between 1992 and 1995. The war left behind over 2 million refugees and displaced people. Immediately after the war, the government of Bosnia and Herzegovina closely cooperated with international institutions on the Priority Reconstruction Program, which included repair assistance for more than 100,000 housing units (KMPG, 2022:66). However, the repairs did not encourage any significant change in building materials and energy efficiency standards. Thirty years after the end of the war, there is still a need for housing programs providing support to citizens, who are living in temporary housing conditions, which are often characterised by a low energy efficiency and substandard materials.

Despite a number of programs targeting those affected by the war (for example IDPs, refugees or war veterans and their families), housing needs of vulnerable groups such as elderly, people with disabilities or survivors of sexual war crimes are not being sufficiently met. The Bosnian affordable housing sector faces issues similar to other Central and Eastern European countries including Ukraine. As a result of the privatisation, homeownership became the most common form of housing. Local governments were left with almost no housing units. Similarly to other post-Yugoslav countries, fast privatisation followed by armed conflict and a period of wild illegal construction created significant legal uncertainty in the property market and left many citizens in limbo. Some could not return to their homes because of unresolved property issues, others are for the same reason hesitant to finish construction or renovation of their dwelling. Lack of infrastructure and the presence of landmines further complicated renovation of the housing stock in the country.

Housing conditions are slowly changing for the better and despite affordable housing support remaining scattered between different public bodies, several projects can serve as good examples of cooperation between the state and international donors. Worth highlighting is involvement of the Catholic Relief Service (CRS), which in 2007 initiated adoption of the legislative framework for social housing and provided technical support for development of social housing units under a project **“Closing of Collective Centres in Bosnia and Herzegovina”**(CEB II). “By signing a Memorandum of Understanding with the state Ministry of Human Rights and Refugees and a contract with the European Development Bank, CRS assumed the role of providing expert assistance to the relevant ministries and municipalities” and provided support to over 7000 people living in inadequate conditions (Becirovic, 2023). Bosnia and Herzegovina funded this project using grants from the Western Balkans Investment Framework and bilateral partners.

Affordable housing projects in Bosnia and Herzegovina have been pioneered by international partners such as Caritas Switzerland or Hilfswerk Austria, but their efforts have been followed by state programs. This includes, in particular, the **Regional Housing Programme (RHP)**, 2010 joint initiative by Bosnia and Herzegovina, Croatia, Montenegro and Serbia which between 2012 and 2023 provided housing to over 36,000 people in these four countries. The program is 17% funded by participating countries and 83% funded by bilateral donors and international donors including the European Union and the UN Refugee Agency (RHP, 2023). In Bosnia and Herzegovina, close to 9,000 individuals benefited from renovation and development works financed from this program. RHP funded housing provided energy efficiency measures such as double glazed windows and thermal insulation, however given the fact that these works took place during the time period after adoption of the Paris Agreement and introduction of clean energy pledges following EU legislation trends, RHP didn't fully capitalise on the opportunity to pioneer green housing solutions or to boost the emerging local market with natural building materials such as wool insulation.

6.2.2 Kosovo

In 1999, at the end of the armed conflict in Kosovo, the local population struggled to improve their housing situation. The housing stock was short by 120,000 destroyed houses and the population had to deal with the impact of forced displacement as well as loss of property rights (Haxhikadrija, 2019). The Reintegration Fund for Repatriated Persons, as well as other similar EU funded programs, continue to deliver short and long term housing solutions for returnees. However, the recovery also showed how difficult it is to establish programs which cater to the needs of all different groups of the population. This especially includes vulnerable groups such as the Roma, Ashkali and Egyptian communities, who struggle to deal with the consequences of the destruction of property registration cadastres, which was followed by a period of unlawful property appropriation and illegal construction. Unresolved,

conflict-related property claims have increased homelessness rates of vulnerable groups and decreased the ability and willingness of private housing dwellers to invest into reconstruction. Meanwhile, many developers took advantage of the difficult financial situation of house owners and redeveloped lucrative areas in the capital city, often insensitively affecting traditional architecture of these neighbourhoods. Both significant conflict-related migration as well as unresolved ownership and registration issues make it more difficult to assess the full extent of affordable housing needs. Moreover, despite coordination efforts between different ministries and agencies, programs targeting displaced persons and homelessness as well as municipal social housing projects struggle to provide housing for people with specific needs such as people with physical disabilities and gender based violence survivors.

