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FINANCING OF INFRASTRUCTURE PROJECTS IN TERRITORIAL COMMUNITIES

The issues of financial support for the restoration of critical infrastructure are of utmost relevance during martial law, characterized by limited resources and capabilities and increased risks, and must be addressed comprehensively at the state and local levels. The structural redistribution of local budget revenues and expenditures that occurs during martial law necessitates the search for effective ways to attract off-budget instruments for financial support of infrastructure in communities. The aim of the article is to assess the financial capacities and opportunities for restoring the infrastructure of territorial communities and to review promising financial mechanisms. The research is based on the hypothesis that it is necessary to develop combined forms of financial support at the level of territorial communities with an emphasis on intensifying the involvement of international donors. The research methods were used, such as systematic and comparative analysis and synthesis, abstract and logical method, and logical generalization. The research is based on materials from government sources on the state and local budgets and on the basis of scientific works by Ukrainian scholars. The article has presented the opinions of scientists on the financial support essence and systematized its forms, methods and tools for direct financial support of infrastructure projects in

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ФІНАНСОВЕ ЗАБЕЗПЕЧЕННЯ ІНФРАСТРУКТУРНИХ ПРОЄКТІВ У ТЕРИТОРІАЛЬНИХ ГРОМАДАХ

Питання фінансового забезпечення відновлення критичної інфраструктури мають надзвичайну актуальність в період воєнного стану, що характеризується обмеженими ресурсами і можливостями та підвищеними ризиками, і мають комплексно вирішуватися на державному і на місцевому рівнях. Структурний перерозподіл у системі доходів і видатків місцевих бюджетів, що відбувається протягом дії воєнного стану, зумовлює необхідність пошуку ефективних способів залучення позабюджетних інструментів фінансового забезпечення інфраструктури в громадах. Метою статті є оцінка фінансових спроможностей та можливостей до відновлення інфраструктури територіальних громад та огляд перспективних фінансових механізмів. Представлене дослідження базується на гіпотезі про необхідність розвитку комбінованих форм фінансового забезпечення на рівні територіальних громад з акцентом на активізації залучення міжнародних донорів. Методами дослідження є системний і порівняльний аналіз та синтез, абстрактно-логічний метод, логічне узагальнення. Дослідження виконане за матеріалами урядових джерел щодо державного та місцевих бюджетів і на основі наукових праць українських вчених. Викладено думки науковців щодо сутності фінансового забезпечення, систематизовано його форми, методи та інструменти прямої дії фінансового забезпечення



communities; revealed the possibilities and prospects for their application under martial law. The expediency of choosing combined forms of financial support as those that balance the interests of the participants has been substantiated. Based on the state analysis of budgetary financing of infrastructure projects at the state and local levels, the availability of financial capacity in local budgets and the continuing trend of long-term projects by international donors at the national level were established. The main method of financial support for projects at the state level is loan programs from international financial institutions and foreign governments. The author has proposed the development of promising forms of financial support for the restoration of infrastructure projects in the form of loan and grants programs combination from the Nordic Environment Finance Corporation (NEFCO).

Keywords. Financial provision, financing, capital investments, infrastructure projects, territorial communities, utility sector.

інфраструктурних проєктів в громадах, розкрито можливості й перспективи їх застосування в умовах воєнного стану. Обґрунтовано доцільність вибору комбінованих форм фінансового забезпечення як таких, що забезпечують баланс інтересів учасників. На основі аналізу стану бюджетного фінансування інфраструктурних проєктів на державному і місцевому рівнях встановлено наявність фінансової спроможності у місцевих бюджетах та збереження тенденції довгострокових проєктів міжнародними донорами на загальнодержавному рівні. Основним методом фінансового забезпечення проєктів на державному рівні є кредитні програми від міжнародних фінансових інституцій та урядів зарубіжних країн. Запропоновано розвиток перспективних форм фінансового забезпечення відновлення інфраструктурних проєктів у формі поєднання кредитних та грантових програм від Північної екологічної фінансової корпорації (НЕФКО).

Ключові слова: фінансове забезпечення, фінансування, капітальні інвестиції, інфраструктурні проєкти, територіальні громади, комунальний сектор.

JEL Classification: E69, H54, R51.

