

DOI: 10.31319/2709-2879.2024iss1(8).306388pp43-48
UDC 365:640

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**THE STATE OF HOUSING AND COMMUNAL SERVICES IN UKRAINE AND THE
ASSOCIATION OF CO-OWNERS OF AN APARTMENT BUILDING ARE NECESSARY
CONDITIONS FOR ITS STABLE FUNCTIONING**

**СТАН ЖИТЛОВО-КОМУНАЛЬНОГО ГОСПОДАРСТВА В УКРАЇНІ ТА ОБ'ЄДНАННЯ
СПІВВЛАСНИКІВ БАГАТОКВАРТИРНОГО БУДИНКУ ЯК НЕОБХІДНА УМОВА
ЙОГО СТАБІЛЬНОГО ФУНКЦІОНУВАННЯ**

This article examines the state of the housing and communal sector during the military conflict between Ukraine and Russia. It is noted that military actions have led to the destruction of buildings and engineering communications, which has complicated the normal functioning of the housing and communal infrastructure. The article thoroughly investigates the direct and indirect losses inflicted on this sector, including the cost of destroyed objects and expenses for restoration. The text outlines the problems in the housing and communal sector, including outdated equipment, inefficient management, and lack of market competition. It suggests that creating associations of co-owners of multi-apartment buildings (HOAs) may be the most effective solution. HOAs can improve management, reduce maintenance costs, and enhance the quality of communal services. HOAs are argued to play a crucial role in maintaining the stability of the housing and communal sector, promoting regional economic development, and enhancing living conditions for residents.

Keywords: housing and communal services, damages, infrastructure, condition, problems, association of co-owners of an apartment building.

Останні дев'ять років Україна переживає складний період своєї історії, пов'язаний з військовою агресією з боку російської федерації. Цей конфлікт має значний вплив на всі сфери життя українського суспільства. Не є виключенням житлово-комунальне господарство, яке в умовах воєнних дій та систематичних обстрілів стикається з численними викликами та проблемами. В цій статті проаналізовано стан житлово-комунального господарства в сучасних умовах, надана оцінка прямих та непрямих збитків, що завдані цій сфері, розглянуто об'єднання співвласників багатоквартирного будинку як один із важливих аспектів стабільного функціонування галузі.

З початку широкомасштабного військового вторгнення країною агресором було зруйновано та пошкоджено понад 214 тисяч об'єктів інфраструктури, зокрема: 8 тис. 642 об'єкти життєзабезпечення. Інфраструктура житлово-комунального господарства, що складає важливу частину систем життєзабезпечення населених пунктів, стала однією з цілей ракетних та артилерійських ударів.

За попередніми оцінками, станом на червень 2023 року, вартісний вимір прямих збитків щодо об'єктів теплопостачання (без врахування ТЕЦ), водопостачання та водовідведення та

об'єктів пошкодження з побутовими відходами становить \$2,7 млрд. Збитки завдані інфраструктурі української енергетики, за попередніми оцінками, складають \$8,8 млрд.

Крім зруйнованих та пошкоджених об'єктів інфраструктури, головними проблемами житлово-комунальної галузі залишаються застарілість обладнання, неефективність керівництва, невміння вчасно попереджати проблеми та несистемний підхід до їх вирішення.

Один із важливих аспектів стабільного функціонування галузі запропоновано створення ОСББ. Це дозволяє власникам квартир об'єднати зусилля для забезпечення надійного управління та утримання спільних приміщень, вчасного проведення необхідних ремонтних робіт, енергоефективності та безпеки будинку. Крім того, об'єднання співвласників сприяє зниженню витрат на утримання будинку через оптимізацію витрат та використання спільних ресурсів, зниженню заборгованості. Власники квартир можуть спільно вирішувати питання щодо постачальників комунальних послуг, контролювати якість обслуговування та вживати заходи щодо підвищення комфорту проживання в будинку.

Ключові слова: житлово-комунальне господарство, збитки, інфраструктура, стан, проблеми, об'єднання співвласників багатоквартирного будинку.

JEL Classification: L10

Introduction. Ukraine is currently experiencing a challenging period in its history due to military aggression from the Russian Federation. This conflict is not limited to political and military levels, but also has a significant impact on all areas of Ukrainian society. The housing and communal sector is one of the areas facing numerous challenges and problems in the conditions of war and systematic shelling.

One of the primary issues that arises in the housing and communal sector during times of war is the destruction of residential buildings in occupied territories. Missiles, mines, and other heavy military equipment are actively used by Russian forces, often resulting in the destruction of buildings and infrastructure.

Additionally, military actions also impact the operation of communal services that provide the population with water supply, sewage, electricity, and heating. Frequent explosions and shelling can cause damage to water pipes, sewage systems, and electrical grids, which can disrupt the normal functioning of these services. In some areas, access to these services may be limited due to the destruction of infrastructure and obstacles to the delivery of technical materials.

