

Mapping out the dual crisis of war and housing in Dnipro, Ukraine.



Oleksandr Nenenko
MSc Urban Studies
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Estonian Academy of Arts
Supervisors: Sean Tyler and Keiti Kljavin

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Abstract

The 21st century has been a challenging time for Ukraine. The beginning of the Russian invasion in February 2022 exacerbated the existing problems, leading to an overwhelming and highly complex housing crisis. The war has caused extensive damage, destroying entire villages, towns, and cities. The occupation of Ukrainian territories and the destruction of civilian objects by the Russian army have forced people to flee their homes. This has led to a decline in the quality of life, increased health risks, and significant social and economic challenges such as loss of income, limited access to basic services, and a rise in poverty and homelessness. The thesis is looking at housing in Dnipro City and Dnipropetrovsk oblast and provides a more specific understanding of the crisis and highlights the need for a systemic approach to housing provision that considers the stories of people affected by the current crisis. The thesis consists of three sections, where the first part explores the housing crisis in general in Ukraine, the second - analyses the crisis from the specific context of Dnipro City, and the third provides a guideline for managing the housing crisis in Ukrainian cities and settlements during the war and in post-war time. To address the housing crisis in Ukraine, it is essential to address the underlying causes and implement sustainable and equitable solutions.

Introduction

The 21st century has presented Ukraine with numerous challenges, and among them, the housing crisis stands out as a critical problem in the modern history of the state since its independence in 1991 and is deeply intertwined with the ongoing war. As the country grapples with the aftermath of the Russian invasion and political instability, the housing sector has faced unprecedented strain, exacerbating an already difficult situation. This study aims to explore the multifaceted nature of the housing crisis in Ukraine, revealing both the existing crisis and paying special attention to the problem from the point of view of the impact of the Russian-Ukrainian war, as well as its consequences for the victim citizens.

The war in Ukraine had far-reaching consequences for various aspects of the socio-economic aspect of the country, including the housing sector. With the emergence of conflict zones and the intensification of military operations, the large-scale destruction of infrastructure, including residential areas, has become a grim reality. Countless houses were damaged or destroyed, leaving many people and families displaced and living in dire circumstances.

The impact of the war on the housing crisis in Ukraine goes beyond physical destruction. The conflict disrupted the overall functioning of the housing market, leading to a sharp rise in prices, limited affordability and increased vulnerability of the population.¹ Displaced persons, especially those from war-affected regions, face numerous challenges in finding safe and affordable housing.² The strain on resources and infrastructure in these areas makes it even more difficult to meet the housing needs of those affected by the war.³

In addition, the housing crisis in Ukraine is not only a consequence of the war but also reflects existing problems in the country's housing sector. Issues such as inadequate housing policies, corruption and socio-economic inequality have contributed to the

¹ Cedos, Anastasiia Bobrova, Valeria Lazarenko, Yelyzaveta Khassai, "Housing and war in Ukraine (March 24 — June 3)", (2022)

² International Organization for Migration (IOM), *"REPORT ON INTERNAL DISPLACEMENT IN UKRAINE. SURVEYED TOTAL POPULATION. ROUND 11 NOVEMBER 25 - DECEMBER 5, 2022"*, 27th of December 2022.

³ Sven Smit, Martin Hirt, Kevin Buehler, Olivia White, Ezra Greenberg, Mihir Mysore, Arvind Govindarajan, and Eric Chewning, "Sven Smit, Martin Hirt, Kevin Buehler, Olivia White, Ezra Greenberg, Mihir Mysore, Arvind Govindarajan, and Eric Chewning". — March 17 2022, <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/war-in-ukraine-lives-and-livelihoods-lost-and-disrupted>

vulnerability of the population, especially in conflict-affected regions⁴. These systemic challenges have been further exacerbated by the ongoing war, creating a complex web of housing-related issues that require immediate attention and comprehensive analysis.

Research on the 21st-century housing crisis in Ukraine during the war holds significant importance. The housing crisis during the war has had profound implications for the affected population. Conducting research helps to understand the extent of the crisis, including the scale of destruction, displacement, and the socio-economic consequences faced by individuals and communities. Studying these impacts might lead to a more comprehensive understanding of the challenges and formulation of targeted interventions.⁵ Research serves as a means to clearly comprehend the urgent needs of the affected population. In times of crisis, evidence-based policymaking becomes essential. Research provides vital insights into the complex dynamics of the housing crisis. This helps to identify gaps in existing policies and facilitates the development of targeted interventions to address specific war-related challenges.

By analyzing impacts on residential infrastructure, identifying vulnerable areas, and studying successful recovery models, research can guide community recovery efforts and promote sustainable housing solutions.

The contribution of this study is to develop the dynamics of the 21st-century housing crisis in Ukraine, taking into account the specific challenges associated with the ongoing war. By examining the underlying causes, effects and interactions of various factors, this work aims to develop a detailed understanding of the housing crisis and its impact on the affected population.

Delving into the intersection of the housing crisis and the ongoing war in Ukraine, this study seeks to contribute to the broader discourse on housing policy and post-conflict reconstruction. It is critical to recognize the interdependence of the housing crisis and war, as well as the broader socio-economic context, in order to develop sustainable and comprehensive solutions that can contribute to the recovery and rebuilding of affected communities. The result of the research on the housing crisis in Ukraine is to provide a basic vision of how to approach the solution to the housing crisis in Ukraine in the future.

⁴ Cedoss, Natalia Lomonosova, Pavlo Fedoriv: "Public Housing Policy in Ukraine: Current State and Prospects for Reform", 2019

⁵ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022).

Research during wartime

The war in Ukraine makes conducting research uneasy and challenging. The effect of martial law in Ukraine significantly changes the rights and freedoms of citizens, in particular, collecting materials, e.g. taking photos, as well as shooting videos using a phone camera, camera or quadcopter. As the thesis focused on the housing crisis in Dnipro, mapping as a research tool has been applied, although marking specific buildings or objects (in this case destroyed or damaged due to airstrikes), showing photos of these objects and the access to the materials related to city planning became strict and unavailable, not to say breaking the law. For example, for local citizens who are very well familiar with the context of the city, it will not be hard to clarify the specific location of airstrikes, but publishing it without special permission of local authorities this action might be considered law-breaking and involve collaboration with the enemy side. Due to these circumstances in Ukraine, criminal liability has been introduced after the beginning of the war for photo and video recording of movements of military personnel, weapons and equipment. On March 24, the Verkhovna Rada supported draft law No. 7189⁶. According to this law, it is forbidden to publish without special permission:

- Missiles that fly or hit somewhere.
- Names of streets, transport stops, shops, and factories.
- Movement of the Ukrainian military, and military facilities.
- The work of air defence.
- The place of shelling or projectile impact.
- Addresses, visual references or battle coordinates.
- Numbers of cars, armoured vehicles.
- Victims or dead (except official data).

To prevent any misunderstanding and misreading, the information and materials were taken only from open official sources. Precisely for mapping purposes only official and open, publicly sources have been used in this like:

- Google Maps⁷
- Google Earth⁸
- OpenStreetMap⁹
- 2GIS¹⁰

⁶ <https://itd.rada.gov.ua/billInfo/Bills/Card/39273>

⁷ <https://www.google.com/maps/place/Dnipro>

⁸ <https://earth.google.com/web/>

⁹ <https://www.openstreetmap.org>

¹⁰ <https://2gis.ua/dp>

- satellite images by MAXAR¹¹
- OldMaps.dp.ua¹² - online archive with historical maps and satellite images
- The Map of Recovery¹³
- Deep State UA¹⁴

All photos and videos showing the destroyed or damaged residential buildings are taken from official local and international open sources and media.

Since the beginning of the full-scale invasion in 2022, all regional planning centres and GIS portals closed access to their web portals due to war. For example, the Main Architectural and Planning Department of the General Committee of the Dnipro City Council¹⁵ which is the main source of GIS data in Dnipro has closed temporarily access to its website until the end of the war, so it put some limits and lack of GIS data, statistics and maps making master thesis project research challenging.

¹¹

<https://eu.usatoday.com/in-depth/graphics/2023/02/23/before-after-images-war-ukraine-one-year-later/11316111002/>

¹² <https://oldmaps.dp.ua>

¹³ <https://reukraine.shtab.net/>

¹⁴ <https://deepstatemap.live/#6/49.438/32.053>

¹⁵ <https://www.apu.dp.ua/>

Section I.

The 21st-century housing crisis in Ukraine

The housing crisis in Ukraine has not appeared just after the Russian full-scale invasion in 2022. The problems in the housing sector have been existing since the independence of Ukraine. Before going into the topic of the housing crisis in Ukraine during the war, it might be more reasonable to first look into the time before the current Russia-Ukraine war to understand the core of the 21st-century housing crisis and its roots.

In the beginning, the research is going to cover the modern situation of housing in Ukraine describing the changes that happened in the period from the 1990s till the 24th of February 2022, trying to highlight some important aspects like changes in policies, housing programs, economic perspectives and some certain events, like the economic crisis in 2008, the annexation of Crimea and Eastern Ukraine in 2014 and COVID-19 pandemic in the past which had a significant impact on the housing sector.

Modern Ukraine despite its rich and long history, is a young country (only 33 years of independence). The influence of the Russian Empire and later the Soviet Union played a significant role in the history of the formation of housing in Ukraine, so the consequences of its influence have been strongly printed out in Ukrainian history and cannot be ignored here. In the case of the historical perspective, I want to look into the processes which took place in the 20th century in the Ukrainian territories which formed the housing both from physical and ideological perspectives. The aftermath of policy changes, shifting of political regimes and wars is still present and quite important in the process of defining what is housing (crisis) in modern Ukraine.

The housing crisis.

The current situation.

The housing stock in Ukraine has grown by about 1% annually in the past decade, with the majority of households living in separate apartments or individual houses.

A study conducted by the CEDOS in 2019¹⁶ found that Ukraine has one of the highest rates of homeownership globally, but this has resulted in a lack of targeted housing assistance and a lack of focus on developing the rental sector. Renting is unregulated, unstable, and carries a social stigma in Ukraine. Half of the renters surveyed reported having to cut back on expenses because a significant portion of their monthly income goes towards rent. The population of Ukraine has decreased from 52 million in the early 1990s to 42 million in 2020, with 70% of the population residing in urban areas.¹⁷

Despite an increase in the housing stock and the number of apartments over the past 30 years, there is still a mismatch between the number of households and available homes. Limited knowledge about migration patterns and the impact of extended family living arrangements has this issue compounded. Before the 2008 crisis, non-banks sources dominated the mortgage lending market. Banks struggled with liquidity and assessing lending risks, particularly given the population's lack of trust in the banking system due to experiences of losses during the collapse of the USSR and hyperinflation.¹⁸

Housing construction.

The government's housing policy has primarily focused on promoting private homeownership. This has been achieved through public programs that co-fund housing purchases and by keeping property tax rates low. However, despite operating for thirty years, these programs have only provided housing to approximately 50,000 families. Despite the low effectiveness of this approach, housing programs continue to work towards increasing the share of privately owned housing. This is done through various means, such as partial cost payment, mortgage loan subsidies (tax benefits, partial interest compensation), rent-to-own programs, or the free transfer of housing to private ownership.¹⁹

Moreover, the most common method of funding housing construction in Ukraine poses risks for prospective homebuyers. Typically, commercial housing construction in the

¹⁶ Cedoss, Natalia Lomonosova, Pavlo Fedoriv: "Public Housing Policy in Ukraine: Current State and Prospects for Reform", 2019

¹⁷ State Statistics Service of Ukraine, 1998-2023,
https://ukrstat.gov.ua/operativ/operativ2018/ct/sctp/Arch_sctp_u.htm

¹⁸ Bilovskyi, O., Kyiv: National Institute of Strategic Studies, "State housing policy of Ukraine: the problem of socio-economic efficiency.", (2012).

¹⁹ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022).

country is financed by potential homeowners. Since land plot leases cannot be used as a loan source, developers rely on funds from buyers. This funding mechanism was first utilized by the KyivMiskBud corporation, which established the Arcada joint-stock bank for this purpose. However, this system of financing housing construction comes with several risks, including the possibility of the company going bankrupt and leaving construction unfinished.²⁰

New housing construction in Ukraine is often associated with corruption, legal violations, and protests. The housing policy in the country has prioritized land acquisition and development to facilitate active construction. As a result, new housing developments have mainly occurred in large cities with high property prices, often becoming embroiled in development scandals and facing anti-development protests.

Housing management.

Housing management in Ukraine is characterized by fragmentation and inefficiency. To better understand this, it is necessary to examine the different forms of housing management defined by Ukrainian law. There are three forms: independent management, an association of co-owners of an apartment building (ACOAB), and management by a designated manager. ACOABs exist in approximately 21% of apartment buildings, 3% are managed by a housing and construction cooperative (HCC), 7% have chosen independent management, and 41% have a manager selected by co-owners or appointed by the local government through a competitive process. Around 28% of apartment buildings are still managed by housing exploitation bureaus (HEBs).²¹ In terms of urban planning, many city planning documents in Ukraine are outdated, incomplete, or conflicting, resulting in haphazard development. The primary planning documents in Ukrainian cities are General Plans, which establish the foundations for development, planning, and construction. Detailed territorial plans, which often lack coordination with the General Plans, are also important. The procedures for public engagement in the development of city planning documents are often overly complicated and implemented merely as a formality.

Housing during the COVID-19 pandemic.

In 2019 the world faced a global pandemic crisis due to the rapid spread of the virus COVID-19 across the world which creates a massive global crisis which affected all types of industry and human activity. Among them, the housing sector was also affected due to the pandemic and its consequences remain and are imprinted in our post-pandemic

²⁰ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022).

²¹ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022).

society. The COVID-19 pandemic has had a significant impact on the housing sector in Ukraine as well.

The pandemic has shed light on the shortcomings of existing housing policies in Ukraine and has negatively impacted people's right to housing and other fundamental rights. While homeowners received assistance from the government, vulnerable groups such as the homeless and victims of domestic violence were left to face their problems alone. The pandemic did not prompt a reconsideration of housing policy approaches or principles of housing provision. The rental sector in Ukraine remains largely unregulated, with informal and flexible lease agreements being the norm. This lack of regulation has made renters particularly vulnerable during the pandemic, with limited access to essential amenities like water, toilets, and healthcare.

The issue of homelessness in Ukraine has worsened during the pandemic. The government's focus on economic recovery has resulted in neglecting the needs of these vulnerable groups, leading to a lack of support and assistance. Short-term measures are urgently required to protect renters during the pandemic, including awareness campaigns about renter rights and responsibilities, a moratorium on evictions, and financial aid for tenants. These measures would help ensure that renters do not lose their homes during the pandemic and have access to basic necessities.

Long-term measures are also necessary to establish a fair housing policy in Ukraine. This involves reforming state housing policies, establishing a dedicated housing policy directorate, and ratifying the Istanbul Convention to address domestic violence. These steps would help ensure that all individuals, regardless of their income or social status, have access to safe and affordable housing. Although the construction industry was allowed to continue working during the quarantine, renters have been left vulnerable without sufficient support from the government. The proposed draft law allowing debt restructuring and foreclosure on homes for significant debts does not address the root causes of the housing crisis in Ukraine.

The COVID-19 pandemic has exposed the inequalities in Ukraine's housing policies, especially concerning renters and the homeless. While some volunteer initiatives have emerged to aid the homeless, systemic policies are necessary to address the issue effectively. The government must tackle the underlying causes of the housing crisis in Ukraine and implement comprehensive policies to assist the homeless. In conclusion,

the COVID-19 pandemic has revealed the inadequacies of Ukraine's housing policies, particularly for renters and the homeless.²²

After the full-scale invasion in 2022, the war determined a more catastrophic and dramatic character of the housing crisis in the country. The consequences of the housing problems in Ukraine since its independence in 1991 and the effects of the COVID-19 pandemic remain despite the war and even becoming more critical due to wartime. This is why it is crucial to understand the conditions of the housing sector and its problems in the time before the war. The chaos, instability and uncertainty push local authorities and government to act quickly to solve the emerging crisis as fast as possible, but without understanding the problems and what needs to be solved, further actions and decisions may become a reading of creating conditions much worse than it is now.

Conclusion

This short overview of the housing in recent history of Ukraine shows that the state faces a complex housing situation that needs to be addressed urgently. While the country has one of the highest rates of homeownership globally, renting is unstable, unregulated, and stigmatised. The government's housing provision programs aim to expand homeownership, neglecting the development of the rental sector. The population has decreased while the housing stock and the number of apartments have increased significantly, yet the authorities and the construction industry continue to push for building more houses without a clear understanding of the housing policy's beneficiaries and vulnerable groups. The right to housing is a human need guaranteed through the instruments of housing policy. However, the field of housing is political, with different interest groups defending their vision of housing problems and how they should be solved. The situation regarding social housing in Ukraine remains poor, and the social programs are inefficient. The government's efforts to address the housing situation, such as the Social Housing Program and the Housing Code, have not been effective in ensuring access to adequate housing for all.

The research on the housing situation in the modern history of Ukraine shows that the state faces a complex housing situation that needs to be addressed urgently. While the country has one of the highest rates of homeownership globally, renting is unstable, unregulated, and stigmatized. The government's housing provision programs aim to expand homeownership, neglecting the development of the rental sector. The population has decreased while the housing stock and the number of apartments have

²² Cedoss, Pavlo Fedoriv, Alyona Lyasheva, Elizaveta Hassai "The coronavirus and housing: an analysis of the consequences of the pandemic", 2020:
<https://cedoss.org.ua/researches/koronavirus-i-zhytlo-analiz-naslidkiv-pandemii/>

increased significantly, yet the authorities and the construction industry continue to push for building more houses without a clear understanding of the housing policy's beneficiaries and vulnerable groups. The right to housing is a human need guaranteed through the instruments of housing policy. However, the field of housing is political, with different interest groups defending their vision of housing problems and how they should be solved. Ukraine's housing policy should focus on ensuring access to affordable housing, regardless of tenure. The situation regarding social housing in Ukraine remains poor, and the social programs are inefficient. The government's efforts to address the housing situation, such as the Social Housing Program and the Housing Code, have not been effective in ensuring access to adequate housing for all.

Historical perspective on the housing crisis in Ukraine.

