

USING TERRITORIAL MARKETING TO ENSURE SPATIAL DEVELOPMENT OF REGIONAL AGRICULTURAL SYSTEMS IN UKRAINE DURING MARTIAL LAW

*Maksym Bezpartochnyi, Olesia Bezpartochna

Lviv Polytechnic National University, Ukraine

*Corresponding author's e-mail: maksym.h.bezpartochnyi@lpnu.ua

Abstract

Ensuring the spatial development of regional agricultural systems in Ukraine during martial law requires a comprehensive study and implementation of urgent effective tools and mechanisms. The hostilities had a negative impact on agriculture, disrupting the regional structure of agricultural production and consumption, destroying agricultural land, assets, enterprises in certain regions of Ukraine, and reducing the volume of agricultural exports through traditional logistics channels. The aim of the study is use territorial marketing to ensure the development of regional agricultural systems in Ukraine. It is based on the analysis of regional structure of agricultural systems in Ukraine, clustering of regional agricultural systems in terms of relative security of sustainable agriculture, and mechanisms of land use development. The regional structure of agricultural systems in Ukraine is analyzed and the territories where the ecosystem is destroyed and unsuitable for agriculture, which are temporarily occupied are identified. The dynamics of planted area of agricultural crops under the harvest were assessed, clusters of regional agricultural systems of Ukraine during martial law were identified. Based on research results, the use of territorial marketing is proposed, a mechanism for sustainable agriculture and strategic land use planning is developed. Prospects intend to ensure spatial development of regional agricultural systems in Ukraine during martial law by relocating agricultural enterprises to relatively safe regions, creating of integrated entrepreneurial agricultural structures, developing of public-private partnerships, attracting investments and introducing innovations, digitalization in agriculture, developing exports within the framework of cross-border cooperation, increasing employment in agriculture due to internal migration processes, etc.

Key words: region agricultural systems, territorial marketing, spatial development, Ukraine, war.

Introduction

The formation of regional agricultural systems in Ukraine is influenced by economic, social, administrative, environmental, spatial and institutional factors. The system of spatial development, which combines the resource capabilities of the country's regions, the sectoral factor and indicators of the socio-economic and environmental status of business entities, is becoming increasingly important. Ensuring the spatial development of regional agricultural systems in Ukraine is carried out on a balanced basis of realising the interests of participants.

During the period of full-scale aggression by Russia on the territory of Ukraine, production and commercial relations between agricultural entities and contractors were disrupted, the ecosystem was disrupted due to pollution in certain regions of the country as a result of hostilities, the blocking of seaports led to delays in the export of agricultural products abroad, and illegal export of agricultural products to Crimea and Russia, etc. All of this has led to negative consequences for the functioning of regional agricultural systems in Ukraine, the impossibility of their further development and food security.

Given the current state and the next marketing year during martial law, there is a need to find tools to ensure spatial development of regional agricultural systems, based on the state of the resource potential of agricultural enterprises and the security of the territories.

In our opinion, territorial marketing can become

such a tool, but scientific publications do not sufficiently cover research in this area to ensure spatial development of regional agricultural systems. Therefore, there is a need for a scientific research of the use of territorial marketing to ensure spatial development of regional agricultural systems in Ukraine during martial law.

In the scientific literature, territorial marketing is considered as a tool for the development of territories – formation of a positive image, branding of territories, means of implementing the territorial (regional) policy of self-government bodies. Territorial marketing serves as a management tool for local governments, which makes it possible to create additional values through their own identity, create their own unique image – a brand of the territory, which allows them to meet the needs of residents and business entities, ensure the development of the territory in accordance with the principles of sustainable development (Kondratowicz-Pozorska, 2018). On the other hand, territorial marketing combines elements of industrial and social marketing, marketing of services aimed at meeting the needs of specific target groups of the territory and encourages self-government bodies to develop programmes and relevant policies to create conditions for the effective functioning of target groups, ensuring the quality of various types of services (Knapik, 2009).

