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### **Problems of Evaluating the Efficiency of Local Area Restoration in Ukraine through the Prism of Humanitarian Demining**

*Abstract:* The presented study is devoted to highlighting the role of humanitarian demining in the process of restoring local territories of Ukraine affected by military operations, with an emphasis on the problems of assessing the effectiveness of this process. The study purpose was to substantiate the role of humanitarian demining in the process of evaluating the efficiency of the restoration of local territories of Ukraine in the context of war. The theoretical basis was the provisions of economic theory, regional economics, scientific works of domestic and foreign scholars on the restoration of local territories. The article also uses an additional method of regional economics — analysis and synthesis (in the theoretical justification of humanitarian demining before planning the restoration of territories). The information base of the study was statistical data and legal acts of Ukraine, European and Ukrainian information and analytical reviews, scientific and methodical publications. The author presents humanitarian demining as the first stage of territorial restoration, based on the results of modern scientific research and analytical materials. It concludes impossibility to restore the local territories of Ukraine without the successful implementation of all stages of humanitarian demining and security. Before planning the further life of the territories, the author stresses the crucial importance of successful implementation of all stages of humanitarian demining. The author examines the local dimension of evaluating the effectiveness of territorial development using the example of the Trostianets urban territorial community in the Sumy region as well as identifies the main social prerequisites for its restoration.

*Keywords:* efficiency, restoration, evaluation, local territories, territorial communities, humanitarian demining.

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### **Проблематика оцінки результативності розбудови локальних територій України крізь призму гуманітарного розмінування**

*Анотація:* Представлене наукове дослідження присвячено висвітленню ролі гуманітарного розмінування в процесі відновлення локальних територій України, постраждалих від воєнних дій,

з акцентом на проблематиці оцінки результативності даного процесу. Метою дослідження було обґрунтувати роль гуманітарного розмінування в процесі оцінки ефективності відновлення локальних територій України в умовах війни. Теоретичною основою послужили положення економічної теорії, регіональної економіки, Наукові праці вітчизняних і зарубіжних вчених з відновлення місцевих територій. У статті також використовується додатковий метод регіональної економіки-аналіз і синтез (при теоретичному обґрунтуванні гуманітарного розмінування перед плануванням відновлення територій). Інформаційною базою дослідження послужили статистичні дані та нормативно-правові акти України, європейські та українські інформаційно-аналітичні огляди, наукові та методичні публікації. У роботі представлено гуманітарне розмінування як перший етап відновлення територій, ґрунтуючись на результатах сучасних наукових досліджень та аналітичних матеріалів. Зроблено висновок про неможливість відновлення локальних територій України без успішної реалізації всіх етапів гуманітарного розмінування та гарантування безпеки. Автором наголошено на критичній важливості успішної реалізації всіх етапів гуманітарного розмінування перед початком планування їх подальшої життєдіяльності. Досліджено локальний вимір оцінки результативності розбудови територій на прикладі Тростянецької міської територіальної громади Сумського регіону, обґрунтовано основні соціальні передумови для її відновлення.

*Ключові слова:* результативність, відновлення, оцінка, локальні території, територіальні громади, гуманітарне розмінування.

### Introduction

For several years state and local governments have been forming responsible local authorities through decentralisation processes, where territorial communities plan their development on a par with the regions. However, the deterioration of geopolitical relations since 2014 has had a direct impact on economic development in Ukraine, which is accompanied by deepening problems within administrative units. This directly correlates with the need to develop effective approaches to resolving existing contradictions in the system of local economic relations. In addition, the introduction of martial law on February 24, 2022, created even more obstacles not only for the development of local territories of Ukraine, but also for the normal life of their residents in general, which justifies the scientific problem of the inevitability and importance of finding ways to restore local territories in wartime, as well as evaluating the efficiency of this process. To solve this problem, it is first and foremost necessary to pay attention to the process of humanitarian demining, as it is the first stage of restoration of territories that have been subjected to active hostilities and/or temporary occupation by the Russian Federation.