Housing Crisis during WWI

The analysis of historical events, such as World War I, reveals a significant correlation between uneven development in housing and refugee crises, highlighting the relevance of this issue in the contemporary context. Housing Crisis in Ukraine (in the case of Right-Bank Ukraine) During WWI in the research work by Konstantin A. Kholodilin and Tymofiy Gerasymov shows that WWI had a significant impact on modern socio-economic policy, with rent control and tenant eviction protection remaining actively used tools of government regulation in industrialised countries.²³ The text discusses the history of housing policy in Ukraine during World War I. It notes that the housing market in Right-Bank Ukraine deteriorated significantly and that the government responded by implementing rent controls and tenant protection. The cities in Ukraine experienced a surge in population as urban residents returned from their summer homes and rural populations arrived to fulfil military draft registrations. In the autumn of 1914, a mass eviction of reservist families, who lacked social protection, from rental homes commenced. The outbreak of World War I resulted in an influx of refugees from enemy-occupied territories near the front lines. These refugees sought refuge in large cities, hoping to find employment and housing more easily. Consequently, rents increased, and relations between landlords and tenants deteriorated.

The Russian Empire's entry into World War I triggered a housing crisis in cities in Right-Bank Ukraine, causing a virtual halt in construction activities. This was due to difficulties in obtaining credit, substantial wage increases for construction workers, rising material costs, and limited transportation capacity on trains, most of which were reserved for military purposes. During the first construction season in wartime, which began in the spring of 1915, only public buildings were erected, while private construction came to a standstill. The output of the building materials industry significantly declined in the initial months of 1915, as 50% of its workers were mobilized for military service. Construction materials became scarce and consequently, expensive. In 1916, in the midst of the housing crisis in major cities of Right-Bank Ukraine, the construction market collapsed.

This crisis was primarily fueled by the influx of refugees from enemy-occupied territories near the front lines and the influx of workers from war-related industries. The crisis was exacerbated by high rents and deteriorating relationships between landlords and tenants. The impact of the war on population movements and the reallocation of resources for military purposes led to the housing crisis. The government attempted to

²³ Konstantin A. Kholodilin and Tymofiy Gerasymov, "Coping with the Consequences of a Housing Crisis During the Great War: The Case of Right-Bank Ukraine in 1914–1918", INTERNATIONAL JOURNAL OF REGIONAL AND LOCAL HISTORY 2019, VOL. 14, NO. 1, 1–20

alleviate the crisis through restrictive policies, but these measures proved largely ineffective due to opportunistic behaviour by landlords.

The case of refugee migration is a key factor in the housing crisis during wartime as we can see from the research by Kholodilin and Gerasymov¹⁷. The inflow of displaced people and the lack of housing space caused a decrease in housing quality. In the 19th and mostly at the beginning of the 20th century, due to the migration of workers into the cities during the Great War as described before, urban workers settled in poor-quality buildings on the outskirts of cities - the so-called workers' slums. In areas with a high concentration of factory industry, workers' villages, located near enterprises, began to be built for them. Mainly, old housing stock and barrack-type temporary housing were used to house workers in the cities. The houses where the workers lived were usually built of wood or non-durable materials and only 19% of all buildings in the cities of Ukraine were built of stone.²⁴ The main types of dwellings in which workers lived were communal apartments, barracks dormitories, and individual houses. Single workers who arrived for production from villages were provided with beds in barracks, if available, and "light-type" houses for family workers without amenities. The lack of living space, lack of money and opportunities to purchase household items largely determined the poor sanitary condition of the premises, lack of improvement, and lack of comfort.

The housing crisis in the post-war USSR in the XX century.

In the 1920s, in the cities of the USSR, as in most countries of post-war Europe, there was a housing crisis that arose in the pre-war years. As a result of the "natural" ageing and destruction of the housing stock during military operations, as well as due to the ignoring of economic incentives for the development of the communal economy in the conditions of the "military communism" policy, the crisis worsened catastrophically. To make it clear, the "communal economy" in the USSR, also known as the *collective economy*, was a central feature of the Soviet economic system. It involved the collective ownership and operation of agricultural and industrial enterprises by the state or collective farms, where resources and production were managed collectively rather than individually. In the agricultural sector, collective farms, known as *kolkhozes*, were established, where land, machinery, and livestock were collectively owned and worked by the farmers. Similarly, in the industrial sector, collective enterprises, known as *sovkhozes*, were state-owned and operated by the workers collectively. The communal economy aimed to promote collective labour, equal distribution of resources, and the fulfilment of production targets set by the state. However, it was characterized by inefficiencies, lack of incentives, and central planning limitations, leading to economic

²⁴ Movchan O, "HOUSING CONDITIONS AND UTILITY SERVICES OF THE WORKERS OF THE USSR IN THE 1920s."

challenges and ultimately contributing to the collapse of the Soviet Union in 1991. Based on data from 1923 on average the USSR resident was provided 11.6 m² or 65% of the living space of the residential norm. In some areas, this number was reduced to 45%.²⁵

By this time, the new Soviet regime used the housing policy in USSR as a powerful and effective tool to control its citizens. For that, the Soviet government made certain steps towards the realisation of state control: 1) privatised privatized all apartment houses in the country, 2) banned all forms of housing and building a system of housing distribution controlled by the government, 3) declared a principle - housing only for those who work. Housing was playing a significant role in following the principle of stick and carrot in the governing of the state back then.²⁶

In the second part after the liberation of the Ukrainian SSR territories from the German occupation in 1944, the restoration of the republic's economy and infrastructure began. In March 1946, the plan for the reconstruction and development of the national economy for 1946–1950 was approved, the main tasks of which were to rebuild the destroyed areas, restore the pre-war level of industry and agriculture, and even exceed it.

Housing development in the 60s-80s of the XX century in Soviet Ukraine.

The industrialization of Ukrainian territories in the 1960s contributed to the construction of new housing and the development of residential areas in cities. As industries progressed financially, three funds were established for each enterprise, covering product development, material incentives, social and cultural events, and housing construction.

The social situation in Ukraine improved to some extent, with rising wages, affordable prices for industrial and agricultural products, increased utilization of services provided by public consumption funds, and rapid housing construction in both urban and rural areas. The overall level of culture also experienced growth. However, social issues persisted, including low salaries, pensions, and scholarships, despite gradual increases, as well as inadequate housing provisions. While urban dwellers mostly received communal housing, rural residents had to build their own homes using their own resources. The demographic situation posed a growing threat, with villages experiencing a decline while excessive urbanization took place.

During the period from 1966 to 1985, the extensive construction of residential and public buildings in the Ukrainian SSR led to an increase in the population by 5.5 million

²⁵ Movchan O, "HOUSING CONDITIONS AND UTILITY SERVICES OF THE WORKERS OF THE USSR IN THE 1920s.",

²⁶ Mark Meerovich, "Housing punishment. Housing policy of the USSR as a means of managing people 1917-1937".

people. However, the housing problem remained a major social issue until the collapse of the Soviet Union.

As an example, the comparison of satellite photos²⁷ in Figure 1 clearly illustrates the process of rapid housing development influenced by the industrialization in Dnipro city (as a case study in this work) during the 60-the 80s of the XX century. The satellite images were taken from the official website OldMaps.dp.ua of the municipality of Dnipro city which contains the archive of old maps and satellite images of the city. The left satellite image shows the situation in the location on 15.08.1941, before the beginning of WWII on the territories of Soviet Ukraine. The white dashed line indicates the locations of the industrial and infrastructural areas which were built after the 1960s. The right satellite photo in Figure 3 showed the already constructed industrial and infrastructural areas indicated by the white line and the appearance of the massive residential blocks (in Russian жилмассив 'zhilmassiv') with apartment buildings indicated by the yellow line. Comparing these two satellite images clearly illustrates the urbanisation and housing development of the city back in the second half of the 20th century influenced by the rapid growth of the industrial sector in Ukrainian territories during the Soviet period where new housing was, first of all, created for the workers or working people nearby the factories and industries where the residences of these houses worked back in the day.

[Figure 1 here, see in Appendix-1]

So the main factor that contributed to emerging of new housing in the last century was a boom of industrialization where housing and the policies were structured in a way that it became a tool of power to control the population.

After the collapse of the Soviet Union and the appearance of independent Ukraine in 1991, the state faced radical changes transforming from a socialistic state into a capitalistic one.

Conclusion

Overall, the historical research on the Housing Crisis in the past century during the war, in the study case, during WWI highlights the significant movements in the population and the redirection of resources to serve the military machine, which leads to the housing crisis. The crisis led to the development of housing policies that remained in use in industrialized countries. Furthermore, the case of Ukraine illustrates the importance of effective government intervention in times of crisis. Finally, the post-war

²⁷ <https://oldmaps.dp.ua/#14/48.4838/35.0223>

USSR's housing policy reflects the government's use of housing to control its citizens, highlighting the importance of balancing government control with individual rights.

The housing crisis during the war.

The war in Ukraine followed the biggest housing crisis in the country since the 20th century. The historical analysis in this work clearly shows the impact of the wars in the past and their significant scale where the crises have a dramatic and massive impact on the country's population overall. The war escalation has caused civilian casualties and the destruction of civilian infrastructures, forcing people to flee their homes to seek refuge giving them the status of Internally Displaced Persons or IDPs. According to the latest report of the International Organization for Migration (IOM), there are **5 914 000 IDPs** in Ukraine.²⁸ Such massive migration has created the crisis of resettlement of Internally Displaced Persons in Ukraine.

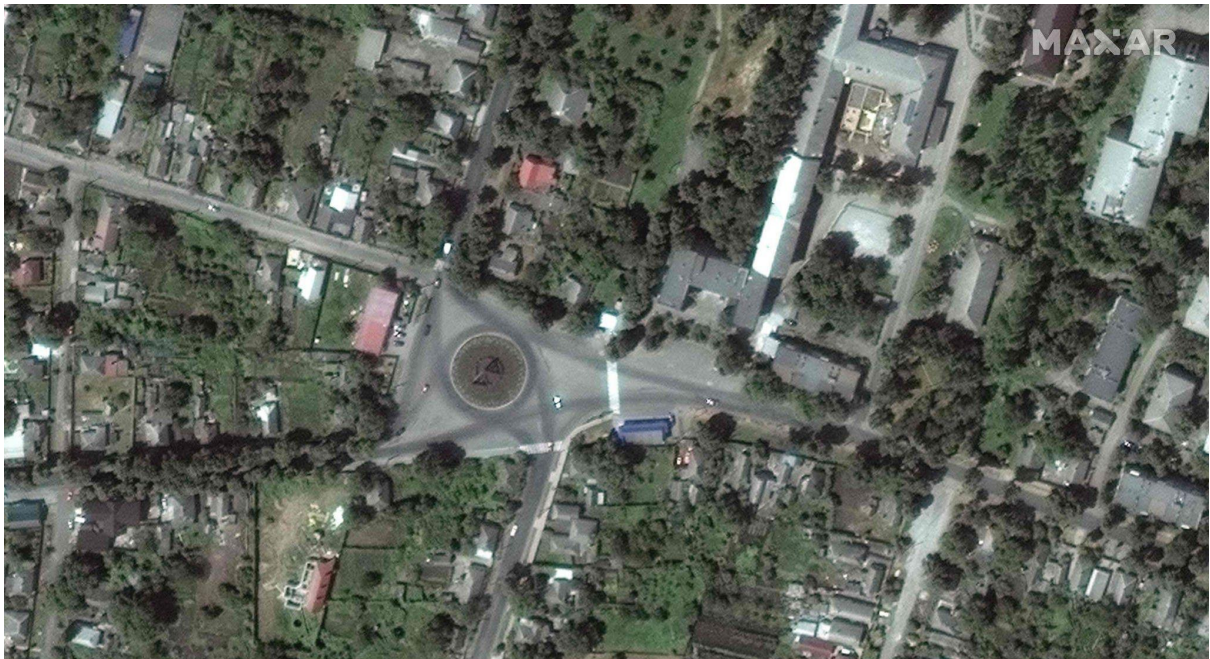
In the Report on direct damage to infrastructure from destruction as a result of Russia's military aggression against Ukraine states that there are **135 800 units were destroyed**, of which **119 900** are private (individual) houses; **15 600** — are multi-apartment buildings; **200** - are dormitories. **18 600 were partly damaged**. The total area of damaged or destroyed objects is **74.1 million square meters**, which is **7.3% of the total area of the housing stock of Ukraine**.²⁹ The general estimation also shows that over 1500 settlements (cities, towns, villages) have vanished or have partly been destroyed. The satellite images (Figure 1 & Figure 2) made by space technology and intelligence company MAXAR³⁰ show the destroyed city districts and villages.

²⁸International Organization for Migration (IOM), "REPORT ON INTERNAL DISPLACEMENT IN UKRAINE. SURVEYED TOTAL POPULATION. ROUND 11 NOVEMBER 25 - DECEMBER 5, 2022", 27th of December 2022.

²⁹ Report on direct damage to infrastructure from destruction as a result of Russia's military aggression against Ukraine as of September 1, 2022.

³⁰

<https://eu.usatoday.com/in-depth/graphics/2023/01/19/ukraine-helicopter-crash-what-we-know/11074636002/>



(Figure 2. A satellite image of the city of Sumy in northeastern Ukraine on March 14, 2022 (bottom image), shows destroyed homes and buildings compared with an image of the same area on July 18, 2021 (top image).



(Figure 3. The satellite images show the village of Pavlivka in the Donetsk region of eastern Ukraine on Aug. 24, 2022 (top image), and the same area after heavy artillery shelling on Feb. 10, 2023 (bottom image).

It's important to note that the conflict with Russia will likely have a significant impact on the ability to address the housing crisis, as it will divert resources away from other priorities and may make it more difficult to attract investment. Thus, the end of the war will be crucial in addressing the housing crisis in Ukraine.

The current housing crisis in the war is a rapidly changing phenomenon where the different variables are affecting and defining the vector of the housing crisis evolution. Basically, it could be said that the political and mainly military situations in the country determine the changes and impact. There are the key perspectives from where the research and analysis work will be elaborated in this project to be able to draw the broader picture of the crisis:

- *Economical situation*
- *Policies*
- *Occupation and destruction*

- *New strategies, plans and constructions*
- *Internally Displaced Persons*
- *Shelling or Airstrikes*

The crisis refers to the shortage of affordable and adequate housing for the people of Ukraine, particularly those who have been affected by the conflict. The conflict has led to the displacement of millions of people, many of whom have been forced to flee their homes and seek shelter in overcrowded and substandard living conditions. This has put a strain on the country's housing stock, leading to high demand and rising prices. Additionally, the conflict has disrupted the construction industry and made it more difficult to build new homes, exacerbating the housing shortage. Overall, the housing crisis has had a significant impact on the quality of life of many Ukrainians, particularly those who have been most affected by the conflict.

Western Ukraine, the areas closer to the border with the European Union which seem to be safer areas, became one of the most common destination points for the IDPs in the country. But there the displaced persons faced the problem of rising rent prices by 10-80% in different municipality centres. According to the data reported by Forbes³¹, the highest rent price increase was in March 2020 compared to prices in January 2022, recorded in the cities of Chernivtsi (▲80%), Lviv (▲72%) and Uzhgorod (▲48%). Not every landlord was asking for unreasonably high rent fees, still, the major number of people were helping IDPs, especially families with kids and animals offering them free accommodation as long as they needed it. To regulate this move from some landlords who raised the rent prices, the government bodies of Zakarpattia Regional Military Administration and the administration of the city of Lviv set up hotlines to collect the reports of such cases, and with all proven evidence the properties of the landlords' who raised the rent price after the beginning of the war, local administration and mayor of Lviv proposed to accommodate the military or IDPs in this apartment free of charge.

There were other incidents of people illegally evicted from their homes by landlords after a few months of the war. Unfortunately at the current moment, there are no possibilities for the collection and proof of these stories to verify them so the scale of this problem remains unknown. In any way, these actions are illegal according to the Constitution of Ukraine, Article 47: "Nobody can be deprived of housing by force, other

³¹ Forbes, "Because of the war, millions of Ukrainians moved to Western Ukraine. How house prices have risen in Lviv, Uzhhorod, Chernivtsi and other cities", 2022, <https://forbes.ua/inside/velike-pereselennya-yak-zminilisya-tsini-na-orendu-zhitla-v-zakhidnoukrainskikh-mistakh-16032022-4709>

than on legal grounds and by a court decision".³² The lack of housing rent prices is another result of the unwell governmental management regarding the housing sector.

Post-war Rental Housing Market Interventions

If to look from a historical perspective, WWI and WWII played a very important role in the shaping of modern socio-economic policy along with intervention in the rental housing market. In industrial countries like Germany and USA, rent control and tenant eviction protection remain actively used tools of government regulation. Despite that, the history of this tool was well documented, in fact, Ukraine as part of the Russian Empire was one of the first among the other counties that after WWI introduced the housing policy and housing market regulations.³³ The housing rent control mechanism remains well-known and implemented in many European countries but in different ways. Later these regulations were introduced again only after WWII.¹⁰

Challenges and the Need for Social Housing Programs

Today, Ukraine's, rental housing is badly regulated where tenants' rights are unprotected. Mainly the private persons are operating in the Ukrainian rental market where rental relationships are contractual and partly regulated by the Civil Code of Ukraine (Chapters 58 and 59, Articles 29 and 311) and by Article 47 of the Constitution mentioned earlier. But as the rent prices are not regulated so the owner can set up the rent price on their own decision. Along with that the landlords usually are not paying income taxes on the income from renting out their properties which is, in fact, a violation of the law defined in the Tax Code of Ukraine.³⁴ The negative effect due to the uncontrolled system is that tenants have to spend a higher share of their incomes, research done by the analytical centre Cedoss shows that they have to spend from a third to half of their income on housing. The survey shows that only half of the people feel safe in a rental house.³⁵

The mechanisms for creating social and temporary use housing are encoded in the Law "On social housing" including housing units for citizens who don't have a permanent place of residence or lost it. This type of housing is leased free of charge for 1 year and the period could be extended if needed.³⁶ The issue of availability of social housing became more required after 2014 when Crimea has occupied and the start of the war in

³² Anastasiia Bobrova, Valeriia Lazarenko, Yelyzaveta Khassai, Cedoss. "Housing and War in Ukraine (February 24 — March 22, 2022)"

³³ Konstantin A. Kholodilin, Tymofiy Gerasymov. *Coping with the Consequences of a Housing Crisis During the Great War: The Case of Right-Bank Ukraine in 1914–1918*, (2019)

³⁴ Verkhovna Rada of Ukraine, "Tax Code of Ukraine".
<https://zakon.rada.gov.ua/laws/show/2755-17#Text>

³⁵ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022)

³⁶ Cedoss. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it, (2022).

