

# COMPREHENSIVE TYPOLOGY OF RURAL SETTLEMENTS IN THE KALININGRAD REGION

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*The rural settlement system of the Kaliningrad region, comprising 1,075 localities, is characterised by compactness, high economic development and a predominance of small rural settlements. From 2010 to 2024, the region's rural population increased from 210 to 235 thousand people. Simultaneously, the number of large rural settlements is growing in the western part of the region, while a stable trend of demographic decline persists among small rural settlements in the eastern part. Using statistical data, along with quantitative data from previous studies, open sources and field research materials, the authors developed a comprehensive typology of Kaliningrad region's rural settlements. The typology classifies settlements according to demographic factors, spatial location, availability of social infrastructure, tourism and recreation facilities and agricultural enterprises of various types. The research methods encompassed tools for gathering, processing and analysing primary data, including statistical, cartographic and comparative-geographical techniques. As a result, 18 types of rural settlements were identified in the Kaliningrad region, each characterised by a unique trajectory of socio-economic and demographic development. These distinctions should be considered when designing and implementing spatial development programmes and projects at local or regional levels. The research results are presented in cartographic and tabular formats.*

## Keywords:

rural settlements, Kaliningrad region, typology, rural settlement system, agglomeration, periphery

## Introduction

The rural areas represent an essential and multifaceted component of any territorial socio-economic system (TSES). Alongside cities and large agglomerations, rural settlements form a settlement system, serving as the structural backbone for all social and economic processes. Each rural settlement has its distinct func-

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tion determined by its geographical location and resource potential, including human resources. Over time, the function of a rural settlement may strengthen or diminish, develop or transform, depending on regional, national, or global socio-economic development models.

In Russia, significant changes in rural settlement patterns began in the early 1990s with a shift in the socio-economic development model. This transition brought not only rural depopulation but also functional transformations for many rural settlements. These changes have been extensively studied by prominent Russian economic geographers such as Nefedova [1], Alekseev [2], Safonov [3], Zubarevich [4], and others.

The rural settlement system in the Kaliningrad region, a vital component of Russia's exclave region, has been actively studied in recent years from the perspective of transformations influenced by internal and external social, economic, political, environmental, technological, and other factors. Rural areas and their socio-economic processes have been researched by Fedorov [5], Levchenkov [6], Gumenyuk [7], Khvalei [8], Plotnikova [9], and others. In 2022 and 2023, a team led by Gennady Fedorov published two monographs on the rural areas of the Kaliningrad region. They were part of the "Social Innovations and Enhancement of Local Value in Rural Regions" project under the ERA.Net RUS Plus programme supported by the Russian Foundation for Basic Research [10; 11].

The transformation of rural areas in the Kaliningrad region has also been accompanied by functional changes in the role of rural settlements. Many settlements have lost traditional agricultural functions, adopting new roles (recreational, residential, etc.) or developing alternative functional profiles. This necessitates the introduction of a comprehensive typology of rural settlements in the Kaliningrad region to support management decisions for the infrastructure and socio-economic development of non-urban areas.

The study aims to address the following objectives:

- analyze population trends in the region's rural settlements from 2010 to 2024;
- evaluate the geographical location of rural settlements within the regional settlement system, including their transport and geographical position;
- assess rural settlements' access to social infrastructure, tourism, and recreation facilities.

The study focuses on the rural settlements of Russia's exclave region, analyzing transformation processes in the Kaliningrad region's rural settlements from 2010 to 2024.

## **Theoretical framework**

Since any rural settlement system comprises numerous settlements, the development of a typology is a well-established method in economic-geographical studies. In the 1960s, Kovalev introduced a functional typology of rural settlements based on the criterion of the “structure of the settlement-forming group of the economically active population”, determined by the proportion of workers across different economic sectors [12, p. 129]. The typology comprised several types of settlements:

1. Settlements of industrial enterprises;
2. Settlements along transport routes;
3. Construction projects settlements;
4. Forestry and forest conservation settlements;
5. Fishing and hunting settlements;
6. Settlements of research stations;
7. Settlements housing healthcare and educational institutions;
8. Dacha settlements;
9. Suburban residential settlements for workers and employees [12, p. 134–136].