Long waiting periods and segregation of vulnerable groups remain a problem. In this situation, quality improvement of the affordable housing stock remains to be a largely unsolved issue. Rapidly increasing housing prices makes the situation of those in need of affordable housing even more difficult. The governmental reaction to this situation seems to be slow, but present. The leading governmental party Vetëvendosje (VV) recently announced a plan to provide affordable housing for those who cannot buy an apartment under current market conditions. VV plans to build 4,000 apartments on the public land of several municipalities and sell them at less than market price (Kafexholli & Haxha, 2023). Despite this development, the lack of rental housing in the affordable housing mix still presents a challenge for the Kosovo population.

6.2.3 Serbia

Similarly to other ex-Yugoslav territories, Serbia entered the 1990s with a highly privatised housing stock and a decimated social housing system. An influx of refugees from the ex-Yugoslav territory created an additional pressure on Serbian cities. After closing some of the refugee centres in early 2000s, many refugees had to look for accommodation at the private rental market. Increased demand for readily available affordable dwellings also caused a dramatic decrease in constructions of new higher cost constructions. “Precisely speaking, compared to the previous period and to the European countries, Serbia noted a huge drop in housing development – from 60,000 in 1979 (the historical maximum) and 42,000 in 1990 to the all-time lowest with around 10,000 dwellings in 2000. It wasn’t until 2003 and the growth of the economy that the housing market was revitalised again, resulting in a gradual rise in housing construction to 19,000 unit in 2007, which equals the 1950s levels.” (Gordana, 2015:34).

In response to this situation, the Serbian government launched in 2002 a **Social Housing in a Supportive Environment (SHSE)** program which aimed at the most vulnerable refugee families. Supported by the UNHCR and the Swiss Agency for Development and Cooperation, the program constructed apartments with communal spaces which not only provided housing, but focused also on access to services, infrastructure and quality design. Donors covered over 70% of the financial resources. Municipalities played a key role too, as they provided the land (corresponding to the remaining 30% of costs) and took the responsibility for the maintenance of buildings. The program also provided a selection of activities supporting integration into a new environment. Local centres for social work selected host families, one per building. The host family lived alongside the others, took care of building maintenance and acted as a contact point for external bodies. Moreover, after passing training in communication, conflict management skills and supervision of mentally and physically ill persons, they assisted their neighbours with daily life situations (UNECE,2021:29). “Host families are families who face housing exclusion but have sufficient social capital and personal skills to enable them to act as good neighbours, helping new families find their feet and gradually become self-reliant.” (World Habitat Awards, 2014). They can even be refugees themselves. Based on the required work, host families can be compensated with rent-free housing or other types of benefits including a proper

salary. In 2014 the program won a World Habitat Awards, which highlighted SHSE's accomplishments in integration of the Roma population into Serbian communities. By 2016 the program housed over 3,400 people in 43 different areas across the country (World Habitat Awards, 2014).

Serbia continues in revitalization of the housing construction market and over the years introduced several measures aimed at increasing access to housing. In 2004 the Serbian government established the National Mortgage Insurance Corporation providing state warranties incentivizing re-introduction of housing loans as regular private banking products (Gordana, 2015:35). In 2009 Serbia adopted new Social Housing legislation. Despite these efforts, with growing prices of apartments, lack of affordable housing remains a problem due to a limited offer of rental housing.

6.3 Land Management and Urban Planning as a Key to Sustainability

6.3.1 Netherlands

The post-war recovery in the Netherlands gave rise to large-scale municipal rental programs providing its citizens with affordable housing and influencing prices at the private rental market. The Netherlands benefited from the Marshall Plan, which dedicated as much as 12% of its funds to affordable housing (Anisimov et al., 2023:26). Extensive investments into housing became the cornerstone of social policy as well as an economic driver as well as tool for control over prices and salaries in the housing sector and beyond. The Dutch government expanded the role of housing associations and provided them with subsidies in exchange for strict control over construction projects.