Easter Ukraine of region Luhansk and Donetsk oblasts (area). During this time a lot of people became displaced from these territories requiring a new dwelling. Social and temporary housing programs were underfunded until 2022 so the local government didn't have enough financial resources to supplement enough stocks by itself. One of the reasons for unsuccessful social housing programs is corruption in the development and building construction business where developers prioritise the creation of high-cost apartments ignoring the requirements regarding providing the units for social or permanent living needs. Usually, the developer companies have their representatives in the local governmental institutions managing to provide permission for construction despite the law violation.

Challenges in Access to Social Housing

The lack of social and temporary housing units is the reason why access to them is limited and could be provided only to those who are recognised by the state as low-income. After 2014 the program targeted only the most vulnerable group of people like displaced persons, but it doesn't consider the people who can not afford to pay for rent. So on one side, these people who have income do not belong to this category, but in fact that due to low income and high prices on the rental market where prices are unregulated, they can not afford to rent a house making them potential individuals who need help. In some cases, the war made the situation even worse who these people who didn't have homes before the war because the current government social housing programs and solutions are focused exclusively only on IDPs. Also, the people whose houses have been destroyed but who didn't move from their living area are not considered IDPs, so they can't get the welfare payment now, so they only can stay in temporary shelters and wait for the implementation of the government program for housing compensation.³⁷

It might be obvious at some point to start already building new accommodations but the construction of new housing and communal infrastructure is a very risky initiative at war. The Russian invasion already caused the destruction of many buildings after more than one year of the war, and it might lead to the destruction of newly built dwellings and infrastructure in the future. Also, the war makes it more difficult to collect and analyse data, limiting the possibilities for planning the future while the need for housing has increased and diversified in the past year, with temporary crisis accommodation being a major need. The population's expectations regarding housing provision by the

³⁷ Cedos, Anastasiia Bobrova, Valeria Lazarenko, Yelyzaveta Khassai, "Housing and war in Ukraine (March 24 — June 3)", 2022

government remain high, but the share of those who support aid with purchasing housing is decreasing.³⁸

The population's income is decreasing, unaffordability of housing is growing, which makes the need for social rental housing even more urgent. The State Statistics Service³⁹ shows that the monthly average salary in Ukraine in 2022 was UAH 14,577 (EUR 361.82). According to the National Bank⁴⁰, the total real income of the population fell in June. Even though it reached the prewar level by December, it was mostly achieved due to payments to military personnel. Therefore, real incomes have probably decreased among the other population categories. The National Bank estimates that the unemployment level was at least 30% by the end of the year. A deteriorating economic situation also means that housing is becoming even less affordable. A certain share of people would not be able to purchase or rent another housing unit on their own if they lost their homes. Some can rely on the help of their family and friends, but others need a capable system of long-term rental social housing. This is important, among other things, because housing cannot be considered affordable for a significant share of the population already today.

The main stakeholder of the housing policy at the national level is now the Ministry of the Development of Communities, Territories and Infrastructure of Ukraine. The new Ministry will be responsible not only for the housing policy but also for regional and urban planning policies. But there is a risk that urgent issues of the development of housing policies will not be among the Ministry's first priorities. The new Ministry of Housing may not prioritize housing development and implementation, as its focus will be on other important issues such as energy efficiency, transportation infrastructure, and reconstruction of cities. This could lead to a lack of coordination in approaches to the housing policy, which targets different social groups. The fragmented and scattered housing policy in Ukraine which were already present before the war made coordination between different government bodies and levels difficult to be able to efficiently maintain the housing provision and regulation. This made it difficult to develop strategic solutions in the field of housing. In addition, construction policies continued to be a substitute for housing policies.²⁷

One of the reactions toward the housing crisis from the Ukrainian government was the development of a draft Ukraine Recovery Plan, but it has not been approved yet. In the spring of 2022, the President created the National Council for Ukraine's Recovery from

³⁸ Cedos, Anastasiia Bobrova, Ivan Verbytsky. "Housing and war: annual review. Housing policy in the first year of the full-scale war", 2023

³⁹ State Statistics Service of Ukraine, 1998-2023,
https://ukrstat.gov.ua/operativ/operativ2018/ct/sctp/Arch_sctp_u.htm

⁴⁰ National Bank of Ukraine, "Financial Stability Report June 2022"

the Consequences of the War, which included the working group for Construction, Urban Planning, and Modernization of Ukrainian Cities and Regions and its subgroup for Housing, Energy Efficiency, and Civil Defense. The working group developed a document outlining the priority goals and foundations of the future housing policy in the context of recovery. The document outlines Ukraine's recovery in several stages, including urgent measures, reconstruction of damaged infrastructure, and development of long-term solutions. However, the document has not been approved and its future is unclear.⁴¹

Crisis of displaced persons

More than **2.4 million** citizens lost their homes according to the Ministry of Development of Communities and Territories⁴² and **5.4 million IDPs** were displaced across Ukraine according to the latest report from International Organization for Migration³³. Understanding the aspect related to IDPs is very important in the understanding of the current housing situation as they are one of the key components affecting and shifting the paradigm of the housing crisis in the 21st century during the current war in Ukraine. The dynamic of the situation with the displacing and moving of people in the country is very high and changing all the time. These changes are mostly related to the war situation, how far or close the battle action taking place in the certain regions, the occupation and/or liberation of the Ukrainian territories, the affordability and availability of the shelters for these IDPs, and also the choice of the people to move abroad, to stay there, or returning back.

The number of IDPs in Ukraine has been steadily declining since August 2022. However, the crisis remains dynamic. Among the current displaced population, 29 per cent were reported to be planning to leave their current location and significantly fewer IDPs intend to return in the nearest future according to a survey from IOM. Among all respondents currently considering movement, 57 per cent consider relocation within Ukraine, while 26 per cent are considering moving abroad in 2023 compared with 20 per cent in December 2022. Among those considering moving abroad, 56 per cent indicated a country within the European Union, with Poland and Germany, mentioned most frequently by respondents.⁴³

In general, the majority of IDPs are from areas not present in their habitual residence, indicating that the current war is their reason for displacement. The vast majority of IDPs from the east of Ukraine are displaced to other locations in the east, specifically, Kharkivska, Dnipropetrovsk, Donetsk and Zaporizka Oblasts are the primary oblasts of

⁴¹ National Recovery Council, "Ukraine's National Recovery Plan", July 2022

⁴² <https://www.epravda.com.ua>

⁴³ International Organization for Migration (IOM), "REPORT ON INTERNAL DISPLACEMENT IN, UKRAINE. SURVEYED TOTAL POPULATION. ROUND AUGUST 23, 2022".

origin and displacement. The same can be said for the south of Ukraine, which underscores that those who do not move abroad are most prevalent in displacement locations within the macro-region. Figures 3, 4 and 5 illustrate the dynamic of IDPs numbers from the beginning of the war in all oblasts. The maps and data about IDPs per oblast make clear where the majority of displaced persons remain and where the numbers are changing drastically.

[Figure 4 here, see in Appendix-1]

[Figure 5 here, see in Appendix-1]

[Figure 6 here, see in Appendix-1]

The analysis of the IDPs' dynamic changes per Oblast on the map of Ukraine combined with the research on changes that happened since the beginning of the war helps to put a puzzle together to draw a more clear picture of the current situation. As shown on the map in Figure 3, in the first months of the war, the data about registered displaced persons appeared mostly in the central and western regions of the country (marked with bright yellow colour) which are at a certain point far from occupied areas and war zones on the south-east, so it making sense that central and western oblasts became the main destination for people who seek a safer place. With the de-occupation and liberation of the northern regions namely Kyivska Oblast, Cherkaska Oblast, Sum'ska Oblast and Kharkivska Oblast later (Figure 4) people started to return. Figure 4 shows with blue colour the decline of registered IDPs in western oblasts and increasing in central and eastern regions which are marked with bright yellow colour. The biggest number of registered IDPs in the oblast by this time were in Kyivska Oblast with the capital city of Kyiv (325 074), Dnipropetrovsk Oblast (372 279) and Kharkivska Oblast (403 779). The previous research tells about speculation on the rent prices in western Ukraine when the war started where the local landlords tremendously increased the rent prices. This aspect became one of the main reasons for people to return back and those displaced who still could not return and lost their homes, move to northern and eastern regions as the rent prices there were more affordable for them. Despite the closeness to war zones and to the border with Belarus and Russia, the economic factor still plays a crucial role even in wartime. **It draws, from a personal perspective, the narrative that safety is something that a person must pay for, despite any conditions even like war.** Such migration tendency might be seen in Figure 5 which contains the latest data about registered IDPs where the increasing number of displaced people has been happening in Eastern Ukraine. This particular analysis is important in arguing for further research, and why it is important to focus on the elaboration of the topic of the housing crisis during the war in Dnipropetrovsk Oblast

and its municipality centre the city of Dnipro, to be able to look closely into the crisis through the prism of the specific site.

Housing during the war through the stories.

As the war is still going on, while this master thesis is being written, there is still a big lack of data, information, analysis and research when it comes to Internally Displaced Persons in Ukraine. But understanding what kind of challenges those people are facing is a very important subject in this work. The housing crisis is a very complex and comprehensive subject which is not isolated from other aspects like governments, cities and human life, but interacts and links with almost all aspects of modern life: economy, policy, architecture, city management and planning, infrastructure and so on. The first priority is to regard **the housing crisis as always ABOUT people, as housing IS for people**. At present, there are millions of people who have been displaced and urgently require a new dwelling. There are millions of stories of how they are managing to deal with this harsh time to find shelter, refuge, new home. Research-wise these stories are also important in the understanding of the crisis, they might provide information that helps to analyse the current situation to structuralise the crisis to define key aspects and the actual problems.

This paragraph presented a summary of the stories told by Ukrainian IDPs who are influenced by this war and are now in urgent need of a new home. Due to the limitations of conducting fieldwork and on-site interviews, this study relies on the use of documentaries and interviews produced by community activists as valuable sources to present important individual experiences that shape everyday narratives.

There is one story about a family who escaped the bomb shelling from Kharkiv city at the beginning of the war. The short documentary-interview video made by local independent media of Vinnytsia region "Suspil'ne Vinnytsya" (Vinnytsia society)⁴⁴ tells the story of a family with two adults and two children from the city of Kharkiv in the North-East of Ukraine who left their home due to war. The family were living in the residential apartment district in Kharkiv City. When the war started, most of the time people had to spend in a shelter hiding due to daily airstrikes in the city. To leave their home, the family decided because of the critical situation and unsafe conditions in the city specifically because of the massive shellings of their neighbourhood which caused heavy damage and destruction of the neighbour's apartment building. At the current moment, the husband and his wife are living in countryside houses in Stepanivka village in Vinnytska oblast and their children were sent to Poland to family relatives. The house where the family has settled was provided by the local owner who does not live there. The old house was uninhabitable for several years and it became a good option for the family to settle in a safe place till the end of the war. The house in Stepanivka village

⁴⁴ Suspil'ne Vinnytsya: <https://www.youtube.com/watch?v=B8xAzN6SIIQ>.

wasn't the only place where the family stayed, before, they changed to six different temporary shelters. Because of the war and urgent migration, both adults lost their jobs facing financial instability which is leading to uncertainty in the future. Local villagers and volunteers managed to help to supply and provide what is needed for basic needs like clothes, furniture, domestic appliances and food. To sustain further the couple need a new job which is becoming very difficult to find in villages nowadays.



Figure 7. Footage of the uninhabitable house in Stepanivka village which became a new home for the displaced family. Source: <https://www.youtube.com/watch?v=B8xAzN6SIIQ>.

Financial instability, lack of jobs and unknown environment for IDPs, like this family, became the triggers forcing people sometimes to return back to their homes despite extreme conditions during the war. When people know that they have their own home, even if it's located in a dangerous region, it is also becoming a reason for returning back.

The story of another family from Mariupol City, shown in the short documentary by "Suspil'ne Khmelnytskyi"⁴⁵ (Khmelnytskyi society) has a different vector of the situation with housing. The city of Mariupol, compare to Kharkiv, was occupied by Russian forces and remains temporarily under the control of Russian invaders. Mariupol became a tragic symbol for the Ukrainian nation in this war because of the massive devastation of the city with a population of 425 681³⁸ citizens before the war. After the invasion, the city was under relentless daily shelling and siege till the 20th of May 2022 when the city

⁴⁵ Suspil'ne Khmelnytskyi, "A family of immigrants from Mariupol bought a house in a village in the Khmelnytskyi region and are starting a new life", (2022), <https://www.youtube.com/watch?v=-Th8rg0ZnJQ>

became fully in control of the Russian occupants. According to preliminary calculations, there are approximately 1500 destroyed⁴⁶ and heavily damaged buildings and over 87 thousand killed civilians⁴⁷.

The story of a family of 6 members from Mariupol starts when they managed to escape the already partly occupied Mariupol city to the closest biggest city Zaporizhzhia. Zaporizhzhia as a Dnipro city, became a transit hub for many IDPs, who were escaping from occupation and war zones in the South-East of Ukraine. Through volunteers, people have managed to find a house in Zbryzh village, Khmelnytsky Oblast which is in the Western part of the country. The house belongs to a local villager who offered the family to stay as long as they need. In this story, the apartment house of the family where they lived before in Mariupol was totally destroyed. If we compare the story of the people of Kharkiv, then in this case there was nothing left for this family to which people could return. This fact plays an important role in the decision of this family not planning to come back when Mariupol City will be liberated. In addition, people have already managed to buy an uninhabited house in the same village with their last savings. But the house required major maintenance and repairs like changing the windows and doors, fixing electricity and wires changing, walls and roof restoration and equipping with furniture to make the condition suitable to live there. The help with maintenance for the new house was provided by locals and volunteers. To sustain a family in this new life, some people are managing to work online or found a job in local farms.

⁴⁶Ukrinform, "More than 1,100 buildings: an interactive map of the destroyed Mariupol was created", (2022),

<https://www.ukrinform.ua/rubric-regions/3545547-ponad-1-100-budinkiv-stvorili-interaktivnu-mapu-zrujnovanogo-mariupola.html>

⁴⁷5 channel, "87,000 dead have been documented in Mariupol, but the figure is not final", (2022), <https://www.5.ua/regiony/u-mariupoli-zadokumentovano-87-tysiach-zahyblykh-ale-tsyfra-ne-osta-tochna-zmi-286225.html>



Figure 8. Footage from the documentary of the new house of the family from Mariupol Zbryzh village, Khmelnytsky Oblast. Source: <https://www.youtube.com/watch?v=-Th8rg0ZnJQ>.

To find and organize a new dwelling for displaced people, the volunteer organization PANCHEVSKY SHELTER CHARITY FUND⁴⁸ started the renovation of old houses for IDPs in Pancheve village, Kirovohrad Oblast. The story of this project started with looking at owners of uninhabited houses in the villages and negotiating the possibility of providing the dwelling to people who urgently needed it. The approach here is quite simple, the housing owners provide the property to displaced people and with their agreement, the charity fund makes maintenance and repair of the houses to make them livable. In the beginning, the charity organization didn't settle IDPs in unrepaired houses. But since it became known among the folks, more people started to arrive so volunteers didn't have a choice but settle people inside the houses despite poor conditions. In this case, the newcomers started to maintain the house by themselves with support from the organization. There are around 50 houses have been provided for families arriving mostly from eastern occupied areas.

Most of the people who arrived in the village lost their homes. Loss of property and jobs is a common situation for these people. Despite the odds most of the people found new work on the local farms, others can manage to work online and some are participating in local volunteer organizations including mentioned PANCHEVSKY SHELTER CHARITY FUND. Actually, the inflow of people had a positive impact on the village. The head of the village administration sees this as a positive, arguing that due to the shrinkage of

⁴⁸ DW Ukrainian, "A village for displaced people: how abandoned houses became a home for hundreds of people": https://www.youtube.com/watch?v=syi_Kllp2xk&t=29s.

the village population, the number of farmers and specialists started to decrease and have an economic impact on the area. But the arrival of new people creates the possibility for newcomers to have a job and for locals to have specialists whose skills might be valuable in the area. Also, in his opinion, it might bring new investments to the village as the case with IDPs is still unresolved, requiring upgrading the existing infrastructure and creating new housing due to big demand. There are already created initiatives to build a new dormitory and utility building so people might live in a comfortable living environment. As it was mentioned, most of the people who arrived people have totally lost their homes so there are no reasons to return - according to what those people are saying. In this case, most of them are planning to stay and start a new life in a new place

It is important to mention that most of the people who were displaced and came to live in the villages were originally from big cities. According to the people's stories, there are a few reasons for their choice:

- Life in the villages feels safer and more comfortable due to the natural environment and far distance from war zones;
- Big cities in most cases are potential targets for airstrikes.
- The price of living is cheaper and affordable, especially when people rent the house or just pay for utilities as well as prices in the stores;
- People prefer to live in a house rather than in an apartment (but it depends on personal preferences).

At the same time, because most of these partly renovated houses are old, it doesn't have a connection to the central canalisation and water pipe system, so people have to collect water in a big water tank or pump it up from the water well. Since there are no heating systems in some old houses, people can only use wood for the stove for heating and cooking. The public transport connection is also in poor conditions, especially during the war, so people are isolated from access to other locations like big cities and it creates some limits on transportation if it's critically required in case of emergency or location of workplace outside of the villages.

It shows that there is a need for updating and modernizing the infrastructure and utility systems in rural areas.



Figure 8. Footages from the documentary illustrate the poor conditions of uninhabited houses in Pancheve village when PANCHEVSKY SHELTER CHARITY FUND got access to these dwellings. Source: DW Ukrainian, "A village for displaced people: how abandoned houses became a home for hundreds of people": https://www.youtube.com/watch?v=syi_Kllp2xk&t=29s.

A brief in-detail overview of the housing crisis from the perspective of displaced people reveals more specifically the character of the current housing crisis during the war. First of all the research shows that there is a tendency of IDPs' migration from cities and towns to rural and countryside areas despite the difficulties and limitations in daily basics compared to urban life. The renovation of old housing gives an opportunity to partly manage to provide a new dwelling for those who need it urgently. The massive inflow of refugees into the villages requires already additional investments in developing and modernizing the rural areas. Volunteering and local initiatives are having a critical role in this crisis where from one side this case illustrates that the crisis might be self-sustaining in the case that the situation might be resolved just by people's initiative but at the same time it shows that the governmental institutions are failing to deal with the crisis so peoples left on their own.

