

# SPATIAL DIVERSIFICATION OF FINANCIAL INVOLVEMENT OF RURAL COMMUNES (GMINAS) IN THE ENVIRONMENTAL PROTECTION INVESTMENTS IN POLAND

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## SUMMARY

This article aims to recognition and assessment of extent to which the Polish rural communes participate in financing of environmental protection investments. Investments in the natural environment protection are the subject of the article. Special attention of the analysis is focused on the issue of their funding, especially funding from budgets of rural communes, including the territorial division into provinces. Secondary sources of statistical information for 2014 were used in the investigations.

Environmental protection investments in Poland are financed from sources that differ in character and performance. Among the sources of funding for environmental protection investments, the most important are own means covering about half of the outlays on fixed assets for the natural environmental protection. Expenses from communes' budgets are of marginal importance for the structure of environmental protection funding. In 2014, they were shaped at a level similar to the amount of expenditure for this purpose spent from the central budget and the budgets of counties.

Rural communes, which constitute 63,8 % of all communes in Poland, finance almost 30 % of expenditure on environmental protection investments carried out by the communes as a whole. Environmental protection is an important objective of local politics. Among the investment priorities of rural communes it is placed after investments in the sphere of agriculture, public security and fire protection. The largest scale of investment expenditure on the environmental protection in 2014 was recorded in the malopolskie and mazowieckie provinces, where rural communes financed almost 15 % of total investment outlays on this purpose spent by all rural communes in Poland.

Tangible effects of the realized environmental investments financed from rural communes' budgets in 2014 in Poland are diversified spatially. For example, considering investments in wastewater management, three provinces (malopolskie, slaskie and mazowieckie) realized investments such as collective sewerage system discharge sewage constituting over one third of the total length of such system built in 2014 in rural areas of Poland total.

**Keywords:** environmental investments, rural communes, self-government's expenditure.

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## INTRODUCTION

Nowadays more and more emphasis is placed on issues related to protection of the natural environment. This issue is emphasized in particular in the context of the so-called climate change caused by excessive anthropopressure, but also in relation to other "traditional" areas of the adverse impact of human activity on the state of nature. Private and public entities are obliged by law and the provisions of international treaties and agreements to take care of the environment, including by undertaking, realization and implementation of environmental investments.

Against this background, the problem of rural communes is essential, because they combine various unfavorable factors. One of them takes the form of more dispersed buildings than it is in urban areas. This situation generates higher investment costs due to the necessity of building more extensive technical infrastructure, while relatively low degree of their use (less profitability of investment). Another negative factor is the generally lower level of funds available in the budgets of rural communes. Both of these factors mutually reinforce and intensify problems of making and realization of investments of environmental protection in rural areas.

This article aims to recognition and assessment of extent to which the Polish rural communes participate in financing of environmental protection investments. Investments in the natural environment protection are the subject of the article. Special attention of the analysis is focused on the issue of their funding, especially funding from budgets of rural communes, including the territorial division into provinces. Secondary sources of statistical information for 2014 were used in the investigations.

## FINANCING OF ENVIRONMENTAL INVESTMENTS

The issue of the natural environment protection is a factor which currently significantly influences functioning of the national economy through normalized requirements concerning a necessity for proper organization of production process to minimize degradation of the environment. Requirements for the environmental protection are also connected with measurable consequences in the sphere of public finances, including also local government sub-sector. Institutions of central and local administration aim in this way to improve living

standards of the inhabitants, which poses some definite load for the budgets of these subjects<sup>1</sup>.

Among subjects responsible for realization of tasks in the environment protection area are communes. Commune's own tasks stated in the act on commune government<sup>2</sup> include among others issues of the environmental and nature protection. Their realization is a serious load for commune finances.

Expenditure for the natural environment protection in Poland is funded from various sources, among which the most substantial are own means (Table 1). In 2014 slightly above half of the expenditure for the environmental protection was covered from the own means. The next important source of outlays in this respect are funds from abroad and ecological funds (19,2 % and 15,9 % spent sum total respectively). Almost every tenth zloty came from credits and loans. Against this backdrop funds spent on the natural environment protection from the central budget and budgets of local governments on all levels are of a relatively smaller importance.

**Table 1.** Structure of expenditure on the environmental protection in Poland per sources of financing in 2014 in percent

Means						Ecological fund	Credits and loans	Other
Own	From budgets				From abroad			
	Central	Province	County	Commune				
50,7	0,9	0,3	0,1	0,9	19,2	15,9	9,2	2,9

Source: own compilation on the basis of CSO data (www.stat.gov.pl).