Introduction

The problem of ensuring the proper condition and functioning of municipal infrastructure remains one of the primary tasks in managing territorial communities, the solution of which requires significant amounts of capital. The full-scale invasion of Ukraine, which caused significant damage to this infrastructure, increased the urgency of the issue of proper financial support for its restoration in those communities that are closer to the front line and its intensive use in regions that received and continue to receive internally displaced persons and ensure the relocation of enterprises.

Scientists emphasized the urgent need to update the infrastructure and the effectiveness of its financial support even in the pre-war period. Thus, Kyrylenko and Maksymchuk (2021, p. 6) note the problematic situation in the country with the renewal of fixed assets and emphasize that this problem requires budget expenditures calculated for the long term, the transition to investment-oriented budgeting, the need for the state to ensure a favorable investment climate and improving the efficiency of the use of local budget funds. Malyniak and co-authors (2021, p. 578–579) draw attention to the interdependence of maintaining an adequate infrastructure level and the quality of public service provision, which is realized through the effective direction of public expenditures. In the same paper, the authors summarize the opinions of foreign scientists regarding the consequences of the war for the economy and the budget system, among which it is worth highlighting theses about the feasibility of intensifying the work of government structures

in the direction of attracting external capital to finance the economy during military operations (Malyniak et al., 2021, p. 575).

The urgency of the need to renew infrastructure in the country, even in the pre-war period, was substantiated in one of the previous works (Bagatska & Matusova, 2021), which analyzed the dynamics of wear and tear of fixed assets (62% at the end of 2020) and established a significant increase in the level of their wear: up to 83.5% in 2014 – in the first year of the beginning of the partial invasion of the territory of Ukraine. Although the overall level of wear and tear decreased in subsequent years, wear and tear of 60% was exceptionally threatening from the point of view of infrastructure safety, which was pointed out by such scientists as Kudria (2017), Repich (2021), Mikhailenko (2019), Zhadan (2020).

The problematic issues of financial support for the restoration of critical infrastructure during the period of martial law are raised at the national and local levels by governmental and non-governmental structures and scientists. For example, Kudryashov (2022, p. 50–51) considers the issue of attracting private capital under state guarantees, emphasizes the importance of using funds from foreign countries and international financial organizations to finance the restoration of infrastructure facilities, and justifies the feasibility of using debt financing instruments, in particular military bonds. Bystryakov et al. (2023) emphasized the need to strengthen the state's role in the financial support of critical infrastructure institutions and noted the limited financial capacity of the state to finance the sustainable functioning of these facilities.

The structural redistribution in the system of revenues and expenditures of local budgets during martial law makes it necessary to find effective ways to attract extra-budgetary instruments to support community infrastructure.

The article aims to assess the financial capabilities and opportunities to restore the infrastructure of territorial communities and review promising financial mechanisms. The objectives facilitating the article's goal entail clarifying territorial communities' financial support classification, evaluating state budget-level infrastructure project financial backing, and revealing promising financial support modalities. The presented study is based on the hypothesis of the need to develop combined forms of financial support at the level of territorial communities, with an emphasis on the activation of the international donors' involvement.

Research methodology includes systematic and comparative analysis and synthesis, abstract-logical method, and logical generalization. The research was carried out based on the official data of the Ministry of Finance of Ukraine on state and local budgets and on the scientific works of Ukrainian scientists.

The first section within the aim of the article is dedicated to the theoretical study of financial support, emphasizing the categorization of its various types. Following this, the second section undertakes an evaluation of the capacity of local budgets in financing infrastructure projects, coupled with an analysis of the primary initiatives by international donors at the national level. Subsequently, the third section elucidates the principal programs facilitating the funding of infrastructure projects. The conclusions

drawn substantiate recommendations concerning the implementation of prospective mechanisms for financial support aimed at enhancing infrastructure projects within territorial communities.

1. Classification of infrastructure projects financial provision

The "financial provision" concept in the Ukrainian scientific literature is considered one of the subsystems of the financial (financial and credit) mechanism at the macro- and micro-levels.