Section I. Conclusion

The housing crisis during the war in Ukraine has had a massive impact on the country's population, with millions of people displaced and numerous buildings destroyed and damaged. The conflict has led to a shortage of affordable and adequate housing, and the displacement of millions of people has put a strain on the country's housing stock, leading to high demand and rising prices. The crisis has also disrupted the construction industry, making it more challenging to build new homes. The end of the war will be crucial in addressing the housing crisis in Ukraine. The government needs to regulate the housing sector, provide affordable housing for the displaced, and protect the rights of tenants. This crisis is a rapidly changing phenomenon, and further research and analysis are necessary to draw a broader picture of the crisis and its impact on the population of Ukraine. While the number of IDPs has been declining since August 2022, the situation remains dynamic and constantly changing. The majority of IDPs are from areas not present in their habitual residence, indicating that the current war is their reason for displacement. The maps and data about IDPs per oblast make clear where the majority of displaced persons remain and where the numbers are changing drastically. The economic factor still plays a crucial role even in wartime, drawing the narrative that safety is something that a person must pay for.

The stories of Internally Displaced Persons (IDPs) in Ukraine during the war provide important information that helps analyze the current situation and define key aspects and actual problems. Millions of people who have been displaced urgently require a new dwelling. These stories are important in understanding the crisis, and their analysis may provide useful information to solve the housing crisis, which first of all is about people.

Section II.

Dnipro, housing and war – a city in transit.

The housing situation before a full-scale invasion

As I have explored in section I, there are a number of broader regional factors that make visible the characteristics of the housing crisis. In order to ground some of these factors at the level of the city, neighbourhood and dwelling, this thesis explores the city of Dnipro and its extended oblast (municipality) as a case study. Dnipro as well as the Dnipropetrovsk oblast' became a strategically and infrastructurally important area due to its geographically close location to the current frontline in the Russia-Ukraine war. The area became a transit between the peaceful western part of Ukraine and the southeast where the war battles occur.

The map in Figure 9 illustrates the geographical perspective of view on the region's location. The map analysis helps to visualise and point out how close to the frontline the region is so it is argued on the statement considering the region as a hub. The map also contains the areas which were occupied during the first months of the war, for example part of Kyivska, Chernihivs'ka and Sumska oblast in the north, part of Kherson oblast in the south including its municipality centre Kherson city and the part of Kharkiv oblast in the north-east. Later at the end of 2022, these areas were liberated from Russian forces. Such basic analysis via the mapping is very important in understanding not only the current situation but also how the situation has been changed as marking of occupied and liberated areas reflecting on the situation regarding housing destruction, IDPs migration and with it the reaction of the local municipalities as this territorial changes and control by Ukraine or Russian occupation forces reflects on the other territories as well. It is important for this research from the perspective of IDPs migration to the neighbour oblasts and big cities where the income of new inhabitants put new challenges for local authorities and governments to manage the housing or shelter provision for those people.

The information about the current frontline situation and liberated areas was taken from the online open-source Deep State UA where the map shows in real-time the status of the frontline. This type of analysis is important at the beginning of the study to understand the geographical context of the region, its location and its relation to the war zone, as it primarily reflects the scale of the crisis, showing which areas have been affected by the war, and gives a picture of the context in which Dnipro and the region are located. The graphical representation also helps logically lead and proceed with the research.

[Figure 9 here, see in Appendix-1]

In wartime, the Dnipro city and the oblast' became transit hubs first of all for military supplies. In the municipality centre of the oblast, the city of Dnipro has a major number of found and heavily injured soldiers arriving directly from the battlefield to medical centres like Mechnicov Hospital and Municipal Specialized Hospital №8 which are equipped with modern medical equipment capable of saving the soldiers lives. Besides the military importance, the Dnipropetrovsk oblast is one of the major regions that accepted 372 279⁴⁹ Internally Displaced Ukrainian citizens according to the latest report by IOM from 29 January 2023. It is 8.3% of the total population of the Dnipropetrovsk oblast which is 3 096 485⁵⁰ residents. Figure 7 shows the number of IDPs in February 2023 in each administrative Raion (administrative-territorial unit of the oblast) in the Dnipropetrovsk oblast. The analysis unveils that the biggest number of IDPs are located in the Dnprovskyi Raion (161,172 people which is 43.3% of the total IDPs in the oblast) and in the second place by registered IDPs is Kryvorizkyi Raion (67,694 people which is 18.2% of the total IDPs in the oblast). Then there are Nikopolskyi and Kamianskyi Raions (40,037 (10,8%) and 37,725 (10,1%)) which are located in the western part of the oblast. Novomoskovskyi Raion (16,960 - 4,5%), Pavlohradskyi Raion (22,762 - 6.1%) and Synelnykivskyi Raion (25,929 - 6.9%)⁵¹ which are in the eastern part of oblast have less registered IDPs in their regions. A detailed analysis where numerical data is shown from a geographical perspective, first of all clearly shows which areas require more attention regarding housing/shelter provision for displaced people. Secondly, this analysis elaborates on why Dnipro City was chosen as the research object and fieldwork in this master thesis. Also, this analysis draws the logic and particular reasons for choosing displaced people's destination. First of all, Dnipro is the fourth biggest city in Ukraine³⁴ and one of the wealthiest cities in the country so it might provide a possibility to find a new job or get the required help from the local government, volunteers or other social organizations, and we see that the Dnyprovskyi Raion including its regional centre the city of Dnipro accepted the biggest number of IDPs in the oblast. These characteristics are also applied to Kryvorizkyi Raion and Kryvyi Rih city (the 8th biggest city in Ukraine⁵² . Secondly, the map in Figure 7 reveals that most displaced people are living in the central and western parts of the oblast. It might be argued that this is why Wester Raions locate more safely due to its far location from the front line in the east of the country where the most active battles are happening so it is justifiably by geographical location. But at the same time, the Nikopolskyi Raion locates

⁴⁹ International Organization for Migration (IOM), *"REPORT ON INTERNAL DISPLACEMENT IN, UKRAINE. SURVEYED TOTAL POPULATION. ROUND 12 JANUARY 23, 2023"*.

⁵⁰ Statistics Ukraine, Number of Present Population of Ukraine by January 1, 2022.

⁵¹ International Organization for Migration (IOM), *"REPORT ON INTERNAL DISPLACEMENT IN, UKRAINE. SURVEYED TOTAL POPULATION. ROUND 12 JANUARY 23, 2023"*.

⁵² Statistics Ukraine, Number of Present Population of Ukraine by January 1, (2022).

just across the Dnipro River where on the other side the territories are temporarily occupied by the Russian army and where its administrative centre Nikopol City is exposed to daily artillery shellings, airstrikes and drone attacks which cause massive destruction leading to the devastation of the city converting it into ruins. Still, despite that the region has more IDPs than it's in eastern Raions. Also, the factor of IDPs' capabilities, who moved from occupied territories, to manage migration and the distance became key elements in it. It means that the close location to the Dnipropetrovsk oblast from occupied territories is also important whether people have to decide where to move, as not everyone has their own private vehicle or they just simply cannot financially afford to move further to other regions. As it was mentioned before, the total financial income of the population fell in the summer of 2022²⁹. It means that people will look for the nearest safe location to resettle with affordable rental prices.

It is difficult to say unequivocally what the real reason for the decision of the IDPs to settle in the specific parts of the Dnipropetrovsk region is, but after the analysis shown in Figure 10, such criteria as a **wealth of the cities and its administrative-territorial units**, as well as their **geographical location regarding the occupied territories** and frontline and the **financial capabilities** of IDPs are playing important role in the understanding of the IDPs resettlement in the oblast because this is directly related to the challenges to received a shelter and a new dwelling to displaced citizens which is a key aspect in the research and understanding of housing crisis not only in the Dnipro and Dnipropetrovsk oblast but also in the other regions of Ukraine during this war.

[Figure 10 here, see in Appendix-1]

Occupation of Crimea and the appearance of the ATO zone in 2014

Container settlements in Ukraine are important for studying the housing crisis and its impact on the displaced population. Often created as a temporary solution to accommodate those displaced by conflict or other forms of displacement, these settlements shed light on the challenges and complexities of providing housing in crisis-affected regions. The study of container settlements in Ukraine allows to investigate various aspects of the housing crisis. This includes examining the conditions in these settlements, such as the quality of housing, access to basic services and the provision of basic amenities. Understanding the experiences and challenges faced by residents of these settlements can inform policy and decision-making processes aimed at improving housing conditions and ensuring the well-being of displaced people.

Basically, the challenges with housing provision the Dnipropetrovsk region faced long before the current war when in 2014 Russia annexed Crimea and provoked military conflict in the Donbas and Luhansk regions. The region got the status of an Anti-Terrorist Operation Zone (ATO). The detailed analysis of the situation regarding housing provision and IDPs resettlement made by CEDOS⁵³ in 2016 shows that more than 1.5 million people left the ATO zone in 2014-2015, and the largest share of internally displaced persons were registered in the eastern regions. More than 77% of IDPs were registered in Eastern Ukraine.

The level of capital investments in housing construction decreased significantly in 2014 compared to 2013, and this trend was much worse in Eastern Ukraine. The influx of capital investments in housing construction and the level of housing commissioning have both decreased, particularly in the eastern regions. This decline can be attributed to the negative effects of the conflict zone on investment flow and the reduction of territory available for investment. Dnipropetrovsk region had a relatively smaller decline of 10% compared to the national average. The downward trend in housing construction investments was also observed in districts and cities, with some areas experiencing significant falls of over 50%. However, a few cities and districts showed growth in housing construction investments, albeit on a smaller scale by this time. Despite fluctuations, the majority of capital investments in housing construction in the region were concentrated in Dnipro city, Dnipropetrovsk district, Kryvyi Rih, Novomoskovskiy, and Petrikivskiy districts, which accounted for over 80% of the capital investments in the housing sector. Overall, negative trends prevailed, with a general decline in housing construction investments in the region, except for Dnipro, which experienced an increase. The distribution of investments in housing construction and the number of housing units being constructed differs significantly from the distribution of registered internally displaced persons (IDPs). In regions excluding Donetsk and Luhansk, the

⁵³ CEDOS, Tatiana Kolomiets: "PLACEMENT OF INTERNALLY DISPLACED PERSONS IN THE SECTION OF HOUSING INFRASTRUCTURE", 2016

neighbouring oblasts of Dnipropetrovsk, Zaporizhzhya, and Kharkiv have the highest number of registered IDPs. However, the proportion of investments in housing construction in eastern Ukraine had decreased relative to other regions. At the district and city level, IDPs tend to gravitate towards larger cities, while investments and housing construction are concentrated around regional centres and nearby districts.

In general over 68% of IDPs were located in the main cities of the region, including Dnipro, Kryvyi Rih, Pavlograd, Dniprodzerzhynsk, Pershotravensk, and Nikopol. Many IDPs are also registered in districts and cities closest to the conflict zone, such as Pokrovsky, Petropavlovsk, and Mezhyvskiy. Interestingly, only a small percentage of IDPs arrived in districts neighbouring the regional centre. In districts closer to the conflict zone, the percentage of retired IDPs is significantly higher.

The majority of IDPs rent housing, with urban areas having a higher proportion of renters compared to rural areas. However, due to the lack of statistical data on housing rentals by district, the analysis of the quantity and quality of rented housing is limited. Among the three oblasts closest to the conflict zone, Dnipropetrovsk oblast had the largest area of residential premises, followed by the Kharkiv and Zaporizhzhia oblasts. When considering the population, the Dnipropetrovsk oblasts had the highest area of residential premises per person, followed closely by other eastern regions like the Kharkiv region, while the Zaporizhzhia region has the lowest. However, when internally displaced people were included, the amount of living space per person decreases in all three regions.

The presence of dormitories, particularly in industrialized regions, is notable. The number of hostels in a settlement can indicate the level of developed heavy industry in that area. The availability of dormitories may influence the choice of settlement for relocation among IDPs, especially among retired individuals. While hostels offer affordable temporary housing, the quality of housing and access to communal services play a crucial role in determining the suitability of accommodation for IDPs.

In terms of infrastructure, the analysis of the PLACEMENT OF INTERNALLY DISPLACED PERSONS IN THE SECTION OF HOUSING INFRASTRUCTURE⁵⁴ shows variations in the availability of services across regions. The main cities have a higher percentage of residential premises equipped with water supply, hot water supply, sewage, centralized heating, and gas compared to the regions. The difference in access to communal services highlights disparities between urban and rural areas.

⁵⁴ CEDOS, Tatiana Kolomiets: "PLACEMENT OF INTERNALLY DISPLACED PERSONS IN THE SECTION OF HOUSING INFRASTRUCTURE", 2016

Regarding investment in housing construction, a downward trend was observed in Eastern Ukraine, including the Dnipropetrovsk, Zaporizhia, and Kharkiv Oblast. The arrival of IDPs does not directly correlate with changes in the level of investment. The housing market has not reacted significantly to the influx of IDPs, likely because many of them are pensioners with limited purchasing power.⁵⁵ Additionally, the proximity to the conflict zone increases the risk associated with housing investments in the private sector.

Nevertheless, a relationship between IDPs and the quality of existing housing infrastructure is observed. IDPs tend to choose cities of regional importance, possibly due to their urban background and higher sensitivity to housing infrastructure quality. The presence of hostels is also linked to IDPs, as they serve as temporary housing options, and their distribution aligns with historically industrialized settlements.⁵⁶ The distance from the conflict zone influences the relocation decisions of IDPs. Some choose neighbouring regions due to familiarity, cultural affinity, or language similarities. Additionally, able-bodied IDPs tend to settle in more distant areas within the eastern regions compared to retired IDPs. However, a significant number of retired IDPs remain in the conflict zone but access social benefits in the nearest districts.

Overall, the analysis highlights the complex interplay between housing availability, infrastructure quality, investment patterns, and the preferences and needs of IDPs in Ukraine. Understanding these factors is crucial for developing effective policies and interventions to support IDPs and improve their living conditions.

⁵⁵ Shelter Cluster Ukraine, "ANALYSIS OF HOUSING AND NON-FOOD GOODS NEEDS Report UKRAINE", 2015

⁵⁶ Shelter Cluster Ukraine, "ANALYSIS OF HOUSING AND NON-FOOD GOODS NEEDS Report UKRAINE", 2015

Temporary container settlements for IDPs in the period from 2014 to 2022.

In 2014, transit container towns for internally displaced persons were created in seven cities of Ukraine — Kharkiv, Pavlohrad, Nikopol, Zaporizhzhia, Dnipro, Kamiansk, and Kryvyi Rih. They were built with the support of the German government company GIZ and were expected to be used for up to 3 years. 9 years have passed since that time, and they still haven't gotten a better home despite the fact that the warranty period for the safe operation of the modules expired in 2018.

[Figure 12 here, see in Appendix-1]

One of the important problems of such housing is the social isolation of its residents because some of the settlements are located far from cities and not connected to them with proper public transit. The other issue is the poor integration into local neighbourhoods. Additionally,⁵⁷ of these houses were designed as temporary housing, the materials are not intended for long-term exploitation, so they wear out quickly. A specific problem of modular cities: the special design of the modules leads to heat and suffocation in the summer and the formation of condensation and mould in the cold season. Heat and suffocation in the premises, although not a large proportion, is typical for modular towns, where it is caused by the construction of buildings intended only for a temporary stay.⁵⁸ The photos in Figure 13 show the current condition of the container cluster created for IDPs in 2014 in Zaporizhzhia city.



⁵⁷ Anastasia Bobrova, "Justice in the city: safety, shelter and housing", 2019.

⁵⁸ "PROGRESSIVE TEMPORARINESS: how IDPs live in compact housing". Report prepared by BF "Right to Protection" in cooperation with NGO "Tenth of April" with the support of the United Nations Refugee Agency (UNHCR).



Figure 13. The photos of temporary container housing in the city of Zaporizhzhia for IDPs from the Donbas area build in 2014 show the modern condition of the modules. Used source: <https://hmarochos.kiev.ua/2022/03/22/balbek-bureau-sproyektuvaly-tymchasove-zhytlo-dlya-pereselencziv-foto/>, "PROGRESSIVE TEMPORARYNESS: how IDPs live in compact housing". Report prepared by BF "Right to Protection" in cooperation with NGO "Tenth of April" with the support of the United Nations Refugee Agency (UNHCR).

The example of the container villages created for displaced Ukrainians from eastern regions beginning in 2014 teaches that **Nothing is truly permanent as temporary housing**. I believe that this is extremely important to learn from the experience of what a refugee camp in Ukraine formed from containers. Before the full-scale invasion, the crisis had much less scale of the problem. Back in the period from 2013 to 2022, there were only 257⁴⁶ registered IDPs in the Dnipropetrovsk oblast from the occupied Donbas region and Crimea. After one year since the beginning of the war on 24th February 2022, there are 372 279⁴¹. The fact of assembling the new modular houses across the whole country during the current war shows the problems that existed before will increase significantly. For understanding the scale there is some numerical compersion overall in the country in 2014 there were, according to the official report, 1,528 registered IDPs⁴⁶, - in 2023 this number reached over 5.4 million displaced. It means the demand for new dwellings has increased by approximately 3,534 times. Another valuable lesson that should be learned on the unsuccessful implementation of modular houses as the only solution that the current war revealing the weaknesses, threats and major problems in the housing sector in Ukraine.

Dnipro in wartime.

The previous analysis which reflected on the ATO zone and container housing shows that the region already has been involved in warfare since 2014 which defines the Dnipropetrovsk oblast as a transit zone and a hub both for military and civilians. But as the scale of the invasion is broader and affects the whole country the current situation has a more serious and dramatic character. The map in Figure 14 visualises the relation of Dnipro as well as Dnipropetrovsk Oblast to the frontline and occupied areas (marked with red colour) based on the data from the open-source map DeepStateUA in April 2023. First of all, the map analysis clearly shows the Oblast is in close proximity to the occupied areas and the frontline which is laying on the edges between territories controlled by Ukraine and Russian occupants. The analysis presented on the map illustrates that the closest frontline area lies only ~105 km away from Dnipro city and has a border with occupied regions across the Dnipro river on the South. The areas shown with green filled colour show the liberated areas. This means that at the beginning of the invasion, the frontline line of the war zones was much closer to the oblast. All these, the analysis from a geographical perspective and visualization of changes in territorial control during the war, elaborate on the case study where due to the location of the Dnipropetrovsk region the affection of the military activities have a destructive impact on the region via regular shellings (specifically in Nikopol' city on the South of the Oblast) and airstrikes. The just mentioned Nikopol' city locates on the border temporarily controlled by Russian occupants' territories so due to its closeness the daily massive shellings destroy the city building by building. The dangerous situation forced people to evacuate to the neighbour safer settlements and cities in the Dnipropetrovsk oblast. So the shellings caused tremendous destruction including the housing buildings and the migration from the city creates more flow of IDPs who requiring for shelter and a new dwelling.