Foreign scientific research in the context of humanitarian demining is mostly focused on its technical aspects and aspects of state-building, defence, and civil protection. These issues were raised by D. Ambruš ([Ambruš, 2020](#)), D.P. Arias Henao, and J.M. Ospina Perdomo ([Arias Henao et al., 2020](#)), T. Ban ([Ban, 2010](#)), T. Bechtel ([Bechtel et al., 2021](#)), etc. The theoretical and methodical foundations for the restoration of the affected territories of Ukraine were laid by Ukrainian scientists V. Heyets ([Heyets, 2022](#)), V. Horbulin ([Horbulin, 2022](#)), E. Libanova ([Libanova, 2023](#)), I. Storonińska ([Storonińska, 2022](#)), I. Zabłodska ([Zabłodska, 2022](#)), R. Kirin ([Kirin, 2020](#)) and others. While positively assessing the accumulated scientific achievements in this area, issues

related to the role of humanitarian demining in the restoration of local territories of Ukraine in wartime remain unresolved.

The study purpose was to substantiate the role of humanitarian demining in the process of evaluating the efficiency of the restoration of local territories of Ukraine in the context of war.

The methodical basis of this study was based on the following levels of knowledge: general philosophical reveals the restoration of territories as a set of common views and knowledge about phenomena related to the concept of quality of life; general scientific gives an understanding of general approaches to the restoration of war-affected territories and specific scientific needs for study of humanitarian demining through the prism of restoring the territories of Ukraine in wartime conditions.

The theoretical basis was the provisions of economic theory, regional economics, scientific works of domestic and foreign scholars on the restoration of local territories. The article also uses an additional method of regional economics—analysis and synthesis (in the theoretical justification of humanitarian demining before planning the restoration of territories).

The information base of the study was statistical data and legal acts of Ukraine, European and Ukrainian information and analytical reviews, scientific and methodical publications.

## **Results**

### **Humanitarian Demining as the First Stage of Restoration of the Affected Territories**

The European vector of development causes a difficult process of adapting the priority areas of development of the Ukrainian economy and implementation of reforms, which only weakens the speed and quality of regional transformations. On the other hand, the above factors create the basis for the formation of preconditions for the start of the restoration of the war-affected territories of Ukraine (regions and territories of territorial communities). In this context, humanitarian demining is the first stage of the restoration of the territories and a modern tool capable of addressing the priority security issues that are particularly acute in remote peripheral areas, where the local authorities are not primarily concerned with boosting economic activity and ensuring a safe and favorable environment for people's livelihoods. The active hostilities that have been going on for more than a year in Ukraine have provoked even greater heterogeneity in the development of the regions, as some of them have been devastated and destroyed, while others have been hit by a large migration wave. If we do not start an active process of restoring the affected territories and do not evaluate the effectiveness and efficiency of this process, their socio-economic situation will deteriorate every year, especially in the context of war. This fact is a serious problem for the state and regional authorities, as well as for the country as a whole, as the unstable situation is accompanied by significant differences in the living conditions of the regions (from the poorest to the middle class), which exacerbates the disproportions of meso-level territories and social differentiation, the negative consequences of which can be mitigated by intensifying the restoration of the affected areas, starting with humanitarian demining.

Following the full-scale Russian invasion, Ukraine has become one of the largest minefields in the world: almost 180,000 square kilometres, i.e., about a third of the territory, are contaminated with explosives. According to the State Emergency Service, the most heavily

mined areas are Kyiv, Sumy, Chernihiv, Mykolaiv, Zaporizhzhia, Kharkiv, Kherson regions and Donbas. It will take at least 10 years to clear these areas. According to the State Emergency Service, since February last year, sappers have cleared 875.4 square kilometres of explosive ordnance. A total of 394,387 items were defused, including almost 3,000 aircraft bombs. The most active demining of the territory took place in April-June 2022, after the withdrawal of Russian troops from the north of the country. Thus, in April, 106.2 square kilometres was cleared of mines, disposing of almost 66.5 thousand dangerous items. In May 2022, 108.4 square kilometres was cleared, and 36.7 thousand explosive items were destroyed. In June 2022, sappers cleared 363.9 square kilometres of territory and defused 25.4 thousand dangerous items. Most of the aircraft bombs were defused at the beginning of the full-scale war: 1,364 in late February and early March, and 597 in April. In July, sappers cleared 42 square kilometres of territory and defused just over 21,000 items. Then, until the end of the year, they managed to clear about 20 square kilometres per month, but they defused 20-40 thousand explosive items.

