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*Article*

# Depopulation Villages in Poland—Current Status and Possible Transition Scenarios

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**ABSTRACT:** The picture of many localities undergoing depopulation will change in the coming years. A significant scale of migration and advanced ageing processes will result in an increase in the number of vacant buildings, or the removal of social infrastructure. The term ‘shrinkage’ tends to have negative connotations, but can lead to positive changes, e.g., an improvement in land structure under conditions of fragmented, dispersed agriculture. Depending on the quality of the natural environment and communication accessibility, other functions will develop there, including housing and recreation. However, a large part of the village may disappear completely.

**Keywords:** Shrinkage; Depopulation; Rural settlement; Changes in the rural space; Visions of the countryside



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## 1. Introduction

Rural settlements are dynamic structures, subject to change, mainly under the influence of exogenous factors shaping the conditions of their development and functional transformations. The contemporary condition of the Polish countryside was most influenced by the post-war period, which was uneven in terms of the scale and directions of socio-economic changes—different under the communist state structure and different after the systemic changes initiated in 1989.

The most significant in shaping the changes taking place in Poland’s rural areas were the emigration of inhabitants to cities, which in the post-war period involved almost 12 million people, and the so-called circular migration associated with daily commuting between rural and urban areas. Permanent emigration was selective in nature and included mainly young, better educated people. It was also spatially differentiated depending on the state of the local rural economy or the location of the village (geographical, communication).

An important factor differentiating rural areas in Poland was the historically shaped state of Polish rural settlement. It is mainly about the advantage of sparsely populated villages, which do not guarantee the presence of institutions important for living conditions such as a school, health centre, village hall, church, service points or even shops. These villages also have largely dispersed housing, which sometimes makes it impossible to equip them with water, sewerage or mains gas. It can therefore be concluded that very small settlements, in an era of widespread modernisation of the technical base of villages, are currently deprived of “elements” shaping their attractiveness as places to live.

The main objective of the article is to determine the changes of the rural space in depopulation villages. The author will try to answer the questions: does demographic regression lead to a decline in the attractiveness of villages as places to live? What are the possible scenarios for the development of depopulation villages?

## 2. Literature Review

In contemporary literature, the process of progressive depopulation, most often associated with worsening economic conditions, is called shrinkage. It would be more appropriate to call this process demographic shrinkage, which is treated as a synonym for statistical depopulation, population loss, and demographic regression [1]. This concept was introduced into the literature in the 1980s by German researchers as a process that affects urban centres, interchangeably called: urban shrinkage, urban decay, urban decline, urban blight, population loss [2–4]. It is generally a process associated with population loss in space, occurring under the influence of different determinants and under different historical, social and economic conditions [5–7]. Nowadays,

studies of shrinking cities are conducted in many regions of the world, including America [8–10], Europe [11–14] or Asia [15]. Studies of shrinking villages are less frequent [16].

Over the past few decades (especially in the 1970s and 1980s), many German, French, Spanish or Dutch villages have experienced a mass abandonment of rural settlements; in the literature this process is referred to as the rural exodus [17,18]. This process has weakened the rural population, mainly in mountainous regions (e.g., Southern Massif Central, Southern Alps). Similar trends have been noted in mountainous rural areas of Poland.

Researchers indicate that the depopulation process in the mountains started already at the end of the 19th century [19–21]. Many villages collapsed and became depopulated. However, the depopulation process in Poland was not limited to mountain areas only. Depopulation affected vast areas of the country. As a result of the industrialisation of certain areas, located in the south-western part of the country, there was a displacement of population from overpopulated areas, and those characterised by unfavourable environmental conditions.

The Second World War brought population losses, the demographic regression was estimated at 7 million people, of which the rural population decreased by 5,750,000 compared to the pre-war period. As a consequence, areas of depopulation were very pronounced, especially in the northern and western lands, where there was a decline in the rural population from 4.6 million in 1939 to 3.1 million in 1950 [22] and in the south-eastern part of Poland.

The first post-war decade was characterised by an unprecedented scale of population growth due to repatriation of people from the east, returns from forced labour in Germany and also due to the persistence of a very high natural increase in population. Population growth was highest in industrialised areas (Upper Silesia) and in cities and their suburban zones. By contrast, throughout the post-war period the countryside was losing population due to migration outflow. Economic reasons and socio-psychological motives are commonly considered to be the main reasons “pushing” the population from the countryside to the cities. Just after the Second World War, in the 1950s, economic motivations for migration from the countryside prevailed, and were mainly related to overcrowding. Among the main reasons for migration are the difficulties in rebuilding farms and making a living from small area farms, the large development distance between the countryside and the city, the fear of the agricultural policy of the authorities, collectivisation. In the following decades, the reasons from the second group (sociological and psychological) began to play an increasingly important role, which was related to the more attractive offer of the city (access to all types of services, e.g., science, culture, possibility of leisure time, professional and social advancement).

The countryside experienced the greatest losses due to migration in the 1970s and 1980s, when the negative balance of internal migration exceeded natural increase. More recently, population changes in the countryside have been two-way. The migration trend has been reversed. On a national scale the migration balance for rural areas had a positive value, and hence population growth in rural areas has been observed, particularly dynamic in the vicinity of large urban agglomerations, associated with the phenomenon of suburbanisation. However, in non-agglomeration areas, a further decrease in population is observed. In most villages far from the city or with difficult transport accessibility, the migration balance was generally negative and the low birth rate further aggravates the deformed population structure. The Rogers-Castro model [23] explains this process of age structure degradation in rural areas. Research shows that in more than two thirds of cases young people, in the 20–34 age range, migrate, which leads to a spatial polarisation of population age structures. As a result of the described phenomena, there was a progressive ageing of the rural population of out-migration villages, which in turn influenced the further population decline of these rural settlements. Based on the demographic forecast of the population until 2030 presented by the Central Statistical Office, further ageing of the population and a decrease in the share of young people, especially women, in depopulation areas are expected, which will contribute to further depopulation of many villages, especially those located in eastern and central Poland.