The research on the general situation of the housing crisis during the war presented in the first paragraph at the time represents the situation and the problems like lack of social and affordable housing, speculation on the rent prices and insecurity of tenant rights, and insufficient governmental social program, corruption and breaking the law, shrinkage of the jobs which leads to the financial instability alongside with regular destructions caused by airstrikes, all these factors which define the housing crisis are imprinted in the Dnipropetrovsk Oblast and Dnipro city as well.

[Figure 14 here, see in Appendix-1]

Consequences and Analysis of the Airstrikes in the City in the Period of 2022 - 2023.

In Dnipropetrovsk oblast, the total number of damaged or destroyed residential buildings is **3.1 thousand units** (including private houses and apartment buildings) based on the Report on direct damage to infrastructure from destruction as a result of Russia's military aggression against Ukraine as of March 2023. And since the war continued the new airstrikes and drone attacks continued to make an impact in the In Dnipropetrovsk oblast cousin the new damages and destructions.

In Dnipro, according to the data provided by the press service of the city council, 63 apartments were destroyed, and another 61 have been inspected, in the private sector (the areas in the city where the building typology is only private houses) there are 12 destroyed buildings, another 12 cannot be restored, they need to be dismantled and new ones built.⁵⁹

The further analysis study of the airstrikes cases that happened in Dnipro in the period from 24th February 2022 to 14th January 2023 elaborates on the consequences of air bombing and a link with the high amount of industries and industrial areas in the city. The analysis is based on the observations and data collection made during the work on these projects regarding the events, specifically the airstrikes which have had in this period.

The question that this analysis is trying to answer is "Why exactly were these locations and buildings shelled?". In the war, settlements located on the border with the hostilities zone, or a settlement that is the territory where battles are conducted, are subjected to shelling. For the case study of Dnipro during the war, the city is located far from the battlefields (see Figure 14), despite that the city regularly remains a subject of Russian airstrikes which are a potential threat to local residences. So there might be a reason behind it. One of them is to use airstrikes as a tool for Russians to intimidate and demoralize the Ukrainian population. This factor might be the case but it's not explaining the pattern of these attacks. The other factor which might be reasonably considered in this analysis is that every industrial and infrastructural objects become a potential military target in a war and as Dnipro is an industrial city, this could explain the situation and the aftermath of these airstrikes which caused the destruction of the housing in the city. For further elaboration to find the answer to the question, I have mapped (see Figure 15) all industrial areas in Dnipro city (shown in white polygons) and the areas where the airstrikes have happened (shown in red circles) to show how these two components are connected to each other. The first evidence of the relationship between these two components, presented in Figure 15, is that 11 of the 13 airstrikes marked on the map occurred in locations near industrial and infrastructure areas.

⁵⁹ [Iryna Rudenko, A year of full-scale war in Dnipropetrovsk region in numbers, February 2023.](#)

The next step of the analysis is to look closely at the airstrike case. For this, I have defined the areas (zones) in the range of 100, 500, 1000, and 2000 plus the territories around the city boundary (see Figures 16-20). With this approach, I wanted to see what typologies of the buildings have been damaged and how far they are from the industrial areas. This also helps to clarify the character of the urban environment around industries in Dnipro. The drawing of zones helps to illustrate the matters in the relation between hit civilians as well as residential buildings and industries.

[Figure 15 here, see in Appendix-1]

The analysis of the territories in 100 meters ranges from industries in Figure 16 shows 4 cases of airstrikes. The result of the attack, in relation to the housing, is the destruction of the apartment buildings and some buildings got small damage on the facades like broken windows and interior defects. Nevertheless, even the lite damages have serious consequences. All these events happened in periods before the winter. Not everyone whose apartments were damaged is financially able to maintain the repair works due to low incomes and loss of jobs because of the war. As an example here is the case of the particular airstrike on 17.11.2022 when the rocket hit the road between The State Factory «Production Union Pivdennyi Machine-Building Plant named after O.M. Makarov» and the residential buildings. The residential buildings nearby got no critical damage but as a result of the explosion it broke all the windows on the building facades. This is creating extreme conditions for residents because it's already cold and the temperature will continue to drop making conditions not acceptable for leaving in the apartment.

[Figure 16 here, see in Appendix-1]



The photos show the aftermath of the airstrike in areas located within a radius of 100 m from the industrial-infrastructure areas. Sources: The State Emergency Service of Ukraine in the Dnipropetrovsk region, dp.informator.ua.

In this case, the apartments might not be suitable for living there, especially in the wintertime if the windows are missing. It brings challenges for residents to maintain quick restoration work or manage to find a temporary shelter. The city government is required to provide financial support to victims and help with finding shelter for them. So besides the newcomer IDPs to the city, the municipality also needs to deal with the consequences of airstrikes.

[Figure 17 here, see in Appendix-1]



The photos show the aftermath of the airstrike in areas located within a radius of 500 m from the industrial-infrastructure areas. Sources: The Map of Recovery, dp.informator.ua.

The most serious housing destruction occurred in areas within 500 m and 1000 m of industrial zones (see Figure 17-18). Most of the destruction was in sectors with private houses. The private building that was hit by the direct fall of the missile is completely finished, and dozens of residential premises near the site of the fall are critically damaged and require serious repair work.

In view of the case of airstrikes that took place on November 27, 2022, the interview with the victims was made by the local independent news portal *dp. information.ua*^{60,61} tells the story of survivors of this attack and their reactions.

The attack hit the private sector. As a result, more than 10 private houses were severely damaged.

There are some stories of locals who had experienced the airstrike while being at home: "I was in the kitchen when the explosion happened," Mikhail, who was injured in the explosion, said. "Probably, I was saved by the fact that the wave hit the corner of the house. I was thrown about 4 meters away and fragments of windows and batteries flew at me. I was taken to the hospital where the glass was taken out of my body and my wounds were treated. Now I continue to see a doctor.

But the other man, Sergei, was not at home. He left for several streets on business, and his wife went to the gym. At home, there was only a mother-in-law and pugs. When a neighbour called Sergey and said that his house was on fire. It turned out that the fire occurred in a neighbouring building and the building opposite. But almost nothing remained on the second floor of Sergei's house.

"I arrived, and everything is already cordoned off, rescuers and the police are working. Good guys let me through. Thanks to God, everything is fine with my mother-in-law, and with the dogs too. Alive. They were under glass, frightened, but alive," Sergey shares. As a result of the attack, almost all the houses around the epicentre of the explosion were destroyed. It is impossible to live in them now. Therefore, those people who did not need the help of doctors are forced to live with acquaintances and friends.

"I didn't live my life in vain, I have many friends and they all immediately offered help. I am very grateful to everyone. Now a friend has taken my wife with pugs. You yourself understand how difficult it is. Yes, even with dogs. My friends said this: "Now we understand from you that the war has come to our streets," Sergei concluded.

⁶⁰ Yaroslav Zkhalov, "The war has come to our streets" - a resident of the Dnieper, whose house was destroyed by a Russian rocket" - *Dnipro.informator.ua*, 30 November 2022, <https://dp.informator.ua/ru/tilki-ne-ruskiy-mir-u-dnipri-postrazhdali-rozpovili-pro-naslidki-rankovogo-raketnogo-udaru>

⁶¹ Alexey Alexandrov, "Only not the Russian world: in the Dnieper, the victims spoke about the consequences of the morning missile " - *Dnipro.informator.ua*, 26 November 2022, [strikehttps://dp.informator.ua/ru/viy-na-priyshla-na-nashi-vulici-zhitel-dnipra-budinok-yakogo-zruynuv-ala-rosijska-raketa](https://dp.informator.ua/ru/viy-na-priyshla-na-nashi-vulici-zhitel-dnipra-budinok-yakogo-zruynuv-ala-rosijska-raketa)

[Figure 18 here, see in Appendix-1]



The photos show the aftermath of the airstrike in areas located within a radius of 1000 m from the industrial-infrastructure areas. Sources: The Map of Recovery, dp.informator.ua.

On the 14th of January in 2023 has happened one of the most tragic and destructive airstrikes in the city was where a Russian missile hit a nine-story apartment building. As a result of the attack the entire block collapsed. Approximately 50 people have been killed and 79 were injured. The parts of the building around the epicentre have also got critical damages (around 149 apartments) which made the conditions in these apartments unsuitable for living there, according to the deputy head of the presidential administration⁶². Figure 19 shows that the hit building locates far away from any industrial areas. At the first point, it seems that there is no obvious connection between housing location and industrial areas in the city. To elaborate and understand the case of this particular airstrike, my research goes a bit broader. First of all the nearest area that might be for targeting in the city is the power plant across the Dnipro River on the east. Secondly, as shown in the previous cases, the Russian attacks which might be directed towards the industries are not precise and as a result, it hits the residential areas. So one of the possibilities is it might be said that the particular airstrike was targeting the nearest power plant but instead due to the inaccuracy of Russian weapons (see Figure 20) it hit the apartment building. Unfortunately, there is no official

⁶²https://t.me/tymoshenko_kyrylo.

conclusion from experts part regarding such military cases has not been made yet, so this is just a personal conclusion in understanding the relationship between hit residential objects and industrial areas during the war in Dnipro City. This case also doesn't exclude the possibility of intentional targeting by Russian occupation forces the residential objects. In any way, this does not excuse the unprovoked attacks by the Russian military on civilian cities.

[Figure 19 here, see in Appendix-1]



The photos show the aftermath of the airstrike in areas located within a radius of 2000 m from the industrial-infrastructural areas. Sources: dp.informator.ua. Hromadske.ua.



Figure 20 The size of the missile which hit the residential nine-storey apartment building in Dnipro on the 14th of January in 2023. Image source: <https://eu.usatoday.com/in-depth/graphics/2023/01/17/images-dnipro-apartment-attack-russian-missile/11068067002/>

Without additional professional expertise and investigation of airstrikes in Dnipro, it would be premature to say that the housing destruction and damage in the city happened only by because they close location to the industrial area, which is the potential target during the war. It is necessary to consider the possibility that Russian missiles, due to their inaccuracy, inadvertently hit residential buildings instead. Another important fact that could not be ignored is that Dnipro city locates quite far away from the war zone as it is presented in Figure 14 and still, the city is exposed to regular airstrikes (the current analysis clearly shows it). Nevertheless, the analysis represented on the maps shows that the arguments written above make sense when it comes to understanding the reasons for the housing crisis caused by the Russia-Ukraine war.

The summary of the study results of this analysis shows that:

1. The mapping of the areas hit due to airstrike shows that 11 of 13 accidents happened in the residential districts which are located in the 500-meter range from industrial areas. This fact draws the link between housing location and industrial areas in Dnipro city.
2. Combination of mapping analysis and research about housing destruction gives a clarity of understanding the scale of the crisis aspect provoked by war. The result of the analysis, reveals that the war has a significant impact on the housing crisis in the Dnipro case, namely: 1) the vanishing of residential housing and apartment buildings as a result of regular rocket shellings; 2) critical damage of the housing around the epicentres of the airstrikes forcing people to look for a new dwelling or shelter due to unsuitable or even dangerous (because of building collapse possibility) living conditions.

Bomb shelters study analysis.

The complex research approach to the housing crisis during the war must include not only aspects of the housing as it is usually studied considering the economic, political, social, architectural and city planning or rather say urban management aspects. In the period of destabilization in wartime, the research approach should go beyond traditional ways considering particularly the elements and events related to the war. As a non-military expert limited in certain information access (as the war still going), it is challenging to make a concrete statement regarding the direct relation of particular military activities like airstrikes (see paragraph *"Dnipro is under attack. Consequences and Analysis of the Airstrikes in the City in the Period of 2022 - 2023"*) to the housing crisis. In the Dnipro case study, I am trying to draw parallels between housing, crisis and war events to better understand what is housing crisis during the war in the Ukrainian city. Such an experimental study approach might be helpful to define which aspects might be important in the definition of this particular housing crisis.

The next step in the research is to look into a case of Bomb shelters in Dnipro. The Collins dictionary defines the bomb shelter as *"a shelter, usually underground, in which people take refuge from bomb attacks"*⁶³. The analysis of airstrikes in the previous chapter shows the catastrophic consequences of airstrikes on the housing sector so it illustrates the necessity of further elaboration in research of military aspects which in parallel might be considered as important elements in the current housing issue. During the war, bomb shelters play an important role as access to these structures becomes vital. As was said before, Dnipro city locates relatively far from the war zone but despite this, life there might be dangerous due to regular airstrikes. In this case, it could be said that the bomb shelters are an essential part of the housing infrastructure. The previous analysis of the relationship between residential districts, industrial areas and airstrikes shows that the location is a key variable in understanding the impact of war on the housing in Dnipro case study. With the same approach, I construct my analysis of the location relationship between housing and bomb shelters. The map in Figure 22 shows the location of all publically accessible bomb shelters in the city based on the official data from *The State Emergency Service of Ukraine in the Dnipropetrovsk region*⁶⁴ (marked with yellow dots). Important to notice that there are also bomb shelters located on the territories of industrial areas but since these shelters are with limited access only to the workers in these industries, so for this particular analysis they are not considered. In total there are 586 bomb shelter objects and each of them can hold 50-100 people. In

⁶³<https://www.collinsdictionary.com/dictionary/english/bomb-shelter>

⁶⁴https://www.google.com/maps/d/u/0/viewer?mid=1VT7MBpAXCVfa3_ToOzlovSpW5RRO3IWZ&ll=48.446365927357505%2C35.05057859407014&z=12

this case, the analysis shows that only from 29,300 to 58,600 (~3-6%) city citizens have access to shelter in the city with a total population of 968,502⁶⁵.

The State Building Regulations of Ukraine: Defence Structures of civil defence⁶⁶ defined that “The radius of the gathering of the population sheltering in storage facilities should be taken when building the territory with houses - min 500 meters and max 1000 meters in public access”. In this radius range people can take cover in the shelter within 15-20 minutes during an air alert. On this bases, the analysis regarding the location of bomb shelters in Dnipro and accessibility to them from surrounding buildings shows the results:

1. Within a radius of 500 meters there is access for 43,562 (it is 25.15% of the total number of buildings in the city of 173,196) to the marked shelters.
2. Within a radius of 1000 meters there is access from 72,250 (43,562 + 28,688) (it is 41.71% of the total number of buildings in the city of 173,196) to the marked shelters.

In the quantitative analysis, due to the lack of GIS data on the function of the building, which could allow division and calculation only for residential objects, buildings of all typologies are included in the analysis. Usually, people do not stay at home all the time but also visit public facilities (offices, shopping malls, supermarkets, shops, etc.), access to shelters must also be considered in any case due to the unpredictable possibilities of airstrikes.

The analysis of bomb shelters in Dnipro as a case study reveals that only a small portion, approximately 3-6% of the city's population, can be accommodated in shelters. Additionally, less than half of the city's area has shelters located within the safe range of 500-1000 meters.

Examining the situation in Dnipro during the war, several factors emerge. Firstly, despite the city being distant from the frontlines, it was still subjected to missile attacks from Russia. Secondly, the process of urbanization and city growth, which was initiated by industrialization in the 20th century, played a significant role during the war. This connection can be seen in the destruction of residential areas near industrial zones, contributing to the current housing crisis highlighted in the analysis of the consequences and airstrikes in the city between 2022 and 2023. Lastly, the study of bomb shelters in the city reveals a lack of such protective structures. Given their crucial role in ensuring housing safety during the Russia-Ukraine war, the absence of these shelters leaves the local population unable to protect themselves. As a result, the

⁶⁵ Statistics Ukraine, Number of Present Population of Ukraine by January 1, 2022.

⁶⁶ State building regulations of Ukraine. Buildings and structures. Defence structures of civil defence. DBN V.2.2-5-97, 2019

shelling not only leads to the destruction of homes but also turns housing into a dangerous environment for its residents, resembling a tomb.

[Figure 21 here, see in Appendix-1]

The analysis of bomb shelters shows that the lack of shelters in the Dnipro is one of the main problems of the city in the current wartime. To increase the number of shelters, the city authorities decided to create temporary modular concrete bomb shelter structures (see Figure 23), which were installed near public places (usually the structures are located near new public transport stops). The shelter is made of strong reinforced concrete and can accommodate up to 18 people to protect people from debris and cluster shells in the event of shelling.⁶⁷ It is hard to say how efficient are these new structures at the current moment. But the idea of modular construction as a quick temporary solution is similar to what has been assembled for IDPs in 2014-2015. Drawing the parallels between these two aspects - modular shelter and modular housing - could be helpful practice in analysing such new initiatives. The experience of implementation of modular (container) housing shows that "nothing is as permanent as temporality". The failed practice of container housing teaches us that:

- 1) Fast, poorly managed and cheap future-proof design solutions do not solve the real problem(s) and instead create others;
- 2) Lack of research and analysis leads to a misunderstanding of the essence of the problem, which leads to incorrect and ineffective solutions;
- 3) Such quick decisions allow politicians and city authorities to use such projects in personal interests as a political tool. This approach helps them demonstrate the illusion of success in solving certain problems.



Figure 23. The photo of the temporary modular bomb shelter structure in Dnipro.

Source:

<https://espreso.tv/u-Dnipri-vstanovili-Mobilni-bombosk-Hovishcha-na-zupinkakh-foto>

Strategies, plans and visions of housing development in Dnipro.

⁶⁷ Oleg Besarab, 2022. "Mobile bomb shelters were installed at bus stops in Dnipro" — ua.news <https://ua.news/ua/ukraine/foto-v-dnepre-na-ostanovkah-ustanovyly-mobylnye-bomboubezhyshha>

Section II. Conclusion

In conclusion, the research on the housing crisis in Ukraine during the ongoing war holds significant importance for understanding the complex dynamics and consequences of wartime. The geographical location of Dnipro and the Dnipropetrovsk oblast as strategic and infrastructural hubs near the frontline has made it a transit area between the peaceful western part of Ukraine and the war-affected southeast. The analysis of maps and geographical data helps visualize the proximity of the region to the frontline and the areas that were occupied and later liberated during the war.

