

SOCIAL INFRASTRUCTURE OF BURIAL NATURE IN POLAND BY VOIVODESHIPS – CONDITIONS AND CHANGES*

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ABSTRACT

Eurostat and the Central Statistical Office (GUS) forecasts predict that the demographic aging rate will have doubled by 2050. The consequence of this situation will be an increasing death rate and a dynamic increase in the demand for space for depositing corpses and remains. Nowadays, no research has been conducted on the social infrastructure of burial nature. That is why the aim of the research, which results presents this article, was to determine the resource in the aspect of mentioned above infrastructure by voivodeships (number and distribution of cemeteries, crematoria, number of deaths, new cemetery investments). This research has been based on the data provided by the Local Data Bank, Polish Funeral Association, the District Sanitary and Epidemiological Stations, National Heritage Board of Poland and the Cremation Society of Great Britain. The results indicate regional differences in the development of burial facilities. In addition, the research allowed to determine the conditions and changes in the aspect of functioning of cemeteries and crematoria in Poland.

Key words: cemetery, crematorium, voivodeship, burial facilities, cremation, burial

INTRODUCTION

Social infrastructure includes a wide range of facilities, objects and institutions. It is an essential feature of the proper functioning society and economy (Mirkowski 1996, Borcz 2000). Rutkowska (2007) adds social organizations and religious facilities to the social infrastructure classification. According to the Polish Classification of Building Facilities introduced by the Regulation of the Council of Ministers of December 30, 1999 (Journal of Laws 1999, No. 112,

item 1316) “Buildings intended for religious worship and religious activities” (class 1272) include cemeteries and related facilities, crematoria. For this reason, burial facilities should be incorporated in the social infrastructure (Długożima 2019). Gajewski (1979), Borsa (2004) and Chmielewski (2010) include burial to the service infrastructure. To sum up, burial infrastructure is created by technical devices serving the settlement unit in “the process of the handling the deceased” (Thomas 1991, p. 126) i.e. cemeteries and crematoria. Social infrastructure plays important

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role in promoting economic growth and it is an integral part of spatial structure of defined area (Rutkowska 2007). The aim of the study was to identify and characterize Poland's resource in social infrastructure of burial nature, i.e. cemeteries and crematoria by voivodeships and to indicate trends and conditions in the planning of these objects.

The necessity to conduct research in the field of burial infrastructure was determined by:

- no research has been conducted on the social infrastructure of burial nature in Poland, both on national and regional scale;
- a report by the Supreme Audit Office about the management of municipal cemeteries in Poland which pointed many problems, including legal ones (SAO/NIK 2016);
- dynamic growth of crematoria in Poland (in 1991 there was 1 facility, in 2007 – 10, in 2016 – 51, in 2017 – 53, and at the beginning of 2019 – 61 facilities).

Furthermore, the Central Statistical Office predicts that the population in Poland will decrease from approximately 38.5 million to 34.8 million (in the period between 2014 and 2050). Despite advances in medicine, which contribute to a permanent, significant reduction in mortality and lead to permanent extension of life expectancy, all demographic forecasts assume a slow increase in deaths, due to the fact that the population of the post-war population enters the post-productive age phase (Szukalski 2016). The above statement justifies the necessity to conduct research in the field of burial. In addition, no statistics are available in Poland regarding the number of burials by type (cremation, inhumation). There is a lack of central database aggregating information about cemeteries (number, type). Polish crematoria do not provide information on the number of cremations carried out.

Meanwhile, in the world statistics related to burial and data about distribution of crematoria and cemeteries form the basis planning burial investments (Fisher 1992, Santarsiero et al. 2000, Croucamp and Richards 2002, Van Steen and Pellenbarg 2006,

Coutts 2011, Larkin 2011, Kjølner 2012, Kjølner 2013). The lack of integrated spatial policy in the aspect of burial determines the socio-economic, functional and spatial, environmental and aesthetic – compositional problems. Research carried out at 162 cemeteries in the Mazowieckie (48 objects), Podkarpackie (81 objects) and Warmińsko-Mazurskie (31 objects) Voivodeships showed the lack of suitable areas for new burials (Długozima 2011). One of the determinants is dynamical urbanization processes, which affect the deficit of free space predestined for burial functions (SAO/NIK 2016, Długozima 2019).

Irrational use of cemeteries space (Osiekowicz and Podciborski 2013), intensification of historical cemeteries development lead to degradation of composition of the cemetery by (Długozima 2011, SAO/NIK 2016). Thus affects the negative social perception of the cemetery space (Tudor et al. 2013). Cemeteries apart from fulfilling the basic function of burying the dead are an integral part of the space and in Polish cultural tradition play an important role. It is a zone of sacrum, archives, a museum, a park (Kolbuszewski 1996, Rugg 2000, Francis 2003, Worpole 2003, Harvey 2006, Długozima 2011) and an important element supporting the functioning of the settlement unit's natural environment (Gilbert 1991, Laske 1994, Usulu 2010, Skår et al. 2018).

According to the Nature Conservation Act of 16 April 2004 cemeteries are classified as green areas (article 5.21, Journal of Laws of 2004, No. 92, item 880). Due to the increase in social acceptance for cremation (PORC/CBOS 2001), the crematorium is becoming the second element of burial nature infrastructure nowadays more and more often set in a land use in Poland (Długozima 2017, 2019).

RESEARCH OBJECTIVE, RESEARCH AREA, MATERIAL AND METHODS

It should be emphasized that cemeteries and crematoria are facilities dedicated to burial purposes, they have a very wide collection of designations (including: green area, building, building intended for religious

worship and religious activities) – Figure 1. In addition, cemeteries have different meaning and different study domain for many disciplines. Cemeteries must be planned and designed in collaboration with different disciplines. Researchers agree that planning and designing of cemeteries is a difficult task (Lehrer 1974, Capels and Senville 2006, Basmajian and Coutts 2010, Długożima 2011). Because they are very different from other types of public services in terms of functionality. They impact on local community, natural environment, spatial structure of settlement unit and its use. Cemeteries are an important component of the space and should be included in the development of settlement units and cultural landscape (Francaviglia 1971, Pogodziński 1974, Francis 2003, Knercer 2004, Długożima 2011, Chudak 2012, Rosegnal 2015).