The smallest area of demining was recorded in February—9 square kilometres, where just over 7,000 dangerous items were found and disposed of. In May, deminers cleared 37.9 square kilometres of territory: 41.6 thousand explosive items were destroyed, including 732 aerial bombs (*Public reception..., 2023*).

In view of these facts, it is obvious that the implementation of humanitarian demining is accompanied by a complex architecture of this process and its duration, as it includes as many as six stages:

1. Rapid response to find and destroy unexploded ordnance (their remnants), and support for the procedural actions of law enforcement agencies.
2. Search, detection, and destruction of explosive devices in the liberated territories to unblock the functioning of life support facilities, transport infrastructure and access to social facilities and housing.
3. Operational search for explosive devices in agricultural areas to ensure food security of the state.
4. Identification, with the involvement of mine action operators, of likely contaminated and polluted areas that could potentially pose risks from explosive ordnance.
5. Mine action operators conduct humanitarian demining, complete clearance of territories by demining or clearing the area of hostilities.
6. Conducting external quality control of demining by accredited inspection bodies. After successful external quality control, the mine action operator transfers responsibility for the territory to local authorities (*Public reception..., 2023*).

However, despite the complexity and specificity of humanitarian demining, this process is a cornerstone for creating a safe environment for further planning for the recovery of territories and assessing the effectiveness of this process. With the support of the United Nations Development Programme, Ukrainian specialists have already cleared 540,000 mines and shells in the area where about 3.8 million people live (*UkrInform, 2023b*). To this end, from 3 to 9 June 2023, military engineers surveyed 1,524 hectares of land in the territories of Ukraine liberated from Russia and defused more than 1,100 explosive devices (*UkrInform, 2023a*). Among the total area of mined territories, almost 13,500 square kilometres are water bodies, the Black Sea, and

the Sea of Azov, of which about 7,300 square kilometres are already decontaminated territories (*UkrInform, 2023f*).

To date, the European Union, the United States, Canada, and Japan have been the leaders in supporting humanitarian demining in Ukraine. For instance, \$16 million in international technical assistance has already been raised for demining (*UkrInform, 2023c*). In addition, the Austrian Federal Government plans to provide €2 million to the Slovenian International Trust Fund (ITF) for humanitarian demining in Ukraine (*UkrInform, 2023e*). According to World Bank estimates, the needs for demining in Ukraine in 2023 amount to more than \$397 million (*UkrInform, 2023d*).

Some communities in Ukraine are already undergoing humanitarian demining or are at the final stage of it, which forms an effective basis for further measuring the effectiveness of this stage of territorial recovery. For example, mine action operators *The Halo Trust and Demining Solutions* have submitted relevant documentation on land clearance to the local executive authorities of Brovary and Bucha districts. However, most communities with potential mine contamination are at the beginning of the humanitarian demining process (*Public reception..., 2023*).

Thus, humanitarian demining is currently high on the agenda of representatives of state authorities and local self-government bodies in Ukraine. It is important to remember that humanitarian demining is the first stage in the process of comprehensive restoration of territories, which makes this issue particularly important today, in wartime, when Ukrainian territorial communities have suffered one of the most severe blows. In addition to solving the urgent problems associated with the mining of territories, these events have highlighted the need to develop new management approaches to local economic policy, which can mitigate the negative impact of military events and direct efforts to restore the affected areas.