In subsequent research, typologies based on the population size of rural settlements or their spatial position within the TSES have been developed in addition to functional typologies. An interesting example of a typology based on population size is the work by Kunitsa [13]. Analyzing rural settlements in Central Russia, the author classified 11 types of rural settlements, ranging from “abandoned villages” to “cottage settlements.” Voroshilov’s research presents a spatial typology of rural settlements, using the centre-periphery concept to identify rural settlements within the near, middle, and distant periphery categories [14].

Alekseev and colleagues developed several functional typologies of rural areas. One typology, for instance, categorized settlements based on the presence of permanent population, the ratio of permanent and temporary residents, the number of working-age residents, and the availability of workplaces, resulting in eight settlement types. In later work, Alekseev and his team [16] used landscape and post-Soviet development trajectory criteria to classify rural settlements in the Tambov region, forming the following types:

- Developing valley complex settlements;
- Stagnating valley complex settlements;
- Degrading valley complex settlements;
- Developing upland settlements;

- Stagnating upland settlements;
- Degrading upland settlements.

Functional typology is widely utilized in international research as well. As noted by Skenderi [17], in addition to functional classification, genetic, demographic, morphological, and spatial typologies may also be used. Nevertheless, functional typology remains prevalent in studies on rural settlements in Serbia [18], Bulgaria [19], Northern China [20], Western Herzegovina [21], and other countries and regions. The popularity of functional typology stems from its flexibility, enabling the application of diverse quantitative and qualitative criteria tailored to the methodological approaches of each study.

In the context of the Kaliningrad region, Gennady Fedorov proposed a functional typology in 2001, which included ten types of rural settlements (Table 1).

*Table 1*

**Functional types of rural settlements in the Kaliningrad region**

Functional Type	Number of Settlements
Administrative centres with agricultural, non-agricultural, organizational, and socio-cultural functions	18
Administrative centres with agricultural, organizational, and socio-cultural functions	68
Administrative centres with agricultural and socio-cultural functions	5
Administrative centres with non-agricultural and socio-cultural functions	4
Settlements with non-agricultural and socio-cultural functions	31
Settlements with non-agricultural functions	24
Settlements with organizational, agricultural, non-agricultural, and socio-cultural functions	105
Settlements with agricultural and socio-cultural functions	169
Settlements with agricultural functions only	152
Residential settlements without economic or social infrastructure facilities	503

Calculations: Natalia Klimenko, Levchenkov.

Source: [22].

In their previous works, the authors of this study also proposed various typologies of rural settlements in the Kaliningrad region. One of the proposed typologies is based on a combination of transport-geographic location and population

dynamics [10], which allowed for the identification of 16 types of settlements. Based on transport-geographic location, settlements were divided into four categories:

- Located along federal and/or international highways;
- Located on regional transit routes;
- Located off regional transport routes;
- Transport dead ends.

The analysis of rural population dynamics allowed for the classification of settlements into the following demographic groups:

- Growing settlements;
- Stable settlements;
- Stagnating settlements;
- Declining settlements.

Another typology developed by the authors is based on a scoring system for the availability of social infrastructure, particularly facilities for preschool and school education, healthcare, culture, sports, and recreation [23]. This resulted in the identification of 12 types of rural settlements in the Kaliningrad region based on the level of access to social infrastructure.

Tkachenko [24] offers an intriguing functional typology initially applied to rural areas as a whole, defined as “non-urban space with a permanent population” [24, p. 4]. Notably, this typology can also be effectively applied to individual rural settlements. The study identifies the following functional types of rural areas:

1. Suburban (with various functional combinations);
2. Agrarian (with well-developed commercial agriculture, further divided by the predominant type of enterprise);
3. Agro-recreational, or “dacha” settlements, with a predominance of urban household farms;
4. Post-agrarian or agrarian-depressed (subsistence farming with trends toward population marginalization, occasionally labour migration);
5. Forestry-industrial;
6. Fishing-industrial, where the economy is based on the exploitation of natural resources;
7. Recreational.