In particular, according to Kireitsev (2002), "Financial provision consists in the allocation of a certain amount of financial resources to solve certain tasks of the financial policy of a business entity. At the same time, a distinction is made between its protective and regulatory effects. The provisioning action is manifested in establishing sources of financing, that is, the coverage of everyday needs, and characterizes the passive influence of financial provision. Regulatory action exerts influence through allocating sufficient funds and through a specific form of financial support, and characterizes its active influence." We agree with distinguishing two directions of implementing financial support: direct (supportive) and indirect (regulatory).

For his part, Oparin (2005, p. 13) understands financial provision as "a subsystem (method of financial impact) of the enterprise's financial mechanism, the components of which are such forms as self-financing, lending, external financing (investment, budget allocations, etc.). Different forms of financial provision are used in practice simultaneously by establishing the ratio between them that is optimal for a given stage of society's development." Here, the scientist emphasizes the forms of manifestation, which also details the essential characteristics of financial provision.

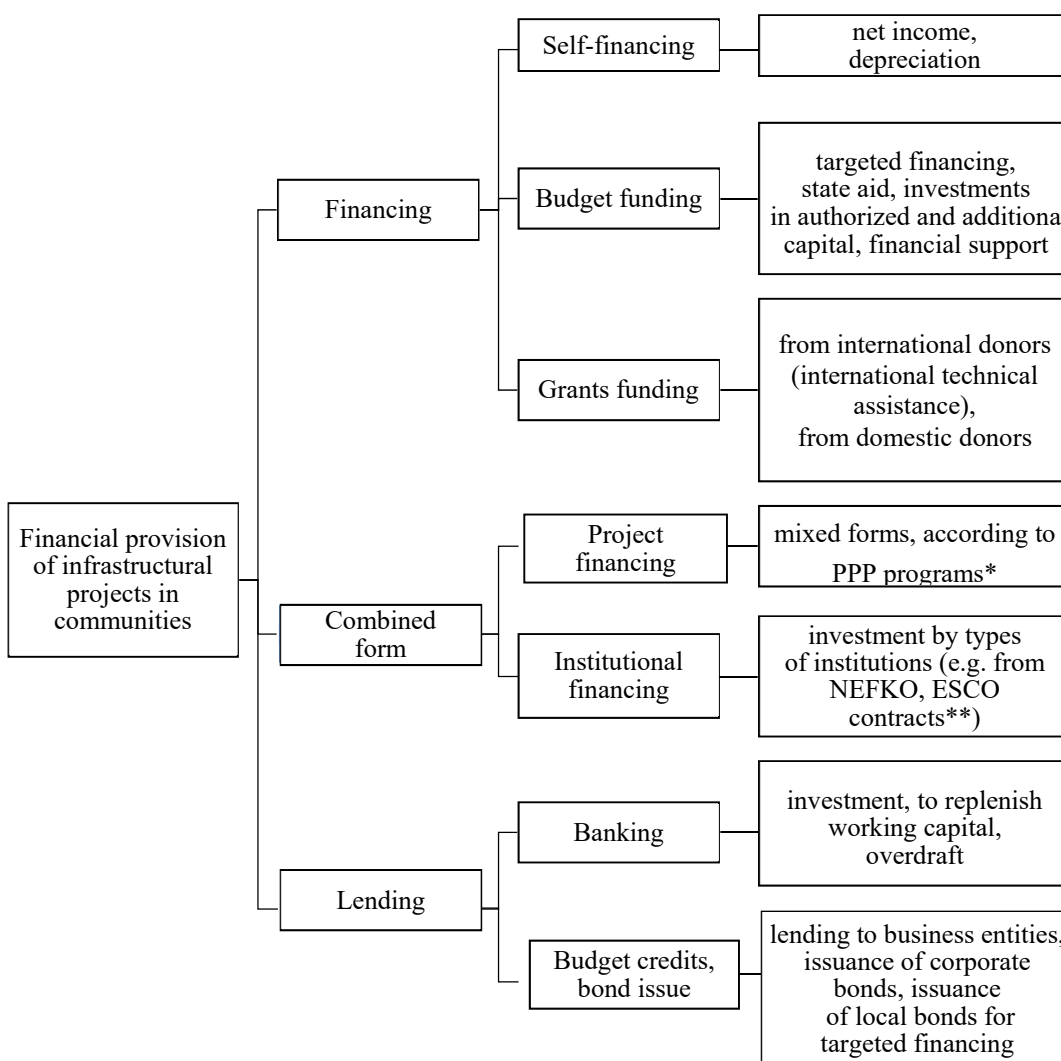
An alternative approach to financial provision is the definition of Vasylyk (2000), who understood it as a set of measures defined by legislation aimed at creating a financial base to achieve specific goals. The author focuses on the target function of financial provision, which is also worth agreeing with because this interpretation does not contradict previous approaches.

