

Ukraine's Damages to Housing Caused by Russian War

Kyiv School of Economics in cooperation with the **Office of the President of Ukraine** and the **GoU**:

Ministry of Reintegration of the Temporary Occupied Territories

Ministry of Economy

Ministry of Regional Development

Ministry of Infrastructure

Project description and goals

The project to collect, verify, evaluate and analyze data on Ukraine's material damages by the war:

Data gathering:

- Get an aggregate database of damaged objects from various sources (government agencies, media, citizens, business, satellite imagery, indirect estimates...)
- Online tracking for media, diplomacy, aid and recovery coordination, etc.
- Possibility of deep access to data and business analytics for government agencies

Damages, losses and needs assessment:

- Adapt global methodology for objective and rapid damage, losses and needs assessment
- Online tracking of necessary resources for recovery
- Produce regular reports
- Transparent needs prioritization mechanism

Litigation:

- Analyse legal ways for private individuals and legal entities to defend their rights for compensations of damages and losses by the Russian aggressor;
- Define the legal roles of GoU & private entities in in defending their rights in international and foreign national courts;
- Prepare memos/ explainers re the above mentioned;

- The project was initiated by the **Kyiv School of Economics** in late February 2022 at the request of the President's Office and the Ministry of Economy
 - Analytical group
 - IT portal with frontend for data entry and backend for data processing, evaluation and report generation
- More than 30 people + IT team from a leading domestic developer (7 people)
- The team consists of KSE staff and volunteers, at the end of March 2022 a memorandum regarding further joint project development was signed with a number of well-known NGOs

How evaluations are made?

A consistent methodology in line with international best practice is needed for Analysis and Litigation

The methodology should be **simple enough** not to require a detailed on-site object by object analysis of each damaged property, to use indirect methods to confirm the scale of damage, and to draw on the experience of similar cases in war-torn or disaster ravaged countries.

We work together with:

- state agencies appointed by CMU's Resolution 326
- World Bank
- domestic industry experts and analysts
- leading domestic investment bankers and lawyers

to iteratively develop a methodology that allows **weekly reporting of factual data** on the amount and cost of material damages.

We are working to implement **automatic recalculation of the cost of damages within the damaged.in.ua IT-system**, which is a back-end for analysts (and, if necessary, representatives of government agencies) for verification, processing, analysis of information, generation of public and private reports in the BI (business intelligence) module.

General approach to damage assessment:

- replacement cost in most cases - our goal is to restore what was destroyed, not to "get compensation"
- attempts to use microdata where possible (known objects or individual significant amounts of damage)
- statistical approach where this is not possible (for example, in the case of mass destruction of residential real estate)
- iterative refinements in the case of new data or alternative valuation methods that impose restrictions on figures
- assessment of only physically destroyed objects as opposed to objects over which control is temporarily lost
- except for minor damage, as well as large infrastructure facilities, the reconstruction is not considered, as it is unjustified economically and time-wise

Damages to residential, non-res buildings & physical infrastructure in Ukraine caused by the Russian war (as of 06/06/2022)

Damages of fixed assets reached \$103.9 Bln (by replacement cost) — the total adjusted amount due to the last estimates.

Some methodology improvement and more accurate data available led to slight reduction in total amount over the past week, **although the 'organic' increase of direct losses of Ukraine's economy due to the destruction and damage to infrastructure increased by \$1 bln.**