Depopulation is an extremely interesting research problem. There is no single pattern of rural depopulation. As Lutz and Gailey [24] noted in the UNDP report “the striking contrast in demographic patterns currently observed in various parts of the world are essentially a consequence of different populations being at different stages of this universal process”. Rural population dynamics depend on a combination of many region-specific factors, including: location, the course of industrialisation processes, the nature of demographic transition, the path of agrarian change, the evolution of the rural non-agricultural sector, or access to infrastructure and services [25]. To avoid a homogenised picture of rural areas, due to the different pathways of rural development, taxonomic studies are needed. Research should focus on intra-rural divisions to capture different rural realities. According to Fokt [26], such analyses can provide a pretext for considering topics of universal relevance, such as the survival strategies of rural settlements under particularly adverse conditions.

The very existence of depopulated regions is closely linked to socio-spatial polarisation, to the peripherality of areas, often identified with distance from the centre, location on the periphery of the region or the country. Such areas are furthermore characterised by less development, facing many economic, social and cultural problems [27–30]. Although peripherality is a multidimensional phenomenon, unfortunately the discussion in the literature often only touches on some of its dimensions. While research is being undertaken on policy instruments used to address development issues in European peripheral areas, holistic approaches are lacking [31,32]. Rural depopulation in the literature is also seen as a social problem and as a cause of other problems affecting sustainable socio-economic development [33]. Some researchers believe that demographic regression is the effect, not the cause, of many of the structural problems facing contemporary rural areas [34]. Rural depopulation should therefore be shaped by appropriate policies dedicated to rural areas. There has already been some work identifying Europe’s shrinking rural regions,

analysing development opportunities and some policy responses to the problem [35]. The cited report concludes that “accepting shrinkage can help to reorient rural policies and investment decisions to re-grow greener, smaller and provide new openings to be innovative, modernise governance and public services through more holistic, pro-active and place-based strategies consistent with 21st Century realities”.

In view of the fairly well-recognised causes of the depopulation process, it therefore seems important to show and evaluate some of the effects of the population changes taking place leading to significant spatial transformations. The author plans to extend the analyses of demographic structures carried out so far by adding the effects they cause in rural space, which will make it possible to update the existing knowledge on the subject, and to construct cognitive conclusions. This will also provide a basis for showing the zones in Poland where the desertification (disappearance) of settlements may occur. It seems justified to undertake research on the disappearance of settlements, as up to now the attention of researchers has been focused mainly on development areas, subject to urbanisation processes, while there are few works dealing with the problems of settlements in peripheral and depopulation areas. The result of the research proposed by the author is the presentation of spatial differentiation of the rural settlement network as an effect of the depopulation process in the Polish countryside. The proposed approach monitors the current social situation in rural areas; therefore, such research can be used as an instrument of territorial policy. The diagnosed areas of depopulating villages can be assigned, through recommendations, an appropriate set of policy instruments to counteract the negative effects of this process. Moreover, the data presented, which cover a large time span (1950–2021), can be used for evaluation and comparison in various national studies. As the analysis is limited to the rural areas of Poland, it is necessary to continue the proposed research, in other European countries, in order to compare the changes taking place and determine whether the author’s observations are of a universal nature or specific to the analysed country.

### 3. Methods and Data Sources

The paper uses statistical, cartographic and descriptive methods. The initial stage related to the realisation of the objective of the paper was the collection and study of a very broad subject literature thematically related to population–settlement processes, their determinants and function in the shaping of socio-economic space, with particular emphasis on rural areas. In the next procedure, the most important thing was to collect relevant materials, collate and group them. The research was conducted at two scales - general (for the area of the whole Poland) and detailed (on the territory of selected communes characterised by the existence of a large number of depopulation villages).

Research materials can be divided into two groups. The first comprises statistical data made available by the Polish Central Statistical Office, covering 41.4 thousand Polish rural settlements. These were used to present issues for basic settlement units - statistical villages. According to the definition of the Central Statistical Office, a statistical locality is an ensemble of settlements which takes the name of a leading locality. As a rule, this ensemble consists of a village and adjacent smaller settlements. On their basis, the population dynamics of each village in Poland was traced and three basic groups of settlements were distinguished in their assemblage - villages with an increase, equilibrium or decrease in population, taking as a basis the number of inhabitants in 2021 in comparison with 1950. The author considered that a slight change in population,  $\pm 5\%$  between the base years (1950 and 2021) indicates population stability, so she considered such villages to be characterised by population equilibrium. The results of the statistical analyses were presented in graphical form, i.e., maps were produced.

On the other hand, the second group of data used in the study came from own field research, so called “case studies”, conducted in 6 depopulated communes in the Lubelskie voivodeship (Figure 1). The communes were selected on the basis of an analysis of statistical materials. Their aim was not only to describe the situation of depopulating villages in terms of social, economic and spatial phenomena, but above all to verify initial theses related to the negative consequences of their population regression. During the field research, the author carried out site mapping, a physical inventory of residential buildings and photographic documentation. In order to reconstruct the transformation of morphological systems and the rural landscape as reliably as possible, topographic maps from different years were analysed. Comparative cartography methods using QGIS 2.4 software were used to carry out the task. The retrogression method was used to examine settlement forms in the selected villages. It is a retrospective method of inventory research, based on the analysis and indication of changes that have taken place, and allows historical changes in buildings to be traced in particular localities. It is based on comparing contemporary cartographic material with historical maps (always assuming the same scale), “going back” in time. The starting material was maps at a scale of 1:10,000 made available by the Central Office of Geodesy and Cartography containing data on buildings for 2015, which were juxtaposed with maps from the 1970s. By comparing the maps with each other, a cartographic image was created, which forms the basis for assessing changes in the spatial structure of villages. The analysis of these maps, extended by field observations, provided the basis for assessing changes in the spatial structure of villages. Social methods such as a questionnaire interview were also used in the case of unit surveys. The survey was carried out on a random sample of residents of each locality, and a total of 854 interviews were completed. The questions dealt with various issues: demographic, social, economic and physiognomic of the localities.