To tackle these issues, it is essential to analyze the current state of the housing and communal sector, determine the costs of direct and indirect losses inflicted by the aggressor country.

This article discusses the complex situation in the housing and communal sector, analyses the direct and indirect losses inflicted on this sphere, examines the form of management of homeowners' associations and the advantages of its establishment. The industry's problems require a comprehensive and well-founded approach to address their consequences and ensure sustainable living conditions for all citizens of Ukraine.

Analysis of recent research and publications. Z. Herasymchuk [2], I. Dragan [2], Melnychenko [3], L. Nemets [7], K. Pavlyuk [7], and other researchers have focused their work on the functioning and development of housing and communal services.

Formulation of the article's goals (setting the task). The aim of this article is to analyze the state of housing and communal services during the military period and evaluate direct and indirect losses that have affected this sphere, as well as to develop well-founded solutions to ensure sustainable living conditions.

Presentation of the main material. Since the start of the large-scale military invasion by the aggressor country, more than 214,000 infrastructure objects have been damaged or destroyed. These include 8,642 life support objects, 1,592 transportation infrastructure objects, 3,679 educational institutions, 1,569 healthcare facilities, 185,392 residential buildings, 889 administrative buildings, and 12,310 other non-military objects. The State Emergency Service has carried out 131,721 missions to mitigate the effects of shelling in populated areas. They have rescued 4,522 individuals, extinguished 17,391 fires, delivered over 14,160 tons of food products and 139,860 tons of drinking

and technical water, and provided emergency power supply to 2,416 social facilities. The housing and communal services infrastructure is a crucial component of living conditions in populated areas. Unfortunately, it has become a target of Russian missile and artillery strikes. Ongoing shelling and combat operations have made repair works difficult, leading to prolonged disruptions in heating and water supply systems. Additionally, cities under heavy shelling have suffered significant damage to their housing and communal sectors. In urban areas, the heating and water supply systems are frequently disrupted due to power outages and voltage drops, which require the installation of generators and accelerate asset depreciation. It is estimated that by June 2023, direct losses related to heating (excluding CHP), water supply, sewage, and waste management will amount to \$2.7 billion. During the full-scale invasion period, 9 combined heat and power plants were destroyed in areas affected by warfare, with an additional 14 being damaged [1].

The Kremenchuk CHP in the Poltava region, which provided approximately 70 % of the city's energy needs, was destroyed. This has put around 180,000 residents at risk of being without heat and hot water for the entire heating season, if timely repairs are not carried out. Preliminary estimates suggest that as of June 2023, Ukraine's energy infrastructure has suffered direct losses amounting to \$8.8 billion. When assessing damages in the energy sector, both direct and indirect methods are used to calculate the value of lost and damaged objects. The cost of damaged objects is calculated based on the original book value of fixed assets, the cost of current repairs, and the cost of restoration, which is determined by the market replacement value of destroyed objects. The assessment is complicated by the lack of detailed information on damages to objects that are currently under occupation or physically inaccessible due to ongoing shelling and/or significant mine risks. Since the beginning of the full-scale invasion, all thermal power plants (TPPs), hydroelectric power plants (HPPs), and 13 combined heat and power plants (CHPs) under Ukraine's control have been affected, according to public statements by the Prime Minister of Ukraine, the Ministry of Infrastructure, and the Ministry of Community and Territorial Development (now the Ministry of Recovery). According to data from regional military administrations, 5 boiler houses have been partially or completely destroyed, with the highest number in the Kharkiv, Kyiv, Chernihiv, Donetsk, and Mykolaiv regions. A total of 134 centralized heating substations have also been partially or completely destroyed, with over 178.6 km of heating networks completely destroyed [1].

The preliminary assessment indicates that over 1,047 km of water supply networks have been destroyed, and 18 water treatment facilities have been partially or completely damaged. In addition, 119 water pumping stations have been damaged or destroyed, with 52 in the Kharkiv region, 13 in the Luhansk region, and 11 in the Donetsk region. Moreover, 61 wells have been damaged or destroyed, with the majority located in the Kharkiv region.

Several laboratories that were analysing the water supply in the region have been destroyed or damaged. Preliminary estimates indicate that around three of these facilities have been affected.

According to the initial assessment, over 31 km of sewage networks have been damaged, with 131 sewage pumping stations partially damaged or completely destroyed, most of which are in the Kharkiv region. Furthermore, 32 sewage treatment facilities are considered destroyed or damaged.

Due to the Russian invasion in Ukraine, 21 landfills for household waste disposal have been damaged or destroyed. Additionally, three waste sorting lines have been completely destroyed, and over 200 waste disposal trucks have been lost. Please refer to Tabl. 1 for a detailed breakdown of the losses in this sector.

