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## **FINANCING ENVIRONMENTAL PROTECTION INVESTMENTS IN POLAND WITH PARTICULAR REGARD TO BUDGETARY EXPENDITURE OF RURAL COMMUNES**

### **Summary**

The article aims at identification and assessment of the extent to which rural communes in Poland participate in financing environmental protection investments. Investments in the natural environment protection are the subject of the paper. The analysis addresses particularly the issue of their financing, especially funding from budgetary means of rural communes with regard to territorial division into provinces. Secondary sources of information for the years 2004-2009 were used in the investigations.

Among the sources of funding for environmental protection investments, the most important are own means covering almost 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. Communes' investment expenditure focuses almost exclusively on wastewater management, water protection and waste management.

Rural communes financed 20.3% of the total environmental investment outlays realized by all communes. Environmental protection (together with public utilities) are on the second position among the investment objectives of rural communes. The largest scale of investment expenditure on the environmental protection in 2009 was registered in the Podkarpackie province, where rural communes financed about 20% of investment outlays in this field made by all rural communes in Poland total.

Tangible effects of the realized environmental investments financed from rural communes' budgets in 2009 in Poland are diversified spatially. Considering investments in wastewater management, three provinces (Podkarpackie, Małopolskie and Mazowieckie) realized investments such as collective sewer system constituting almost half of the total length of such investments realized in 2009 in rural areas. Similar situation was observed for the length of house sewers and collective wastewater treatment plants. It was the same also in case of individual wastewater treatment plants of which half of the whole number commissioned for

use in Poland was located in the areas of four provinces: Kujawsko-Pomorskie, Lubelskie, Mazowieckie and Wielkopolskie.

**Key words:** environmental investments, rural communes, budgetary expenditure, real effects of investments

## INTRODUCTION

Rural areas in Poland are still characterized by low living standards. Realization of economic policy on various levels aims at creating conditions for improvement of this situation [Narodowa..., 2007]. Care for the quality of life is among others demonstrated as realization of environmental protection investments.

The article aims at identification and assessment of the range in which rural communes in Poland participate in financing the environmental protection investments. Environmental investments are the subject of the paper. The analysis focuses on the problem of their financing, particularly on funds from budgetary means of rural communes, considering territorial division into provinces. Secondary sources of information for the years 2004-2009 were used in the research.

## SOURCES OF FUNDING ENVIRONMENTAL PROTECTION INVESTMENTS IN POLAND

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 administration aim in this way to improve living standards of the inhabitants, which poses some definite load for the budgets of these subjects [Korporowicz., 2007].

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 [Ustawa..., 1990] include among others the issues of the environmental and nature protection. Their realization is a serious load for commune finances. According to CSO data for 2009, the share of property investment expenditure for public utilities and environmental protection in total expenditure from commune budgets made up on average 24.0%, however for rural communes the indicator constituted 22.7% [www.stat.gov.pl].

Expenditure for the natural environment protection in Poland is funded from various sources [Górka et al., 2001], among which the most substantial are own means (Table 1). In 2004-2009 almost 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 (almost 1/5 each spent sum total). 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. Among those the highest values over the whole analyzed period were registered for communes.

**Table 1.** Structure of expenditure on the environmental protection in Poland per sources of financing in 2004-2009 in percent

Years	Means						Ecological fund	Credits and loans	Other
	Own	From budgets				From abroad			
		Central	Province	County	Commune				
2004	48.1	1.0	0.5	0.2	1.1	12.2	24.1	8.3	4.5
2005	49.1	1.1	0.5	0.1	1.0	16.0	21.1	7.6	3.6
2006	45.5	1.0	0.7	0.2	0.9	19.2	17.6	11.4	3.6
2007	47.6	0.9	0.4	0.1	1.6	14.8	20.8	10.0	3.8
2008	50.2	1.2	0.5	0.4	1.7	16.4	16.6	9.6	3.5
2009	46.0	0.5	0.4	0.6	1.5	18.9	18.3	9.4	4.3

Source: own compilation based on CSO data.

The sources of financing investments in the environmental protection are involved to various extents, depending on the tendency of realized outlays on fixed assets. The presented compilation (Table 2) shows clearly that the priority in the protection of the natural environment are investments in wastewater management and water protection, on which almost 67% of the outlays on fixed assets for environmental protection was allocated. The next on the scale of financing tendencies of investment proved the air protection (almost 20%) and waste management (8.5%).

Indicated order of financial priorities concerning environmental investments changes from the perspective of various sources of funding. It is so in case of means allocated from the central budget and local government budgets on all levels. It may suggest either appointing the tendencies of environment policy on a central, regional and local level incongruous with real needs or complimentary measures of the subjects of the environmental protection to those undertaken by other subjects.

Communes (*gminas*), which are an object of particular interest of the paper, allocate as much as 85.8% of the outlays on environmental investments on wastewater management and water protection and about 10% on waste management. This shows that not much over 5% of outlays is allocated on the other directions of investments.