The typology developed by the authors draws on previous studies and is based on diverse quantitative and qualitative parameters describing the current state and the temporal dynamics of transformation processes in the Kaliningrad region’s rural settlements.

## **Materials and methods**

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The materials for this study include statistical data on the population size of rural settlements in the Kaliningrad region<sup>1</sup>, quantitative data collected from prior research and open sources (databases from regional ministries on the availability of social infrastructure, recreation and tourism facilities, and active agricultural producers in the region). The study also utilized indicators of the region's rural settlements' transport accessibility, calculated using a time-based criterion representing the total travel time required to reach a city from a settlement via public roads, adhering to all regulated speed limits. The travel time was calculated without accounting for road congestion, which is a variable factor. The time criterion was used instead of distance, as the distance is primarily a quantitative measure of transport accessibility, whereas time is qualitative and accounts for the condition of the road infrastructure. The study is also based on numerous field surveys conducted by the authors over recent years as part of various projects and programmes.

The research database encompasses all rural settlements in the Kaliningrad region. As of January 1, 2024, there are 1,075 rural settlements in the region. The data on population dynamics from 2010 to January 1, 2024, were used in this study. Despite the limitations of relying on population size as reported in official statistics—since these figures represent only registered residents and may not account for the actual population—the authors chose this data for its accessibility and comprehensive coverage. More informative data for such studies could be derived from mobile operators [25] and sociological surveys, although these are not publicly available or would require extensive time to collect, analyze, and interpret (for example, through large-scale sociological research).

The research methods used include primary data collection tools, data processing, and analysis, specifically statistical, cartographic, and comparative-geographical methods.

The methodology initially involved differentiating rural settlements in the region based on population size, resulting in six groups of settlements (Table 2).

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<sup>1</sup> Population of urban and rural settlements of the Kaliningrad region: Statistical collection, Kaliningradstat. Kaliningrad, 2024.

Table 2

**Types of rural settlements by population size**

Type	Population (people)	Number of settlements	Total population
Abandoned settlements	0	30	0
Micro-settlements (transitioning to abandoned)	1–10	136	665
Micro rural settlements	11–100	500	21,480
Small rural settlements	101–500	309	75,030
Medium rural settlements	501–2000	87	79,600
Large satellite settlements within city agglomerations	More than 2000	17	58,640
	<i>Total</i>	1,075	235,415

As of January 1, 2024, there are 30 rural settlements in the Kaliningrad region with no registered population (2.7 % of the total). Between 2020 and 2024, the number of these abandoned settlements remained constant, though it almost doubled from 18 to 30 between 2010 and 2020. The reasons for the emergence of abandoned rural settlements are often linked to their “falling out” of the current socio-economic system due to crises in the agricultural sector, extremely high natural population decline, and/or out-migration, as well as planned or spontaneous relocation of residents to larger, more comfortable settlements. The phenomenon of “unpopulated rural settlements,” their causes, and ways of revitalizing them, are explored in detail in the work of Rummyantsev and colleagues [26].

A separate group consists of rural settlements that are transitioning into the “abandoned” stage, with official populations ranging from 1 to 10 people. These settlements exhibit similar negative trends to abandoned settlements, though the process has not yet been fully completed. As of early 2024, the region had 136 such settlements (12.6 % of all settlements), with a growing trend over time: there were 104 such settlements in 2010 and 120 in 2020.

Micro rural settlements with populations between 11 and 100 people are limited in their capacity for multi-functional development due to their small population size. These settlements often fulfil a single function and may lack or have only a single social infrastructure facility, such as a cultural centre or rural library. At the start of 2024, there were 500 such settlements in the Kaliningrad region (nearly half of the total rural settlements), which can be attributed to the historical patterns of settlement formation in the region, its relatively small territory, and a high level of economic and infrastructural development.

The next category is small rural settlements with a population of 101–500 people. These settlements generally experience relatively stable demographic processes, though there is a trend of population decline. At the beginning of 2024, there were 309 settlements of this type in the region, which were home to approximately 75,000 people, compared to a combined population of 79,900 in the 2010 census (a decline of 6%). These settlements contain various social infrastructure facilities (such as preschools, primary schools, cultural institutions, libraries, and healthcare outposts).