The analysis of IDP distribution in Dnipro and Dnipropetrovsk oblast provides valuable insights into the areas requiring greater attention in terms of housing and shelter provision. Factors such as the economic prosperity of cities, geographical safety, and financial capabilities of IDPs influence their choice of resettlement destinations. Understanding these factors and their implications is crucial for addressing the housing crisis and supporting the displaced population. The research sheds light on the challenges faced by local authorities and governments in managing the housing needs of IDPs. It also highlights the importance of assessing the impact of territorial changes and control by Ukraine or Russian occupation forces on housing destruction, IDP migration, and the reactions of local municipalities. By examining the housing crisis from the perspective of IDPs and the specific dynamics of the war, this research contributes to a deeper understanding of the challenges faced by affected individuals and communities. It provides valuable insights for policymakers, humanitarian organizations, and researchers to develop targeted interventions, formulate effective policies, and promote sustainable solutions for housing and shelter provision.

The occupation of Crimea and the beginning of the war in the Donbas and Luhansk regions in 2014 had significant impacts on housing provision in the Dnipropetrovsk region. The region, which later received the status of an Anti-Terrorist Operation Zone (ATO), experienced a mass exodus of over 1.5 million people from the ATO zone in 2014-2015, with the majority of internally displaced persons (IDPs) registered in Eastern Ukraine. The flow of capital investments in housing construction decreased significantly in 2014, particularly in the eastern regions, likely due to the negative impacts of the war.

The temporary container settlements for internally displaced persons (IDPs) in Ukraine, established in 2014, have not provided a long-term solution for the housing needs of the displaced population. The example of container villages for displaced Ukrainians highlights the importance of recognizing that temporary housing solutions cannot adequately address the long-term needs of displaced populations. The scale of the crisis has significantly increased since the beginning of the war, with a substantial rise in the

number of registered IDPs. The demand for new dwellings has multiplied several thousand times, indicating a pressing need for effective and sustainable housing solutions.

The dangerous conditions in the occupied territories and in the areas of the war zone have compelled residents to evacuate to safer settlements within the Dnipropetrovsk Oblast, leading to an increased influx of internally displaced persons (IDPs) in need of shelter and new dwellings. The research on the housing crisis during the war emphasizes the underlying issues such as the lack of social and affordable housing, rent price speculation, insecurity of tenant rights, insufficient governmental social programs, corruption, law violations, job losses, financial instability, and frequent destruction caused by airstrikes. These factors collectively contribute to the housing crisis experienced in the Dnipropetrovsk Oblast and Dnipro City.

Recognizing the specific challenges facing the Dnipropetrovsk region and implementing targeted measures can mitigate the housing crisis and create a foundation for recovery and future development of the region. This requires a commitment to address the root causes of the crisis and to prioritize the rights and well-being of the affected population throughout the reconstruction process.

Analysis of the housing crisis in the Dnipropetrovsk region, in particular in the city of Dnipro, reveals the strong impact of airstrikes and drone attacks on residential buildings. The analysis shows a correlation between the location of residential buildings and industrial areas, it is important to note that the exact reasons for airstrikes and the deliberate targeting of residential properties remain unclear. Further investigations and expertise are required to obtain final conclusions. Nevertheless, it is clear that the city of Dnipro, despite its distance from the war zone, continues to suffer regular airstrikes, exacerbating the housing crisis.

The study of the situation in Dnipro during the war highlights the impact of urbanization and urban growth, with the destruction of residential areas near industrial zones causing a housing crisis. In addition, the lack of bomb shelters turns housing into a dangerous environment for residents. The lack of protective structures makes the population vulnerable to shelling, which leads to the destruction of houses and threats to life. The analysis of bomb shelters contributes to reflection on how the city is managing to respond to the crisis. The efficiency and effectiveness of the new temporary modular concrete bomb shelter structures remain uncertain.

Overall, the analysis underscores the urgent need to address the housing crisis in Dnipro and emphasizes the importance of comprehensive strategies that prioritize the safety, well-being, and rights of affected residents. By addressing the root causes of the

crisis and implementing targeted interventions, it is possible to alleviate the suffering and provide a foundation for recovery and resilience in the region.

Section III.

Dealing with housing crisis: vision.

Overall, the analysis underscores the urgent need to address the housing crisis in Ukraine, particularly in Dnipro and emphasizes the importance of comprehensive strategies that prioritize the safety, well-being, and rights of affected residents. By addressing the root causes of the crisis and implementing targeted interventions, it is possible to alleviate the suffering and provide a foundation for recovery and resilience in the region.

Need for revision of housing policies and strategies in Ukraine.

By implementing comprehensive policies and strategies along with improving the existing ones, the housing recovery and development could proceed towards ensuring adequate and affordable housing for its population, promoting a balanced and sustainable housing market, and addressing the existing housing disparities.

To address these housing challenges in Ukraine there is a need to target housing assistance and social programs, a focus on developing social and affordable housing as well as the rental sector, and efforts to reduce the social stigma associated with renting. A comprehensive understanding of migration patterns and extended family living arrangements is also necessary to accurately assess housing needs. Reforms in the mortgage lending market should aim to build trust, improve liquidity, and effectively evaluate lending risks.

“The updated housing policy must centre the person and their needs.”⁶⁸

The primary focus of the revised housing policy should be on prioritizing individuals and their requirements. Ensuring that every person has a secure place to live should be the ultimate objective of housing policy. The state's housing policy needs to establish and enhance housing models that best cater to the diverse needs and financial capabilities of individuals. It is essential to move away from exclusively promoting private homeownership since it is not feasible or desired by everyone. The government should strive for a balanced approach, facilitating various housing provision mechanisms outlined in the Ukrainian Constitution, including not only home purchases but also construction and rental options. Achieving this goal will require not only the restoration of the damaged housing stock but also a comprehensive update of the state housing policy to avoid the recurrence of existing problems and risks.

⁶⁸ “Cedos. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it”, p.31, (2022).

In order to prioritize those in need, the reconstruction endeavours should give utmost importance to providing quality and comfortable housing. It is crucial to acknowledge that the primary aim of ensuring comfortable housing extends beyond the mere restoration of lost property, particularly real estate. There are many individuals who currently require homes but did not possess any housing before the extensive conflict took place. Conversely, some of the damaged properties were previously unoccupied, diminishing the urgency of their reconstruction for the purpose of restoring housing access. As a result, the main focus should be on addressing the immediate housing needs of individuals, rather than solely concentrating on property restoration.

It is extremely important to create a mechanism for the accumulation of funds aimed at maintaining and repairing the housing stock. This can be achieved by considering options such as the restoration of compulsory contributions or the introduction of compulsory home insurance. In addition, it could be necessary to resolve the issue of management of apartment buildings, starting with the appointment of managers for those where the management structure is not defined. Improving the housing stock management system is crucial for cost optimization and ensuring a comfortable standard of living throughout the life of the buildings. In addition, prioritizing energy efficiency is the most financially viable approach to reducing resource use. This change will lead to significant reductions in energy consumption for heating and cooling, conservation of energy resources, lower utility costs for residents and reductions in greenhouse gas emissions related to building operations. *“New construction and renovation should follow human-centred principles, promote social and physical inclusivity, prioritize gender sensitivity, and adopt transit-oriented planning.”*⁶⁹

Governmental support of the rental sector and protection of tenants' rights

The research in the first section states that the rights of both tenants and landlords in Ukraine are poorly protected, with most conflicts being resolved directly between the parties involved without resorting to legal intervention. The lack of policies for the development and protection of the rental sector has hindered many people from experiencing a fulfilling life in rental housing. One approach to achieving this objective is through rent regulation, such as implementing rent caps for different regions, limiting annual rent increases within the same agreement, or employing other mechanisms. In the short term, implementing a moratorium on evictions from rental housing, especially during periods of martial law, can serve as a potential solution.

⁶⁹ “Cedos. 37 theses about the current state, challenges and principles of the new housing policy in Ukraine. How to create affordable, quality and safe housing for everyone who needs it”, p.35, (2022).

Supporting the rental sector can be a viable strategy for addressing the current housing crisis. Transitional solutions worth considering include providing state subsidies (vouchers) for renting from individuals, publicly insuring properties owned by landlords who offer them at discounted rates, and establishing social rental agencies that enter into long-term agreements with landlords and sublet housing units to individuals in need. International experience and the results of survey^{70 71} show that housing rental could effectively provide places of living to a large number of households.

Implementing effective social housing programs

The key focus should be on meeting the urgent needs of different groups, starting with those who lack any resources, followed by individuals who can afford rent but need assistance in purchasing a home. Establishing a coordinated approach and a system of priorities is crucial for effective resource utilization. The government's primary responsibility should be to invest funds in the creation and development of social and non-profit housing programs. Additionally, alternative ownership models such as cooperatives and support for first-time homebuyers should be encouraged. Reforms in state housing programs and taxation mechanisms are necessary to facilitate the growth of affordable housing while preventing speculative investments in real estate. Finally, it is vital to cease the practice of free-of-charge privatization of housing, ensuring that units funded by the budget or international donors remain non-profit and ineligible for privatization⁷².

It is crucial for the government to not only regulate and support the private rental sector but also focus on developing the non-profit rental housing sector in the long term. This can be achieved through the ownership of housing by public institutions, cooperatives, and private non-profit organizations that receive public subsidies.⁷³ Ukrainian legislation already recognizes the importance of "social" and "temporary" housing stocks managed by local governments. The government should establish and implement programs that facilitate the regular expansion of these housing stocks. Additionally, the government can provide assistance to private non-profit organizations entering the housing market through subsidies and tax credits.

⁷⁰ Cedoss, Natalia Lomonosova, Pavlo Fedoriv: "Public Housing Policy in Ukraine: Current State and Prospects for Reform", (2019)

⁷¹ Michael Klein, "Models and Solutions, Life and Practice in Social Housing in Vienna".

⁷² Aalbers, M. B., & Christophers, B. "Centring Housing in Political Economy," Housing, Theory and Society, (2014).

⁷³ Cedoss, Natalia Lomonosova, Pavlo Fedoriv: "Public Housing Policy in Ukraine: Current State and Prospects for Reform", (2019)

Improving the administration of the property tax and reforming the tax base might be the necessary steps.⁷⁴ A property tax is considered favourable because of its limited impact on economic behaviour and its stability. This is hard to avoid because properties cannot be moved. Administering the tax at the local level and providing a significant portion of it to local budgets gives greater autonomy to local governments, encouraging investment in infrastructure. Using residential property tax revenue to improve infrastructure benefits, local taxpaying residents. Tax reform will ensure that communities receive fair income from land plots provided for development, as well as contribute to the effective use of real estate and increase the amount of rent. The introduction of a progressive vertical real estate taxation system, based on the assessed value of the property, and not on square meters, is a potential principle for renewing the housing policy and increasing revenues for local budgets.

...“Nothing is as permanent as temporality”.

The shortcomings of the container settlements underscore the weaknesses, threats, and major problems within the housing sector in Ukraine. It is crucial to learn from this experience and explore alternative approaches that prioritize durable, integrated, and inclusive housing solutions for IDPs. By addressing these challenges, Ukraine can better support the displaced population and provide them with the stability and dignity they deserve in their new homes.

A global approach through local actions.

Addressing the housing crisis in the specific region (oblast) requires comprehensive and coordinated efforts from both local and national authorities. It is crucial to prioritize the provision of safe and sustainable housing solutions for IDPs, as well as improving social housing programs and combating corruption and speculation in the housing market. Additionally, efforts should be made to restore and rebuild the affected areas, ensuring the availability of essential services and infrastructure to support the well-being and livelihoods of the residents.

Solving the housing crisis requires a response from local and state authorities. Victims of airstrikes need immediate support, including financial assistance and assistance in finding alternative housing. Efforts should also be focused on the reconstruction and rehabilitation of damaged areas, implementing measures to protect residential buildings and improving the accuracy of intelligence gathering to minimize civilian casualties.

As an initial step which could be taken is to assess the damaged housing stock and determine the extent of losses. A comprehensive audit should be conducted to

⁷⁴ Slack, E., & Bird, R. M., “The political economy of property tax reform.”, (2014).

understand the types of housing in Ukraine and identify vacant units for temporary accommodation. Restoring technical documents and centralized data collection is important, along with substantial reforms to the residence registration system as well as reinstating centralized data collection and registration of individuals in need of housing. This includes not only those who have lost their homes due to war but also those who were homeless prior to the Russian invasion. Conducting a census and housing inventory is necessary to gather reliable data for problem-solving and evaluating previous policies.

In addition, preventive measures should be taken to increase the security of residential areas and mitigate the consequences of future attacks. This includes strengthening infrastructure resilience, improving early warning systems and supporting international humanitarian norms to prevent unprovoked attacks on civilian cities.

Conclusion

The current war has exposed the weaknesses, threats, and major problems within the housing sector in Ukraine. It is evident that relying solely on modular houses as the sole solution is insufficient. Lessons must be learned from the unsuccessful implementation of these temporary housing in order to address the housing needs of IDPs effectively and develop sustainable long-term housing solutions that prioritize the well-being and integration of displaced individuals.

Conclusion

Addressing the housing crisis in Ukraine requires a comprehensive and coordinated approach. It is crucial to prioritize the safety, well-being, and rights of affected residents in Dnipro and other regions. This can be achieved through the development and implementation of updated housing policies and strategies that cater to the diverse needs of the population. Engaging citizens in urban planning decisions and ensuring their participation at all stages is essential. Efforts should be made to simplify construction procedures without compromising labour rights and reducing public participation. Additionally, supporting the rental sector, implementing social housing programs, and improving property tax administration are vital steps towards resolving the crisis. Learning from past experiences and exploring alternative, durable, and inclusive housing solutions is necessary to provide stability and dignity to internally displaced persons. Local and national authorities must collaborate to rebuild damaged areas, restore essential services, and protect residential buildings. By addressing the root causes and implementing targeted interventions, Ukraine can alleviate the housing crisis and lay the foundation for recovery and resilience in the region.

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Mapping out the dual crisis of war and housing in Dnipro, Ukraine.

Appendix-1

*Oleksandr Nenenko
MSc Urban Studies
Master Thesis*

*Estonian Academy of Arts
Supervisors: Sean Tyler and Keiti Kljavin
May 29th, 2023*



Figure 1. Comparison of satellite photos of Dnipro city in 1941 on the left and 1982 on the right.

Map and analysis were done by the author. Source of the satellites: <https://oldmaps.dp.ua/?leftmap=150841&rightmap=251082#14/48.4356/35.0003>



May 2022

Figure 4. The map shows the number of IDPs per Oblast from 16 to 31 May 2022. A graphic map was made by the author, and data about IDPs based on IOM reports; frontline, occupied and liberated areas based on Deep State UA resources.



Figure 5. The map shows the number of IDPs per Oblast from 19 to 30 September 2022. A graphic map was made by the author, data about IDPs based on IOM reports; frontline, occupied and liberated areas based on Deep State UA resources.