Among the investment priorities of communes in 2014 it was in the first wastewater management and water protection (Table 2). 44,2 % of investment expenditure implemented by all communes in Poland had such a purpose. Subsequently, this source was used to finance investments to protect air and climate (32,0 % of total investment spending) and waste management (13,9 %).

<sup>1</sup> Korporowicz, V. (2007). *Ekonomia środowiska – dyscyplina z przyszłością*, [w:] *Ekonomiczne problemy ochrony środowiska i rozwoju zrównoważonego w XXI wieku*. Red. P. Jeżowski, Szkoła Główna Handlowa w Warszawie. Warszawa, 35–44.

<sup>2</sup> *Ustawa z dnia 8 marca 1990 r. o samorządzie gminnym*, tj. Dz. U. nr 142, z 2001 r., poz. 1591 z późn. zm.

**Table 2.** Structure of expenditure from communes' budgets on the environmental protection in Poland per destinations of investment in 2014

Investment expenditures by categories	Expenditure of communes	
	M PLN	%
Total	14248,5	100,0
Wastewater management and water protection	6304,4	44,2
Protection of air and climate	4558,4	32,0
Waste management	1973,8	13,9
Other activities related to environmental protection	701,3	4,9
Reducing the noise and vibration	555,3	3,9
Protection of biodiversity and landscape	83,9	0,6
Protecting and restoring the value in use of soil, protection of groundwater and surface water	64,3	0,5
Research & Development	7,1	0,1

Source: own compilation on the basis of CSO data (www.stat.gov.pl).

## FINANCIAL INVOLVEMENT OF RURAL COMMUNES IN ENVIRONMENTAL PROTECTION INVESTMENTS

In Table 3 they are compiled various categories of investment expenditure of communes in Poland, including their funding from budgets of municipalities, urban-rural and rural communes. By analyzing of the amount of sums spent on the different types of investments, it is noted that in terms of stated objectives the largest share in total of communes' expenditures of all categories in 2014 were municipalities (except for the investments in agriculture and hunting and public safety and fire protection). The share of rural communes in total investment expenditure carried out by all the communes in Poland turned out to be relatively high in relation to such directions of investments as: agriculture and hunting (78,8 % of total capital expenditures of communes), public safety and fire protection (47,1 %), education and upbringing (31,7 %), but also public administration (28,6 %).

In 2014 in Poland at commune level investment expenditure related to environmental protection (including municipal services) was funded at 43,7 % by municipalities, in 28,2 % by urban-rural communes, and 28,1 % by rural communes.

**Table 3.** Directions of investment expenditure from commune budgets in Poland in 2014 acc. to the commune (*gmina*) status

Administrative Units	Expenditure on:										
	agriculture and hunting	transport and communication	housing	public administration	public safety and fire protection	education and upbringing	health care	social welfare	public utilities and environmental protection	culture and protection of national heritage	physical culture
Poland [M PLN]	1676,4	12658,3	1620,4	424,3	440,8	2186,2	316,3	136,8	3891,9	2128,1	1782,8
Municipalities [%]	1,4	69,8	64,6	52,1	25,5	48,2	83,7	61,3	43,7	61,0	59,8
Urban-rural communes [%]	19,9	12,4	17,8	19,3	27,4	20,2	8,2	21,0	28,2	16,9	19,5
Rural communes [%]	78,7	17,8	17,6	28,6	47,1	31,7	8,1	17,7	28,1	22,0	20,7

Source: own compilation on the basis of CSO data ([www.stat.gov.pl](http://www.stat.gov.pl)).

Values presented in Table 4 characterizing investment expenditure funded from rural communes' budgets made possible a spatial analysis of financial involvement of these units in various spheres of life of local communes.

Among directions of investment expenditure funded in 2014 by rural communes, transport and communication placed first considering the amount spent, PLN 2,26 billion, next were agriculture and hunting, but also public utilities and protection of the natural environment, on which PLN 1,32 and 1,09 billion respectively was spent. Rural communes were the least financially involved in the investment in social welfare and health care.