The addition of the word 'mechanism' to the concept of 'financial provision' is the strongest way to emphasize the need for a deep interpretation of its forms, to reveal the internal components of the concept and explain how it works. The division of 'mechanisms' in finance into directive and regulatory, as described in (Kireitsev et al., 2001), is an important essential feature of the subject.

A directive mechanism is the implementation of financial relations with the direct involvement of the state, or with one party to the relations acting as an agent on the state's behalf. The instruments of this mechanism are taxes, state credit, budget financing, and so on. The peculiarity of these instruments is the clear directives available for their implementation in the form of regulatory legal acts. The directive mechanism is the opposite of the regulatory mechanism. The latter is used for financial relations in the private sector or for the shadow economy, where financial flows are controlled. It is

important to note that the mechanism of financing commercial municipal enterprises can be considered a combination of directive and regulatory. Local governments represent the interests of the state and their own community interests, while municipal-owned enterprises have greater financial autonomy and less accountability. When describing the mechanism of financial provision for infrastructure projects in territorial communities, we focus on the form of its implementation, methods and tools.

Financial provision for projects in territorial communities is a comprehensive approach that generates both material and financial resources, including capital, to achieve strategic and tactical goals set by local governments. Financial provision for projects is generally carried out through such methods as financing (including project financing and self-financing), lending, issuing, investing, and has a direct and indirect (regulatory) effect (*Figure* below).



Forms, methods and tools of direct action for financial provision of infrastructure projects in communities

* PPP – public-private partnership

** ESCO – energy service contracts

Source: compiled by the author.

International financial assistance in the form of grants is also financing by its economic nature. It is provided on a non-refundable basis and is targeted, as it is financed for approved projects, plans, and programs. The issuance of debt instruments corresponds to lending by its economic nature.

Indirect instruments of financial security include tax rates, lending rates, exchange rates, etc. Grant funding for infrastructure projects can be obtained indirectly through grants to local budgets in the form of international technical assistance. Combined forms of financing are the most promising, offering flexibility and variation in the methods, instruments, and participants in the financial provision process.

Project financing is a method used to finance large-scale infrastructure projects, usually with the participation of various funders and several sources of financing in various forms, including loans, which are repaid from the funds received from the project. To manage project financing, a separate legal entity is often created to allocate resources and control of all cash flows. Unlike conventional lending, the lenders are secured by the cash flows from the project itself, which is called the term "limited recourse".

While project financing is not widespread in Ukraine, financing of road and transport facilities repair can be classified as such. Financing under Public-Private Partnership (PPP) programs involves a private partner making investments in a PPP object, which are the objects specified in clause 1 of Article 4 of the Law of Ukraine "On Public-Private Partnership" (2023). These include water collection, treatment and distribution, waste management, construction and overhaul of buildings, etc. PPPs are implemented in the form of concession agreements, property management agreements, joint venture agreements and other agreements. There are two ways to finance PPP. One is to combine it with lending and involve both budgetary and private financing in various ways. The other way is to have private financing dominate, when the investor company raises its own or credit resources to invest in the project. As Doroshenko (2013, p. 61) correctly states, the dominance of private financing in a PPP project carries significant risks for community residents. These include a significant increase in utility tariffs and/or deterioration in the quality of services provided. This is because the price of attracting private investment capital is higher than public. Furthermore, investments must be recouped, so the utility tariff of the PPP object must include profit. That's why the dominance of private capital in PPPs in Ukraine is inefficient.

At the same time, Ukrainian scholars Parubets, Sugonyako, and Krasnyanska (2017) are clear that a variety of resources must be used to achieve a balance of interests between the public and private sectors in this area, with particular emphasis on PPPs and municipal partnerships. At the same time, local authorities will undoubtedly benefit from cooperation within the framework of PPPs, receiving a renovated municipal property object along with an established system of its operation upon completion of the

partnership. Private sector involvement in local utilities is another avenue worth exploring; corporatization with mixed ownership of the community and private business may prove to be a significant incentive for the private sector to participate in PPPs at the local level.