The group of medium rural settlements consists of settlements with populations between 501 and 2,000 people. In the region, these settlements make up less than 10% of the total, with 87 settlements in this category. Like other groups, the number of medium rural settlements shows a trend of decline. In 2010, there were 105 such settlements in the region (with a combined population of 85,200 people); in 2020, there were 90 (84,900 people), and by early 2024, 87 medium-sized rural settlements remained, housing approximately 79,600 people. These settlements serve as important components of the regional settlement framework. They not only provide organizational, socio-cultural, and agro-industrial services as local centres but also have the potential as industrial centres and hubs for tourism and recreational services. With significant socio-economic potential, these settlements often function as local settlement cores or inter-settlement centres. In the Kaliningrad region, many of these were former rural administrative centres prior to the local government reform.

The largest rural settlements, with populations exceeding 2,000 people, represent the fastest-growing category. In 2010, there were nine such settlements in the region, with a combined population of 25,600. By the 2020 census, this number had risen to 13 settlements, housing 48,200 people, and by January 1, 2024, there were 17 large settlements in this category, with a total population of 58,600. The increase in these large satellite settlements is associated with the active agglomeration process in the Kaliningrad region, where population movement toward the administrative centre leads people to settle in nearby large rural settlements for various reasons. For example, the village of Golubevo, located 16 km from Kaliningrad, has undergone substantial residential development, resulting in an increase in population from 350 to 4,376 people between 2010 and 2024.

The next step in developing a comprehensive typology of rural settlements was determining the functional type of each settlement, based on an analysis of



diverse statistical data and qualitative criteria that reflect the current state and the transformation processes occurring in rural settlements in recent years. This analysis identified seven functional types of rural settlements (Table 3).

Table 3

**Functional types of rural settlements**

Type	Criteria and characteristics	Number of settlements	Total population
Suburban	Settlements located near cities with strong connections to them	362	119,400
Dachas (agro-recreational) and coastal	Settlements in coastal municipalities and within the Kaliningrad city agglomeration (notable for seasonal migration of city residents and tourists)	120	15,740
Agrarian, agro-industrial, and agro-industrial	Settlements retaining traditional agricultural functions	252	44,010
Post-agrarian or agro-depressed	Settlements with unfavourable transport-geographic conditions and/or located far from cities	75	6,176
Recreational	Settlements with existing tourism facilities or significant recreational potential due to unique cultural or natural assets	47	5,412
Inter-settlement centres	Settlements with well-developed social infrastructure, acting as hubs for non-agricultural and socio-cultural services	53	44,012
Functionless settlements	Settlements with a population so low they cannot fulfil any specific function	166	665
<i>Total</i>		1075	235 415

Each functional type emphasizes the primary role a settlement currently performs within the settlement system (though it may also have other functions that serve as secondary to the primary one).

## **Results**

The comprehensive typology of rural settlements in the Kaliningrad region, as the main result of this study, is presented in Figure 1 and Table 4. The type of rural settlement is determined by its population size and the primary function it currently performs within the settlement system, which is influenced by factors such as geographic location, availability of diverse material and intangible resources, and human capital.