Expenditure of rural communes on investments aggregated in the scale of provinces is characterized by a clear spatial diversification in relation to all expenditure groups indicated in Table 4. Presented data only to a small extent allow to identify the actual scale of spatial diversification, since they are not weighted in any way (either by the inhabitant number, number of rural communes or the province area). However, from the perspective of rural communes of an individual province share in total investment expenditure of all rural communes in Poland, a clear dominance of the mazowieckie and malopolskie provinces is visible, whereas communes from the opolskie, lubuskie and podlaskie provinces proved the least involved.

Considering the investments in the natural environment protection and public utilities, in 2014 rural communes from the malopolskie province were the most active, since they spent every seventh zloty on this kind of investments (Table 4). Rural communes of the mazowieckie and lubelskie provinces were to a lesser degree involved in financing this kind of investments and their share in total investment expenditure on the environmental protection and public utilities of all rural communes in Poland was, respectively: 13,5 and 10,2 %. In this respect the least active proved to be rural communes of the lubuskie (1,9 %), opolskie (2,4 %) and warminsko-mazurskie (2,6 %) provinces.

**Table 4.** Spatial structure of investment expenditure from rural communes' budgets in Poland per provinces acc. to the kind of investment in 2014

Administrative Units	Expenditure on:											
	agriculture and hunting	transport and communication	housing	public administration	public safety and fire protection	education and upbringing	health care	social welfare	public utilities and environmental protection	culture and protection of national heritage	physical culture	
Poland	[M PLN]	1319,2	2255,4	285,8	121,3	207,8	692,7	25,6	24,2	1092,7	468,7	368,3
	[%]	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Dolnoslaskie [%]	3,1	6,5	5,0	5,0	4,9	7,4	9,0	1,7	7,5	13,2	7,3	
Kujawsko-pomorskie [%]	6,7	7,2	2,3	6,2	3,7	5,4	3,5	4,7	4,7	4,5	5,1	
Lubelskie [%]	7,3	10,0	5,0	7,1	6,4	7,5	1,8	21,8	10,2	9,2	7,5	
Lubuskie [%]	1,4	1,0	1,8	2,1	2,8	1,7	0,5	0,2	1,9	4,3	2,1	
Lodzkie [%]	4,8	7,2	7,4	6,5	8,2	6,3	14,2	5,8	7,1	8,4	5,7	
Malopolskie [%]	7,8	8,9	17,0	12,8	12,8	10,7	9,4	19,9	14,4	5,1	11,3	
Mazowieckie [%]	19,9	13,5	6,0	14,0	13,8	21,3	27,4	2,6	13,5	9,5	10,4	
Opolskie [%]	2,1	1,7	1,1	0,8	2,2	1,2	2,4	0,1	2,4	2,6	2,3	
Podkarpackie [%]	2,9	5,5	19,2	4,5	6,7	8,6	8,0	7,9	8,9	7,1	9,6	
Podlaskie [%]	2,8	5,4	1,7	6,8	5,1	1,9	2,0	0,0	3,7	1,8	1,8	
Pomorskie [%]	8,5	6,8	8,3	6,6	4,5	6,9	4,0	5,2	4,1	5,3	9,6	
Slaskie [%]	11,6	7,0	10,7	9,9	8,9	8,9	5,6	1,8	8,2	6,7	7,8	
Swietokrzyskie [%]	6,1	4,2	1,8	7,0	3,7	2,1	4,4	0,6	4,7	6,2	4,5	
Warminsko-mazurskie [%]	4,0	3,4	4,4	4,1	6,9	3,4	1,2	17,5	2,6	3,1	2,8	
Wielkopolskie [%]	8,5	8,4	6,1	3,3	4,1	5,5	5,2	6,7	3,2	9,3	9,6	
Zachodniopomorskie [%]	2,4	3,4	2,3	3,2	5,3	1,2	1,3	3,7	2,9	4,0	2,6	

Source: own compilation on the basis of CSO data ([www.stat.gov.pl](http://www.stat.gov.pl)).

Among the investments financed from the budgets of rural communes in total in 2014, investments in such areas as transport and communications, followed by public utilities and environmental protection, as well as farming and hunting were characterized by the highest average level (Table 5).

Analysis of the investment expenditure from rural communes' budgets in public utilities and environmental protection aggregated in the scale of the provinces indicates a considerable spatial diversification concerning priority investment tasks of local government units. In 2014 the province where the investment expenditure on this purpose have achieved the highest share in total investment expenditures were malopolskie (21,9 %), opolskie (19,6 %) and podkarpackie (18,5 %). Protection of the natural environment (together with public utilities) was the least important investment direction in the wielkopolskie (7,0 %) and pomorskie (8,8 %) provinces.