Indirect losses for utilities total approximately \$3.5 billion. This includes the cost of dismantling destroyed objects and waste removal from demolition, which amounts to \$0.33 billion. Government expenditures for reconstruction and support of utility enterprises amount to \$0.05 billion. Economic losses from the difference between actual expenses and approved service tariffs amount to \$0.77 billion. Additionally, there is a decrease in industry revenue amounting to \$2.34 billion [1].

The housing and utilities sector faces several challenges, including equipment obsolescence, ineffective management, delayed problem prevention, and a non-systematic approach to problem-solving.

Table 1. Provides the distribution of direct losses in the housing and communal services sector

Types of losses	Units of measurement	% of damaged objects	% of destroyed objects	The amount of losses from damages, \$ billion	The amount of losses from destruction, \$ billion
Boiler rooms	units	1,3	1,6	0,048	0,152
Thermal networks	linear meters	-	9	-	0,389
Central heating points	units	0,36	2,06	0,003	0,048
Water treatment plants	units	3,75	0,75	0,150	0,075
Sewage treatment facilities	units	2,07	1,34	0,24	0,39
Water pumping stations	units	1,24	0,87	0,049	0,086
Sewage pumping stations	units	3,34	1,17	0,116	0,102
Water supply networks	linear meters	-	1,07	-	0,288
Sewage networks	linear meters	-	0,85	-	0,404
Wells	units	0,21	0,06	0,002	0,002
Clean water tanks	units	0,09	0,09	0,001	0,002
Water towers	units	0,5	0,13	0,003	0,002
Garbage trucks	units	-	5,75	-	0,043
Landfill sites	units	0,17	0,18	0,012	0,033
household waste	units	-	8,82	-	0,005
Garbage sorting lines	units	-	14,29	-	0,005
TOTAL				0,624	2,026

Additionally, over two-thirds of the housing in Ukraine was constructed before the 1970s, with more than one-third of residential buildings requiring major repairs. Furthermore, more than one-third of boilers that provide heat to multi-apartment buildings are outdated and energy-consuming. Ukraine wastes the expensive gas it obtains by releasing it into the air. The communal infrastructure is over 60 % worn out, and one-fifth of the heating networks are in emergency condition. The efficiency of Ukraine's housing and utilities sector is significantly reduced due to unfavorable operating conditions, administrative intervention in price formation, and the impossibility of stable functioning.

In the pre-war period, municipal service providers faced institutional, economic, and technical problems. These issues resulted in uncompensated production losses, debt accumulation, and a lack of investment incentives. The balance of interests and stable development of the sector cannot be ensured by competition alone. This is due to the regional separation of relevant markets and limited access to necessary infrastructure, which results in a monopoly position for municipal service providers. Sector enterprises operate under tariffs that do not cover costs for many years. As a result, their technical condition is characterized by outdated technologies, unsatisfactory network and equipment conditions, and high energy consumption.

Due to the problems outlined, consumers are currently unable to control the volume and quality of municipal services provided, choose the price, or even refuse such services. It is unclear what exactly the consumed product is: the resources for which consumption standards are calculated or the comfort parameters by which the provision or absence of the service is assessed, and the quality of the utility company's work.

The housing and utilities sector's management system has remained unchanged since the last century. Competition has only emerged in landscaping, greening, funeral services, and housing management and maintenance systems. Monopolies in the sphere of water supply, sewage, and heating remain at the same level. To address the crisis regarding monopolies, transferring to lease, concession, management of monopolies, and creating co-ownership associations (HOAs) can be considered.

Co-ownership associations are an example of responsible and caring ownership, where owners take care of building maintenance and surrounding areas. HOAs implementation. They also learn financial planning and control. As a result, co-owners of buildings with HOAs are often more

disciplined in paying for housing and utility services. Co-owners associations are capable of identifying and resolving building issues, safeguarding the interests and rights of residents.

Furthermore, HOA effectively manages the common property of a multi-apartment building. It independently forms a budget and staff schedule, determines contributions for the maintenance of the building and its surrounding area, selects service providers and models of relations with them, and controls the quality of all services and their cost. HOAs officially employs all its employees and engages all its contractors, providing the city with jobs with fair wages. Taxes from such salaries are directed towards the local budget. Co-ownership associations that undertake energy modernization of buildings not only reduce housing and utility costs but also enhance living conditions. These associations are also customers of local businesses that provide services for repairs, insulation of facades, and replacement of doors and windows. By creating such demand, small and medium businesses are supported, the economic development of the region is promoted, and the city is improved.

Conclusions. It is evident that a full-scale war affects all aspects of life in Ukraine. Along with the damages caused by the aggressor country, the primary issues are the outdated communications and infrastructure. Numerous buildings and structures were constructed over 50 years ago and necessitate significant repair and modernization.