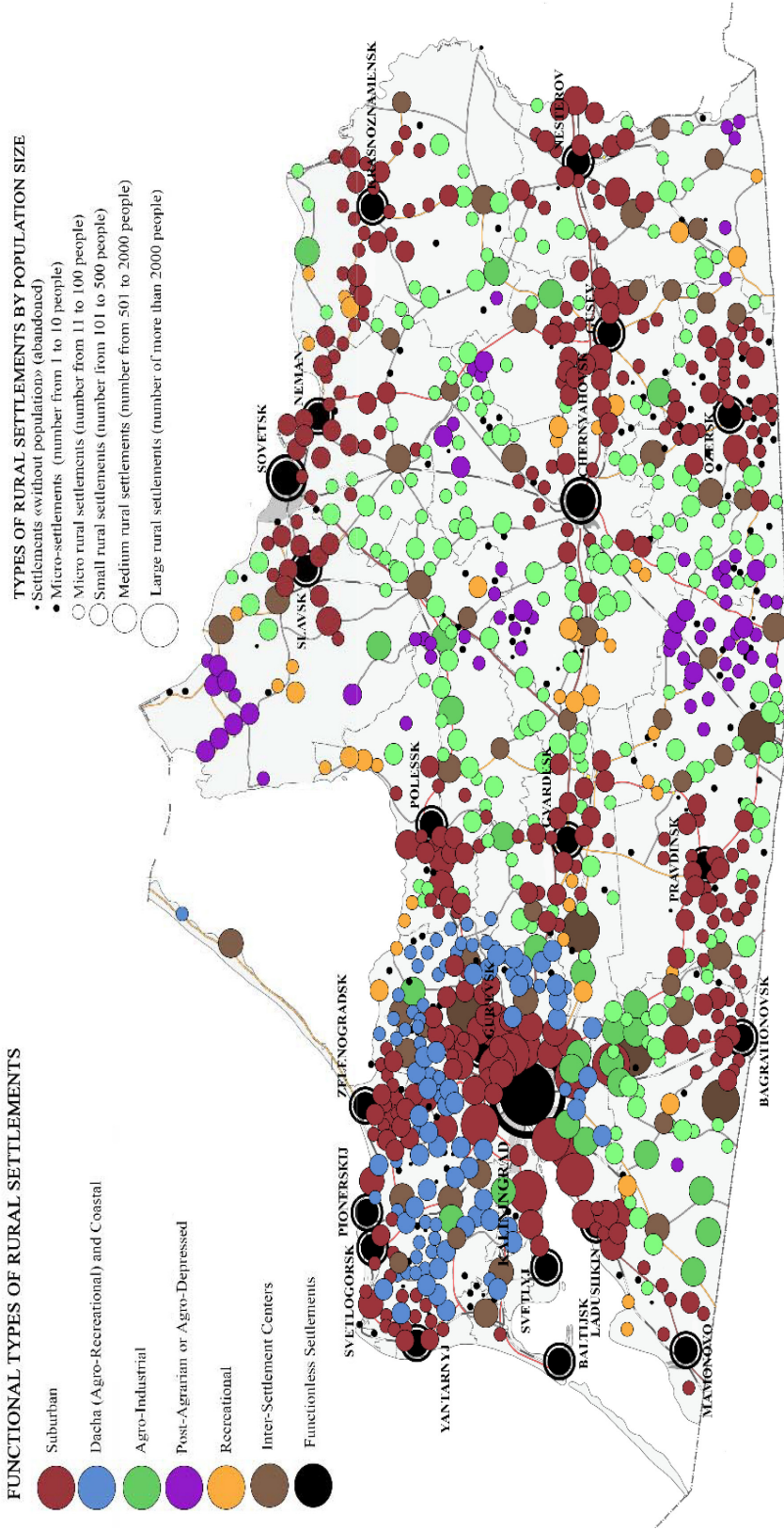


Fig. Comprehensive typology of rural settlements in the Kaliningrad region

Table 4

**Comprehensive typology of rural settlements in the Kaliningrad region**

Type	Characteristics	Number of settlements
<i>Suburban</i>		
Micro rural settlements	Micro residential settlements located within a 15-minute travel interval from a city	187
Small rural settlements	Small settlements located within a 15-minute travel interval from a city	130
Medium rural settlements	Medium settlements within a 15-minute interval from the city; often transforming into cottage-type areas	34
Large satellite settlements within urban agglomeration	Large satellite settlements within the Kaliningrad city agglomeration (within a 30-minute interval)	11
<i>Total</i>		362
<i>Dacha (Agro-recreational) and coastal settlements</i>		
Micro rural settlements	Micro rural settlements located in coastal municipalities or within the Kaliningrad agglomeration; seasonal urban migration patterns	70
Small rural settlements	Small coastal rural settlements within a 60-minute interval from the administrative centre	50
<i>Total</i>		120
<i>Agrarian, agro-industrial, and agro-industrial settlements</i>		
Micro rural settlements	Small rural settlements maintaining traditional agricultural functions	154
Small rural settlements	Small settlements with agricultural enterprises employing the local population	72
Medium rural settlements	Medium settlements with large enterprises involved in deep processing of agricultural and food products	26
<i>Total</i>		252
<i>Post-Agrarian or agro-depressed settlements</i>		
Micro rural settlements	Micro settlements with unfavourable transport-geographic location and low population	57
Small rural settlements	Small settlements with poor transport access or remote from urban areas, often with smaller populations than in other settlements of this type	18
<i>Total</i>		75
<i>Recreational settlements</i>		
Micro rural settlements	Micro settlements with tourism facilities or recreational potential due to unique natural or cultural assets	30

The end of Table 4

Type	Characteristics	Number of settlements
Small rural settlements	Small settlements with several tourism enterprises and recreational potential due to unique natural or cultural assets	17
<i>Total</i>		47
<i>Inter-settlement centres</i>		
Small rural settlements (local)	Small local centres with well-developed social infrastructure, providing non-agricultural and cultural services for small settlements nearby	20
Medium rural settlements	Medium settlements with favourable transport connections, often former administrative centres. Former centres of rural administrations with preserved agricultural, organizational, economic, cultural and everyday functions	27
Large rural (non-agricultural) settlements	Large multi-functional settlements primarily non-agricultural, often serve as district management centers	6
<i>Total</i>		53
<i>Functionless settlements</i>		