Therefore, the aim of the research is to analyze the number of cemeteries and crematoria, their distribution by voivodeships and to determine the changes

and conditions of establishment and enlargement of burial facilities in Poland.

The characteristics in terms of burial infrastructure facilities by voivodeships (number and distribution of cemeteries, crematoria, the share of municipal and historic cemeteries in the total number of cemeteries) were elaborated. This research has been based on the data provided by the Local Data Bank, National Heritage Board of Poland, the District Sanitary and Epidemiological Stations and Polish Funeral Association. The Supreme Audit Office’s report (2016) noted that in the last decade, only a handful of local governments have decided to build or extend the boundaries of existing municipal cemeteries. Part of the research was identification of cemeteries established and enlarged in the period 1999–2019. In addition, to show the main factors determining the condition and quality of burial infrastructure and changes, population data by voivodeships were collected.

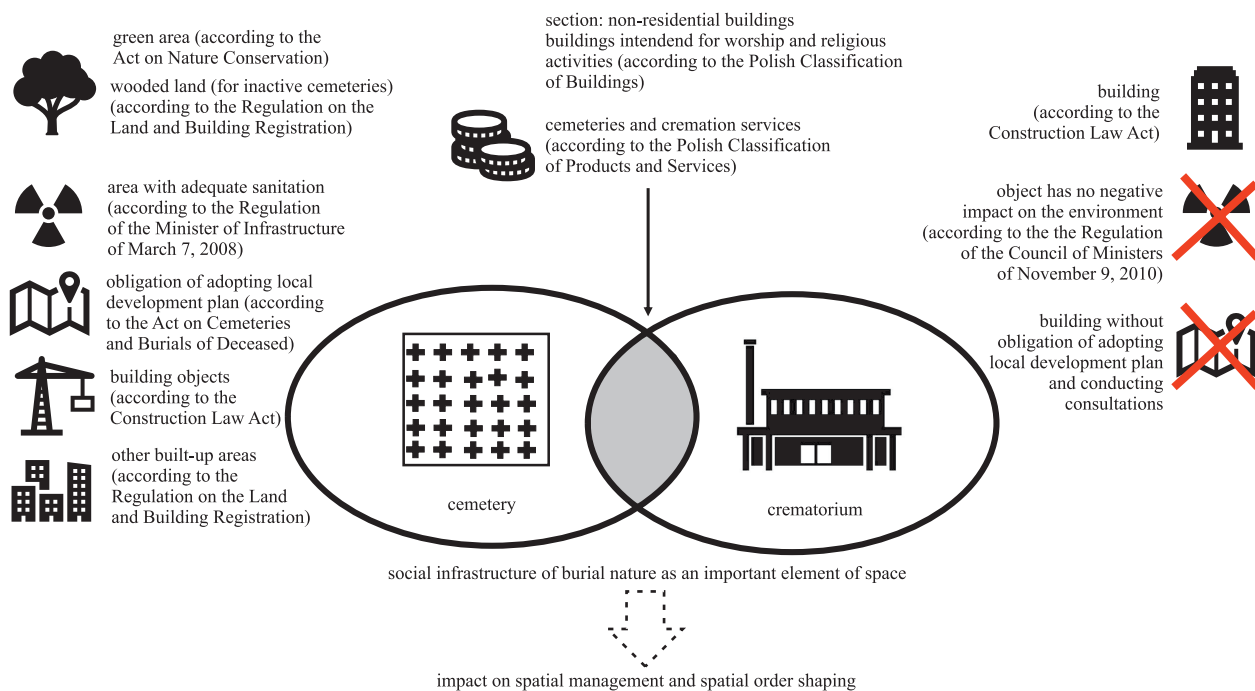


Fig. 1. Cemetery and crematorium – social infrastructure of burial character as an important element of spatial management
 Source: own study

RESULTS

Cemeteries in Poland

According to the Central Statistical Office, as at 31 December 2017, there were 15 944 cemeteries in Poland (Table 1). Their total acreage was 18 293.59 ha. 1920 cemeteries have the status of municipal object, which represents 12% of the total number of cemeteries in Poland (for comparison: there were 17 792 civil cemeteries, of which 2876 were municipal objects in 1970) (CSO/GUS 1970). It should be emphasized that the Central Statistical Office collects data about green areas in Poland, including cemeteries. However, these data do not take into account the legal status, owner/manager or the area of each cemetery, but only the total number and total area. There is no data aggregating information about: location, area, cemeteries capacity, their current state of development and type (municipal, denominational, war ceme-

tery – basic classification of cemeteries in Poland, according to the legal regulations). On the other hand, National Heritage Board of Poland has 25 609 cemeteries record cards (cards were also established for individual graves), but data are available only for historic cemeteries. In addition, these cards are not very up-to-date (most of the cards were established in the 1980s and 1990s).

In order to compare the number of cemeteries by voivodeships the index of the cemetery area per 1000 population was used, based on the American Planning Association (APA) and Association for Public Service Excellence (ASPE) – Table 2. Highest rate was recorded in the Podlaskie Voivodeship (0.81 ha) with an average cemetery area of 1.35 ha. At the same time, one of the lowest number of municipal cemeteries in Poland (17) were recorded in this voivodeship. Equally high, as for Polish conditions (average 0.48 ha), cemeteries area per 1000 population occurs in the Warmińsko-Mazurskie Voivodeship. In addition, the richest his-

Table 1. Number and cemeteries area in Poland by Voivodeships

Voivodeship	Number of cemeteries				Area of cemeteries	
	Total [pcs.] (1)	historic cemeteries (2)	municipal cemeteries (3)	% of total (3) in (1)	total [ha] (4)	average area [ha]
Dolnośląskie	1 187	335	277	23.3	1 365.43	1.25
Kujawsko-Pomorskie	1 100	141	41	3.7	920.91	0.84
Lubelskie	1 044	514	29	2.8	1 299.98	1.25
Lubuskie	567	53	328	57.8	688.26	1.21
Łódzkie	648	143	12	1.9	1 155.54	1.78
Małopolskie	1 199	346	128	10.7	1 172.12	0.98
Mazowieckie	1016	331	26	2.6	2 094.73	2.06
Opolskie	762	129	41	5.4	567.42	0.74
Podkarpackie	1363	358	92	6.7	1 302.86	0.96
Podlaskie	711	332	17	2.4	958.91	1.35
Pomorskie	797	136	96	12.0	901.17	1.17
Śląskie	924	105	132	14.3	1 352.60	1.51
Świętokrzyskie	432	179	18	4.2	674.94	1.54
Warmińsko-Mazurskie	1 766	579	148	8.4	1 118.53	0.63
Wielkopolskie	1 309	314	59	4.5	1 515.56	1.24
Zachodniopomorskie	1 119	201	476	42.5	1 204.63	1.03
Total	15 944	4 196	1 920	12,0	18 293,59	1,15