Studying the peculiarities of modern regional development in the context of war plays a great role in the modern conditions, as it can be stated that Ukraine has formed preconditions for finding new ways of managing territories, which should also be considered when planning the recovery of the affected regions. Among these prerequisites are the following:

1. Hyper centralization of regional development management in relatively safe areas of Ukraine. This form of organisation was a well-established norm of national policy until 2013 (before the decentralisation reform was launched), which led to numerous negative consequences not only in the political sphere, but also in the socio-economic sphere: strong expectations of regional authorities for financial injections exclusively from the state budget, loss of economic initiative and lack of effective incentives for regional identity and self-development, effective regional management, and a steady decline in regional production. However, today, when the socio-economic situation has deteriorated sharply in some areas and improved somewhat in others due to the war, it is necessary to revise outdated practices.
2. Significant underfunding of targeted regional programmes from the state budget has always been a problem in Ukraine, but the war has made it worse. Such urgent and vital areas as support for the socio-economic development of small towns, development of public transport, provision of drinking water, reform of housing and communal services, etc. are essential for the survival of Ukrainians. These events significantly worsen the living conditions of Ukrainian citizens, especially in the affected areas, which necessitates the

adoption of fundamentally new, justified, and effective management decisions to find internal and external socio-economic resources for the life support of the territories.

3. Inefficiency of the mechanism of “centre-region” relations. Many local regional problems can be solved or alleviated if they are approached in the context of the administrative-territorial unit where they arose, since local peculiarities of regional development are better known by their residents than by officials from the centre who have no experience of living in the area.
4. Lack of opportunities for regional and rayon centres to actively help their residents. District centres, which are supposed to play a leading role in socio-economic assistance to citizens of the respective region, are not always able to help, especially those located either on the temporarily occupied territory or on the contact line, where hostilities are constantly ongoing, making it impossible for residents to visit them.
5. With the beginning of the implementation of decentralisation processes in Ukraine, there is a need to create a mechanism for regional development in which public control of the authorities would become a real force, so by uniting, the regions will be able to solve their problems locally faster and better than waiting for help from the state authorities.

Thus, uniting regional efforts in the context of restoring their capacity and evaluating the effectiveness of each stage will make it possible to solve emerging socio-economic and other problems, as the basic prerequisites for this process have already been formed. However, one of the main obstacles to the successful restoration of the territories in the context of the war is the weakening interest of the country's top leadership in decentralisation, which provokes further reductions in financial state aid. Undoubtedly, all efforts are currently aimed at protecting state sovereignty, but despite the war, the country is alive. Despite the proclamation of regional development as a priority for ensuring the country's competitiveness, the reality is the opposite.

The Law of Ukraine “*On Amendments to Certain Legislative Acts of Ukraine on the Principles of State Regional Policy and the Policy of Restoration of Regions and Territories*” of July, 09, 2022, introduced a new functional typification of territories, which provides for the definition of such functional types of territories as restoration areas, areas with special conditions for development, economic growth poles, and sustainable development areas. Among them, the recovery areas currently deserve special attention, as they are the most affected by the war and therefore require close attention from both the public sector and academics. As of July, 13, 2023, there is no official law of Ukraine on the criteria by which territories can be classified as recovery areas, but it is already known that such areas will include territories of territorial communities with the greatest destruction of social, residential, and critical infrastructure, which will be used to assess the effectiveness of the recovery of territories. One of the most affected regions of Ukraine is Sumy region, which was one of the first to take the brunt of the war as a border area, so to delve deeper into the subject of this study, it is proposed to assess in more detail the performance of the territorial communities of this region that were under temporary occupation and where active hostilities were or are still ongoing.

### **The Main Prerequisites for Evaluating the Efficiency of the Restoration of the Most War-Affected Territories on the Example of the Trostianets Urban Territorial Community of the Sumy Region**

Given the geographical location and constant shelling of the border of the Sumy region, certain information, including socio-economic (demographic, infrastructure) information, is currently not available in the public space, which makes it impossible to conduct a full assessment of the effectiveness of its recovery during the war. Undoubtedly, if the relevant data were to be made available in the public domain, it is assumed that a significant number of territorial communities in Sumy region would meet the criteria for restoration areas, but it is currently impossible to state this fact. However, among the territories of the Sumy region, Trostianets urban territorial community suffered the greatest destruction, so it is advisable to analyze its condition in the war.