Other authors in their studies consider only the elements of territorial marketing in ensuring spatial development of agricultural systems by levels of management – territorial planning, monitoring, and information infrastructure. The use of territorial

planning concerns agricultural land and contributes to the implementation of a balanced regional agricultural policy and management of territorial resources, sustainable agricultural development within a particular region (Borisov, 2015). Spatial planning uses a system of diagnostics (monitoring) of the territory based on multidimensional indicators and clustering to substantiate optimal forms of management in agriculture and make effective management decisions to ensure its development (Abrantes, Marques da Costa, & Gomes, 2023). Spatial planning is considered in the system of sustainable development of territories and agricultural recovery; practical orientation is focused on the French model of urban agriculture management based on urban plans and legislative framework, conservation of natural resources (Plonka, Heczko-Hylowa, & Sroka, 2021). The use of spatial planning is closely related to the level of food insecurity, access to food resources and the role of agriculture in this process, taking into account the state of agricultural production, land use, environment (Meenar, 2017). In order to ensure territorial development of agrarian systems, there is a need to form and function a spatial information infrastructure, in particular; this concerns land use management – creation of a database of agricultural land in the region, its processing, analysis, storage, use (Szafranska *et al.*, 2020).

In our opinion, in the context of the author's scientific research on territorial marketing as a tool to ensure spatial development of regional agricultural systems, it is worth paying attention to the sectoral affiliation of Ukraine to the agricultural sector of the economy and various resource opportunities for economic activity in the regions of the country where there are promising opportunities for growing agricultural crops. This thesis is also reinforced by the opportunities for agricultural producers to expand their operations, available production resources (especially agricultural land), export potential, production costs, growth in regional and gross national product, and improved macroeconomic indicators due to foreign exchange earnings. The spatial development of regional agricultural systems in Ukraine is complicated by the territorial security. Therefore, the use of territorial marketing to ensure spatial development of regional agricultural systems is possible only in those regions of the country where there are no relatively dangerous conditions for economic activity in the agricultural sector and there is an available resource potential.

Materials and Methods

The methodological basis of the study is the general economic principles and methods of a systematic approach to studying the process of using territorial marketing to ensure spatial development of regional agricultural systems of Ukraine during martial law. The

methods of analysis and synthesis are applied, which allowed identifying problems and determining ways to ensure spatial development of regional agricultural systems of Ukraine. OpenStreetMap was used to build a map of the destruction of regional agricultural systems in Ukraine. Sources of statistical information on the agricultural sector were used, and the volume of planted area of agricultural crops under the harvest by region of Ukraine was studied using the method of dynamic comparisons. The cluster analysis was used to divide relatively safe regions of Ukraine into clusters of regional agricultural systems during martial law. The abstract-logical method was used to justify the need to apply territorial marketing, develop a mechanism for sustainable agriculture and strategic land use planning in the newly created regional agricultural systems in Ukraine.

Results and Discussion

Agricultural systems are resource-limited ecosystems that have specific properties. Ensuring spatial development of agricultural systems has a positive impact on natural, economic, social, etc. resources, while unsustainable systems deplete these resources and require their restoration, conservation and rational use (Pretty & Bharucha, 2014).

By regional agricultural systems, we mean a set of entities and objects covered by a certain territory of the country, characterised by distinctive properties that manifest themselves in the ability to form resource potential and are able to use it effectively in accordance with the needs of consumers and the specifics of the territorial formation. Given the martial law situation in Ukraine, there are limitations in the effective functioning of regional agricultural systems due to the impossibility of agricultural production in the temporarily occupied territories of the country, security threats to people and assets of agricultural producers, production and sale of agricultural products and their preservation. Figure 1 shows the regions of Ukraine where agricultural land has been destroyed and is temporarily occupied; the most affected regions are Donetsk, Luhansk, Kharkiv, Kherson, Zaporizhzhya, Chernihiv, and Kyiv. In these regions of Ukraine, regional agricultural systems are being destroyed, including the destruction of production facilities and infrastructure of agricultural producers, disruption of the sowing campaign, ecosystem disruption and soil contamination, and a significant volume of agricultural land is mined.

The destruction of regional agricultural systems in Ukraine caused by the hostilities is leading to agricultural land degradation and environmental disasters, which can lead to a decline in soil fertility. This can be compared to the development of urban settlements, industry, and transport infrastructure,

which involves soil compaction (Oliveira, Tobias, & Hersperger, 2018).

Given the above, there is a need to diagnose the regional agricultural systems of Ukraine that have

sufficient resource potential to relocation of agricultural production in the affected areas and temporarily occupied territories.