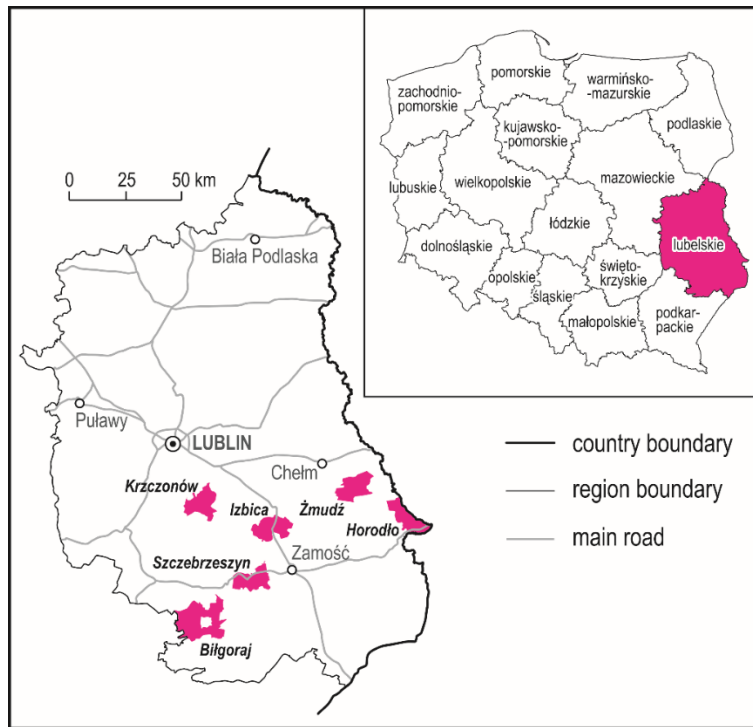


Figure 1. Location of the examined communes in comparison with Lublin voivodship and Poland. Source: Authors’ own materials.

#### 4. Results and Discussion

The processes of population changes, which were very different in the rural space of Poland, allow us to conclude that different types of villages are present in this space (Figure 2):

- growth villages, recorded a population increase of more than 5% in the period 1950–2021-32.4% of Poland’s rural settlements,
- stagnating villages (similar +/-5% population growth in 1950 and 2021), 7.3% of settlements
- regressive villages, recorded a population decline of more than 5% in 2021 compared to 1950, about 60.3 % of the country’s villages.

Population regression is a mainly characteristic of economically weak small and medium-sized villages, hence, their high instability in population (Figure 3). The greatest population loss occurred in villages located in eastern and central Poland (the area included in the former Russian partition), especially in the non-agglomeration areas of the Świętokrzyskie, Łódzkie, southern part of the Lubelskie and eastern Podlaskie voivodeships (Figure 4).

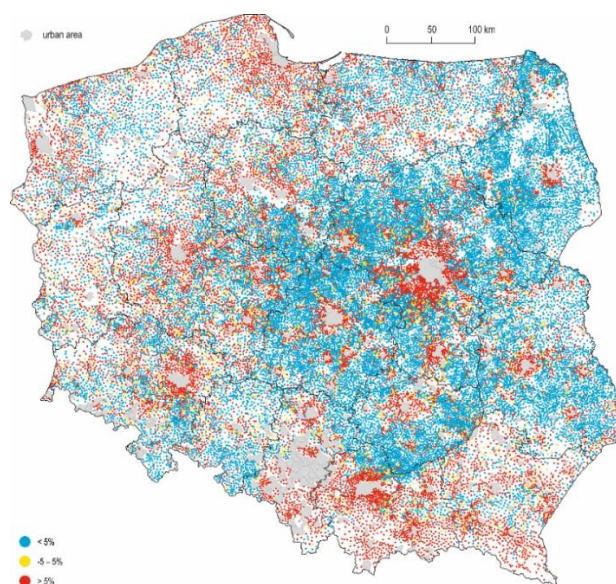
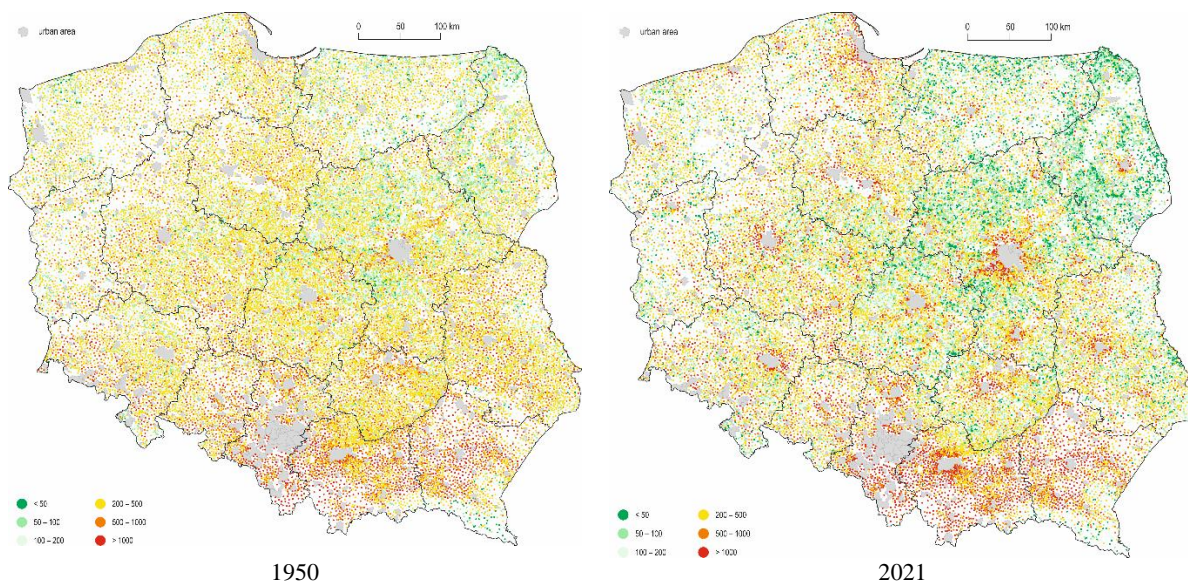
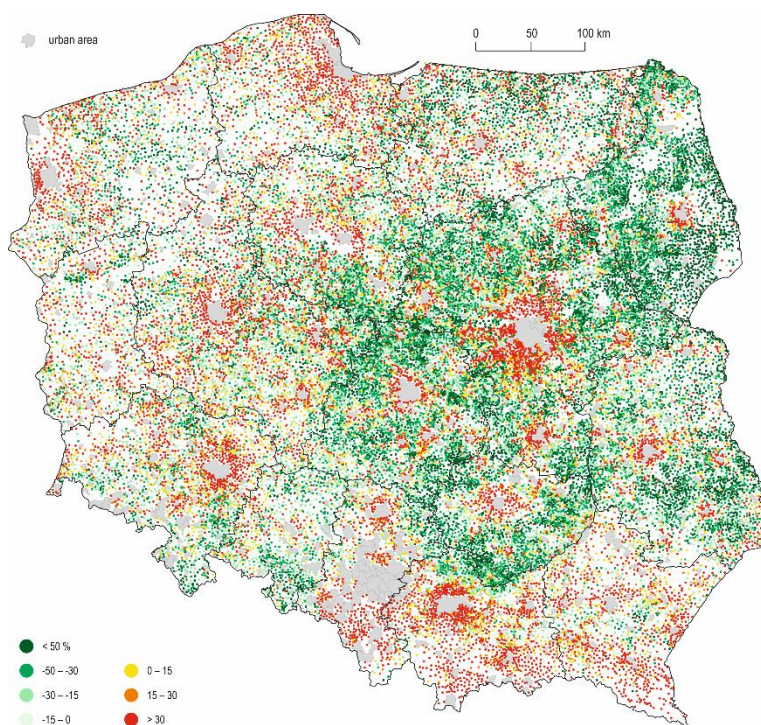