Source: own study based on Local Data Bank and National Heritage Board of Poland (as at 2018 year)

Table 2. Cemeteries area in Poland by Voivodeships

Name	Data for voivodeship		Data for cemeteries		
	population	area [ha]	area [ha]	% of total	area/1000 population
Dolnośląskie	2 902 547	1 994 670	1 365.43	0.07	0.47
Kujawsko-Pomorskie	2 082 944	1 797 134	920.91	0.05	0.44
Lubelskie	2 126 317	2 512 246	1 299.98	0.05	0.61
Lubuskie	1 016 832	1 398 793	688.26	0.05	0.68
Łódzkie	2 476 315	1 821 895	1 155.54	0.06	0.47
Małopolskie	3 391 380	1 518 279	1 172.12	0.08	0.35
Mazowieckie	5 384 617	3 555 847	2 094.73	0.06	0.39
Opolskie	990 069	941 187	567.42	0.06	0.57
Podkarpackie	2 129 138	1 784 576	1 302.86	0.07	0.61
Podlaskie	1 184 548	2018702	958,91	0.05	0.81
Pomorskie	2 324 251	1 832 193	901.17	0.05	0.39
Śląskie	4 548 180	1 233 309	1 352.6	0.11	0.30
Świętokrzyskie	1 247 732	1 171 050	674.94	0.06	0.54
Warmińsko-Mazurskie	1 433 945	2 417 347	1 118.53	0.05	0.78
Wielkopolskie	3 489 210	2 982 650	1 515.56	0.05	0.43
Zachodniopomorskie	1 705 533	2 289 732	1 204.63	0.05	0.71
Total	38 433 558	31 269 610	18 293.59	0.06	0.48

Source: own study based on Local Data Bank and National Heritage Board of Poland (as at 2018 year)

toric sepulchral resource was identified in Warmia and Mazury (32.8% – 579 objects of 1766 are listed in the voivodeship register of monuments). The lowest rate of the cemetery area per 1000 population is in following

voivodeships: Śląskie (0.3 ha), Małopolskie (0.35 ha), Mazowieckie (0.39 ha) and Pomorskie (0.39 ha). In 2018, most cemeteries were located in the countryside (83%) – Figure 2.

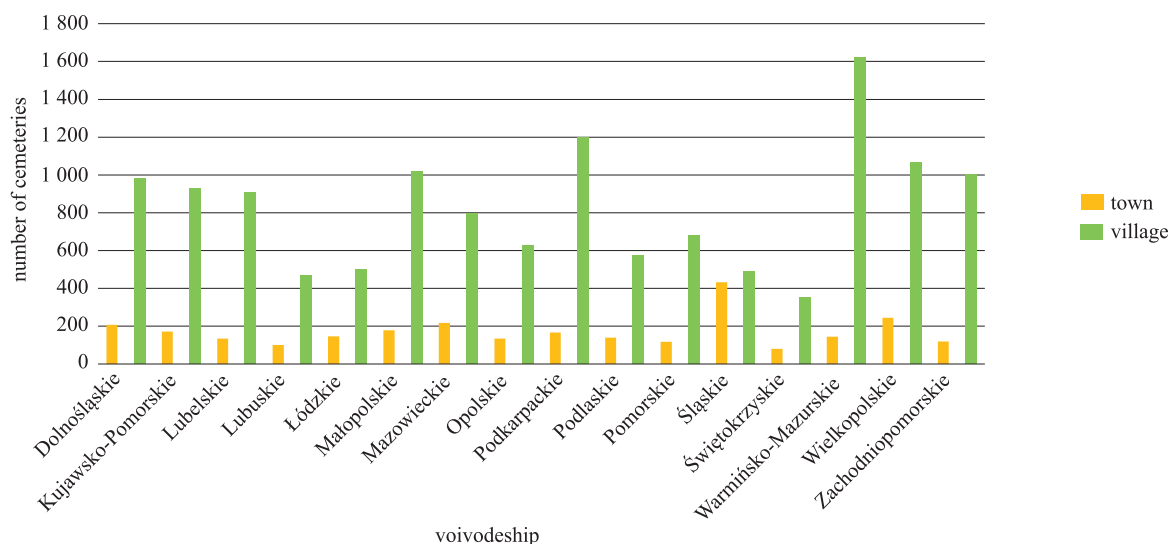


Fig. 2. Number of cemeteries by voivodeships and location (in town, in country) (as at 2018 year)

Source: own study

Crematoria in Poland

Analysis of cremation statistics of the International Cremation Statistics provided by the Cremation Society of Great Britain proves that Poland is one of the most rapidly developing markets of cremation services in Europe. By 2007 there has been ten crematoria in Poland. After 2010 a sudden growth of the number of crematoria was recorded (2012 – 20 objects, 2016 – 51, 2017 – 53, 2018 – 54, 2019 – 61). In 2019, there were 61 crematoria across Poland (Fig. 3). It should be emphasized, that in Poland there are no databases that inform about the number of burials by formulas: inhumation on cremation. Polish crematoria do not inform about the number of cremations. There is no central registry of burial sites and crematoria.