The greatest destruction because of the hostilities was caused by the Trostianets City Hospital, the station square and the buildings and structures located there, the State Forestry Enterprise, Mondelēz Ukraine, historical buildings such as the Krasnotrostianets Forest Research Station, the estate of L.E. Koenig (right wing), the former shop of merchant F. Kurylov, etc. Almost fifty shops and pharmacies were destroyed and looted. In addition, 1075 commission visual inspections were conducted with the preparation of reports without expert examination of the damage to buildings, which will become an effective basis for the development of the territorial community in wartime and post-war.

It is important to note the humanitarian aid that was provided to the community in 2022. Thus, the city council's office sent 450 requests to foreign and domestic foundations, organizations, enterprises, and institutions to provide humanitarian assistance to the Trostianets community. In response, 130 stakeholders aided the Trostyanets community, making 170 deliveries. In total, the Trostyanets community received 1544.4 tons of humanitarian aid (1280.4 tons of food, and 264 tons of hygiene products, bedding, clothing, and seed).

In addition, in 2022, the community received:

- 34 units of vehicles, of which 11 ones for the operation of utilities; 11 ones for healthcare facilities (2 of which were transferred to the Armed Forces of Ukraine); 7 ones for the organization of the work of the Trostyanets City Council; 5 ones for the Volunteer Formation of the *Trostyanets City Territorial Community No. 1*;
- 76 units of computer and organizational equipment to support the work of departments, institutions, and establishments of the city council (38 laptops; 35 multifunctional devices; 3 printers; 36 tablets; 4 TV sets, etc.);
- 239 units of furniture to provide accommodation for internally displaced persons (53 beds; 27 wardrobes; 36 tables; 32 chairs; 15 sofas; 76 cabinets).

Construction materials provided to the community to restore the destroyed buildings in the community included:

bricks—146,600 pcs;  
 cement—37.6 tons;  
 shingle-board—95 cubic meters;  
 slate nails—12758 pcs.;  
 profiled sheet—425 square meters;  
 metal tile—10596 square meters;  
 water barrier, film—900 square meters;  
 OSB board 2500\*1250—278 pcs;

foam block 600\*200\*300—750 pcs;  
metal profile—1225 square meters;  
windows and double-glazed windows—790 square meters (526 products);  
clock—7742 pcs (1761 pcs of which were purchased at the expense of the city council);  
slate nails—30 kg;  
glass—2843.1 square meters.

In addition to the data on damage and assistance provided, it is advisable to refer to available information sources covering social protection for further planning of the recovery of this community, as this area is one of the first to be restored immediately after humanitarian demining.

In order to provide social support to the residents of Trostianets city territorial community, the *Social Protection Program of Trostianets City Council* for 2021–2023 was developed, which includes measures aimed at social protection of vulnerable groups of the community's population. The total amount of financial resources required to implement the program for three years is UAH 25204.8 thousand, of which UAH 8399.6 thousand was allocated in 2022 and UAH 9409.6 thousand in 2023.

It is important to understand the social situation of the community during the war to look at key indicators. Thus, in 2022, the local budget provided social support to 119 community residents in difficult life circumstances and seriously ill people in the amount of UAH 190 thousand. 37 citizens applied for financial assistance for funerals. Reimbursements were made from the local community budget in the amount of UAH 37 thousand. One person was granted a monthly stipend to a person who turned 100 or more years old. Payments in the amount of UAH six thousand were made. 1,136 households were provided with fuel wood in the amount of 3,862.4 cubic meters for UAH 10,810 thousand (*Decision No. 25, 2023*).

To ensure the right of certain categories of citizens to preferential travel, the local budget of the Trostianets City Council in 2022 allocated UAH 1200 thousand for road transport, UAH 400 thousand for rail transport, and provided benefits to certain categories of citizens for communication services in the amount of UAH 40 thousand. In addition, 183 applications were considered and utility bills for sheltering 359 internally displaced persons were charged in the amount of UAH 612.4 thousand, which were reimbursed from the state budget and charitable organizations.

Thus, the issue of evaluating the efficiency of the restoration of the affected areas should be considered primarily through the prism of humanitarian demining, taking into account modern approaches to the management of regions and territories of territorial communities. It is necessary to start with the most affected territories, such as Trostianets city territorial community, paying attention to those areas of life that are vital for survival in this case – social protection of the population). It is proposed to consider the process of restoring local territories according to the following scheme (*Figure 1*).