Figure 2. Population change in villages between 1950 and 2021 (%). Source: own elaboration.





**Figure 3.** Structure of the rural settlement network in 1950 and 2021. Source: own elaboration.



**Figure 4.** Percentage increase/decrease in population in rural settlements between 1950 and 2021. Source: own elaboration.

In Poland, from 1950 onwards, a process leading to polarisation of village size was strongly visible. The number of the largest villages, with more than 1000 inhabitants, was increasing, the number of medium-sized villages (200–500) was decreasing, and the number of small villages with up to 200 inhabitants was increasing. Their share increased to more than 50% in the period 1950–2021. The smallest villages, with up to 50 people, depopulated the fastest; their share more than tripled (Table 1). The distribution of villages by size is uneven in the country (Figure 4). Today (2021), large villages are located near cities and in mountainous areas. In contrast, small villages are characteristic of eastern and central areas. Comparing the state of 1950 with 2021, one notices an increase in the share of small villages in the centre of the country, in the Warmińsko-Mazurskie and Podlaskie Voivodeships, and their decrease in the Podkarpackie Voivodeship (Figure 4). The concentration of large villages near cities is undoubtedly related to the attractiveness of a given city as a central centre and the size of this city (gravitational potential). In suburban villages, a classic process of suburbanisation is taking place, visible, among other things, in the scale of construction of new houses in these settlements. Rural suburban settlements are becoming less and less distinct from urban settlements. If this trend continues, the largest villages will soon strengthen their position in the local settlement network. The above observations are confirmed by the studies of other authors [36,37], who noted the separation of population-active areas and depopulation areas, mainly concerning peripheral areas both in spatial and socio-economic terms.

**Table 1.** Changes in the structure of the rural settlement network (1950–2021).

Size of Village	1950	%	2021	%
<50	1099	2.7	3389	8.2
50–100	4366	10.5	6702	16.2
100–200	11,741	28.4	10,809	26.1
200–500	17,421	42.1	12,709	30.7
500–1000	5181	12.5	4710	11.4
>1000	1592	3.8	3081	7.4

Source: own elaboration.

## 5. The Nature of Village Changes in the Light of Surveys

The aim of the field research was to find the relationship between the location of the village, its accessibility to basic services, its infrastructure provision and depopulation processes (Table 2). Based on these, an attempt was made to explain this process. This is a highly relevant problem. The results of a study conducted in 78 municipalities of a region in Northern Spain, Asturias by Cañal-Fernández and Álvarez [38] show the importance of infrastructure for the livelihoods of rural populations. These authors' research shows that the availability of good communication has important implications for health and safety, especially for the elderly. Poor local mobility causes residents to leave and potential new residents to stay away, worsening the demographic situation. Peripheral location, understood as being far away from provincial and national roads and a considerable distance from cities, is a sign of poor accessibility. This confirms the thesis put forward by Heffner [39] that, contrary to many conceptions of rural development, the importance of factors related to the profitability of location is not diminishing. (...) A specific location is an important development potential for a village or rural area provided that it is recognised in time and exploited appropriately. According to the research assumptions for the typology of OECD regions proposed by the European Commission, if the time distance from the nearest city with a population of more than 50,000 exceeded 60 minutes, such a region was included in the group of 'remote rural areas' [40].

Within the framework of the analysed phenomenon of rural depopulation, the author chose various types of communes located in Lubelskie Voivodeship for detailed research. These are (Figure 1):

- Horodło commune—located in the south-eastern part of the Lubelskie voivodeship by the border with Ukraine, at the same time the border of the European Union. It is the easternmost commune in the country. It is located 20 km from the district town of Hrubieszów and 130 km from the capital of the province. The national road No. 74 Zamość-Zosin (border crossing) runs through its area. The population density of the commune is 37.7 os/km<sup>2</sup> (2021), with a Polish average of 121.2 os/km<sup>2</sup>;
- Szczebrzeszyn commune—it is an urban-rural commune, located about 20 km from the district town of Zamość and 85 km from Lublin. Through the area of the commune runs national road No. 74 to the border crossing in Zosin, as well as the broad-gauge railway line LHS, between Ukraine-Zamość and Upper Silesia, and the standard-gauge railway line Warsaw-Lublin-Rawa Ruska. It is an agricultural municipality, with a significant share of tourist services. The agri-food and timber industries have also developed in the area. The population density of the rural area is 62.7os/km<sup>2</sup>;
- Izbica commune—located in Krasnystaw county, in an area with a population density of 56.5 os/km<sup>2</sup>. The seat of the commune is located 15 km. from the county town, and 70 km. from the capital of the province. It is a typical agricultural commune specialising in horticulture and herbalism. The area of the commune is crossed by national road No. 17;
- Żmudź commune—a typical agricultural commune, with a very low population density (20.8 os/km<sup>2</sup>) lies at a distance of approx. 95 km from the capital of the voivodeship, 25 km from Chełm—the seat of the district. The most important road is the voivodeship road from Chełm to Hrubieszów;
- The commune of Biłgoraj—a rural commune, with a population density of 51.9 per km<sup>2</sup>, adjacent to the seat of the district - Biłgoraj, located approximately 90 km. south of Lublin, by the national road No. 74 to the border crossing in Zosin and the LHS broad-gauge railway line, Ukraine-Zamość-Górny Śląsk. The municipality has an agricultural character, with specialisation in organic production. Inhabitants of the commune also find employment in light industry, food and wood processing plants, located in the Biłgoraj district (e.g., Black Red White, Ambra, Pol-Skone, Mewa);
- Krzczonów commune—located only 35 km from Lublin, the nearest urban centre for the commune is Bychawa (13 km from the seat of the commune—Krzczonów). The commune has a very low population density of 32.5 os/km<sup>2</sup>. It is a typically agricultural commune.