In **Dolnośląskie Voivodeship** there are nine crematoria (Głogów – two objects, Garbce, Jaszów, Jelenia Góra – two objects, Strzelin, Wrocław – two objects). Municipal cemeteries constitute 23,3% of total number of sepulchral facilities in Lower Silesia (Dolny Śląsk), including new cemeteries opened in Jelenia Góra Cieplice (2000), Borzygniew (2003), Nowogrodziec (2011), Strzegom (2012), Jaszów (2013), Żeleźnik (2015), Smolec (2018). In the recent years burial needs of inhabitants were secured by expansion of the cemeteries in Kłodzko (2013), Bolesławiec (2016), Polkowice (2017) and Brzeg Dolny (2018). The construction of municipal cemetery in Kryniczno (Wisznia Mała commune) is also planned. In **Kujawsko-Pomorskie Voivodeship** there are four crematoria in: Białe Błota near Bydgoszcz,

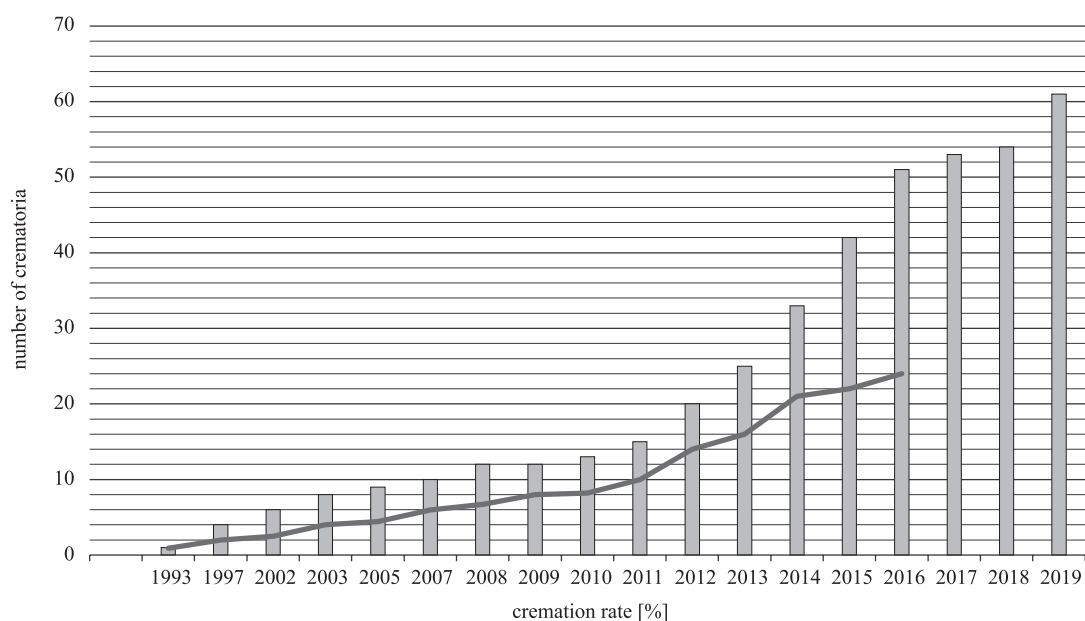


Fig. 3. Number of crematoria and cremation rate (expresses the percentage of cremation in the total number of burials) in Poland 1993–2019

Source: own study

Characteristics of burial social infrastructure by voivodeships

The location of crematoria and cemeteries in Poland (especially municipal facilities) indicates significant regional differences in the aspect of development in burial social infrastructure by voivodeships (Fig. 4).

Nowa Chełmża, Toruń and Włocławek. Municipal cemeteries in Grudziądz-Kobylanka (2002), Nowa Chełmża (2005) and Starorypin Prywatny (2006) were opened. The cemetery in Więcbark was expanded (2016). There is one crematorium (Czerniejów) in **Lubelskie Voivodeship**. Among 29 active municipal cemeteries in the region, new

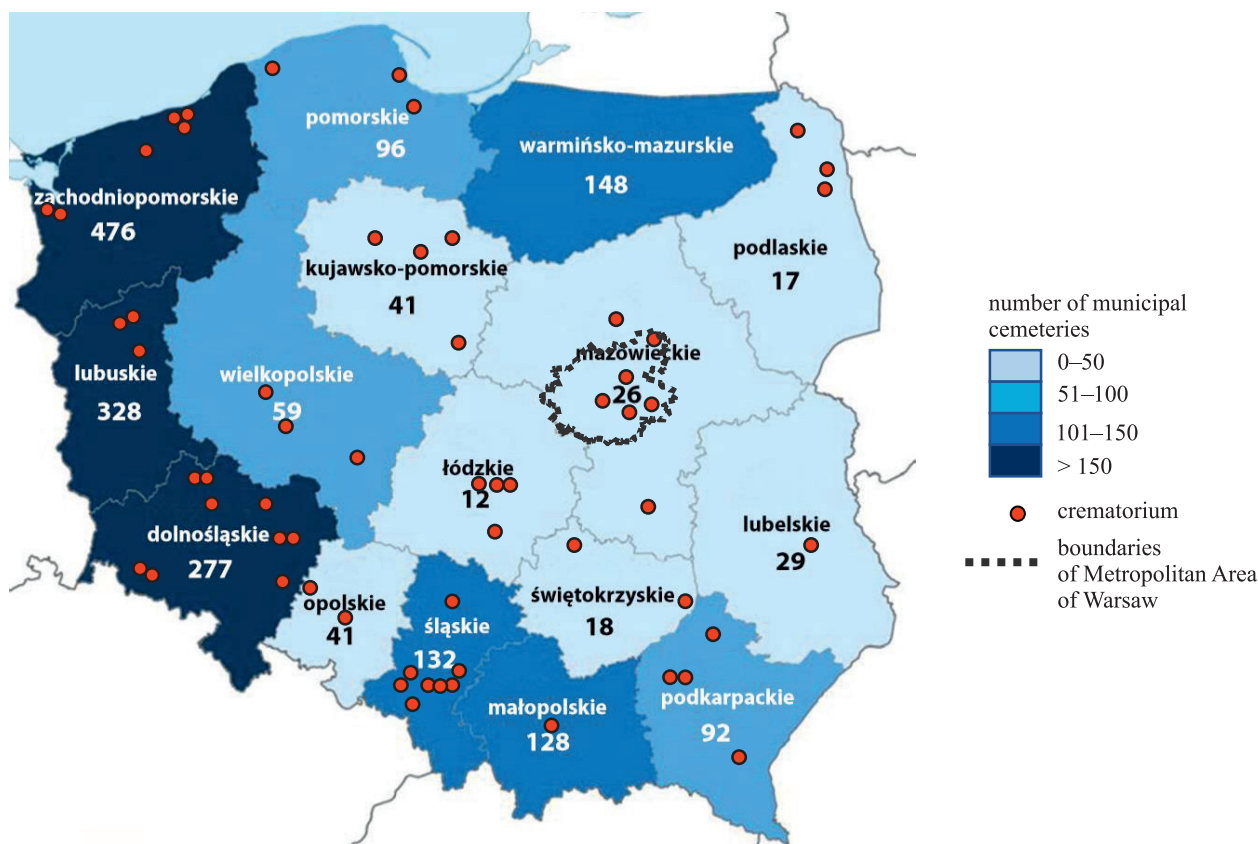


Fig. 4. Communal cemeteries and crematoria in Poland by Voivodeships
Source: own study (as at January 2019)