Study Kyiv as an example. The city council controls six joint-stock companies and three limited liability companies, with a shareholder holding less than 50% interest in 18 joint-stock companies and 18 limited liability companies.

Lending is not widely used as a method of financial support, although Ukrainian banks offer specialist loan programs for municipal enterprises. Cities that are financially capable can provide loans to businesses, including municipal enterprises. A review of the financial practices of local councils and municipal enterprises reveals that financing mechanisms prevail over lending ones. An exception may apply to tariff-based critical infrastructure enterprises, such as water utilities, heating companies, and electric transport companies, which implement investment projects under international loan programs.

It is clear that the issuance of local loan bonds is not an affordable form for all local councils. This is because this form of lending is only allowed to ARC and cities (the Decision of the NSSMC No. 391, 2018). However, bond issuance has not become widespread among city councils in recent years. For example, between 2003 and 2020, only 19 city councils issued bonds (Bakhur, 2021). In the period 2019–2022, only Lviv, Kharkiv, Kyiv, and Ivano-Frankivsk city councils issued local bonds through an open offer procedure. Municipal enterprises did not use bonds as a source of financial support at all.

The limited use of bonds is likely due to a combination of factors. Firstly, there are only a few issuers, and cities lack the financial capacity to repay these debt instruments. Secondly, there is a shortage of experienced professionals and qualified advice. However, the adoption of the Law of Ukraine "On Capital Markets and Organized Commodity Markets" (2020) expanded the list of types of bonds that may be of interest to territorial communities. This includes targeted bonds, green bonds, infrastructure bonds, and more.

A municipal enterprise, if it is a commercial enterprise, may issue corporate bonds despite its unitary status. It is the full payment of contributions to the authorized capital that determines the ability to issue. The maximum amount of interest-bearing and/or discount corporate bonds may be issued is three times the amount of equity capital or the amount of collateral provided to the company by third parties for this purpose. The decision to issue bonds of a municipal enterprise must be made by the relevant local authority. The funds raised from the issue must be used for the purposes specified in the prospectus or the decision on the issue.

Green bonds issued to finance environmental projects are an important addition to the instruments for financing energy modernization in communities. One example of the feasibility of using such an instrument in the

municipal sector is the construction of waste processing plants using environmental technologies. Such projects will ensure compliance with clause 10 of Article 18 of the Law of Ukraine "On Capital Markets...": "The decision to issue bonds or the bond prospectus may provide that the sources of repayment of green bonds and payment of income on them are proceeds from the commissioned facility, the This includes financing or the sale of which was carried out at the expense of funds raised from the placement of green bonds, as well as other proceeds provided for by the decision to issue bonds or the bond prospectus (Law of Ukraine "On Capital Markets and Organized Commodity Markets", 2020).

The capitalization of municipal enterprises through bonds can be achieved indirectly through the issuance of municipal loan bonds by the local council to finance the restoration, construction or overhaul of vital infrastructure facilities on the balance sheet of municipal enterprises, including water utilities, heating, roadways, transport, etc. India provides a clear example of the success of this mechanism. As described in Kozak and Moskvina (2017, p. 37–39), municipal corporations issued bonds in 2000, which were exempt from taxation and did not have the status of corporate. However, the authors are clear that India's experience in financing municipal infrastructure with municipal bonds shows that this instrument can only be used by large and medium-sized cities, while small cities lack the institutional capacity to do so.

For the municipal sector, financing capital investments through the issuance of municipal bonds issued by local authorities is a highly profitable mechanism. Enterprises capitalize their value and upgrade their material base, while the costs and risks are mainly borne by the local budget. Local authorities can be reassured that bond issuance by subordinate enterprises is a safer instrument from a risk perspective. The local budget acts only as a guarantor in this process, and does not bear direct costs.