The aim of the field research was to find a relationship between the location of the village, its accessibility to basic services, its infrastructure provision and depopulation processes (Table 2). On their basis, an attempt was made to explain this process. Among the respondents answering the questionnaire, the majority were women, 45% of those answering were older people, over 55 years of age mostly with vocational or secondary education. A large group of respondents were pensioners, full-time workers and farmers. To the question: Are you happy to live in this village? the majority (approx. 80%) of respondents answered in the affirmative. Residents of the Żmudź and Izbica municipalities are least optimistic. Inhabitants of the Szczebrzeszyn, Krzczonów and Izbica areas rate their accessibility the best, in particular access to transport and to trade and services. On the other hand, access to health services is rated low in the municipalities of Izbica, Żmudź, Krzczonów and Biłgoraj.

**Table 2.** Assessment of the accessibility of localities to basic services in the municipalities surveyed.

	<b>Horodło</b>					<b>Szczebrzeszyn</b>				
	<b>Very Good</b>	<b>Good</b>	<b>Sufficient</b>	<b>Bad</b>	<b>Very Bad</b>	<b>Very Good</b>	<b>Good</b>	<b>Sufficient</b>	<b>Bad</b>	<b>Very Bad</b>
infrastructure facilities	5.1	27.1	32.2	24.7	10.6	7.1	25.0	41.8	17.9	8.2
accessibility of health services	6.2	54.5	19.5	12.0	7.5	8.2	35.1	29.1	22.8	4.9
accessibility to education	4.1	49.3	27.1	15.1	4.1	8.6	51.1	25.4	12.3	2.2
accessibility to transport	6.5	42.8	24.7	15.4	10.3	19.8	41.8	19.4	10.8	8.2
accessibility to trade and services	2.1	37.3	26.4	25.3	8.6	17.5	40.7	20.9	13.8	7.1
	<b>Izbica</b>					<b>Żmudź</b>				
infrastructure facilities	3.3	30.0	41.1	20.0	5.6	5.8	26.9	7.7	32.7	26.9
accessibility of health services	6.7	17.8	30.0	30.0	16.7	1.9	15.4	34.6	32.7	15.4
accessibility to education	4.4	53.3	35.6	5.6	2.2	1.9	17.3	19.2	42.3	19.2
accessibility to transport	12.2	53.3	22.2	12.2	3.3	3.8	9.6	15.4	40.4	30.8
accessibility to trade and services	11.1	35.6	37.8	12.2	4.4	0.0	17.3	25.0	36.5	21.2
	<b>Biłgoraj</b>					<b>Krzczonów</b>				
infrastructure facilities	7.6	44.6	32.6	10.9	4.3	5.2	32.8	34.5	19.0	8.6
accessibility of health services	7.6	38.0	22.8	15.2	16.3	1.7	36.2	31.0	27.6	1.7
accessibility to education	13.0	56.5	13.0	8.7	7.6	3.4	29.3	32.8	25.9	6.9
accessibility to transport	2.2	25.0	33.7	25.0	14.1	13.8	27.6	25.9	20.7	12.1
accessibility to trade and services	8.7	53.3	26.1	5.4	6.5	15.5	25.9	29.3	20.7	8.6

Source: own elaboration.

The lowest rating for accessibility was given by the inhabitants of the municipality of Horodło. This low assessment of accessibility according to respondents translates into a low quality of life. Respondents in the municipalities of Horodło and Szczebrzeszyn were asked about the living conditions and standard of living of the population in comparison to other areas of Poland. More than 70% of respondents from Horodło commune assessed them as worse or much worse than in other regions of the country, a slightly lower percentage was recorded in Szczebrzeszyn commune. Only one in five respondents believes that there are no differences in the standard of living with.

In four municipalities, respondents were asked to assess their own living conditions (Table 3). To the question “How do you generally assess the living conditions in your village?” 1/3 of respondents from the municipality of Żmudź rated them as bad, a slightly better subjective impression of living conditions in the village is found in the municipalities of Izbica and Krzczonów. The best assessment was given by inhabitants of the suburban commune of Biłgoraj.

**Table 3.** Assessment of living conditions by inhabitants of the surveyed communes.

	<b>Very Good</b>	<b>Good</b>	<b>Sufficient</b>	<b>Bad</b>	<b>Very Bad</b>
Izbica	5.4	27.2	50.0	17.4	0.0
Żmudź	5.8	17.3	42.3	32.7	1.9
Biłgoraj	12.6	55.2	27.6	3.4	1.1
Krzczonów	3.5	33.3	47.4	14.0	1.8

Source: own elaboration.

It is worrying that a very large group of respondents (in some municipalities more than half) did not notice any changes in their locality (Table 4). To the question “Do you think there have been any changes in your locality in recent years” generally every 3rd respondent noticed them. On the other hand, deterioration of conditions was indicated by every 3rd resident of the municipality of Żmudź.

**Table 4.** Trend of observed changes in the surveyed communes in the opinion of their residents.

	<b>Has Improved</b>	<b>Has Deteriorated</b>	<b>Is Unchanged</b>
Horodło	33.9	9.6	56.5
Szczebrzeszyn	36.7	12.3	51.1
Izbica	37.1	16.3	46.6
Żmudź	16.1	29.8	54.2
Biłgoraj	30.2	10.9	58.9
Krzczonów	30.2	13.0	56.8

Source: own elaboration.