Abandoned settlements	Abandoned settlements with no permanent population (according to official statistics)	30
Settlements transitioning to abandoned	Small settlements in transition to abandonment with populations below 10 (according to official statistics)	136
<i>Total</i>		166

Suburban rural settlements in the Kaliningrad region are characterized by proximity to cities and are located within a 15-minute travel interval from district centres or within a 20- to 30-minute interval from Kaliningrad for larger settlements. Together with smaller towns, these suburban settlements form rural-urban continuums [27], now often referred to in Russian administrative practice as “rural agglomerations” [28]. The population of these settlements is fully integrated into the social, economic, and living spaces of nearby cities, evident through regular commuting. Large settlements within the Kaliningrad urban agglomeration act as satellites to the regional centre.

Out of 500 small rural settlements, 187 are classified as suburban, with a combined population of 8,000 as of January 2024 (an average of 42.7 people per settlement). From 2010 to 2024, the total population of these settlements decreased slightly, from 8,700 to 8,000. In recent years, the closest suburban

settlements often lost their status as independent entities, merging with cities (for instance, settlements like Novaya Derevnya became part of Chernyakhovsk, and Mechnikovo and Pavlovo became part of Baltiysk). Additionally, the region has 130 small suburban settlements with an average population of 241.3 people.

Suburban medium rural settlements near administrative centres are increasingly transforming into cottage-type communities, which are attractive residential areas for higher-income working-age individuals. Residents often relocate to these communities while maintaining close ties to the city. As a result, these settlements offer high living standards, forming cultural landscapes with a mix of natural and anthropogenic elements. A distinguishing feature of these cottage-type settlements is rapid population growth over recent decades. For example, the population of Orlovka (10.5 km from Kaliningrad) grew from 619 to 1,414 people between 2010 and 2024, and Rodniki (16.6 km from Kaliningrad) saw its population rise from 757 to 1,764. In this category, 34 suburban medium settlements are identified.

Large satellite settlements within city agglomerations include 11 rural communities. In eight of these settlements, the population was below 2,000 in the 2010 census but has more than doubled by 2024. Three other settlements (Maloe and Bolshoe Isakovo, and Vasilkovo) had populations over 2,000 in 2010 and continued to grow. The rise of these large suburban settlements is linked to the ongoing urbanization around Kaliningrad, where people move closer to the city for various reasons. For instance, Golubevo, 16 km from Kaliningrad, has experienced significant residential development, with its population growing from 350 to 4,376 between 2010 and 2024.