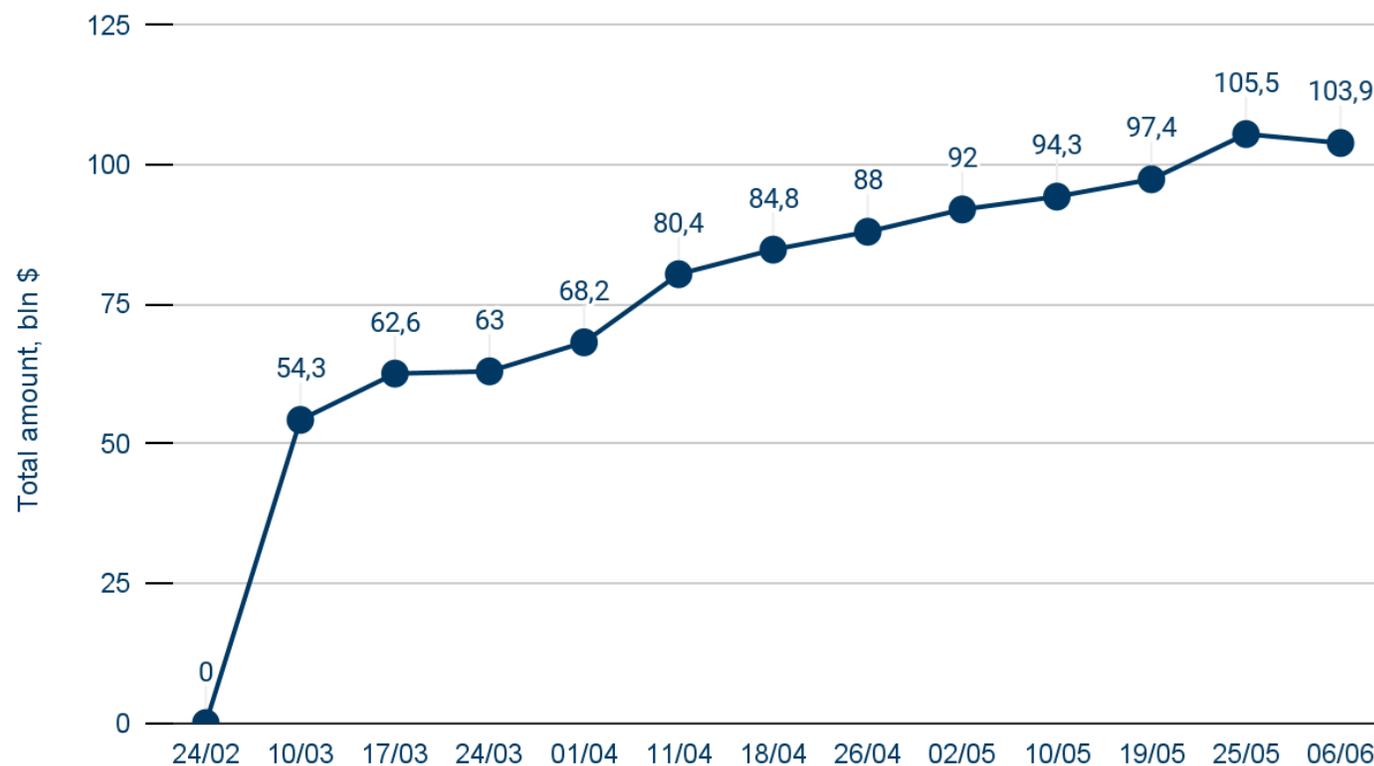
Total economic damages and losses (incl. GDP and investments loss, public finances' additional spending on defense, social welfare) amount to **up to \$600 Bln**

Undamaged assets on the newly occupied territories (since 24.02.22), **not included**