burial investments were identified in Stara Wieś (2009), Opole Lubelskie (2014), Łuków (2016), Kobyłany (2018). The cemetery in Świdnik was also expanded (2017). In **Lubuskie Voivodeship** 57.8% of total number of cemeteries are municipal facilities. The new cemetery was opened in Zielona Góra (2008). There are three crematoria in region: Górzów Wielkopolski – two objects and Skwierzyna. In addition, new burial investment is planned in Tomaszów (Żagań commune). The municipal cemetery in Gorzów Wielkopolski was also expanded (2014). In **Łódzkie Voivodeship** there are four crematoria. Three of them are located in Łódź where nearly half of all the bodies of the deceased are cremated. The fourth one can be found in Bełchatów. This region is characterized by the lowest number of municipal cemeteries (12 facilities). New cemeteries in Wieluń

(2010), Andrespol (2011) and Opoczno (2016) were opened. The municipal cemetery in Radomsko is being expanded. There is one crematorium in **Małopolskie Voivodeship** located in Kraków Podgórk Tynieckie. In the region, cemeteries in Kraków-Batowice (2006), Mętków (2014), Dulowa (2017) and Limanowa (2017) were expanded. In addition, the cemetery in Dobczyce was modernized (2017). New municipal cemeteries in Tarnów-Klikowa (2008), Rdziostów (2016), Nowy Targ (2016) were opened. There are seven crematoria in **Mazowieckie Voivodeship** in: Otwock, Pruszków, Warszawa, Antoninów, Radom, Przasnysz-Sierakowo and Wyszków. Five facilities are located in Metropolitan Area of Warsaw. Investments of expanding municipal cemeteries took place in Szydłowiec (2009), Płock (2018) and Ciechanów (2019). New burial facilities with municipal status

Table 3. Population in Poland by Voivodeships

Voivodeship	Population (2018)	Number of deaths				Share of rural areas in total area [%]	Share of rural inhabitants in population [%]	Share of people employed in agriculture [%]
		2000	2005	2017	tendency			
Dolnośląskie	2 901 225	28 287	28 603	32 038	↑	89.0	30.1	5.5
Kujawsko-Pomorskie	2 077 775	19 727	19 411	21 252	↑	95.4	39.4	15.4
Lubelskie	2 117 619	23 228	23 182	23 427	↑	96.1	53.7	26.5
Lubuskie	1 014 548	8 894	9 135	10 285	↑	95.3	35.0	8.7
Łódzkie	2 466 322	31 961	31 273	31 172	↓	93.6	36.8	13.1
Małopolskie	3 400 577	28 503	28 965	31 852	↑	89.1	51.4	11.9
Mazowieckie	5 403 412	52 064	51 743	57 237	↑	90	35.7	11.0
Opolskie	986 506	9 378	9 471	10 880	↑	92	48	11.9
Podkarpackie	2 129 015	18 129	18 289	19 327	↑	93.3	58.6	17.9
Podlaskie	1 181 533	11 802	11 854	12 526	↑	95	39.7	24.3
Pomorskie	2 333 523	18 083	18 503	21 650	↑	93.9	35.1	7.0
Śląskie	4 533 565	45 989	46 315	51 404	↑	69.9	22	2.6
Świętokrzyskie	1 241 546	13 377	13 620	14 330	↑	94.4	54.8	21.8
Warmińsko-Mazurskie	1 428 983	11 777	12 420	14 423	↑	97.5	40.8	12.7
Wielkopolskie	3 493 969	31 811	30 234	33 261	↑	95	44.9	13.0
Zachodniopomorskie	1 701 030	15 018	15 267	17 788	↑	93.8	31	8.0
Poland	38 411 148	368 028	368 285	402 852	↑	92.1	41.1	12.0

Source: own study

in Antoninów (1999), Głinojeck (2002), Pruszków-Gąsin (2003), Wieliszew (2016) and Pionki (2019) were opened. In addition, in 2011 a new parish cemetery in Korytnica (Trojanów commune) was established. Parish cemetery in Łosice was also enlarged (2013). In **Opolskie Voivodeship** there are two krematoria in Opole and Skarbimierz. New municipal cemeteries were opened in Bąków (2015) and Wołczyn (2017). In the recent years burial needs of inhabitants were secured by expansion of the cemeteries in Brzeg (2013), Kluczbork (2015) and Kędzierzyn-Koźle (2017). The Central Municipal Cemetery in Opole-Półwieś was revitalized in 2012. In **Podkarpackie Voivodeship** there are four crematoria in Rzeszów, Stalowa Wola and Mielec – two objects. New municipal cemeteries were built in Sanok (Southern Municipal Cemetery, 2000), Sarzyna (2001) and Krosno (2015). Municipal cemeteries in Rzeszów-Wilkowyja (2016), Przemyśl (Zasanie, 2017) were also expanded. Construction of the municipal cemetery in Jarosław is being finalized. Public consultations were completed and local

development plan for a new municipal cemetery in Jarosław was adopted. There are three crematoria in **Podlaskie Voivodeship** in: Białystok, Karakule and Suwałki. There is one new municipal facilities located outside the administrative boundaries of Białystok in Karakule (2010). The municipal cemetery in Grajewo was also expanded (2012). Righ now there are three crematoria in **Pomorskie Voivodeship** in: Gdańsk, Roszkowo and Słupsk. Burial needs of inhabitants were secured by opening new cemetery in Krzyżanowo (2008) and expansion of the cemeteries in Cewice (2013), Gdańsk – Łostowice (2014) and Kosakowo (2018). **Śląskie Voivodeship** is the most densely populated region in Poland. The urbanization index is very high and cremation is the most popular there. There are nine crematoria there: in Bytom, Chorzów, Częstochowa, Dąbrowa Górnicza, Jasienica, Katowice, Ruda Śląska (two objects) and Żory. New municipal cemeteries were built in Dąbrowa Górnicza (2000), Częstochowa (2003), Żywiec (2005), Knurów (2006), Chorzów – Klimzowiec (2011) and Miasteczko Śląskie