This results in accidents, leaks, and other inconveniences for residents. Insufficient investment activity and inefficient management hinder the development of the housing and communal sector in Ukraine. A key issue is the low energy efficiency of residential buildings due to outdated heating and ventilation systems, resulting in high energy and communal costs for residents. Comprehensive measures are required to address these issues.

However, it is unfortunate that there is no discussion of increasing investments in the housing and communal sector, particularly in the reconstruction and modernization of the housing stock during wartime. Nevertheless, improvements in housing stock management can be made through the creation of HOAs.

The victory of Ukraine is inevitable, and HOAs will play a crucial role in the post-war reconstruction of Ukraine.

Список використаної літератури

1. Звіт про прямі збитки інфраструктури та непрямі втрати економіки від руйнувань внаслідок військової агресії Росії проти України станом на червень 2023 року URL: https://kse.ua/wp-content/uploads/2023/09/June_Damages_UKR_-Report.pdf (дата звернення 18.02.2024).
2. Наукові засади реформування і розвитку житлово-комунального господарства: монографія. Поважний О.С., Попов О.П., Запатріна І.В., Волков В.П. та ін. Черкаси. Брама-Україна, ЧДТУ, 2021. 436 с.
3. Килимник І.І. Практичні проблеми в галузі житлово-комунального господарства та шляхи їх вирішення. *Open Journal System*. 2015. №1. С. 48-50.
4. Як побороти неефективність комунальних підприємств? Центр економічної стратегії. URL: <https://mail.google.com/mail/u/0/?tab=wm&ogbl#inbox/FMfcgxwKkRMtlSfPZLWKVKjWChZRLcpg?projector=1&messagePartId=0.1> (дата звернення 18.02.2024).
5. Як фінансування комунальних підприємств спотворює конкуренцію? // Центр економічної стратегії. URL: <https://ces.org.ua/how-does-utility-financing-impairs-competition/> (дата звернення 18.02.2024).
6. Офіційний веб-сайт Державної служби статистики України. URL: http://www.ukrstat.gov.ua/druk/publicat/Arhiv_u/Arch_reg.htm (дата звернення 18.02.2024).
7. Загірняк Д.М., Данилко В.К., Іщенко С.В., Лига Д.Л. Стратегічна стійкість в умовах глобалізації економіки як антикризовий інструмент. *Вісник НТУ «Харківський політехнічний інститут» (Економічні науки)*. 2020. №3. С. 102-105. URL: <http://es.khpi.edu.ua/article/view/2519-4461.2020.3.102> (дата звернення 18.02.2024).

References

- [1] Report on direct damage to infrastructure and indirect losses to the economy from destruction as a result of Russia's military aggression against Ukraine as of June 2023. Available at: https://kse.ua/wp-content/uploads/2023/09/June_Damages_UKR_-Report.pdf (accessed 18 February 2024).
- [2] Povazhnyy, O.S. Popov, O.P. Zapatrina, I.V. and Volkov, V.P. (2021) *Naukovi zasady reformuvannia I rozvytku zhytlovo-komunal'noho hospodarstva* [Scientific principles of reforming and development of housing and communal services]. Cherkasy: Brama-Ukraina, ChDTU. (in Ukraine)
- [3] Kylymnyk, I. I. (2015) Praktychni problemy v haluzi zhytlovo-komunalnoho hospodarstva ta shliakhy yikh vyrishennia [Practical problems in the field of housing and communal services and ways to solve them]. *Open Journal System*, vol. 1, pp. 48-50.
- [4] Center for Economic Strategy (2020) How to overcome the inefficiency of utilities?, Available at: <https://mail.google.com/mail/u/0/?tab=wm&ogbl#inbox/FMfcgxwKkRMtISfPZLWKVKjWChZRIcpg?projector=1&messagePartId=0> (accessed 18 February 2024).
- [5] Center for Economic Strategy (2020) How does utility financing distort competition? Available at: <https://ces.org.ua/how-does-utility-financing-impairs-competition/> (accessed 18 February 2024).
- [6] Official website of the State Treasury Service (2023). Available at: <https://www.treasury.gov.ua/ua/file-storage/vikonannya-derzhavnogo-byudzhetu/> (accessed 18 February 2024).
- [7] Zagirniak, D. M. Danylko, V. K. Ishchenko, S.V. and Lyha, D. L. (2020) Stratehichna stiiikist v umovakh hlobalizatsii ekonomiky yak antykryzovyi instrument [Strategic stability in the context of economic globalization as an anti-crisis tool]. *Visnyk NTU «Kharkivs'kyi politekhnichnyi instytut» (Ekonomichni nauky)*, vol. 3. Available at: <http://es.khpi.edu.ua/article/view/2519-4461.2020.3.102> (accessed 18 February 2024).

Надійшла до редколегії 23.02.2024