Assets damaged/ occupied before 24.02.22 are not included

Satellite/ drone images to assess the value of damages, used where available

Dynamics of growth of losses of infrastructure destruction

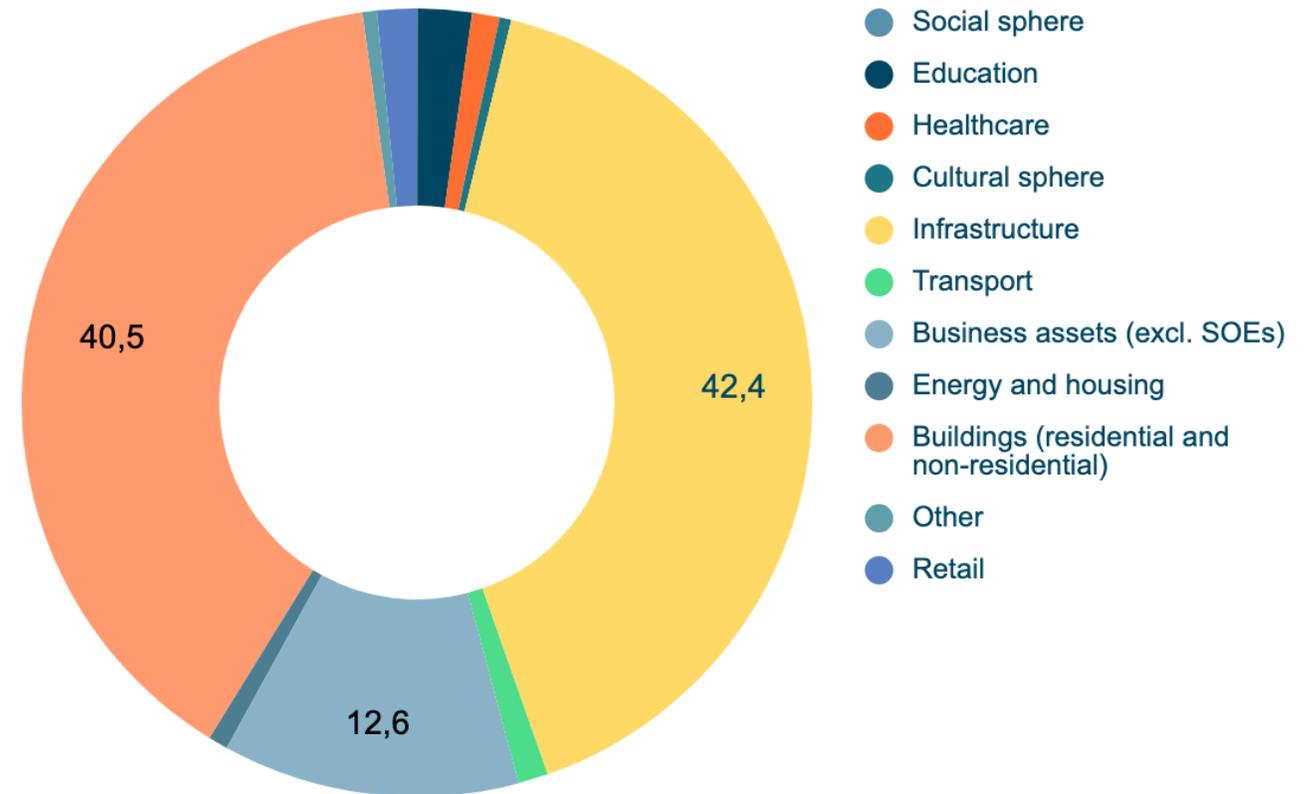


Damages by sector breakdown, \$ bln; % of total damages

Road, railroad infrastructure, airports, and residential buildings are the most affected (**\$78.9 bln in total**)

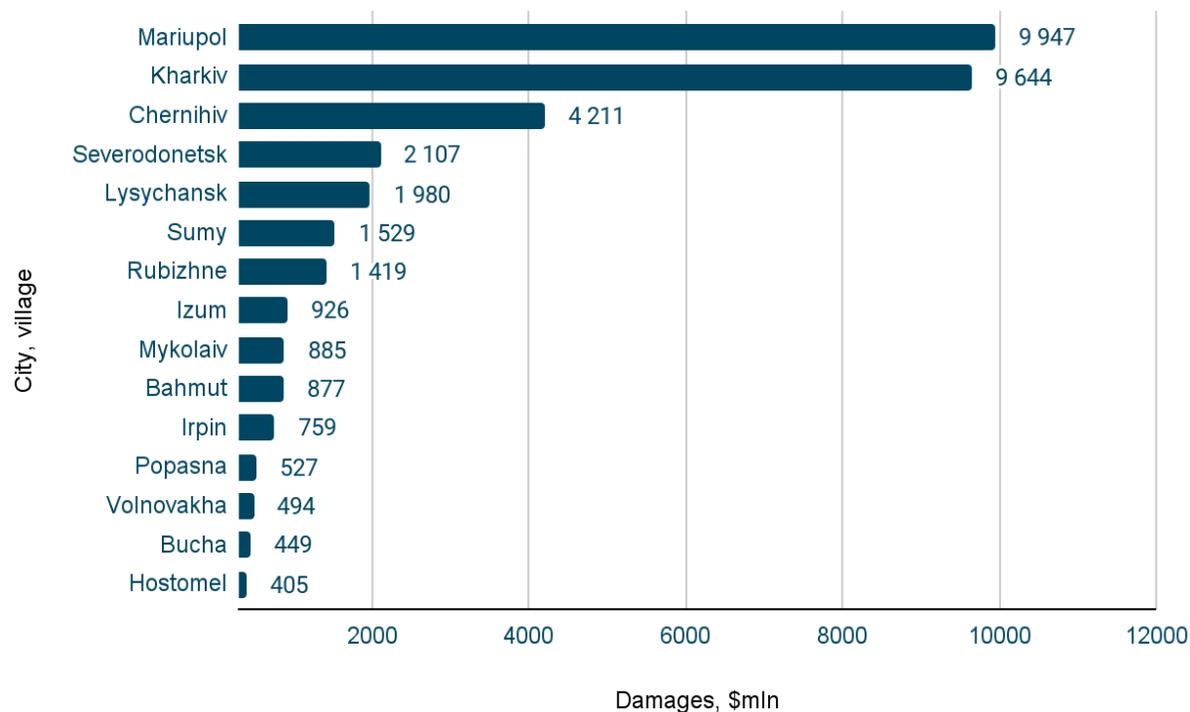
Business assets damage amount to **min \$12.6 bln** and are growing rapidly. Despite the +/- fixed territories of combat operations, missile attacks add great damage to the industry, infrastructure and other assets.