## Discussion

If we look at the evaluation of the efficiency of the social recovery of the Trostianets urban territorial community through the list of activities that were carried out in the community during the war, it is impressive and forms a positive picture of the local authorities' efforts to restore

the optimal level of life in the community. However, if we look at this process from an economic point of view, the situation looks more problematic. Thus, the budgetary provision of social protection in the context of the general fund of the territory was provided in 2022 with expenditures in the amount of UAH 18138.5 thousand, which is 71.4% of the annual allocations. In the structure of the special fund, UAH 2402.9 thousand was actually spent during the reporting period against the approved UAH 1767.6 thousand, which indicates an overperformance of the planned values by 35.9%, which is a negative result given the lack of funds under martial law (*Decision No. 25, 2023*).

As a result, the community did not spend the planned amount of funds in 2022 on some of the most important expenditure items: measures in the field of social protection and social security, namely the operation and maintenance of the housing stock, and other activities to provide housing for citizens, which indicates an insufficient level of informed management decision-making by the local government.

These arguments create a debate in expert circles due to the dual perception of the current state of the affected territories, which can lead to an erroneous assessment of the performance of this territory and delay its recovery. However, this cannot be delayed, as people are waiting to return to their homes, and this can only happen after the successful implementation of humanitarian demining. This problem still needs to be solved from both the state and scientific point of view, which should be the focus of further fundamental and applied research.

### Conclusions

Today, under martial law, there is an urgent need to restore the war-affected territories as soon as possible and to assess the effectiveness of this process so that their residents can return home and restore the socio-economic potential of regions and territorial communities. However, this is impossible without guaranteeing security in the territories where active hostilities took place or which were temporarily occupied, which can be ensured by successful humanitarian demining. The issue of demining is high on the agenda of representatives of state authorities and local self-government in Ukraine, given the fact that humanitarian demining is the first step on the way to restoring war-affected territories. Unfortunately, economic science is not yet sufficiently active in considering humanitarian demining as a component of the spatial development of territories and the restoration of their socio-economic potential after the end of active hostilities, but these processes are very much related and correlated as general and specific. Therefore, this study is one of the first in Ukraine to link socio-economic processes and humanitarian demining, and there is still a long way to go in terms of researching their overall purpose, principles, methods, funding, results, conducting a full assessment of the effectiveness and efficiency of each stage, etc.

To date, almost all local territories of Ukraine are still at the beginning of their own recovery path, such as the territorial communities of Sumy region as one of the most affected border regions of Ukraine. The study provided an opportunity to learn more about the results of one of the most important areas of Trostianets city territorial community's life (social protection of the population), which is one of the most affected by the war and needs to acquire the status of a priority recovery area. The analysis of the available data allows us to draw diametrically opposite conclusions, which are the basis for planning the process of restoring the territory and further

developing theoretical and methodological tools for assessing its effectiveness: on the one hand, the community implements a large number of measures aimed at helping and protecting residents, and on the other hand, these items of expenditure are not properly funded. This situation is not isolated and is related to the lack of a unified statistical database of local territories of Ukraine in the context of war (so that the enemy does not use it for his own purposes), which causes dissonance and requires further verification and relevant research by scholars and practitioners.

### Conflict of Interest

The author declares that there is no conflict of interest.

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graph TD; S1[Step 1. Implementation of humanitarian demining stages] --> JSD[Justified selection of demining operators]; S1 --> S3[Step 3. Financial support]; S1 --> S2[Step 2. Ensuring an optimal level of life]; JSD --> E[Evaluation of the effectiveness of the restoration of the affected areas]; S3 --> RFS[Reasonable selection of financial sources]; S2 --> RIS[Reasonable interaction and alignment of interests of key stakeholders]; RFS --> E; RIS --> E;
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The flowchart illustrates the implementation of humanitarian demining stages. It begins with Step 1, which leads to three parallel paths: justified selection of demining operators, financial support, and ensuring an optimal level of life. These paths converge at the central evaluation stage, which is influenced by the selection of financial sources and the interaction of key stakeholders.

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