Parubets, Palioha and Sugonyako (2016, p. 304) are adamant that the municipal lending system must be developed through the creation of a network of municipal banks that will place valuable municipal securities and provide support in their sale. The idea of establishing municipal banks in Ukraine was actively discussed 10–15 years ago and was put on hold after the 2014 banking system reform, during which many well-known banks with municipal ownership were liquidated. Subsequently, the development of the banking system was directed towards consolidation and comprehensive digital transformation, which makes banking services available anywhere in Ukraine with Internet access. Therefore, the issue of establishing municipal banking institutions has lost its relevance.

2. Status of budgetary financing of investment projects

The ability of municipalities to finance capital expenditures, including investments, has increased since the beginning of the budget decentralization reform. Thus, according to (Chernyshov, 2021), over the 5 years of the

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reform, capital expenditures of local budgets increased by more than 60% and in 2020 amounted to UAH 96.8 billion, which is UAH 5.6 billion more than in 2018 and UAH 64.6 billion more than in 2015. In 2021, the share of special funds in the structure of local budgets will reach almost 30%. However, the war forced a reduction of such expenditures to 12.9% of the structure of revenues and 10.2% of local budget expenditures (Onyshchuk, 2023). The financing of capital expenditures by municipalities during the war was largely driven by an increase in PIT revenues in municipalities where military units were registered. Thus, in 2022 and the first 9 months of 2023, local budgets were in surplus. In the first half of 2023, the surplus of local budgets amounted to UAH 64.5 billion (Gaidai, 2023). Excluding loans and financing, revenues of local budgets exceeded expenditures in 2022, and the share of transfers from the state budget decreased. The share of local budgets in consolidated budget revenues (excluding transfers) increased to 24.4%, the highest since 2017. Therefore, the local budgets of the less affected regions have the financial capacity, the only question is the priority of budget expenditure allocation. However, due to the high public outcry over the adequacy of funding, especially for wartime improvements, military PIT revenues were centralized in the state budget in October 2023.

The central executive authorities are working to raise funds from international financial institutions and foreign governments to finance infrastructure projects at the municipal level. Long-term loan agreements on favorable terms for municipalities are the result of this work. Martial law did not stop Ukraine's cooperation with international lenders. The *Table* below shows the results of this cooperation.

Table

International loans attracted by the State to the Special Fund of the State Budget of Ukraine for 2022–2024 for the implementation of investment projects

Creditor	Project	Total amount of investments	Program	Amounts of borrowing, UAH million		
				2022	2023	2024 (plan)
IBRD	Urban infrastructure development project II,	USD 326.6 million	Implementation and coordination of project activities	60.9	26.7	23
			Development of urban infrastructure and measures in the sector of centralized heat supply, water supply in Mykolaiv and Chernivtsi	949.6	5018.5	1915.5
			Subvention from the state budget to local budgets for the recovery of critical infrastructure facilities	–	–	519.5

Continuation the Table

Creditor	Project	Total amount of investments	Program	Amounts of borrowing, UAH million		
				2022	2023	2024 (plan)
	"Increasing energy efficiency in the centralized heat supply sector of Ukraine"	USD 205 million	Development of urban infrastructure and measures in the sector of centralized heat supply, water supply in Mykolaiv and Chernivtsi	949.6	225	31.6
			Implementation and coordination of project activities	23.3	16.4	4.16
	"Eastern Ukraine: reunification, restoration and revival (Project 3B)"	USD 100 million	Development of agricultural infrastructure in Luhansk region	30	–	–
EBRD	"Completion of construction of the subway in Dnipro"	EUR 152 million	Subvention from the state budget to the budget of the Dnipro urban territorial community for the completion of the construction of the metro in the city of Dnipro	684.4	229.1	55
	"Extension of the third metro line in Kharkiv "	EUR 160 million	Subvention from the state budget to the budget of the Kharkiv urban territorial community for the extension of the third line of the metro in the city of Kharkiv	303.3	76.2	502.5
	"Emergency credit program for the recovery of Ukraine"	EUR 200 million	Subvention from the state budget to local budgets for project implementation within the program	–	1703.4	2360.2
EIB	"Municipal infrastructure development program of Ukraine"	EUR 400 million	Municipal infrastructure development program	500	4661.8	2534.5
			Implementation and coordination of project activities	9.3	15.1	15.1
	"Development of the water supply and drainage system in the city of Mykolaiv"	EUR 15.54 million	Development of urban infrastructure and measures in the sector of centralized heat supply, water supply in Mykolaiv and Chernivtsi	102.6	241.9	353.8
	"Program for the recovery of Ukraine"	EUR 340 million	Subvention from the state budget to local budgets for project implementation within the program	502.7	5292	4499