Social infrastructure damages > **\$3 bln**

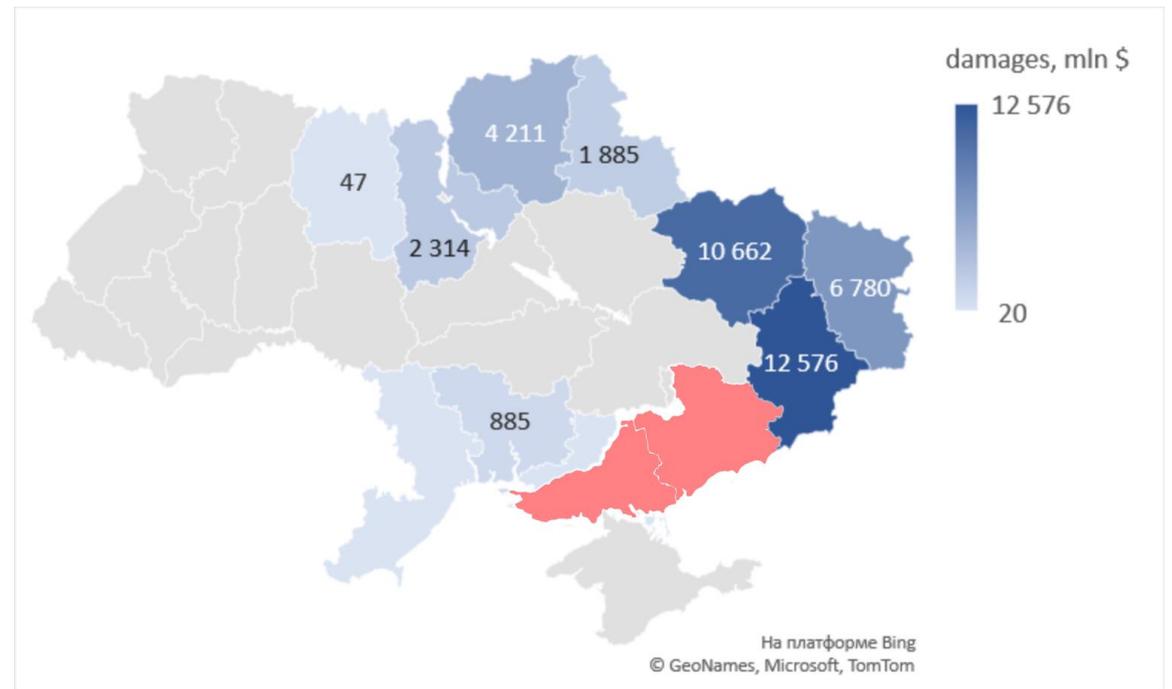


Damages caused to residential houses

Cities such as **Mariupol**, **Kharkiv**, **Chernihiv**, **Severodonetsk** and **Lysychansk** suffered **the most** from the destruction of the housing stock



Damages to residential infrastructure, breakdown by region, \$ mln



Damages caused to residential houses, breakdown by regions, sq meters and \$ bln

44.8 mln square meters of residential buildings destroyed or damaged, **the damage is \$39.4 bln.**

In total, 861 thousand families have already lost their houses (calculations based on State Statistics Service of Ukraine data and project estimates).

Region	Total damages, mln sq. m	Total damages, \$ bln
Donetsk	13,9	12,6
Kharkiv	11,8	10,7
Luhansk	8,2	6,8
Chernihiv	4,9	4,2
Kyiv	2,5	2,2
Sumy	2,3	1,9
Mykolaiv	1,0	0,9
Kyiv city	0,6	0,06
Zhytomyr	0,6	0,05
Kherson	0,3	0,02
Total	44,8	39,4

Methodology for estimating financial losses from the destruction of housing stock

Data sources:

- International organizations and companies (satellite images of affected settlements),
- Ukrainian ministries and state agencies,
- Ministry of Regional Development (construction cost),
- State Statistics Service (housing stock by regions, population by settlements),
- Commercial construction companies and specialized trading platforms (cost of repairs, cost of dismantling),
- Commercial companies specialized in satellite and aerial photography (pictures of affected settlements),
- Local governments (level of damage in settlements),
- Other public sources (media, public organizations, locals, other witnesses - damage level in settlements).