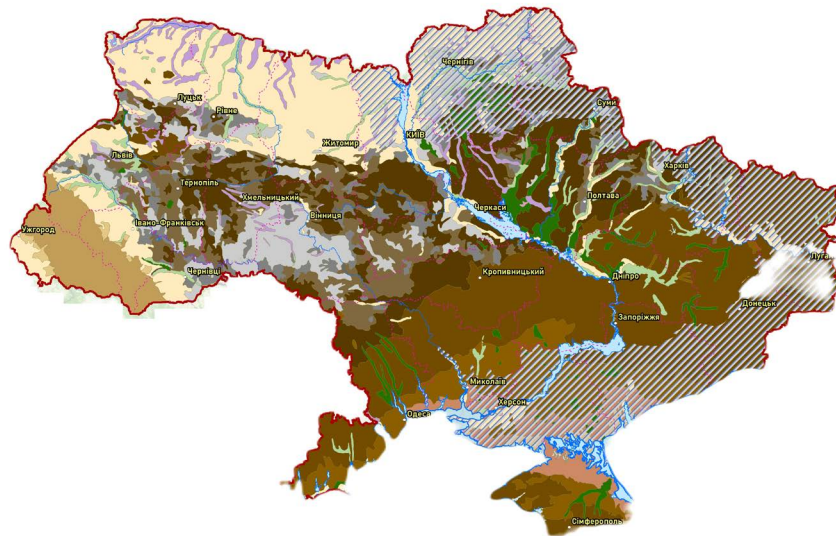


Figure 1. Map of destruction of regional agricultural systems in Ukraine (Zalavskiy *et al.*, 2022).
 Note: [hatched box] – territories that have been destroyed as a result of hostilities.

In addition, there is a need to develop agricultural production in order to provide food for these territories and other regions of Ukraine, as internal migration increases the demand for agricultural products. This can be a key point in the formation of mechanisms for spatial planning and development of regional agricultural systems in Ukraine on the basis of territorial marketing. In this regard, there is a need to study the regional structure of planted area of agricultural crops under the harvest in Ukraine (Table 1). It should be noted that, given the intensity of hostilities on the territory of Ukraine, the adjacent regions to the temporarily occupied territories and border regions in the east, south and north of Ukraine can also be potentially dangerous.

Based on the data presented in the table, the following regions of Ukraine can be considered promising for agriculture: Vinnytsia, Dnipropetrovsk, Kirovograd, Poltava, Khmelnytsky, Cherkasy, Zhytomyr. In these regions of Ukraine, there are significant volumes of agricultural land that can be intensively used and the tools of territorial marketing can be applied to ensure spatial development of regional agricultural systems. In addition, we believe that the regions of western Ukraine (Lviv, Volyn, Ternopil) can be used for organic farming, as they have favourable natural and climatic conditions and can attract foreign investment and innovations from neighbouring European Union countries. These

territories determine the prospects for the spacious development of regional agricultural systems in Ukraine.

Using cluster analysis, in accordance with the identified regional agricultural systems, it is proposed to identify four clusters by region of Ukraine: booming, prosperous, moderate, and transition (Meyer *et al.*, 2021). The criterion for clustering regional agricultural systems in Ukraine is the rate of change in the volume of agricultural land in the dynamics. The results are presented in Table 2.

Using the tools of territorial marketing to ensure spatial development of regional agricultural systems in Ukraine during martial law, a mechanism for sustainable agriculture and strategic land use planning is proposed (Figure 2). Let us describe the individual elements of the mechanism in more detail.

Territory branding plays an important role in the context of territorial marketing to ensure spatial development of regional agricultural systems in Ukraine. Public authorities in most regions of Ukraine have developed programmes for the development of business entities, including agricultural enterprises, investment passports for attracting domestic and foreign investment in the regions, standards for investment and post-investment support for investors, and established development agencies and a single investment window. These structural elements of territorial marketing can serve as an effective tool

to ensure relocation of agricultural enterprises from regions where there are no business opportunities. In addition, local governments in cooperation with non-governmental international organisations, support relocated enterprises, providing them with information

support, financial support for the operation and development of agricultural enterprises.

The newly created regional agricultural systems have the opportunity to increase the supply of agricultural products due to internal migration, the cessation of agricultural supplies from the occupied territories, meeting the needs of the Armed Forces of Ukraine, and changes in the structure of consumption during martial law. This will increase the volume of planted area of agricultural crops under the harvest in relatively safe regions of Ukraine and allow for their rational use.

Table 1
Planted area of agricultural crops under the harvest

Region	2021	2021 % to 2020
Ukraine	28387.5	100.9
Vinnitsia	1653.1	101.6
Volyn	611.7	101.0
Dnipropetrovsk	1971.8	99.6
Donetsk	1041.0	100.8
Zhytomyr	1153.7	97.0
Zakarpattia	173.8	94.3
Zaporizhzhya	1711.8	100.2
Ivano-Frankivsk	383.4	101.4
Kyiv	1191.7	99.7
Kirovograd	1705.2	99.5
Luhansk	855.9	99.8
Lviv	706.3	99.1
Mykolaiv	1600.9	102.3
Odesa	1841.6	108.4
Poltava	1732.0	100.2
Rivne	619.0	100.0
Sumy	1209.6	101.1
Ternopil	840.7	100.0
Kharkiv	1823.2	99.8
Kherson	1476.8	104.1
Khmelnitsky	1205.1	99.6
Cherkasy	1217.7	100.4
Chernivtsi	308.0	100.7
Chernihiv	1353.5	101.2

Source: created by authors based on State Statistics Service of Ukraine for 2021.