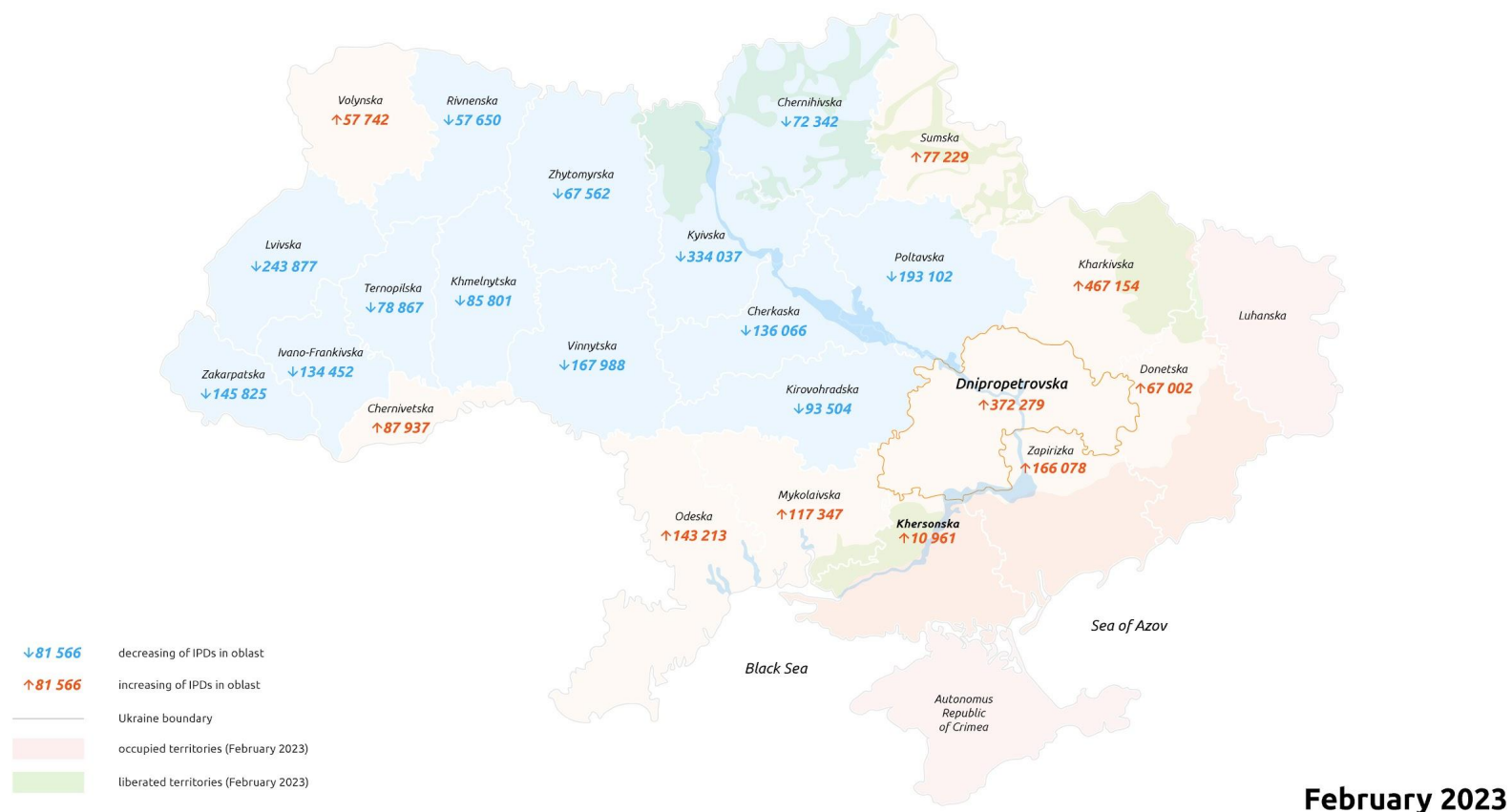
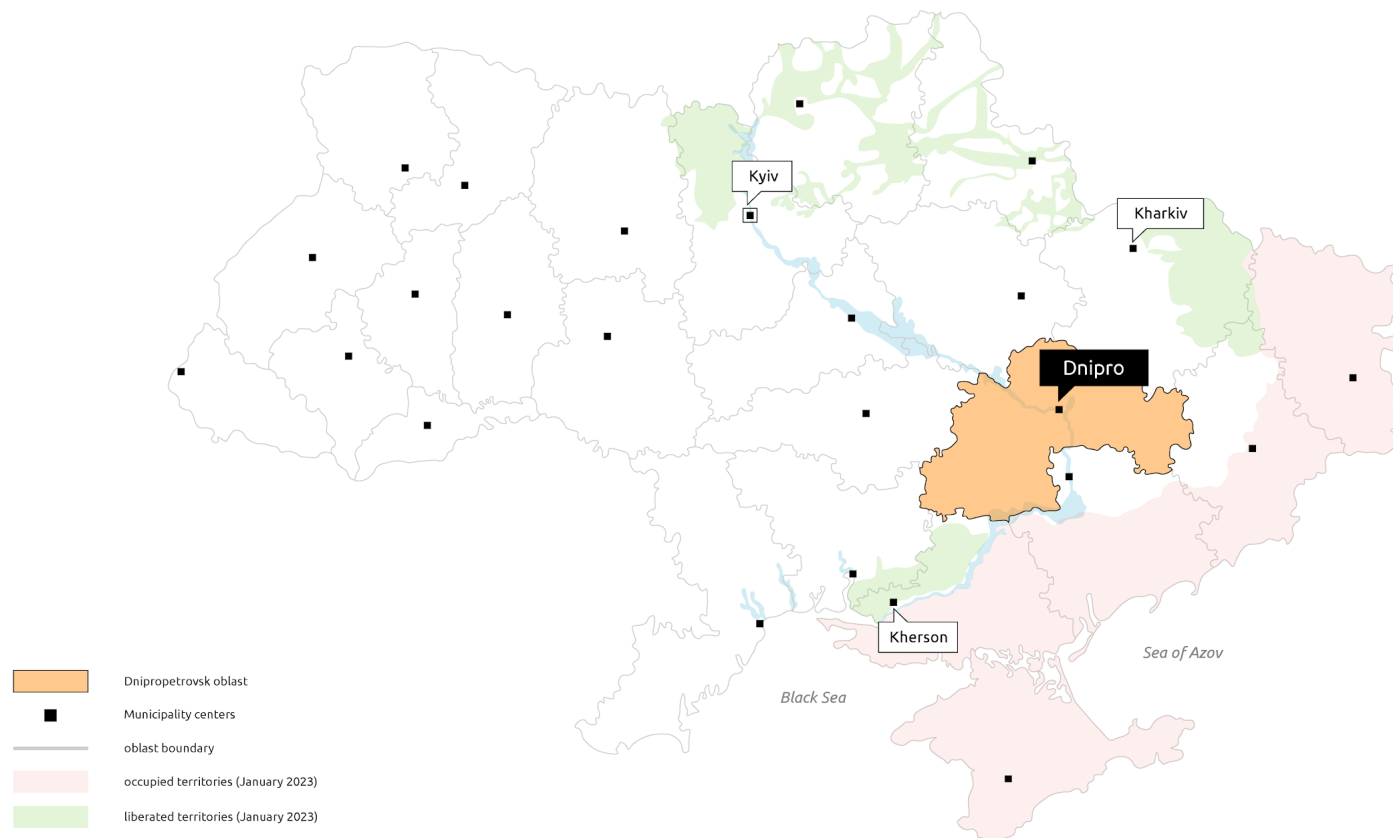


Figure 6. The map shows the number of IDPs per Oblast from 1 to 28 February 2023. A graphic map was made by the author, data about IDPs based on IOM reports; frontline, occupied and liberated areas based on Deep State UA resources.



*Figure 9. Contextualize Dnipro city and Dnipropetrovsk oblast on the map of the Russia-Ukraine war.
Map and analysis were done by the author.
Used sources: Deep State UA.*

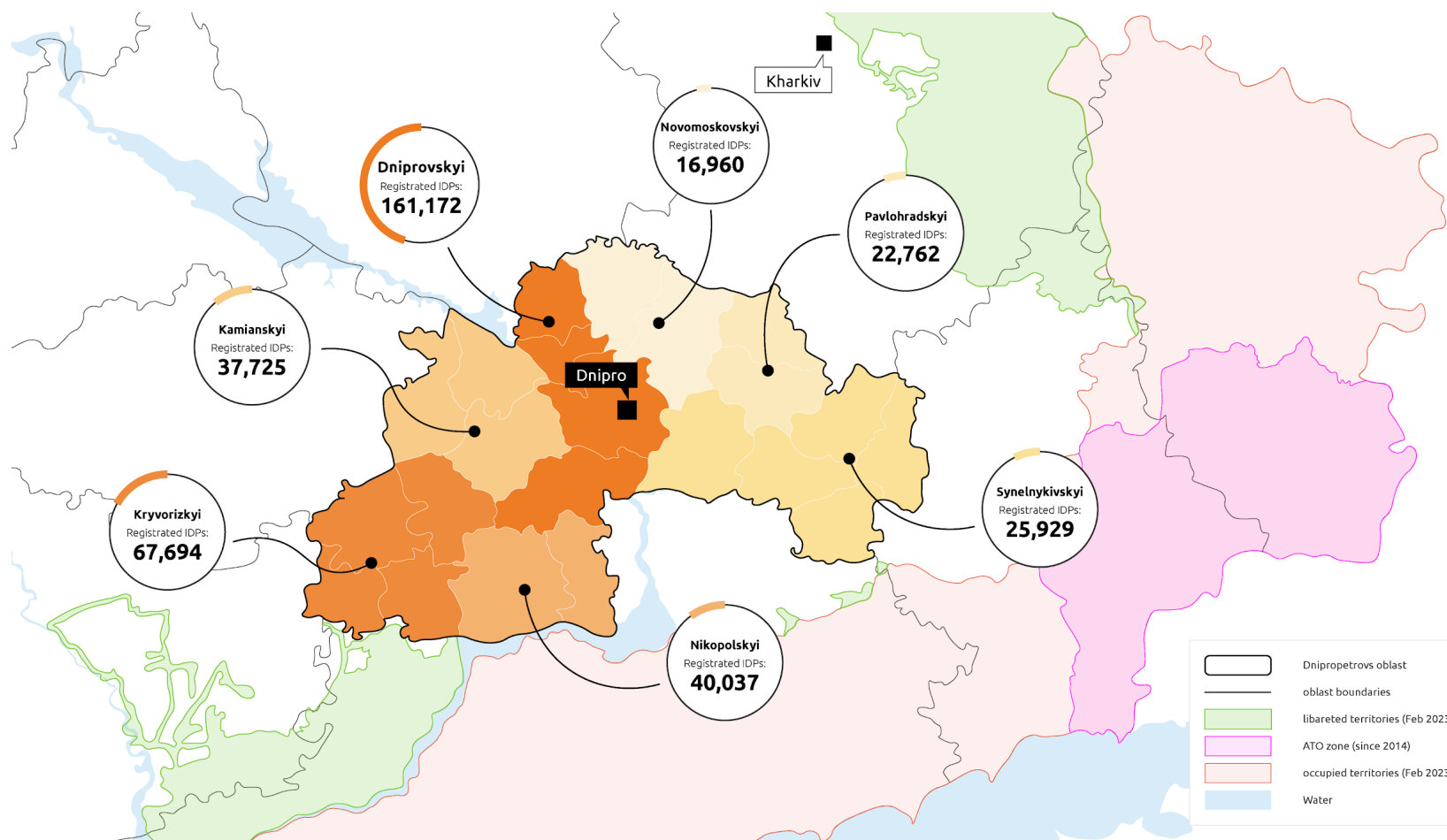


Figure 10. The number of registered Internally Displaced Persons per Raion of Dnipropetrovsk oblast in February 2023. The graphical map and analysis were done by the author.

Used sources: Deep State UA, UN Migration report from February 2023, Dnipropetrovsk Regional State Administration¹

¹ Dnipropetrovsk Regional State Administration, web source:

<https://adm.dp.gov.ua/pro-oblast/rozvitok-regionu/decentralizaciya/obyednani-teritorialni-gromadi-u-mezhah-novostvorenih-rajoniv-oblasti>

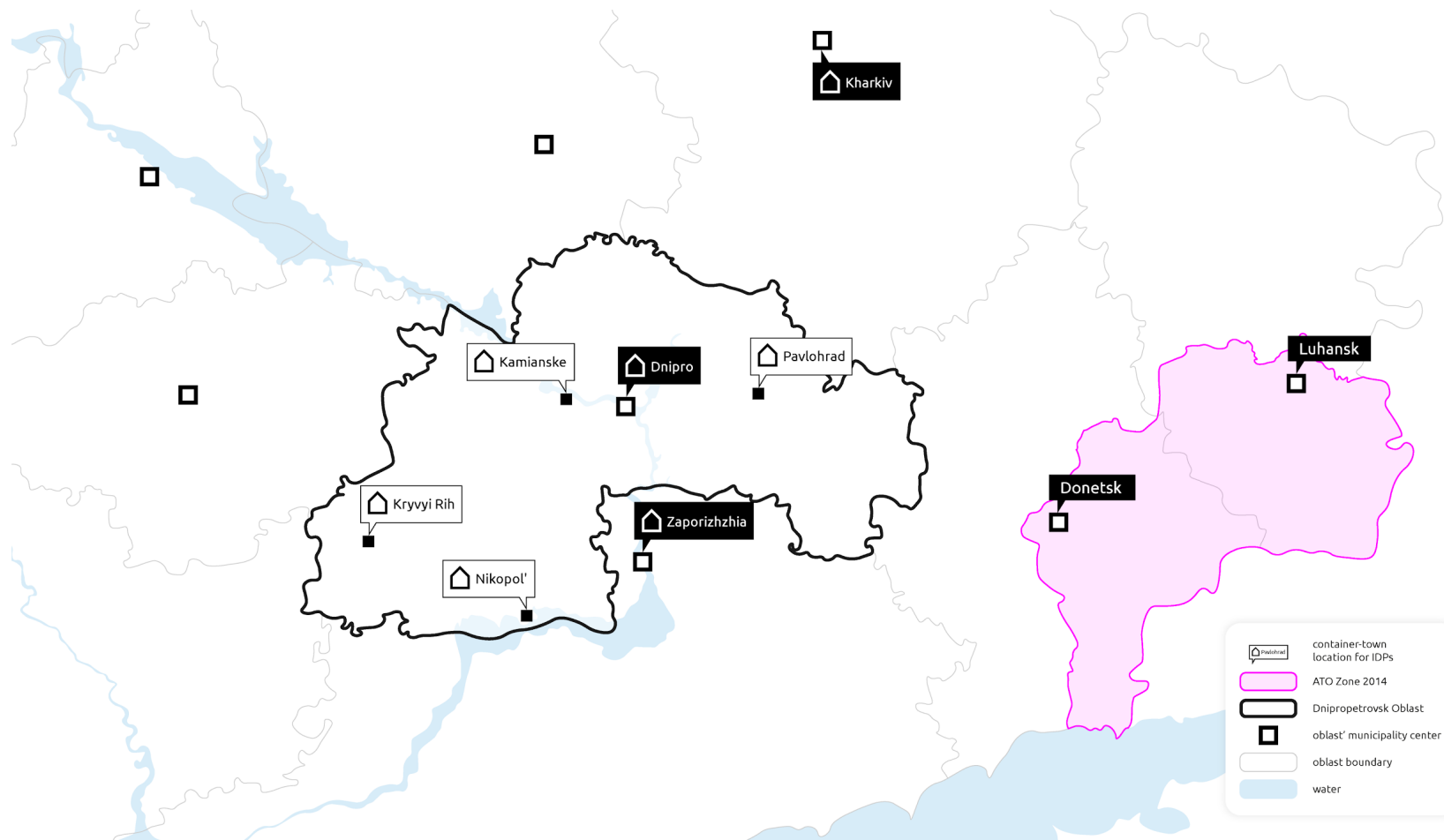


Figure 14. The mapping of the locations of the contemporary container housing created for IDPs from the Donbas area in 2015. Geographical elaboration on the relation between occupied areas and displaced people resettlement. The graphical map and analysis were done by the author. Used sources: DeepStateUA.

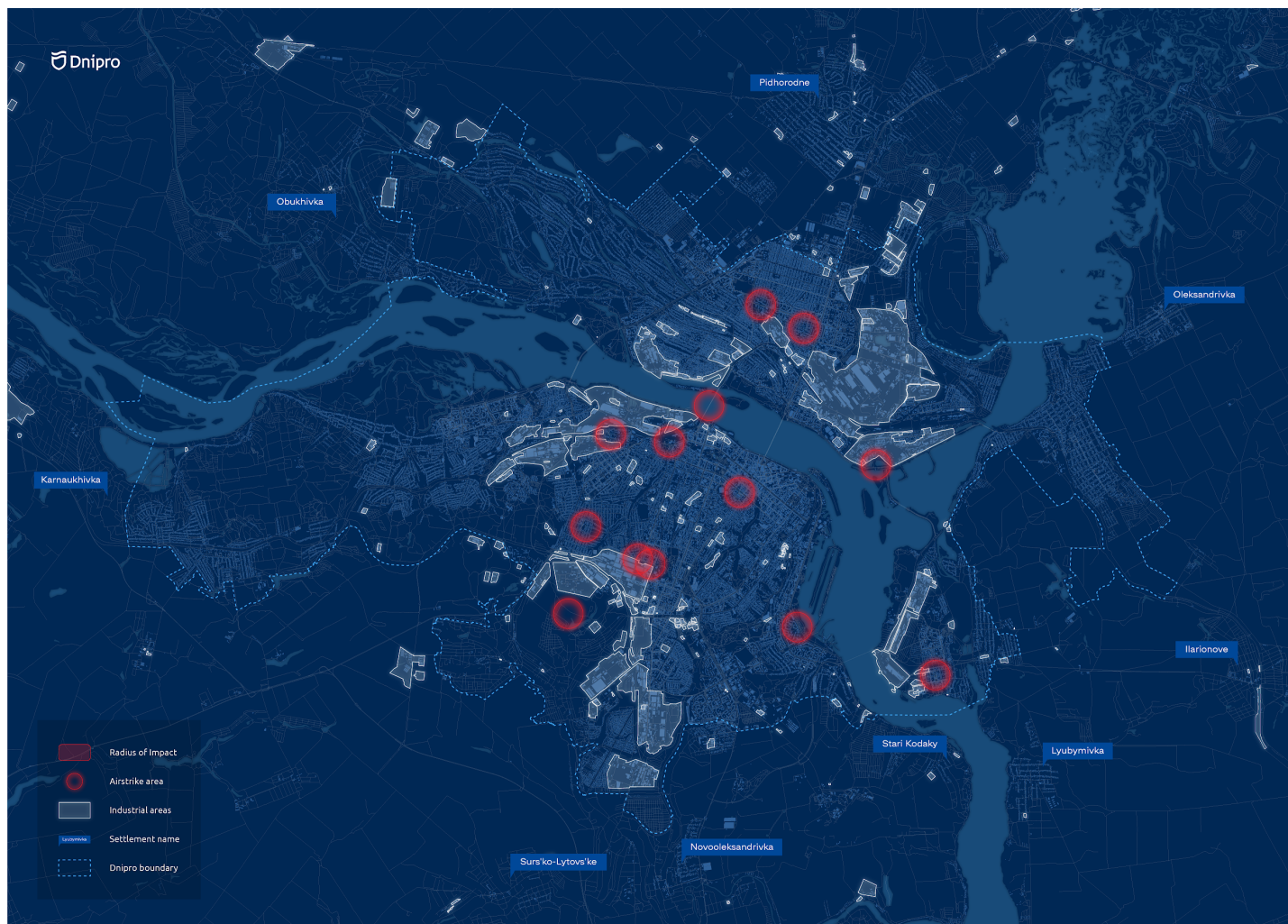


Figure 15 shows the analysis on the map of Dnipro of the approximate airstrike locations in the city and the relation to industrial-infrastructural areas. The graphical map and analysis were done by the author.

Used sources: OpenStreetMap, The Map of Recovery, Map of Cultural Losses.

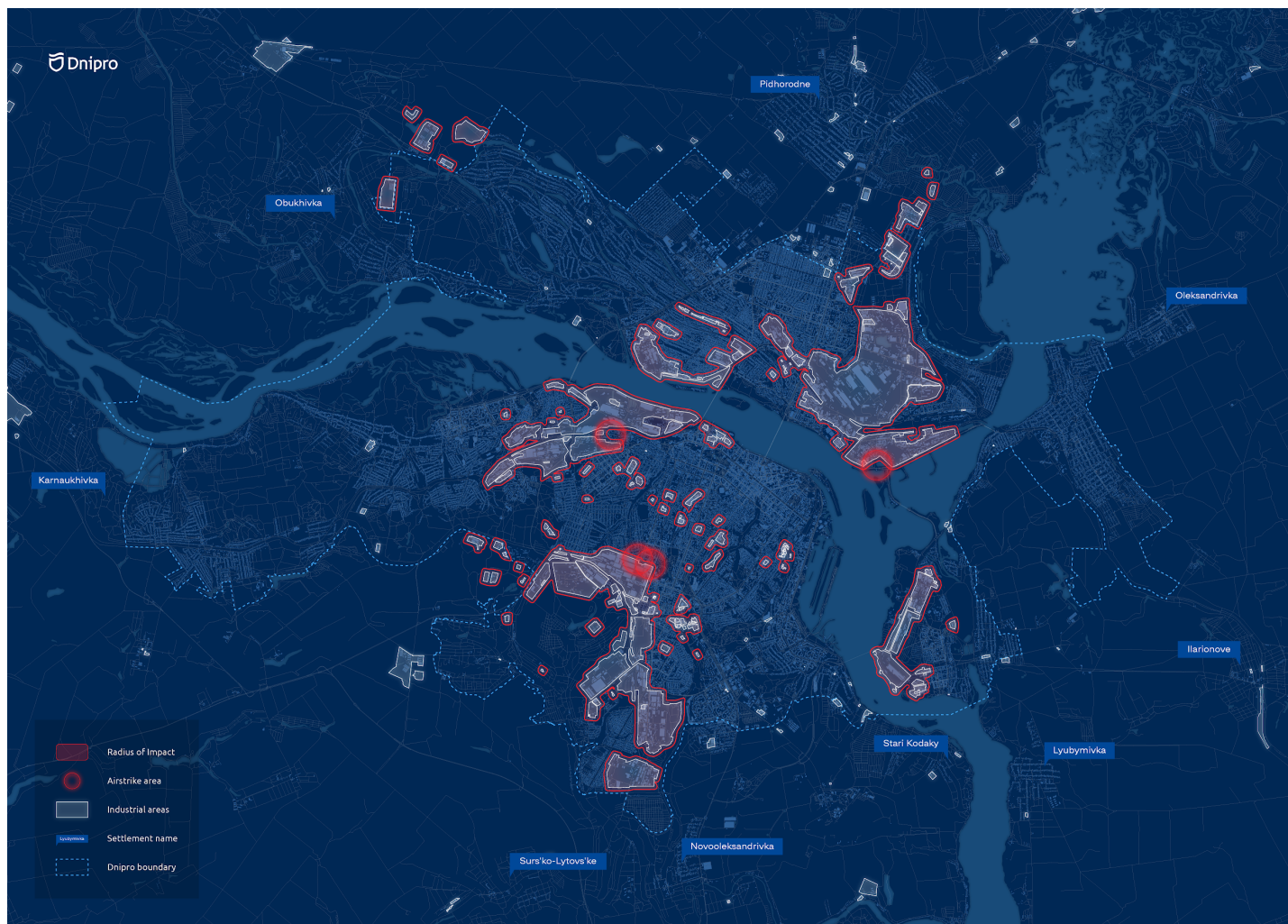


Figure 16 shows the analysis on the map of Dnipro of the approximate 4 airstrike locations in a radius of 100 m from the industrial-infrastructural areas. The graphical map and analysis were done by the author. Used sources: OpenStreetMap, The Map of Recovery, Map of Cultural Losses.