**Table 5.** Structure of directions of investment expenditure from rural communes' budgets in Poland per provinces in 2014 [%]

Administrative Units	Total	Expenditure on:										
		agriculture and hunting	transport and communication	housing	public administration	public safety and fire protection	education and training	health care	social welfare	public utilities and environmental protection	culture and protection of national heritage	physical culture
Poland	100,0	18,2	31,1	3,9	1,7	2,9	9,6	0,4	0,3	15,1	6,5	5,1
Dolnoslaskie	100,0	9,0	32,7	3,2	1,4	2,3	11,4	0,5	0,1	18,2	13,8	6,0
Kujawsko-pomorskie	100,0	20,6	37,5	1,6	1,7	1,8	8,6	0,2	0,3	12,1	4,9	4,4
Lubelskie	100,0	15,5	36,0	2,3	1,4	2,1	8,3	0,1	0,8	17,8	6,9	4,4
Lubuskie	100,0	14,1	17,7	4,0	1,9	4,4	8,9	0,1	0,0	16,0	15,5	6,1
Lodzkie	100,0	12,9	33,0	4,3	1,6	3,5	8,9	0,7	0,3	15,9	8,0	4,3
Malopolskie	100,0	14,2	27,8	6,7	2,2	3,7	10,2	0,3	0,7	21,9	3,3	5,8
Mazowieckie	100,0	24,7	28,7	1,6	1,6	2,7	13,9	0,7	0,1	13,9	4,2	3,6
Opolskie	100,0	21,2	29,4	2,3	0,7	3,5	6,5	0,5	0,0	19,6	9,1	6,3
Podkarpackie	100,0	7,2	23,9	10,5	1,1	2,6	11,4	0,4	0,4	18,5	6,3	6,7
Podlaskie	100,0	13,8	45,4	1,8	3,1	3,9	4,9	0,2	0,0	15,1	3,2	2,4
Pomorskie	100,0	22,4	30,4	4,7	1,6	1,9	9,5	0,2	0,2	8,8	4,9	7,1
Slaskie	100,0	25,2	25,8	5,0	2,0	3,0	10,1	0,2	0,1	14,7	5,2	4,7
Swietokrzyskie	100,0	24,4	28,2	1,6	2,6	2,3	4,4	0,3	0,0	15,6	8,7	5,0
Warminsko-mazurskie	100,0	21,2	30,6	5,0	2,0	5,7	9,5	0,1	1,7	11,2	5,8	4,2
Wielkopolskie	100,0	22,3	37,5	3,5	0,8	1,7	7,6	0,3	0,3	7,0	8,6	7,0
Zachodniopomorskie	100,0	14,8	35,9	3,0	1,8	5,2	4,0	0,2	0,4	14,6	8,8	4,4

Source: own compilation on the basis of CSO data ([www.stat.gov.pl](http://www.stat.gov.pl)).

## TANGIBLE EFFECTS OF INVESTMENTS IN ENVIRONMENTAL PROTECTION IN RURAL AREAS IN POLAND

Selected tangible effects of investments in environmental protection realized in rural areas were presented in Table 6. Investments in landfills were realized only to a small extent. Only two landfills came into existence in all rural areas in Poland in 2014 (both in lubuskie province), compared to 394 landfills operating by the end of the same year.

Otherwise, tangible effect of investments in wastewater management have been pronounced. A total of 51 of collective wastewater treatment plants were registered. The majority of them were commissioned for use in the warminsko-mazurskie province (11 objects), but a few less in the mazowieckie (7 objects) and podlaskie (6 objects) provinces.

**Table 6.** Selected tangible effects of investments in environmental protection in rural areas per provinces in 2014

Provinces	Sewerage network discharge:		Collective wastewater treatment plants	Landfills
	sewage	rainwater		
	[km]	[km]	[objects]	[objects]
Polska	6371,3	657,3	51	2
Dolnoslaskie	345,3	18,1	1	0
Kujawsko-pomorskie	261,8	23,6	2	0
Lubelskie	325,0	80,0	2	2
Lubuskie	347,5	23,0	3	0
Lodzkie	287,4	71,7	2	0
Malopolskie	935,1	23,1	4	0
Mazowieckie	669,4	41,4	7	0
Opolskie	315,6	6,8	0	0
Podkarpackie	380,1	42,4	1	0
Podlaskie	118,8	29,1	6	0
Pomorskie	295,0	58,2	1	0
Slaskie	689,1	77,1	3	0
Swietokrzyskie	464,0	10,4	1	0
Warminsko-mazurskie	335,0	35,2	11	0
Wielkopolskie	428,2	80,3	4	0
Zachodniopomorskie	174,0	36,9	3	0

Source: own compilation on the basis of CSO data ([www.stat.gov.pl](http://www.stat.gov.pl)).