Creditor	Project	Total amount of investments	Program	Amounts of borrowing, UAH million		
				2022	2023	2024 (plan)
	"Development of urban passenger transport in Ukrainian cities"	EUR 400 million	Development of urban passenger transport in Ukrainian cities	1006	6226.6	3528.1
	"Completion of construction of the subway in Dnipro"	EUR 152 million	Subvention from the state budget to the budget of the Dnipro urban territorial community for the completion of the construction of the metro in the city of Dnipro	460.3	2290.9	494.1
	"Extension of the third metro line in Kharkiv"	EUR 160 million	Subvention from the state budget to the budget of the Kharkiv urban territorial community for the extension of the third line of the metro in the city of Kharkiv	10	755.3	219.5
Credit institution for reconstruction	Chernivtsi municipal water management project	stage 1 – EUR 17 million; stage 2 – EUR 21.55 million	Development of urban infrastructure and measures in the sector of centralized heat supply, water supply in Mykolaiv and Chernivtsi	219.6	543	696.7
	"Energy efficiency in communities"	EUR 25,5 million	Energy efficiency of public buildings in Ukraine	86.7	257	338
Japan Agency for International Cooperation	"Reconstruction of wastewater treatment facilities and construction of a technological line for processing and disposal of sediments of the Bortnytsky aeration station"	JPY 108 193 million	Development of urban water supply	132.8	10.2	10.2
Government of the French Republic	Drinking water supply project in Mariupol	EUR 64 million	Implementation of the drinking water supply project in Mariupol	150	–	–
	Project to improve water supply in the city of Kyiv	EUR 70 million	Development of urban water supply	100	1118.3	89.6

End the Table

Creditor	Project	Total amount of investments	Program	Amounts of borrowing, UAH million		
				2022	2023	2024 (plan)
	The project to improve the supply of drinking water in the Luhansk region	EUR 70 million	Implementation of an investment project for the supply of drinking water in the Luhansk region	59.4	–	–
	<i>Total for the year</i>			25 537	169 956	62 159.7

Source: compiled by the author on the basis of (MinFin, n. d.).

The table is shown that in 2022–2024 international financial institutions and foreign governments provided and are providing loans to 14 investment projects for the development of municipal infrastructure, with the project to restore the heat and water supply infrastructure in Mykolaiv and Chernivtsi financed by four lenders and the project to complete the metro in Dnipro and Kharkiv financed by two. With the onset of the full-scale invasion, lending to projects in the East ceased. It is worth noting that the total volume of lending to Ukraine's infrastructure will increase significantly in 2023 (by five times, or 565%). In 2024, the planned volume of lending to municipal infrastructure was reduced by 63.4%, but these volumes remain almost one and a half times higher than in 2022.

Over the period analyzed, the share of municipal infrastructure lending in all international financial assistance programs has increased significantly. While in 2022, 13.65% of the international partners' funds were planned to be allocated to municipal infrastructure financing, in 2023 this share was already 16% and in 2024 it was to increase to 28.3% of the total amount of funds. However, in absolute terms, it is planned to finance projects worth UAH 17.6 billion in 2024, which is UAH 9.6 billion less than in 2023, when international lenders allocated UAH 27.2 billion for infrastructure financing.

Prospective programs for the financial support of projects in the infrastructure sector

The lending programs of international and national financial institutions are usually implemented to ensure the achievement of the strategic goals of sustainable development (SDGs), in particular goals 6 – Clean water and adequate sanitation, 7 – Renewable energy, 11 – Sustainable cities and communities, 12 – Responsible consumption, 13 – Combating climate change, 15 – Conservation of terrestrial ecosystems. One example is the lending of the Nordic Environment Finance Corporation (NEFCO), established in 1990 by the Nordic countries to finance environmental projects in Central and Eastern Europe. NEFCO finances projects that improve the environment and deliver cost-

effective results. NEFCO works with a number of financial institutions. It also manages funds on behalf of other organizations that provide funding for environmental projects, including the European Commission and Nordic governments. In Ukraine, NEFCO finances two programs: "Cleaner Production" and "Eco-Efficiency". These programs finance only the modernization of existing facilities, with a minimum borrower contribution of 10%. The funds generated by the savings from improved energy efficiency and resource conservation are used to repay the loan.