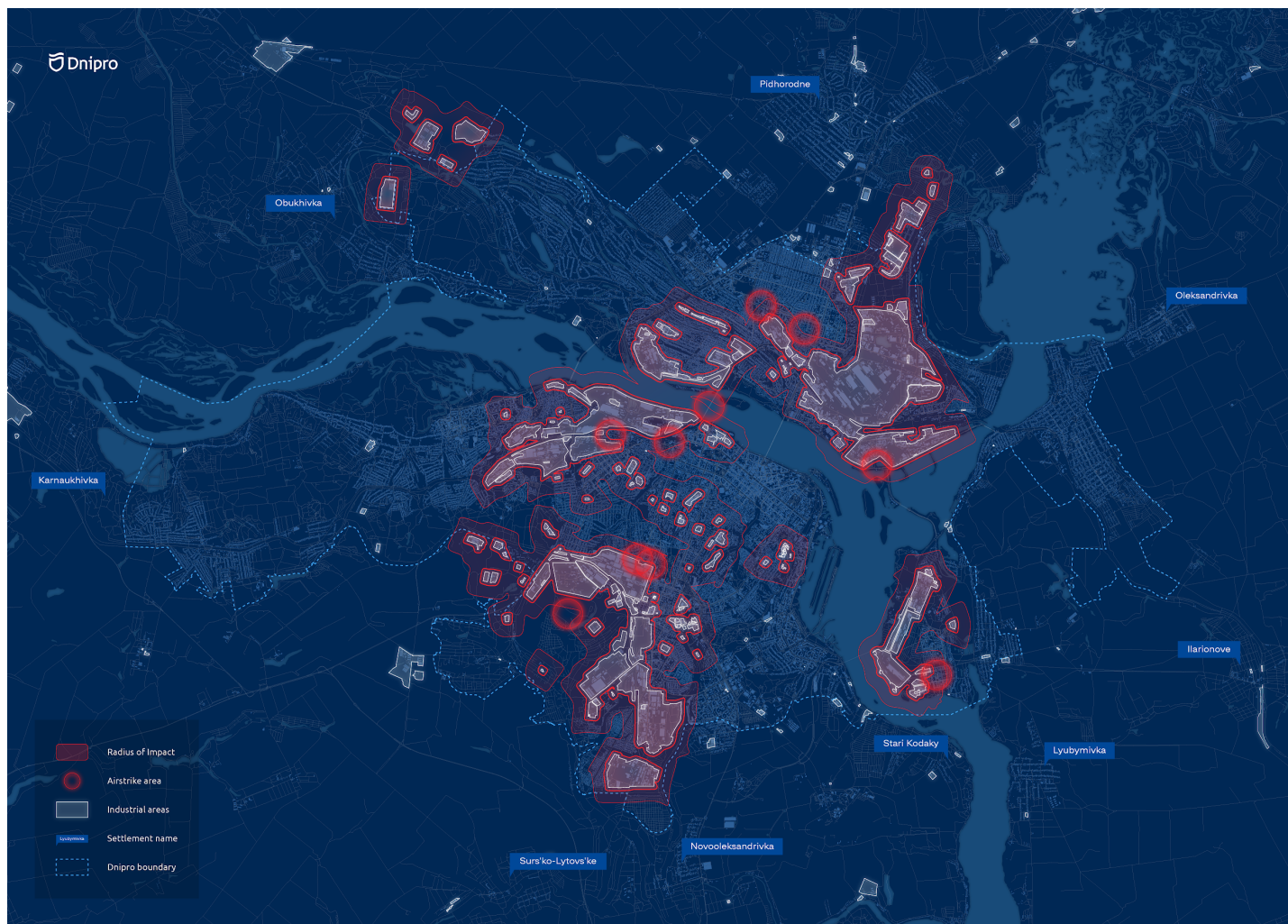


Figure 17 shows the analysis on the map of Dnipro of the approximate +6 (in total 10) airstrike locations in a radius of 500 m from the industrial-infrastructural areas.

The graphical map and analysis were done by the author.

Used sources: OpenStreetMap, The Map of Recovery, Map of Cultural Losses.

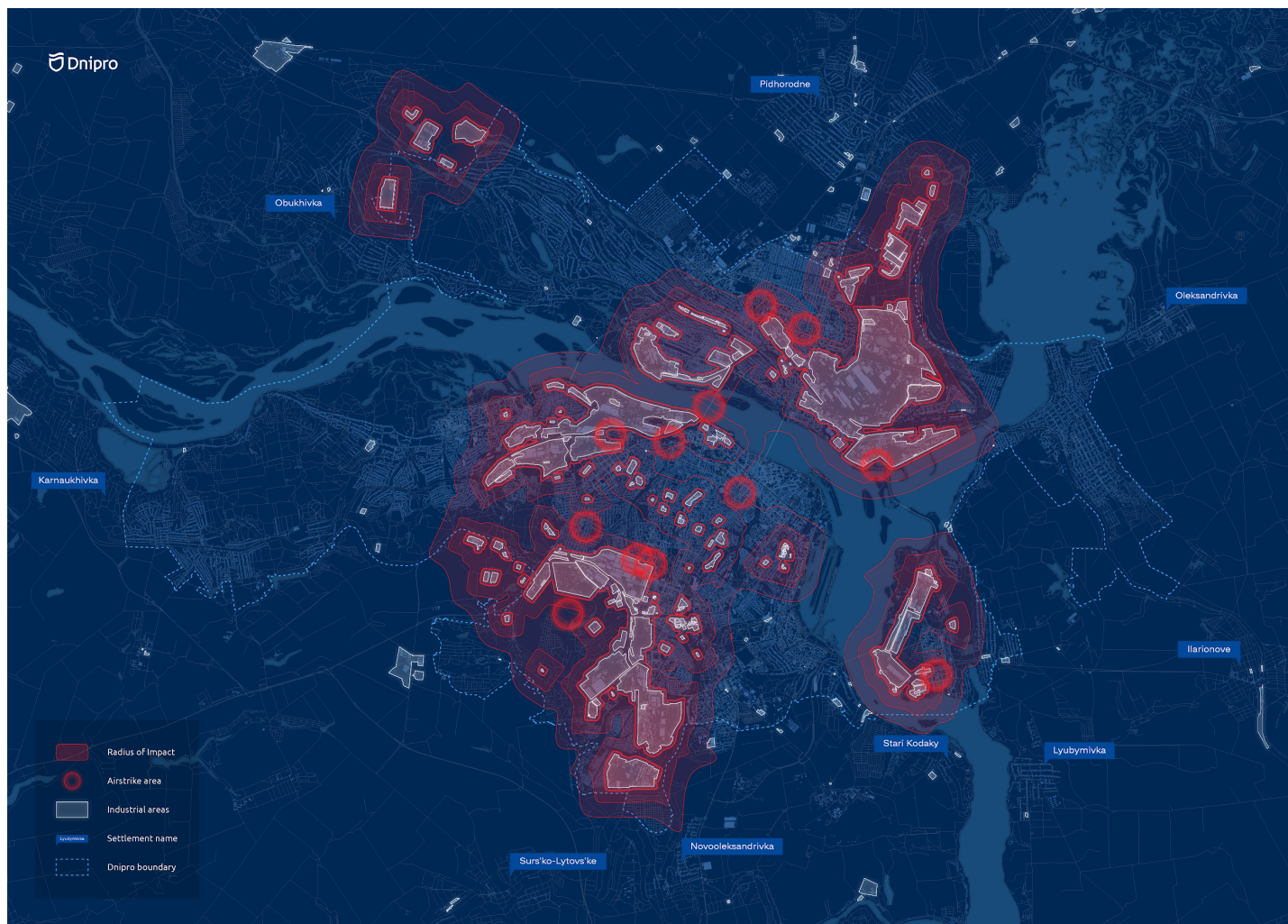


Figure 18 shows the analysis on the map of Dnipro of the approximate +2 (in total 12) airstrike locations in a radius of 1000 m from the industrial-infrastructural areas.

The graphical map and analysis were done by the author.

Used sources: OpenStreetMap, The Map of Recovery, Map of Cultural Losses.

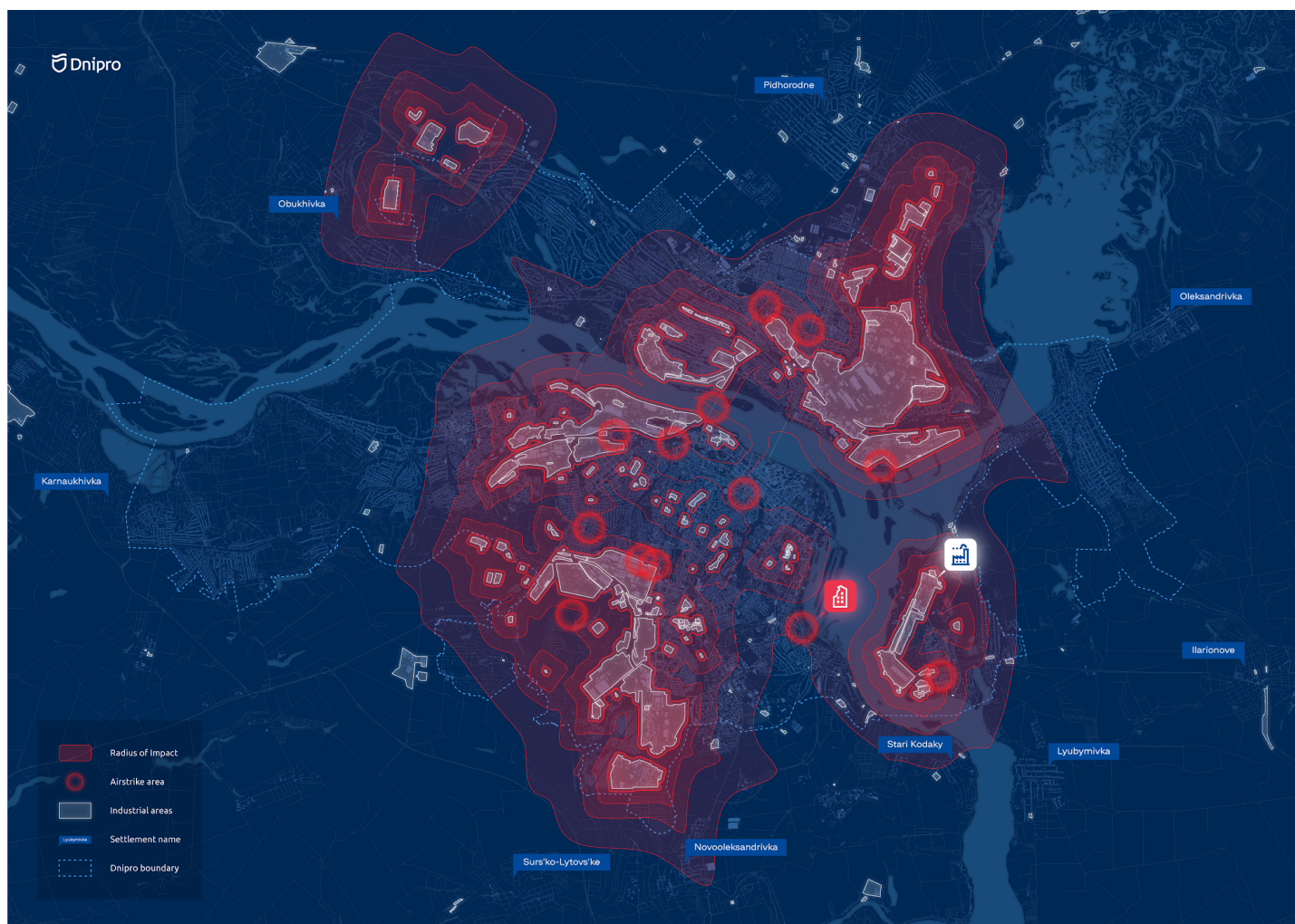


Figure 19 shows the analysis on the map of Dnipro of the approximate +1 (in total 13) airstrike locations in a radius of 2000 m from the industrial-infrastructural areas.

The graphical map and analysis were done by the author.

Used sources: OpenStreetMap, The Map of Recovery, Map of Cultural Losses.

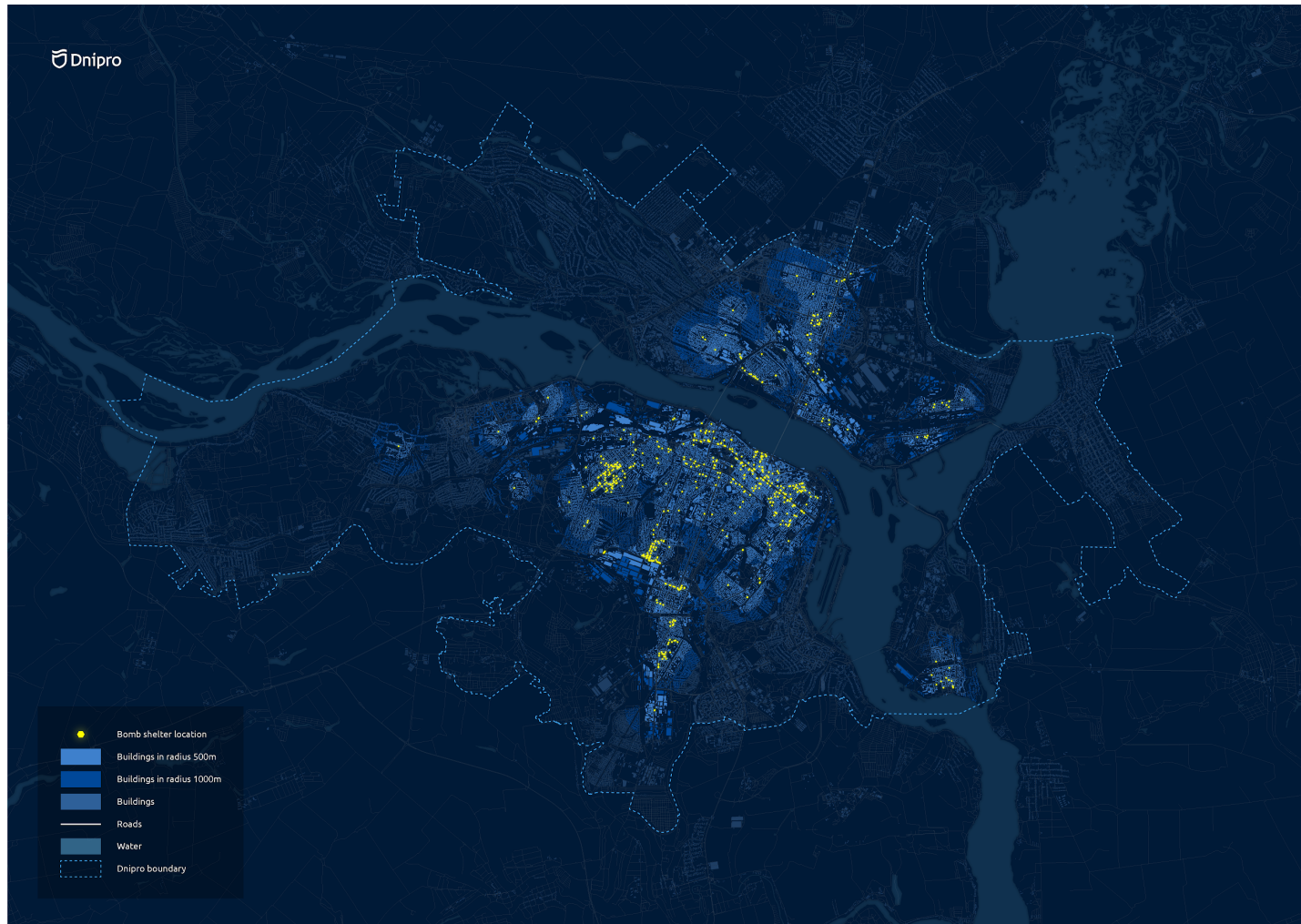


Figure 21 shows the analysis regarding the location of bomb shelters in Dnipro and accessibility to them in a radius of 500m and 1000m from surrounding buildings. The graphic map and analysis were done by the author. Used sources: OpenStreetMap, The State Emergency Service of Ukraine in the Dnipropetrovsk region regarding shelter locations.^{2 3}

² State building regulations of Ukraine. Buildings and structures. Defence structures of civil defence. DBN V.2.2-5-97, (2019)

³ https://www.google.com/maps/d/u/0/viewer?mid=1VT7MBpAXCVfa3_ToOzlovSpW5RRO3IWZ&ll=48.446365927357505%2C35.05057859407014&z=12