When asked about the extent of the changes they perceive in the village, respondents from all municipalities indicated primarily the development of technical infrastructure. On the other hand, the nature of the decline in accessibility to services is different in individual communes. Deterioration in accessibility to health care was reported by every 4th respondent from Izbica commune, in accessibility of transport—by every 3rd respondent from Biłgoraj commune, in accessibility of education—by inhabitants of Krzczonów commune. Most negative assessments were noted in the commune of Żmudź, where about 40% of respondents drew attention to the deterioration of accessibility to trade and services, education and communication. Among the answers about the reasons why villages lose their population, the most frequently mentioned were: lack of work, old population,

low-profit agriculture. Most people who left the surveyed municipalities headed abroad or to larger cities in Poland. Popular foreign destinations were Germany and the United Kingdom. In contrast, regional cities dominated among Polish cities: Lublin, Chełm, Hrubieszów, Biłgoraj and overwhelmingly Warsaw, Poznań and Gdańsk.

The study provides a basis for the conclusion that depopulating rural areas, due to poor accessibility to services and lower quality of life, will lose their attractiveness. This observation is in line with the research of Bański [41], who presented a scenario of peripherisation and depression among the likely scenarios for rural transformation. In the peripherisation scenario, he emphasises the further depreciation of areas located far from regional centres, while in the depression scenario, he expects the expansion of rural problem areas (e.g., rural poverty). Despite attempts to bridge the developmental differences of individual villages, the rural exodus continues, especially from villages with low transport access [41–43].

## 6. Changes to Rural Buildings and Their Surroundings

The population situation in depopulated villages translates into changes in the elements of the rural landscape. The traditional rural landscape has its own characteristics. It is also typical of an economy of form, resulting from the pragmatism of the villagers and their recognition of the primacy of the principle of utility. A typical rural settlement consists of a residential building and outbuildings, whose function is closely related to the type of activity carried out. Nowadays, in many regions of the country, especially in disappearing villages, a departure from the use of farm buildings in the homestead is observed, often their reduction. This is due to the declining proportion of the population in the countryside who do not make a living from agriculture. The rural landscape is highly sensitive. This sensitivity concerns especially socio-economic factors, reflected in the physiognomy of the landscape. One element that reacts significantly to such changes is the built environment. This is because its features reflect the financial possibilities, farming methods, value system and lifestyle of the residents.

In a traditional farmstead, a 1 + 3 structure was the most common, i.e., in addition to the dwelling house, the presence of 3 farm buildings was characteristic. The 2002 General Agricultural Census revealed that out of over 2 million farms in rural areas with farm buildings, as many as 1/3 did not use them for agricultural production. The largest number of “unnecessary” farm buildings was in the central part of Poland. They are gradually degrading, often leading to depletion. From observations in the field and from a comparison of maps from 1970 and 2015 (Table 5), in numerous cases farm buildings are deteriorating and not being used. Facilities are not being introduced in the home environment. In the surveyed villages almost 1/3 of the farms had no fence, only ¼ had a paved or partially paved yard. A large proportion of houses are not extended or modernised (nearly 60% of all). In about 40% of cases, not even small renovations, such as replacing windows, are carried out. Some architectural details are deteriorating, the surroundings of the house are no longer cared for, and more and more vacant houses, derelict buildings etc. appear. (Figure 5). On a number of occasions, residents have pointed out places where houses existed after the war and are no longer there today.

**Table 5.** Loss of buildings in villages of Horodło commune based on comparison of maps from the 1970s and from 2015.

	Residential Buildings				Farm Buildings			
	1970	2015	Difference	Cavity %	1970	2015	Difference	Cavity %
Bereźnica	109	107	2	1.8	182	164	18	9.9
Cegielnia	54	50	4	7.4	91	67	24	26.4
Ciołki	26	21	5	19.2	49	45	4	8.2
Horodło	469	415	54	11.5	509	391	118	23.2
Hrebenne	184	161	23	12.5	310	282	28	9.0
Janki	168	162	6	3.6	342	286	56	16.4
Kobło-Kolonia	34	32	2	5.9	52	51	1	1.9
Kopyłów	157	151	6	3.8	250	209	41	16.4
Liski	101	92	9	8.9	171	146	25	14.6
Łuszków	126	114	12	9.5	211	182	29	13.7
Matcze	139	138	1	0.7	246	231	15	6.1
Poraj	106	96	10	9.4	169	152	17	10.1
Rogalin	157	153	4	2.5	299	297	2	0.7
Strzyżów	301	289	12	4.0	309	285	24	7.8
Zosin	94	87	7	7.4	190	190	0	0.0

Source: own elaboration.





**Figure 5.** Examples of degradation of the settlement tissue. Source: photographs by the author.

## 7. Changing Functions of the Rural Homestead

As a result of the evolving socio-economic changes taking place in rural areas in Western Europe, the countryside is no longer identified primarily with agriculture. The countryside has taken on many non-agricultural functions, so that a new model of agriculture and the countryside has taken shape. In addition to food production, the countryside also provides public services (non-market, socially desirable goods, environmental and landscape services). Thus, the countryside now significantly exceeds its traditional tasks. Poland, in becoming part of the European Union, has adopted a model of rural development characteristic of Western European countries. According to many authors, the countryside should now perform non-agricultural, non-commercial functions [44–46], but many of these functions coexist with or are dependent on the traditional form of farming in rural areas - agriculture.

The transformation of rural space is increasingly taking place under the influence of second homes, which means that the growing process of depopulation does not necessarily result in the disappearance of the countryside itself. Rural housing is characterised by considerable sustainability and reacts with some delay to the demographic processes taking place. A period of very intensive transformation has been the last two decades, for which a change in the function of the village has become a characteristic phenomenon. The previously dominant agricultural function is now being replaced to an increasing extent by recreational and leisure activities. With this process, the rural landscape is changing its structure, physiognomy and identity. This is not a new phenomenon; in the United States, the number of rural families for whom farming has become a leisure activity rather than a source of income for the family has been increasing for several decades (hobby-type farms, lifestyle farms) [47].

