

FINANCIAL MECHANISMS FOR THE RESTORATION OF CRITICAL INFRASTRUCTURE IN TERRITORIAL COMMUNITIES

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Abstract. *The paper examines the financial mechanisms supporting the recovery of critical infrastructure in Ukrainian territorial communities during the post-war period. It analyzes key funding sources, including state budget allocations, international financial assistance, and co-financing instruments, within the context of large-scale reconstruction needs and fiscal constraints. The study substantiates the necessity of a multi-level and strategically integrated financing model to ensure institutional resilience and sustainable local development.*

Keywords: critical infrastructure; post-war recovery; territorial communities; local budgets; financial mechanisms; financial resources.

Post-war recovery of the critical infrastructure of territorial communities in Ukraine constitutes a key component in ensuring sustainable development, security, and socio-economic stability of regions that have suffered destruction during the full-scale war. The scale of damage to social, transport, energy, and water supply infrastructure imposes high requirements on the effective financing of recovery programs at the local level. According to official Government resolutions, financing for the restoration of trunk water supply systems, roads, and other critical facilities is designated as a priority expenditure of the State Budget and the funds established to eliminate the consequences of armed aggression against Ukraine [1].

Financial support for the critical infrastructure of communities encompasses a complex of state, local, and international sources of resources, which requires a clear methodology for planning, needs assessment, and project prioritization. Among the research approaches identified are the analysis of budget expenditures, financial flow modeling, and co-financing mechanisms involving local budgets and state programs. These methods make it possible to optimize the allocation of funds in accordance with the strategic objectives of recovery [2].

Thus, the key sources of financing for the critical infrastructure of communities in the post-war period include:

- The State Budget of Ukraine, which provides expenditures for critical infrastructure drivers and investment projects within post-war development programs.
- The Fund for the Elimination of the Consequences of the Armed Aggression of the Russian Federation, which enables the financing of projects aimed at restoring the social and technical infrastructure of communities under a simplified procedure.
- International financial institutions and donors, in particular the European Investment Bank, which already allocates significant funds for the repair and modernization of municipal heating and water supply systems.
- Co-financing between the state and local budgets, determined by new methodologies for financing public investment.

Effective financing of critical infrastructure presupposes the establishment of transparent budgeting procedures, project management systems, and implementation monitoring mechanisms. Scholarly works emphasize the importance of reconstruction algorithms that include stages of facility condition assessment, financing planning, implementation, and control. The improvement of financial mechanisms also involves digital tools for resource management and transparency in the use of funds [3].

Expert assessments indicate the enormous scale of destruction and the financial resources required to rebuild the country's critically important infrastructure. According to the updated RDNA4 assessment, Ukraine's total recovery and reconstruction needs amount to USD 524 billion over the next 10 years (data as of the end of 2024), which is approximately 2.8 times higher than Ukraine's expected nominal GDP for 2024 (over EUR 506 billion) [4]. According to the latest RDNA5 assessment, published as of December 31, 2025, recovery needs have increased to nearly USD 588 billion due to the continued accumulation of damage, particularly in the transport and energy sectors [5]. Although financing volumes increase annually, a significant resource deficit remains critical. According to RDNA4, recovery needs for 2025 amounted to approximately USD 17.3 billion, while only USD 7.4 billion was secured, resulting in a gap of nearly USD 9.96 billion [4].

This confirms that, although state budgets, international grants, and loans are being mobilized, current funding covers only part of the actual needs, especially for communities where critical infrastructure has suffered the greatest damage.

Among the key challenges are the limited budgetary resources of communities, fiscal inequality between regions, delays in financing due to administrative barriers, and dependence on international assistance. It should be noted that, in order to ensure the uninterrupted functioning of critical infrastructure, it is necessary to form reserve accumulations for urgent expenditures and to implement risk management mechanisms.

Financing the critical infrastructure of territorial communities in the post-war period should be considered not merely as a set of budgetary decisions, but as a systemic element of macro-financial stabilization and structural economic transformation. The destruction of energy, transport, water supply, and social infrastructure facilities significantly restricts the economic activity of communities, thereby necessitating a transition from reactive recovery to strategically planned investment-based reproduction.

Contemporary scholarly research emphasizes that post-war infrastructure reconstruction must be based on the principles of prioritizing critical sectors and integrating them into a long-term economic development model. In particular, it is stressed that infrastructure recovery should not be limited to the physical restoration of facilities but must include modernization and enhanced resilience of energy supply systems, transport networks, and communal services [6]. Such an approach effectively transforms financing from a tool for eliminating consequences into a mechanism for structural restructuring.

The financial dimension of the problem lies in the formation of a multi-level model of resource provision. It has been demonstrated that Ukraine's economic recovery requires a combination of budgetary financing, international credit resources, and grant support, along with the introduction of medium-term fiscal stabilization mechanisms [7]. For territorial communities, this implies the need to synchronize local development programs with national investment priorities, as well as to adapt budget planning to conditions of high uncertainty.

A quantitative analysis of the dynamics of investment in construction and infrastructure facilities indicates a significant transformation in the structure of financing sources after 2022. The decrease in the share of private investment and the growing role of state and international resources demonstrate an increase in the fiscal burden on the budgetary system [8]. At the same time, this trend creates risks of excessive dependence of communities on external financing, which necessitates the development of mechanisms for financial autonomization and diversification of the revenue base.

In this context, financing of critical infrastructure should be considered through the prism of institutional resilience of communities. First, it is necessary to form stabilization reserves at the level of local budgets to cover urgent expenditures. Second, co-financing mechanisms should be implemented to increase the responsibility of local self-government bodies for the effective use of resources. Third, a promising direction is the development of public-private partnership instruments in the heating and water supply sectors, which would reduce the burden on the budget and attract managerial expertise from the private sector.

Thus, financing the critical infrastructure of communities in the post-war period must be based on the combination of strategic planning, a multi-channel resource model, and institutional guarantees of transparency and efficiency. Scholarly research of recent years confirms that the integration of financial, infrastructural, and regional policy creates the prerequisites for the sustainable recovery of territorial communities and the minimization of long-term macroeconomic risks.

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