Table 2
Clustering of regional agricultural systems in Ukraine during martial law

<i>Booming regions</i>	<i>Prosperous regions</i>
Vinnitsia Poltava	Dnipropetrovsk Kirovograd
<i>Moderate regions</i>	<i>Transition regions</i>
Cherkasy Khmelnitsky Zhytomyr	Lviv Volyn Ternopil

Source: authors' proposal.

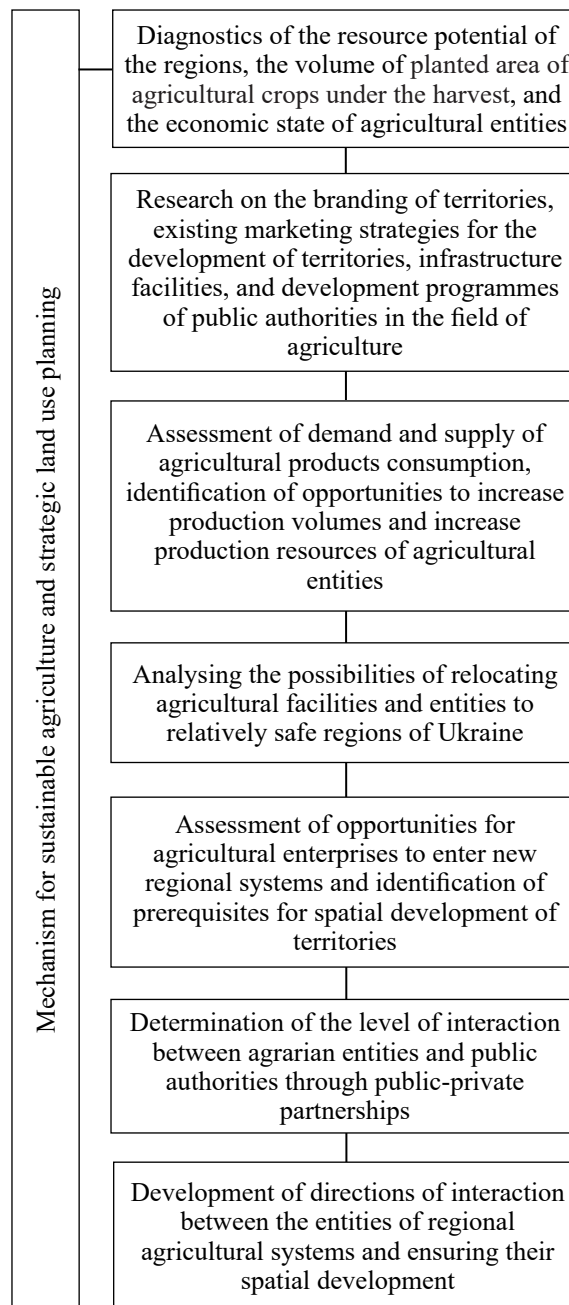


Figure 2. Mechanism for sustainable agriculture and strategic land use planning (authors' proposal).

The formation of integrated regional agricultural systems in the respective territories of Ukraine will contribute to the effective integration of production potential, the introduction of innovative technologies in agriculture, the establishment of new sustainable supply chains (especially within the framework of cross-border cooperation with the European Union countries), the development of small and medium-sized enterprises in agriculture, rural development, and digitalisation in agriculture, which will manifest itself in the achievement of a synergistic effect.

At the national level during martial law state support for regional agricultural systems in Ukraine is aimed at optimising taxation, abolishing VAT and excise on petroleum products, introducing preferential lending and a declarative principle of customs operations for agricultural exports.

All of these measures contribute to spatial development of regional agricultural systems in Ukraine and will ensure food security in the future.