1. We consider objects damaged by 40-100% as destroyed.
1. **Replacement cost (the cost of restoration to the same level of the housing stock) is used for assessment.** This includes repairs in apartments and the dismantling of destroyed homes in the same settlements.
1. **Documented objects account for only a small proportion of the damage**, and therefore such information is available in public sources only for cities where a small number of missile / artillery strikes and/or battles have taken place.
1. **Some towns and villages were significantly / completely destroyed, and information about the damage will come only after the end of hostilities.** Therefore, with regard to housing and social infrastructure, we estimate undocumented losses.
1. We assume the required degree of repair in the destroyed residential areas is "medium quality, readiness for settlement". According to specialized open sources, this is 30% of the market value, so in relation to the cost, we take 40%.

Satellites/ drones assessment of housing damages in cities, villages

Photos by project partner RebuildUA



📍 Moschun

\$37.3 mln
total losses

1964
residential buildings
destroyed



📍 Horenka

\$85.1 mln
total losses

1 018
residential buildings
destroyed



📍 Pushcha-Vodytsia

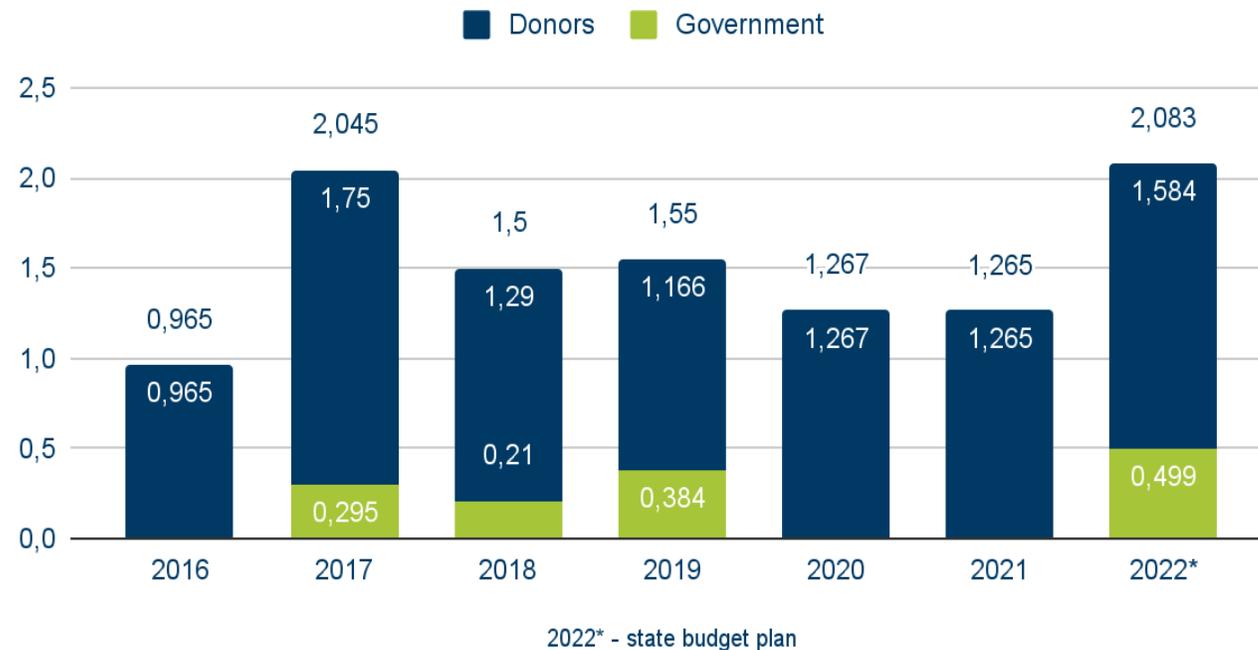
\$17.5 mln
total losses

34
residential buildings
destroyed

Reconstruction of Ukraine's infrastructure during the 8-year-long war

Government expenditures and donors assistance for recovering the social infrastructure on East of Ukraine, UAH bln

Source: State Budget of Ukraine



8-year-long Russian occupation of Crimea and parts of Donbas and 105th day of Ukraine's resistance against full-scale Russian aggression.

Since 2016, two government and international programs **for recovering the social infrastructure** on East of Ukraine have been working:

- the Government Reconstruction program
- the Emergency Loan Program for the Reconstruction of Ukraine by the European Investment Bank

In 2017-2019, these programs were donated by donors, as well as by the government. In 2016, 2020, and 2021, the programs were funded only by donor funds.

The government support

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Partners cooperate
within the project
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 **ITI** Infrastructure
Transparency
Initiative

 **TVIS**

 **RAU**

'Russia will pay'

KSE Project on Assessment of Damages to Residential/ Non-Residential Buildings, Other Physical Infrastructure in Ukraine Caused by the Russian War