In 2014 a total of 6,371,3 km of collective sewerage network discharge sewage came into being in Poland rural areas and 657,3 km of sewerage network dis-



charge rainwater. This fact indicates a longer investment activity of rural communes against clearly existing negligence in this respect. The best investment results concerning the length of collective sewerage network discharge sewage commissioned for use were noted in the malopolskie, slaskie and mazowieckie provinces. Whereas, the best investment results concerning the length of sewerage network discharge rainwater commissioned for use were noted in the wielkopolskie, lubelskie and slaskie provinces.

## CONCLUSION

Environmental protection investments in Poland are financed from sources that differ in character and performance. Among the sources of funding for environmental protection investments, the most important are own means covering about half of the outlays on fixed assets for the natural environmental protection. Expenses from communes' budgets are of marginal importance for the structure of environmental protection funding. In 2014, they were shaped at a level similar to the amount of expenditure for this purpose spent from the central budget and the budgets of counties. Communes' investment expenditures were focused almost exclusively on environmental protection (such spheres as wastewater management and water protection, air and climate protection, waste management).

Rural communes, which constitute above 60 % of all communes in Poland, finance almost 30 % of expenditure on environmental protection investments carried out by the communes as a whole. Environmental protection is an important objective of local politics. Among the investment priorities of rural communes it is placed after investments in the sphere of agriculture, public security and fire protection (the account also takes into consideration municipal services). The largest scale of investment expenditure on the environmental protection in 2014 was recorded in the malopolskie and mazowieckie provinces, where rural communes financed almost 15 % of total investment outlays on this purpose spent by all rural communes in Poland.

Tangible effects of the realized environmental investments financed from rural communes' budgets in 2014 in Poland are diversified spatially. For example, considering investments in wastewater management, three provinces (malopolskie, slaskie and mazowieckie) realized investments such as collective sewer system discharge sewage constituting over one third of the total length of such system built in 2014 in rural areas of Poland total.

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## LENKIJOS KAIMO BENDRUOMENIŲ (GMINŲ) FINANSINIŲ INVESTICIJŲ Į APLINKOS APSAUGĄ TERITORINĖ ĮVAIROVĖ

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### *Santrauka*

Šiame straipsnyje siekiama apžvelgti ir įvertinti Lenkijos kaimo bendruomenių finansinę investiciją į aplinkos apsaugą. Ypatingas dėmesys skiriamas kaimo bendruomenių įvairiose Lenkijos provincijose finansavimui iš biudžeto. Investicijos į aplinkos apsaugą yra finansuojamos iš įvairių šaltinių. Beveik pusę išlaidų sudaro ilgalaikio turto mokesčiai už aplinkos apsaugą. Bendruomenių išlaidos aplinkos apsaugai iš biudžeto sudaro tik nedidelę dalį.

Kaimo bendruomenės Lenkijos valsčiuose sudaro 63,8 proc. Aplinkos apsaugos investicijoms jos skiria 30 proc. savo išlaidų. Aplinkos apsauga yra svarbus vietos politikos tikslas. Tarp prioritetų išlaidos aplinkos apsaugai yra po investicijų žemės ūkui, visuomenės saugumui ir priešgaisrinės apsaugos. Didžiausios investicijos aplinkos apsaugai 2014 m. buvo skirtos Malopolskės ir Mazovijos provincijose – iki 15 proc. bendruomenės išlaidų. Išlaidos aplinkos apsaugai pagal teritorijas Lenkijoje pasiskirsto nevienodai. Pavyzdžiui, investicijos į nuotekų tvarkymą trijose provincijose (Malopolskės, Slaskės ir Mazovijos) sudaro trečdalį visos Lenkijos nuotekų sistemos ilgio.

**Reikšminai žodžiai:** investicijos į aplinkos apsaugą, kaimo bendruomenės, savivaldos išlaidos.