(2012). Burial spaces in Czechowice – Dziedzice (2008), Jastrzębie-Zdrój (2014) and Świętochłowice (2014) were expanded. In Silesia the new parish cemetery in Pielgrzymowice was built (2010) and parish cemetery in Kozy (2015) was enlarged. Municipal cemetery built in the Syrynia village in 2016 and relocated due to the construction of water reservoir from Nieboczowy is a national phenomenon. In **Świętokrzyskie Voivodeship** there is two crematoria in Skarżysko-Kamienna and Sandomierz. No new cemetery facilities were identified in period 1999–2019. Cemeteries with municipal status were expanded in Busko-Zdrój (2001), Kielce – Cedzyna (2017), Starachowice (2017) and Suchedniów (2019). In 2014 parish cemetery in Kazimierza Mała (Kazimierza Wielka commune) was expanded. It is symptomatic, there have been some protests against investments of crematoria in Pińczów and Chmielnik, which shows that traditional burial will be still dominant there. In **Warmińsko-Mazurskie Voivodeship** there are no crematoria. Burial needs of inhabitants were secured by opening new cemeteries in Iława (2005), Bartosze (2014), Gołdap (2015) and expansion of the cemeteries in Szczytno (2007), Elbląg (2015) and Braniewo (2018). In **Wielkopolskie Voivodeship** there are crematoria in Poznań, Kalisz and two crematoria in Gorzów Wielkopolski. The construction of new municipal cemeteries was carried out in Luboń (2004), Durzyn (2014). Enlargement of existing cemeteries in Trzcianka (2017), Międzychód (2018) and Słodków-Kolonia (2018) took place. In addition, new parish cemetery in 2008 was opened in Czapury (Mosina commune). The construction of crematorium in the village of Kijewo was protested. In **Zachodniopomorskie Voivodeship** there are six crematoria in: Koszalin (three objects), Police, Ramlewo and Szczecin. In the recent years burial needs of inhabitants of region were secured by opening new cemeteries in Stargard (2002), Szczecinek, Barlinek (2010), Szczecin – Gumienice (2013) and expansion of the cemeteries in Goleniów (2010), Międzyzdroje (2011), Koszalin (2015), Ustronie Morskie (2015), Świnoujście (2016), Kluczbork (2016). The municipal cemetery in Płoty is being expanded.

Conditions and changes in the aspect of planning burial infrastructure

In Poland disproportions in the development of social infrastructure of burial character have been noticed. Location, quality of burial facilities (area, legal status) are determined by historical, cultural and legislative conditions. 48% of cemeteries built in period 1999–2019 were located in rural areas. The vast majority have the status of municipal cemeteries (approx. 90% of total number). Report by the Supreme Audit Office (2016) pointed many problems about the management of municipal cemeteries in Poland and socio-cultural factors which determining the modern condition of burial facilities (progressing secularization, imitation of Western solutions). This report predicts that the share of municipal cemeteries in Poland will increase. Spatial distribution of municipal cemeteries in Poland is unequal. The highest share of municipal cemeteries in total number of cemeteries are in Lubuskie (57.8%), Zachodniopomorskie (42.5%) and Dolnośląskie (23.3%) Voivodeships – in areas inhabited before II World War by Protestant people. Most of the local cemeteries were owned by Churches and religious associations. As a result of geopolitical changes after II World War many denominational cemeteries lost their users. In the period form 1970s to 1990s they were communalized and nowadays they are property of local government. The smallest number of municipal cemeteries occur in the following voivodeships: Świętokrzyskie (18), Podlaskie (17) and Łódzkie (12). Denominational cemeteries managed by the Roman – Catholic Church authorities dominate there. In the period 1999 – 2019 52 new cemeteries were established in Poland. This indicates a low dynamic in the field of burial infrastructure.

An obstacle in planning investments is a lack of suitable areas that meet the conditions set out in the legal provisions. The basic acts regulating the establishment and maintenance of cemeteries in Poland include: the Act of January 31, 1959 on Cemeteries and Burials of the Deceased (Journal of Laws 1959, No. 11, item 62), Regulation of the Minister of Municipal

Economy of August 25, 1959 on determining which areas in terms of sanitation are suitable for cemeteries (Journal of Laws of 1959, No. 52, item 315), Regulation of the Minister of Infrastructure of March 7, 2008 on requirements for cemeteries, graves and other places of burial of corpses and remains (Journal of Laws 2008, No. 48, item 284), the Building Law Act of May 16, 2003 (Journal of Laws 2003, No. 207, item 2016), the Act on Nature Conservation of April 16, 2004 (Journal of Laws of 2004, No. 92, item 880) (Długozima 2019).

Acts regulate the width of the sanitary protection zones (from 50 to 150 m), elements of spatial development and determine the requirements for burial facilities. Poland belongs to a small group of countries that impose on its citizens the obligation to bury the deceased in the cemetery (Dziewulak 2012). After 2012 the share of municipal cemeteries increases, which is associated with law regulations.