Areas of particular concentration of tourist settlements in Poland are suburban zones and areas characterised by high natural attractiveness. Also in areas of peripheral villages, which are less attractive environmentally and from the point of view of investment, the transformation of functions from agriculture to tourism is occurring more and more frequently. The beginning of tourism penetration and development of abandoned settlement tissue in typically agricultural villages started relatively late, at the end of the 20th century [48]. Recreational settlement is mainly concentrated in areas with low biotic productivity potential, where the lack of profitability of agricultural use has led to farmers' interest in selling land for recreational purposes. A consequence of this situation is the observed co-occurrence of recreational plots with land lying fallow. Second homes are the factor that is changing rural areas. These changes are moving towards a so-called post-productive village, in which the main use of space is no longer agricultural use but "consumption" of the landscape [49]. Family farms operating in declining rural areas now have the task of not only producing food but also protecting the rural way of life and the natural and cultural face of the countryside. Adopted as second homes, farms in depopulating areas can become a factor in mitigating the effects of rural marginalisation and preventing the disappearance of villages [48,50]. Unoccupied, abandoned houses can contribute to improving the situation of residents, to the economic strengthening of rural marginalised areas.

Field observations show that in many villages homestead-type buildings are adapted by the new owners for recreational purposes. Local buildings such as old cottages, barns, mills etc. are being adapted. The process of changing the function of homesteads is evolutionary, the modernisation of buildings takes place through the continuation of traditional forms of regional buildings (Figure 6). They are usually distinguished by their neat appearance, sometimes by the presence of old machinery, tools and agricultural objects as exhibits, referring to the pedigree of the homestead. This undoubtedly has the effect of perpetuating the traditional village landscape. In this way, the "idyllic character" of the village is maintained.

Unfortunately, this form of tourist colonisation is quite rare. In some villages, second houses appear in the form of compact settlements, built on small plots of land (200–500 m<sup>2</sup>) [51] as an ensemble of plots in a rectangular layout, while the former system of homestead layout was usually based on a linear layout, associated with the course of one or more main roads. Newly emerging

complexes of building plots form clusters that remain separate from the ‘old’ part of the village. Also degrading the village space is the form of second houses, which do not relate to the tradition of the place. They are characterised by complicated projection and form of roofs, different shapes of window openings or intense colours of the facades.



**Figure 6.** Examples of adaptation of regional buildings in depopulated villages for recreational purposes (second homes). Source: photographs by the author.

In addition, a number of environmental threats from recreational settlements are noted in areas under pressure from tourist colonisation. The main threat is the pollution of soil and groundwater associated with the lack of connection to the water supply and sewage system. In addition to the one discussed, there are numerous examples of dense settlements of ‘second homes’ where, in close proximity to each other, there are lavatories with absorption pits and dug wells using groundwater, resulting in the co-occurrence of sources of water abstraction and foci of water pollution [51].

The question that needs to be asked is what next? How will the rural settlement space be shaped in demographically shrinking villages? In order to prevent “bad” tourist colonisation of rural peripheral areas, it is necessary to take measures that would contribute to the preservation of the cultural landscape. The landscape plays an important social role in many areas, e.g., nature protection, culture, social affairs, it is also a resource for economic activity and improving the quality of life. In Poland, the interest in the protection of the rural cultural landscape is linked to the implementation of the European Landscape Convention (Journal of Laws No. 14, item 98 of 2006).

Since the 1990s, the European countryside has entered a so-called renewal phase. Various programmes are being implemented with the aim of restoring the countryside; they are not only concerned with the productive sphere, their task is to cultivate rural traditions, protect cultural assets and integrate the rural community. Organic and biodynamic farming is being promoted and attention is being paid to the protection of the rural landscape. As a result of ‘village renewal’ programmes, it is noticeable that people are returning to the rural areas they inhabited years ago (before migration to the city), returning ‘to their roots’ or rebuilding the demographic structure are frequent [52–55]. These processes are most pronounced in the United States and western Europe and are referred to in the literature as the counter-urbanisation cascade, new turnaround, rural renaissance or rural rebound [56,57].

## 8. Summary and Conclusions

The consequences of demographic shrinkage are manifold; in rural areas, as a result of significant levels of migration, advanced ageing processes, an increase in vacant buildings or the closure of social infrastructure (schools, kindergartens, health centres). As a rule, the term ‘depopulation’ has a negative connotation, but in some cases it can lead to positive changes, e.g., a decline in the rural population results in an improvement in the rural distribution under conditions of fragmented, dispersed agriculture (land consolidation). The final stage of statistical depopulation may be the complete disappearance of the village. There are terms in the literature that refer to the issue of desertification and urban disappearance: abandoned towns or ghost cities (town) [58]. The demographic disappearance of rural settlements is a complex process, varying in time and space. Many times it depends on several factors, often interconnected. Consequently, it will not and cannot follow a single model. It depends on many factors of a local nature, so the course of change will depend on the internal potential of the region concerned.

There is no clear answer to the questions posed in the introduction: does demographic regression lead to a decline in the attractiveness of the countryside as a place to live? there is no clear answer. Depopulation may lead to decline, the ‘winding down’ of a rural area; on the other hand, it may contribute to the repopulation of such areas due to the emergence of new potential development elements [59,60]. Reflecting on the further development of depopulated villages, Di Figilia [61] noted that, paradoxically, some of the factors that led to their decline, to the loss of life function (life function), e.g., spatial isolation, poor urbanisation, in the future may become factors stimulating their development. Recognising the capital of declining villages will make it possible to take action to revitalise them. The above-mentioned author proposed likely scenarios:

- revitalisation through tourism (through the creation of tourist attractions, e.g., tourist trails (cycling, walking), the creation of a village-museum or development towards a holiday village - second homes, guesthouses),
- revitalisation through the development of new human activities.

For demographically shrinking villages in Germany, on the other hand, according to Weber [59], who analysed the application of policies towards depopulating villages, it is proposed to:

- purchase and demolition of decapitalised vacant buildings by municipalities, creation of new building plots and housing for young families in a central location (committing to a certain period of residence),
- eviction from remote locations, hamlets and scattered buildings with high infrastructure maintenance costs,
- organising social campaigns, such as: “Modern housing in an old entourage”, promotion of themed housing e.g.: “Living and working under one roof”, “Living and gardening in the centre” [62].