Dacha or agro-recreational settlements, along with coastal settlements, are located within the Kaliningrad urban agglomeration or in coastal municipalities of the region. These settlements are frequently used by city residents as seasonal or short-term residences, primarily in the summer. Additionally, rural settlements situated along the coastline attract visitors as seasonal recreational areas. An example of such a settlement is Morskoye on the Curonian Spit. Officially, Morskoye's population as of January 2024 is 80 people, having declined by one-third (from 126 to 80 people) between 2010 and 2024. However, in summer, Morskoye and the entire Curonian Spit are popular destinations for regional residents and tourists.

According to the authors, there are 70 small dacha-type rural settlements in the Kaliningrad region. Interestingly, the official population of these settlements has remained stable at around 3,200 people from 2010 to 2024. Additionally, 50 small dacha-type rural settlements have been identified.

Small agrarian rural settlements include those that have retained a traditional agricultural function, reflected in the lifestyle of local residents. These settlements host enterprises directly involved in agriculture, including branches of large agricultural holdings such as dairy farms, grain facilities, and agricultural equipment bases. Increasingly, smaller forms of farming, such as peasant and subsidiary farms, individual entrepreneurs, and self-employed individuals, are also appearing in these settlements. These farms typically focus on local agricultural demands but may also produce unique or 'exclusive' agricultural products for the region. Examples include farms specializing in asparagus, blueberries, and walnuts, some of which market their products as eco-friendly or traditionally produced [8].

An example of a small agrarian settlement is the village of Livenskoye, with an official population of 74 people. This village hosts a plantation specializing in blueberries, a non-native crop for the region. Across the Kaliningrad region, there are 154 small settlements of this type.

Small agrarian settlements focus primarily on agricultural production, supported by various types of agricultural enterprises. Food self-sufficiency remains a key challenge for the Kaliningrad region [30], and expanding agricultural production is one of the solutions. The state has actively supported this development. Between 2012 and 2020, 972 million roubles were allocated in state support to 223 start-up farmers, 20 family farms, and 38 priority agricultural projects, among others [31]. The region also established a Competence Centre for Agricultural Cooperation in 2019, which provides annual grants to approximately 25 farms. This state support has fostered growth in both large agricultural holdings and smaller farming entities. In the region, 72 small agrarian rural settlements fall into this category.

Medium rural settlements with agro-industrial functions are defined by major enterprises focused on the deep processing of agricultural products and food production. For instance, the village of Zalesye, with a population of 1,006, is home to the main plant of the "Zalessky Farmer" company, a leading regional producer of dairy products. Another example is Kubanovka (population 711), where a pig farm housing 10,000 animals and employing approximately 200 people operates. There are 26 medium-sized agrarian settlements in this category.

The post-agrarian or agro-depressed type of small settlements refers to communities located in peripheral areas (more than a 30-minute travel interval from cities) or areas with poor transport connections (either outside regional transport routes or in transport dead-ends). In the Kaliningrad exclave region, these settlements are often found in border zones, far from border checkpoints. These communities are typically home to an aging population, with a tendency toward subsistence farming and population marginalization. Many of these settlements are likely to transition to the abandoned category (populations under 10) in the near to medium term. The average population of these settlements is only 37.7 people, compared to an average of 43 for small settlements in the region. A total of 57 rural settlements are categorized as agro-depressed.

Agro-depressed small settlements maintain an agricultural focus but exhibit population decline due to both demographic factors and migration. There are 18 such settlements in the Kaliningrad region, with an average population of 223. An example is the village of Mysovka in the Slavsky district, which had a population of 240 as of January 2024. Between 2010 and 2024, the village's population decreased by about one-third, from 329 to 240. Its poor transport location results in a travel time of more than 45 minutes to the district centre, Slavsk, and over 2.5 hours to Kaliningrad.

Recreational settlements are communities with existing tourism infrastructure or unique natural or cultural resources that could foster the development of recreational functions. Specializing in tourism offers a potential avenue for the revitalization of rural settlements that can no longer sustain traditional agricultural roles. In most cases, these settlements establish guest houses or rural estates that offer accommodation, dining, and leisure activities. In recent years, small settlements with recreational potential have increasingly been developing glamping facilities. For example, in the village of Ushakovo, located on the Curonian Lagoon and with an official population of 16, a glamping site was opened in 2022 with a capacity of 30 guests.