The amendment to the Act of 2012 on the Treasury Property Management introduced the possibility of free transfer of land for communal purposes, including cemeteries (Journal of Laws 1991, No. 107, item 464). Spatial distribution of crematoria varies regionally. Polish law prohibits the scattering of the ashes of a deceased person and the storage of urns with ashes outside the cemetery. Crematorium construction was regulated in the provisions of Article 3 of the Regulation of the Council of Ministers of November 9, 2004 on determining the types of investments that may significantly affect the environment and the detailed conditions qualifying the investment to draw up a report on environmental impact (Journal of Laws 2004, No. 257, item 2573) as potentially having a significant impact on the environment. Therefore, the necessary conditions included: conducting an environmental impact assessment of the investment and social consultations. Under the new Regulation of November 9, 2010 (Journal of Laws of 2013, item 1235), crematoria ceased to be subject to these rigors, which translated into a dynamic growth of crematoria in Poland (Długozima 2019). After 2010 a sudden growth of the cremation services was recorded. This increase was caused by the fact that more and

more crematoria were being established with the help of European Union funding programmes (for example Regional Operational Programmes in particular voivodeships). The uneven distribution of crematoria in Poland is primarily determined by historical and cultural factors. The most dynamically developing regions in Poland in the aspect of cremation services are Dolnośląskie Voivodeship and Śląskie Voivodeship. One of the highest urbanization rate in Poland (share of rural areas in the total area of voivodeships below 90%) and a small share of people employed in agriculture make the cremation index high there. Data collected in 1994 and 2001 in surveys entitled „On dying and death” carried out by the CBOS (Public Opinion Research Center in Poland) show certain dependencies: The more educated and the younger the people are, the more they accept the fact that the body of the dead person may be cremated. The number of people approving cremation increases with the level of education, type of settlement unit (higher acceptance rates for cremation in the city than in the countryside). A positive attitude towards cremating people among the young people is frequently caused by lack of so-called „historical burden”. For those who survived World War II crematoria remind of concentration camps, Holocaust and mass extermination of millions of human beings. If we have a look at social and professional groups, the fewest supporters of cremation can be found among people employed in agriculture. That is why, low acceptance rates for cremation is in the countryside. Although right now the Congregation for Doctrine of the Faith in its instruction on burying the bodies of the dead and keeping their ashes does not see any doctrinal reasons for forbid cremation, Catholic Church still prefers burying the corpses of people in the blessed grounds of cemeteries (Suchecky 2009).

Mentioned above socio-cultural conditions determined the spatial distribution of burial infrastructure by voivodeships. Agricultural regions (high share of rural areas in the total area, high share of farmers) are characterized by the lowest number of municipal cemeteries and small number of crematoria (Lubelskie, Podlaskie, Świętokrzyskie Voivodeships).

CONCLUSIONS

There is a lack of central databases aggregating information about cemeteries, crematoria and their location and quality. There is also a lack of activities concentrated on forecasting, monitoring phenomena related to burial which makes difficult to conduct integrated spatial policy in the aspect of sustainable development and spatial order. It is symptomatic that even in the Chief Sanitary Inspectorate there are no detailed data about cemeteries and pre-burial houses (e.g. report on the state of sanitation in 2017). Identification of cemeteries, monitoring availability of free burial spaces as well as valorisation of areas fulfill requirements for new places of burial should form the basis of spatial planning in relations to burial infrastructure (Larkin 2011). An integrated approach to burial infrastructure would allow planning new burial places, preventing conflicts related to irrational decisions in investing in burial facilities.

It is indispensable to create social acceptance for cremation (no database, no education of the Polish society and treating the crematorium as service facility without obligation of adopting local development plan or conducting an environmental impact assessment of the investment, while crematoria, like cemeteries in the Polish Classification of Building Facilities, are defined as religious facilities). This form of burial contributes to alleviating the problem of overcrowded cemeteries as well as not very aesthetic ones. This is a big problem especially for authorities of large cities. It is important to consult investment plans related to burials with residents, simultaneously educating and promoting burial facilities as essential elements of development and social infrastructure. The conclusions of the research correspond with the Supreme Audit Office report (2016) especially in the relation to cemeteries location. Due to socio-cultural and economic changes as well as urbanization and lack of suitable areas that meet the conditions set out in the legal provisions, it is necessary to amend the anachronistic Act on Cemeteries and Burials of the Deceased (Journal of Laws 1959, No. 11, item 62).

REFERENCES

- Basmaijan, C., Coutts, Ch. (2010). Planning for the disposal of the dead. FSU Digital Library. Department of Urban and Regional Planning.
- Borcz, Z. (2000). Infrastruktura terenów wiejskich (Infrastructure of rural areas). Wydawnictwo Akademii Rolniczej we Wrocławiu, Wrocław.
- Capels, V., Senville, W. (2006). Planning for cemeteries. Planning Commissioners Journal 64, 1–8.
- CBOS. (2001). O umieraniu i śmierci (About dying and death), raport online: https://www.cbos.pl/SPI-SKOM.POL/2001/K_146_01.PDF, access: 7.07.2019.
- Chudak, M. (2012). Cmentarze jako specyficzne nieruchomości w przestrzeni miasta (przykład Leszna) (Cemeteries as a specific type of real estate in a city (on the basis of Leszno). Świat Nieruchomości 3 (81), 56–61.
- Croucamp, L., Richards, N. (2002). Guidelines for cemetery site selection. Council for Geoscience. Pretoria.
- Długozima, A. (2011). Cmentarze jako ogrody żywych i umarłych (Cemeteries as gardens of the living and the dead), Wyd. Sztuka ogrodu Sztuka krajobrazu, Warszawa.
- Długozima, A. (2017). Popiół i kamień. Raport (Ash and stone. Report), Świat Kamienia 106, 23–31.
- Długozima, A. (2019). Social infrastructure of burial nature in the spatial development of rural areas in Poland. Infrastruktura i Ekologia Terenów Wiejskich II(1), 79–94.
- Fisher, G.J. (1992). Selection criteria for the placing of cemetery sites, Geological Survey of South Africa, Pretoria.
- Francaviglia, R. (1971). The cemetery as an evolving cultural landscape, Annals of the Association of American Geographers 61(3), 501–509.
- Francis, D. (2003). Cemeteries as cultural landscapes, Mortality, t. 8, 222–227.
- Gajewski, M. (1979). Urządzenia komunalne Warszawy. Zarys historyczny (Communal facilities of Warsaw. Historical overview), PIW, Warszawa.
- Gilbert, Q.L. (1991). The Ecology of Urban Habitats. New York, Chapman and Hall.
- GUS (1970). Informacja o cmentarzach i grobownictwie wojennym 1969 r. (Information about cemeteries and war graves 1969). Departament Statystyki Gospodarki Komunalnej i Mieszkaniowej, Warszawa.