Conclusions

1. Based on the review of scientific sources, it was found that territorial marketing is considered as a tool for the development and management of territories by public authorities. Another group of researchers considers territorial marketing as a tool for meeting the needs of consumers of a certain territory, which is characterised by specific features and resource potential. The authors' generalisations allowed to focus on the expediency of use territorial marketing to ensure spatial development of agricultural systems in Ukraine.
2. Based on the analysis of the map of destruction of regional agricultural systems in Ukraine, the territories of the country that have suffered the most from military operations and are dangerous for agriculture are identified. These include Donetsk, Luhansk, Kharkiv, Kherson, Zaporizhzhya, Chernihiv, and Kyiv regions of

Ukraine. These regional agricultural systems need to be transformed by relocating to relatively safe regions of the country.

3. The dynamics of the regional structure of sown areas of agricultural land in Ukraine are assessed. Based on results of research, four clusters have been identified by regions of Ukraine: booming (Vinnytsia, Poltava), prosperous (Dnipropetrovsk, Kirovograd), moderate (Cherkasy, Khmelnytsky, Zhytomyr), and transition (Lviv, Volyn, Ternopil), where new regional agricultural systems can be formed during martial law.
4. Based on the principles of territorial marketing, a mechanism for sustainable agriculture and strategic land use planning to ensure spatial development of regional agricultural systems in Ukraine during martial law is proposed. The key aspects of the mechanism are the marketing analysis of the resource potential of territories and the developed strategies for the development of territories, the possibilities of relocation of agricultural systems to relatively safe regions of the country, intensification of the use of planted area of agricultural crops under the harvest, an increase in the volume of activities of agricultural enterprises and satisfaction of consumer needs for agricultural products during martial law.
5. Prospects for spatial development of regional agricultural systems in Ukraine during martial law can be achieved through creating of integrated entrepreneurial agricultural structures, attracting internal and external investment, developing public-private partnerships, using opportunities for cross-border cooperation in the export of agricultural products, introducing sustainable environmental technologies and organising organic production, developing rural areas, increasing the level of employment in agriculture through internal migration processes, and introducing digital technologies in agriculture.

References

- Kondratowicz-Pozorska, J. (2018). Territorial Marketing as a Method of Creating New Values of a Territorial Unit Based on the Example of Dobra Szczecinska Municipality in the West Pomeranian Province. *Economic and Regional Studies*. 11(1), 118–131. DOI: 10.29316/ers-seir.2018.09.
- Knapik, A. (2009). Territorial marketing – thoughts and acts of local authorities. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 3(2), 167–177. DOI: 10.12775/EQUIL.2009.029.
- Borisov, B. (2015). Spatial planning in regional planning of agricultural lands and rural areas. *Bulgarian Journal of Agricultural Science*. 21, 751–756.
- Abrantes, P., Marques da Costa, E., & Gomes, E. (2023). Towards a typology of agri-urban patterns to support spatial planning: evidence from Lisbon, Portugal. *Landscape Research*. 48(1), 88–106, DOI: 10.1080/01426397.2022.2136366.
- Plonka, A., Heczko-Hylowa, E., & Sroka, W. (2021). Role of Spatial Planning in the Restitution and Development of Urban Agriculture. *European Research Studies Journal*. XXIV, 2B, 698–711.
- Meenar, M. (2017). Assessing the spatial connection between urban agriculture and equity. *Built Environment*. 43(3), 364–375.

- Szafrańska, B., Busko, M., Kovalyshyn, O., & Kolodiy, P. (2020). Building a Spatial Information System to Support the Development of Agriculture in Poland and Ukraine. *Agronomy*. 10, 1884. DOI: 10.3390/agronomy10121884.
- Pretty, J., & Bharucha, Z. (2014). Sustainable intensification in agricultural systems. *Annals of Botany*. 114(8), 1571–1596. DOI: 10.1093/aob/mcu205.
- Zalavskiy, Yu., Solovei, V., Soloha, M., & Baluyk, S. (2022, May). The impact of military operations on the soil cover of Ukraine. The National Academy of Agrarian Sciences of Ukraine. Retrieved February 22, 2023, from <https://ibb.co/Dp2zJWC>.
- Oliveira, E., Tobias, S., & Hersperger, A. (2018). Can Strategic Spatial Planning Contribute to Land Degradation Reduction in Urban Regions? State of the Art and Future Research. *Sustainability*. 10, 949. DOI: 10.3390/su10040949.
- State Statistics Service of Ukraine. (2021). *Agriculture*. Retrieved February 21, 2023, from <https://www.ukrstat.gov.ua>.
- Meyer, M., Lehmann, I., Seibert, O., & Fruh-Muller, A. (2021). Spatial Indicators to Monitor Land Consumption for local Governance in Southern Germany. *Environmental Management*. 68(5), 755–771. DOI: 10.1007/s00267-021-01460-3.