Due to heavy bombardment, some cities' quarters forever disappeared. Immediately after the war, some municipalities, such as Rotterdam, decided to expropriate large areas of their city, completely clear them and rebuild into new neighbourhoods. The reasons for such action were spatial planning and value capturing. "Many local authorities have been pursuing a so-called '**active land policy**', a policy by which they buy land, prepare it for development and then sell it to housing associations, real estate developers, investors or private individuals. The sales contract of the land often contains detailed conditions that apply to the developer who is buying the land for construction." (Anisimov et al.; 2023:35). Active land policy not only gives the power to require affordable housing be mixed with for-profit dwellings, it also provides an opportunity for the shaping of rebuilt areas including planning of green zones and infrastructure. Neighbourhoods were designed with anticipation of their further growth. Not only affordable housing, but also provision of services and work opportunities was seen as a necessary component of building functional local communities (Heritage at Risk, 2003:147). The second function is financial. Municipal participation at land development instead of selling an empty land to an external developer ensured that the municipality was able to participate in an increase of the land value.

Subsidised affordable rental housing schemes further developed in the 1950s and 1960s and remain to play an important role in Dutch housing policy throughout the whole 20. century. In the 1980s and 1990s Dutch social policies underwent changes and the housing sector opened to the market economy. Generous post-war social housing schemes have been gradually remodelled and the state policies supported transition of non-profit housing associations into modern housing companies. Exposure to market forces made housing associations more resilient and independent of state support, while easy access to affordable rental housing remained a standard.

6.3.2. City of Vienna

In Vienna, over 20% of its housing stock was destroyed or damaged during WWII (Anisimov et al., 2023:38). Similarly to the Netherlands, Vienna too decided to stabilise the housing market by substantial long term investments into new rental housing developments. With extensive pre-war experience in affordable housing planning (especially the so-called Red Vienna period of the 1930s), Vienna's post war renovation focused on beauty as much as function. As mentioned above, community building and integration into neighbourhoods became an integral part of Vienna's social housing strategy.

After WWII the city decided to cap the rent in newly built or renovated dwellings which benefited from governmental loans from the newly established Housing Reconstruction Fund (WWF). Rent in these dwellings could not exceed subsidised financing and operating costs. Other housing schemes benefited from the Federal Housing and Settlement Fund (BWSF) which supported affordable rental housing provided by municipalities and non-profit cooperatives. Vienna has not only invested into high standard construction, and green communal spaces, but focused also on architectural value and integration into neighbourhoods. In the 1990s, when so many other cities in Europe privatised its housing stock, Vienna instead decided to add some private market elements and increased competition for new developers which ensured high architectural value of newly built dwellings. As a result, even nowadays controlled-rent apartment houses remain attractive to higher income classes which prevents them from becoming a socially excluded area. Over 60% of Vienna's population still lives in rent-controlled rental housing (Hernández-Morales, 2023) and Vienna's affordable housing hasn't stopped inspiring other European cities.

7 Conclusion

The development of affordable accommodation services and the restructuring of Ukrainian housing stock is going to be one of the principal priority areas in Ukraine's post-war recovery. Alongside a new legal framework for social and rental housing, the involvement of municipalities in development of both short-term and long-term affordable housing opportunities will play a crucial role in this process. As described in the project examples above, the empowerment of municipalities and public bodies to participate in multi-stakeholder partnerships can unlock access to much-needed credit from national and international banks as well as non-governmental and international organisations. No less important will be the role of municipalities in spatial planning and shaping of functioning communities in newly created neighbourhoods which includes mainstreaming of green housing solutions.

As historical experience has shown, temporary housing in many cases serves as a new home for war survivors even decades after the end of an armed conflict. Therefore, health, sustainability, and energy efficiency standards need to be considered even in emergency housing development. Green certification not only brings guidance for developers, but clear quality and performance guarantees for investors. Moreover, the availability of Ukraine-based module housing providers and Ukraine's potential for replication of solutions for standardised houses and apartment blocks make green housing financially competitive with conventional methods.

SMARTER Finance for Families partners believe green housing should not be seen as a luxury, not even in a post-war setting. Ukraine has made a clear pledge to strive for green recovery and with the support of the international community, future development of healthy and sustainable dwellings for those in need is a goal within our reach.

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