- Harvey, T. (2006). Sacred spaces. Common places: the cemetery in the contemporary American City. *Geographical Review* 96(2), 295–312.
- Kjøller, Ch.P. (2012). Managing green spaces of the deceased: characteristics and dynamics of Danish cemetery administrations. *Urban Forestry & Urban Greening*, 339–348.
- Kjøller, P. (2013). Cemeteries – organisation, management and innovation: diffusion of maintenance specifications in Danish national church cemetery administrations. Department of Geosciences and Natural Resource Management, Faculty of Science, University of Copenhagen.
- Knercer, W. (2004). *Cmentarze w krajobrazie (Cemeteries in landscape)*. Olsztyn (maszynopis).
- Kolbuszewski, J. (1996). *Cmentarze (Cemeteries)*. Wyd. Dolnośląskie, Wrocław.
- Larkin, M.T. (2011). An analysis of land use planning policies for cemeteries in Ontario. Theses and dissertations, Paper 1550.
- Laske, D. (1994). Cemeteries. Ecological niches in populated areas. *Naturwissenschaften* 81, 218–223.
- Lehrer, J.D. (1974). Cemetery land use and the urban planner. *Urban law annual. Journal of Urban and Contemporary Law* 7, 181–197.
- Mirowski, W. (1996). *Studia nad infrastrukturą wsi polskiej. Wyposażenie obszarów w infrastrukturę społeczną (Studies about infrastructure of Polish villages. Development of areas in social infrastructure)*, t. III. PAN, Instytut Rozwoju Wsi i Rolnictwa, Warszawa.
- NIK (2016). Zarządzanie cmentarzami komunalnymi. Informacja o wynikach kontroli (Management of municipal cemeteries. Information about the results of the inspection), nr ewid. 155/2016/P/16/087/LPO.
- Osiekowicz, M., Podciborski, T. (2013). Metoda oceny stanu ładu przestrzennego terenów cmentarzy komunalnych (Elaboration method of the state of the special harmony of grounds of municipal cemeteries). *Acta Scientiarum Polonorum. Administratio Locorum* 12(2), 67–75.
- Pogodziński, Z. (1975). *Planowanie przestrzenne terenów wiejskich (Spatial planning of rural areas)*. PWN, Warszawa.
- Rochmińska, A., Pędziwiatr, K. (2017). *Infrastruktura społeczna a zaspokajanie potrzeb mieszkańców gminy Stryków (Social infrastructure and needs fulfillment of Stryków commune residents)*. *Space – Society – Economy* 21, 31–49.
- Rosegnal, M. (2016). Planistyczne problemy lokalizacji cmentarzy (Planning problems of the location of cemeteries). *Non omnis moriar. Osobiste i majątkowe aspekty prawne śmierci człowieka. Zagadnienia wybrane, Oficyna Prawnicza, Wrocław*, pp. 691–711.
- Rozporządzenie Ministra Gospodarki Komunalnej z 25 sierpnia 1959 r. w sprawie określenia, jakie tereny pod względem sanitarnym są odpowiednie na cmentarze. *Dz.U.* 1959, nr 52, poz. 315.
- Rozporządzenie Ministra Infrastruktury z 7 marca 2008 r. w sprawie wymagań, jakie muszą spełniać cmentarze, groby i inne miejsca pochówku zwłok i szczątków. *Dz.U.* 2008, nr 48, poz. 284.
- Rozporządzenie Rady Ministrów z 30 grudnia 1999 r. w sprawie Polskiej Klasyfikacji Obiektów Budowlanych (PKOB), *Dz.U.* nr 112, poz. 1316.
- Rozporządzenie Rady Ministrów z 9 listopada 2004 r. w sprawie określenia rodzajów przedsięwzięć mogących znacząco oddziaływać na środowisko oraz szczegółowych uwarunkowań związanych z kwalifikowaniem przedsięwzięcia do sporządzenia raportu o oddziaływaniu na środowisko. *Dz.U.* 2004, nr 257, poz. 2573.
- Rugg, J. (2000). Defining the place of burial: what makes a cemetery a cemetery. *Mortality* 5(3), 259–275.
- Rutkowska, G. (2007). Analiza porównawcza infrastruktury technicznej i społecznej w wybranej gminie z wymogami UE (The comparing analysis technical and social infrastructure of selected commune in comparison EU requirements). *Przegląd Naukowy. Inżynieria i Kształtowanie Środowiska* 2(36), 64–72.
- Santarsiero, A., Cutilli, D., Cappiello, G., Minelli, L. (2000). Environmental and legislative aspects concerning existing and new cemetery planning. *Microchemical Journal* 67(1–3), 141–145.
- Skår, M., Nordh, H., Swensen, G. Green urban cemeteries: more than just parks. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 11(3), 362–382.
- Suchecky, Z. (2009). *Kremacja w kulturach świata (Cremation in world cultures)*. Wydawnictwo Salwator, Kraków.
- Żukalski P. (2016). Liczba zgonów w Polsce w przyszłości (The numer of deaths in Poland in the future). *Demografia i Gerontologia Społeczna – Biuletyn Informacyjny* 3, 1–4.

- Thomas L.V. (1991). *Trup. Od biologii do antropologii*, Wydawnictwo PIW, Łódź.
- Tudor, C.A., Iojă, I.C., Hersperger, A., Pătru-Stupariu, I. (2013). Is the residential land use incompatible with cemeteries location? Assessing the attitudes of urban residents. *Carpathian Journal of Earth And Environmental Sciences* 8(2), 153–162.
- Ustawa o ochronie przyrody z dnia 16 kwietnia 2004 roku (The nature conservation act). *Dz.U.* 2004, nr 92, poz. 880.
- Ustawa Prawo budowlane z dnia 16 maja 2003 roku (The Construction Law). *Dz.U.* 2003, nr 207, poz. 2016.
- Ustawa z 31 stycznia 1959 o cmentarzach i chowaniu zmarłych (Act on cemeteries and burial of the dead). *Dz.U.* 1959, nr 11, poz. 62.
- Ustawa z 19 października 1991 r. o gospodarowaniu nieruchomościami rolnymi Skarbu Państwa (Act on the management of State Treasury Property). *Dz.U.* 1991, nr 107, poz. 464.
- Uslu A. (2010). An ecological approach for the evaluation of an abandoned cemetery as a green area. The case of Ankara/Karakusunlar cemetery. *African Journal of Agricultural Research* 5(10), 1043–1054.
- Van Steen, P.J.M., Pellenbarg, P.H. (2006). Death and space in the Netherlands. *Journal of Economic and Social Geography* 97, 623–635.