Small recreational settlements provide tourist services in the areas of rural and ecological tourism and often host multiple tourism-related businesses. Local populations are engaged in tourism through social innovation tools, which increase the rural area's value and develop local competencies, fostering socio-economic growth beyond tourism. An example is Krasnolessye, located in the Rominten Forest of the Nesterovsky district. This small settlement, with a population of 298, is home to a guest house, glamping site, eco-historical museum, and chocolate shop. In the Kaliningrad region, 17 small recreational settlements have been identified.

Small rural settlements serving as local inter-settlement centres have developed social infrastructure and provide socio-cultural services to surrounding small settlements. The inter-settlement function may be combined with agrarian, dacha, or recreational functions. These communities often have advantageous transport connections, lying along regional routes that connect municipalities with each other or with the administrative centre. Inter-settlement centres have higher population densities, averaging 353 people, compared to an average of 242 for small settlements. There are 22 such settlements in the Kaliningrad region. An example is the village of Chistye Prudy in the Nesterovsky district, which serves as a transport hub connecting three roads and linking it with 12 neighbouring settlements.

Medium rural settlements functioning as inter-settlement centres have a diverse range of social infrastructure, including all essential facilities. Many of these settlements are important transportation nodes, with some serving as critical hubs within the regional settlement framework. In addition to inter-settlement roles, these communities may have recreational, agro-industrial, and logistics functions, particularly in border areas. There are 27 medium-sized inter-settlement centres in the region.

Large, multifunctional non-urban settlements house populations that are generally not involved in agriculture. These settlements serve as important transportation hubs and often boast a rich historical heritage, making them highly appealing for the development of recreational functions.

Many of these are local administrative centres managing rural territories. These settlements exhibit demographic stability, with a slight increase in population from 14,400 to 14,700 between 2010 and 2024.

## **Conclusion**

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The rural settlement system in the Kaliningrad region exhibits significant heterogeneity in its structure and socio-economic development trajectories. The proposed comprehensive typology of rural settlements in the region, based on demographic and functional characteristics, allows for a deeper understanding of each settlement's role within the overall regional settlement system and provides insights into their specific developmental needs.

Suburban settlements are integrated into the socio-economic framework of nearby cities, largely functioning as residential communities. Dacha (agro-recreational) and coastal settlements play a seasonal role, catering to urban residents seeking short-term or recreational stays, which also supports the region's



tourism and leisure industries. Agrarian and agro-industrial settlements continue to fulfil traditional agricultural roles, although they are increasingly supported by various forms of state aid aimed at enhancing agricultural production and food security.

The post-agrarian or agro-depressed settlements, situated in the periphery or in poorly connected areas, face challenges in retaining population and socio-economic functions, thus risking further depopulation. Recreational settlements, by contrast, offer a promising avenue for rural revitalization, as they leverage their natural and cultural resources to attract tourists and establish unique community identities.

Inter-settlement centres, which provide a range of social and cultural services to nearby smaller settlements, are vital hubs in the rural landscape, especially in more remote areas of the Kaliningrad region. These centres are well-positioned to support local population needs and contribute to regional connectivity and socio-economic stability.

The findings underscore the importance of an individualized approach to the development and management of rural settlements. Different settlement types require tailored policies and programs that address their unique demographic, spatial, and functional attributes. For example, post-agrarian settlements may benefit from investment in transport and communication infrastructure to improve accessibility, while recreational settlements might require policies that encourage sustainable tourism practices and support small businesses.

This typology provides a useful tool for local and regional authorities when formulating strategies for rural development. It can help guide decisions regarding infrastructure investments, social services allocation, and economic initiatives that support both traditional and alternative functions of rural settlements. Ultimately, an informed approach to rural settlement management, based on the insights provided by this typology, could contribute to sustainable and balanced socio-economic growth across the Kaliningrad region.

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