The cited visions of rural development point to a possible diversification of rural space, which will result in functional differentiation. The observed processes will lead to intensification of the use and modernisation of already existing buildings, giving them new forms, as well as better maintenance of the technical and social infrastructure of the village [42]. Rural development takes place on the basis of diverse endogenous potential, as different areas have their own different problems and their conditions [63,64]. Generally speaking, contemporary rural development goes in three main directions: regrounding (reduction of expenditure on production and agricultural investments, search for new sources of income), broadening (emergence of new forms of activity, e.g., agrotourism), and deepening (production of high-quality food, including organic food) (van der Ploeg, Long). Assessing the potential of a single village enables planning, anticipating the development of the unit, e.g., research on depopulated rural areas in the mountainous areas of Georgia shows that their regional potential includes mineral waters, hot springs, a healthy climate and diverse mountain landscapes, which should encourage investment in the leisure economy [65].

In the coming years, among the trends that will shape the image of the Polish countryside, three main groups can be distinguished: socio-demographic, economic-spatial and natural [40]. In general, social, economic and natural processes have a positive impact on rural space, demographic ones have an unfavourable direction, their consequence is population loss. The transformation of the settlement system of Poland in the next decades, resulting from current trends, primarily demographic, will result in a strong polarisation of space. Population will be concentrated in urban regions, while in the regions with permanently regressive villages (mainly the eastern and central parts of Poland) a further dilution of the settlement network will take place. These areas are much more likely to undergo recession than progression. This does not mean that these areas will become completely depopulated. The world is seeing the return and repopulation of less-popular rural areas. Quality-of-life plays a role in decisions to move to less-popular rural areas. This is pointed out by Halfacree [66], who proposes a vision of the rural idyll among visions of the countryside. The main function of such a village is residential and recreational—the opportunity to spend leisure time in a friendly environment, contemplating the rural idyll.

In areas with a high-quality agricultural environment, the development of an agricultural village, with highly productive agriculture (maximising production, use of biotechnology, GM crops and breeding), may occur. In other areas, which are not very attractive in terms of agriculture and tourism, the villagers will leave the village. Similar visions of rural development are being developed for other regions of the world. Kuhmonen and Kuhmonen [67] present four possible images of rural futures in Finland: decentralised bio-economy, colonial countryside, museum countryside and rural business islets. In China, the functional transformation of the countryside is moving towards types: urban village, industrialised village and village with agro-tourism [68].



In the case of Polish villages, characterised by a constant population regression, it seems that the vision of an idyllic village, a museum village and an agriculturally specialised village have a chance to come to fruition. The former will concern areas with some recreational potential, located within relatively good time accessibility from the city. ‘Second home’ villages will be created. On the other hand, in many areas with an attractive natural environment for farming, it is predicted that due to the demographic crisis and the associated shortage of labour, a so-called agricultural colonisation will occur [69,70]. Modern farms of the farmer type will emerge. On the other hand, there will be an increase in the number of ‘dwarf’ farms (1–5 ha), which will be maintained for sentimental, hobby as well as social reasons. Their function will be to preserve rural traditions, culture and maintain human ties [71,72].

In areas losing population, but with worse conditions for farming, the model of the so-called closed cycle will materialise. This concept assumes the disappearance of settlement structures in rural areas as a result of the migratory outflow of the young population. The selective outflow (of young people) results in a decline in demand for services and in the sphere of production. As a result of the exodus of the young population from the countryside, market difficulties (including with finding work) arise, which are the cause of a further push of residents out of the countryside. There will be a return to natural conditions with significant renaturalisation (wilderness of the cultural landscape). The disappearance of settlements and a complete change of the rural space is possible. Often a protective function will appear in such areas.

Settlement disappearance scenarios are not isolated. Recaño [73], surveying Spanish villages, distinguished areas that are characterised by irreversible depopulation, which may eventually reach the point of extinction. He considered areas at risk of settlement decline to be those characterised by:

- smallest demographic dimension (an average of 110 inhabitants),
- lowest densities (averaging 4.3 inhabitants per km<sup>2</sup>),
- maximum ageing with average ages close to 60,
- 45% of the inhabitants older than 65,
- municipalities which have experienced the highest rates of female emigration and also present severe ageing.

Similar observations were made by Wesołowska [74], who, among the villages characterised by population decline between 1950 and 2011 (62% of villages in Poland), distinguished a group of villages with the highest rates of demographic regression. These were small units (less than 200 people) and, in particular, the smallest, with up to 50 people, which saw the greatest decline - by around 28%. According to the developed forecasts, the population of these villages will shrink by up to more than 40% of the population by 2050, and residual villages with up to 10 inhabitants will account for as much as ¼ of the smallest villages (up to 50 people). The projections carried out gave rise to the conclusion that in the regions where such villages exist, the settlement network will be diluted, and for many of the villages, especially those located peripherally (both communicatively, economically and socially), the model of the so-called closed cycle of village depopulation is likely to materialise, they will disappear in the physical sense [74]. The phenomena of demographic shrinkage of rural areas and regression of the settlement network in Poland are not isolated. Various European projects relating to rural space have identified this problem in detail. Case studies in the TeDi project identified the phenomenon of ‘shrinkage’ of population potential in traditional rural or poorly accessible areas, resulting in economic marginalisation and change of the settlement structure there. The EDORA project [43] highlighted the rural exodus, particularly strong in traditional agricultural areas. It is selective in nature, accompanied by a process of population ageing, assuming the greatest dynamics in peripheral regions [41]. Previous research on depopulating villages in Poland shows that in villages, especially those characterised by permanent population loss, small and economically weak, there is a need for social, economic and spatial restructuring. In many cases, such villages are unable to initiate development based on their own strengths as they have too little human and economic capital. Nor can they benefit from development impulses from growth centres as they are located far from them. Therefore, in the coming years, peripheral rural areas may experience the consolidation or increase in the scale of negative phenomena, e.g., poverty, social exclusion, which in the long term will lead to the weakening of key development factors, i.e., human capital, cultural heritage, the deterioration of infrastructure. Wesołowska [74] estimates that nearly 40% of Polish villages with permanent population regression lack endogenous potential for development, condemning these villages to probable disappearance.

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