The municipal sector is eligible for loans under the Eco-Efficiency Program. The minimum loan amount is UAH 350 000 and the maximum UAH 3 million. The maximum loan term is 8 years. The Clean Production Program provides loans to both municipal and private enterprises to implement measures to improve the use of natural resources.

Before the full-scale invasion, NEFCO had financed 320 projects in Ukraine, resulting in the energy upgrading of more than 420 municipal buildings (Ministry of Finance, 2014).

According to Kolosova (2022), the greatest lending activity under NEFCO programs was observed in the period 2013–2018. During this time, the company financed loans worth EUR 86 million and grants worth EUR 26 million. The amount of local co-financing under NEFCO programs was EUR 118 million, or 51%. However, in the period 2019–2022, before the full-scale invasion began, NEFCO suspended projects in 18 cities, resulting in Ukraine receiving about 20% less investment and losing about EUR 35 million. At the same time, the grants that financed the preparation of these projects were lost or not provided, and, accordingly, communities lost about UAH 160 million a year in savings that could have been achieved from the implementation of the projects. The corporation cited bureaucratic obstacles, inconsistency of local authorities, and lack of qualified specialists as one of the reasons for the unimplemented projects.

In July 2022, NEFCO launched the NEFCO Green Recovery program in Ukraine, aimed at long-term eco-recovery activities in communities affected by the consequences of the hostilities. The program was launched in cooperation with Scandinavian, European and international donors and institutions. NEFCO works directly with communities to help them plan and finance sustainable recovery. Contributions to existing facilities and initiatives managed by NEFCO can be repurposed for the new program based on the immediate recovery need and complemented by new initiatives and contributions. The program is available on an ongoing basis and will provide financial and technical assistance to communities for a variety of repair and reconstruction projects that will be carried out in an environmentally sound manner, as well as support them in developing local green recovery plans. The first participants in the program were the EU, Denmark, Finland, Norway, and Sweden.

The disadvantage of financing mechanisms through NEFCO is that the economic impact of the projects is delayed, as the utility customer will pay the amount of savings on utility bills to NEFCO for a long period of time. NEFCO's use of financing mechanisms and their combination is limited in terms of objects of application, but these mechanisms allow for the modernization and eventual capitalization of infrastructure projects that often pose the greatest financial burden on local budgets.

Conclusions

The crisis conditions in which the country finds itself require the search for optimal forms of financing capital investments for infrastructure restoration. Permanent threats and risks, uneven availability of own sources of funding among territorial communities, and changes in government policy on financial decentralization under martial law exacerbate this urgent problem. While it is certainly a positive development that many communities in the central and western parts of the country have retained the capacity to finance infrastructure, security and defense remain the top priorities. Therefore, local governments should only fund projects that are directly related to these needs and the priority needs of community life support.

We consider the choice of combined forms of financial support for infrastructure restoration to be the most promising, as the presence of paid and repayable sources in the financing structure will encourage communities to find ways to grow their own revenue base, expand the horizons of international partnership, and strengthen the institutional capacity to attract external foreign capital.

The continued funding of infrastructure projects by international donors, even in those regions of the country close to the contact line, demonstrates the confidence of international partners in a positive outcome of the hostilities for Ukraine, which can also be considered a positive signal. It is worth noting that the reduction in planned funding by international donors in 2024 cannot be considered a sign of a decrease in international support in general, as the article provides data only on funds that go through the state budget. Local grant and loan programs to support local economic development, including in terms of infrastructure, continue. An example is the European Commission's Mayors for Economic Growth (M4EG) grant program, which has been operating in Ukraine since 2017 and did not stop with the start of the full-scale invasion, and is aimed at financing infrastructure in communities along with measures to support local businesses.

The financing of infrastructure projects under martial law is certainly associated with significant risks, so further research will be devoted to finding the best ways to manage them.

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