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ECONOMIC ADVANTAGES OF USING SECONDARY BUILDING MATERIALS IN THE RECONSTRUCTION OF UKRAINE

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Abstract

The article examines the economic benefits of using secondary building materials recovered from destroyed buildings in the reconstruction of Ukraine and identifies the conditions under which it is cost-effective.

Keywords: reconstruction, secondary building materials, debris waste, economic feasibility, recycling, selective demolition, financing.

Анотація

У статті розглядається економічна доцільність використання вторинних будівельних матеріалів, отриманих зі зруйнованих будівель, у відбудові України та визначаються умови, за яких це є вигідним.

Ключові слова: відбудова, вторинні будівельні матеріали, відходи від руйнувань, економічна доцільність, рециклінг, селективний демонтаж, фінансування.

Introduction

When the war began, in 2022, Ukraine faced such damage, which the world had never seen before. According to the RDNA5 assessment of damages and recovery needs, as of 31st of December, 2025, inflicted damage exceeds 195.1 billion USD and the recovery requirements for the next 10 years - more than 588 billion USD, which is about 3 times over Ukraine's nominal GDP as of 2025 [1].

As of today, even the biggest loans, grants and credits cannot even come close to the sum needed to cover the current budget gap. As such, internal sources of savings emerge as one of the only hopes the country has. One such source lies in the ruins themselves - mainly, the debris from destroyed or damaged buildings, which can be treated as a new supply of raw materials.

Research Results

History provides us with a useful, but not so direct example. After the end of WW2, 16 European countries received approximately $13 billion USD under the Marshall Plan, which was used as a tool by the USA to stabilise local economies and governments. However, as A. Milward demonstrated in his research, recovery was driven primarily by the governments' own domestic economic policies, rather than just by foreign aid, which stimulated local governments to implement much needed changes.

As for Ukraine, it means that while external funds are necessary, they are not sufficient on their own. Adequate use of our local resources and implementation of important laws are equally important [3].

According to the UNDP, by September 2025, damage to residential buildings in Ukraine had generated (or had produced) around 17.2 million tonnes of waste, 11.7 million tonnes of which still require sorting and processing. Depending on the waste itself, it is estimated that about 70%, or 8.2 million tonnes, of it could be recycled in one way or another, potentially delivering up to 50 different types of construction materials [4].

However, we must distinguish 2 separate concepts. Reusing involves taking materials in their original form or after a minor tweak and using them again in a different project.

As for recycling, it's a process that consists of multiple layers of costly and time-consuming work, including sorting, evaluation, safety assessment, and so on, thereby making it limited in options and closely tied to the environment and conditions of each separate case.

There is also a practice called "selective dismantling", where each element is independently processed and evaluated before it is decided whether it is to be recycled, reused, left alone, or completely destroyed. Unfortunately, it requires even more labor and time than the previous methods [5].

Talking about the economic impact of the aforementioned methods, it is expressed as the difference between avoided costs and inflicted costs. The former include the value of the original raw materials and the avoidance of waste-filled areas, while the latter include dismantling, sorting, processing, transportation, storage, and quality control, thus making any economic advantage seem rather theoretical and achievable only under certain conditions: a high concentration of demolished structures within a given area, a short distance to

processing facilities, technologies adapted to the local rubble, verified material quality, and landfilling costs that exceed the costs of recycling. If these conditions are not met, the financial benefit will remain questionable.

But the main issue is certainly institutional, and not technological or financial. The Cabinet of Ministers of Ukraine's Resolution No. 1073 (2022) was the first to define rubble's place in Ukraine's rebuilding programmes, though it did not address issues regarding ownership, legal status, and accountability for the subsequent use of such waste, which significantly hinders decision-making for local city administrations [6,7].

Conclusion

Recycled construction materials represent a possible, but situational, source of money savings during the reconstruction of Ukraine. While they cannot completely replace external funding or a successful internal policy, it is certainly possible to reduce expenses on raw materials. Economic viability depends on several factors, such as the concentration of waste and rubble, logistics, available technologies, the quality of the recovered materials, and whether the area in question will benefit from them. Unfortunately, the legal part of it still remains only partially resolved to this day.

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