**Table 2.** Structure of outlays on fixed assets on environmental protection acc. to tendencies of investment and sources of funding in 2009

Directions of investment	Total		Means										Ecological fund		Credits and loans		Other				
			Own		From budgets			From abroad		Ecological fund		Credits and loans							Other		
			A	B	Central	Province	County	Commune	A												B
Total	10671926.9	4910742.4	54033.8	47104.9	65031.6	161961.7	2018263.5	1953533.4	1002677.4	458678.2											
[% total]	100.0	46.0	0.5	0.4	0.6	1.5	18.9	18.3	9.4	4.3											
Structure [%]	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Air protection	19.8	100.0	34.6	80.6	3.6	0.1	7.2	0.2	5.7	0.2	1.7	0.1	2.2	2.1	7.2	6.6	8.3	4.0	28.2	6.1	
Sewage disposal and water protection	66.7	100.0	50.7	35.0	35.2	0.3	79.7	0.5	60.6	0.6	85.8	2.0	84.7	24.0	81.3	22.3	81.0	11.4	61.8	4.0	
Waste management	8.5	100.0	9.5	51.1	26.5	1.6	2.3	0.1	0.7	0.0	8.1	1.4	9.8	21.8	5.8	12.3	8.0	8.8	5.6	2.8	
Protection of underground and surface waters	0.6	100.0	1.0	79.8	3.0	2.7	4.3	3.3	0.5	0.5	0.3	0.7	0.0	0.4	0.0	1.6	0.3	4.5	0.8	6.5	
Diminishing noise and vibrations	0.7	100.0	0.6	41.6	18.9	13.8	-	-	23.7	20.8	1.7	3.8	0.5	14.4	0.2	5.3	-	-	0.1	0.4	
Protection of biodiversity and landscape	0.1	100.0	0.1	47.9	4.6	20.9	-	-	-	-	-	-	0.1	20.7	0.1	13.0	-	-	-	-	
Protection against ionizing radiation	0.0	100.0	0.0	6.2	-	-	-	-	-	-	-	-	0.0	54.9	0.0	39.0	-	-	-	-	
Other activities connected with environmental protection	3.5	100.0	3.4	45.6	7.8	1.1	6.5	0.8	8.8	1.6	2.4	1.0	2.6	14.0	5.5	28.9	2.4	6.5	0.4	0.5	

Explanations:

A – the share of outlays on fixed assets for the natural environment protection was established according to the directions of investment;

B – the share of outlays on fixed assets for the natural environment protection was established according to the sources of funding.

Source: Own compilation on the basis of: Ochrona środowiska 2010 (*Environmental protection*), GUS, Warszawa 2010, p. 430-437.

Analysis of the sources of funding use according to the directions of investments in the natural environment protection (Table 2) indicates which of the sources and to what extent have been involved in financing some determined kinds of investments. Own means were the dominating source of investment outlays on the natural environment protection, except the investments on protection against ionizing radiation. Among the other sources of outlays, the funds from the central budget were used extensively (20.9% of outlays on biodiversity and landscape protection), then means from the county (*powiat*) budget (20.8% outlays on diminishing noise and vibrations), funding from abroad and ecological funds (among others protection against ionizing radiation) constituted respectively 54.9% and 39.0%, whereas wastewater management and water protection, respectively 24.0% and 22.3%).

In 2009 the share of communes in total outlays on fixed assets for protection of the natural environment was low, only 1.5%. This source of funding (in comparison with the other) was used for investments in diminishing noise and vibration (3.8% of total outlays) on wastewater management and water protection (2.0%) and on waste management (1.4%).

#### **FINANCIAL INVOLVEMENT OF RURAL COMMUNES (GMINAS) IN THE ENVIRONMENTAL PROTECTION INVESTMENTS**

In Table 3 compiled were various categories of investment expenditure of communes in Poland, including their funding from budgets of municipalities, urban – rural and rural communes. Analysis of the amount of sums spent on individual kinds of investments in 2009 and considering the indicated aims, shows the highest share of municipalities, (except for the investments in agriculture and hunting). The share of rural communes in total investment expenditure realized by all communes in Poland proved quite high with reference to such directions of investments as: public safety and fire protection, education and training, but also transport and communication.

In 2009 almost 60% of investment outlays on the environmental protection (together with public utilities) made on commune level in Poland were financed by municipalities, 21% by urban-rural communes and slightly over 20% by rural communes.

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 communities.

Among directions of investment expenditure realized in 2009 by rural communes, transport and communication placed first considering the amount spent, almost – PLN 2.5 billion, next were public utilities and protection of the natural environment, agriculture and hunting on which almost PLN 1 billion was spent. Rural communities were the least involved financially in the investment in social welfare and health care.

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

Administrative Units	Expenditure on:										
	public utilities and environmental protection	public administration	public safety and fire protection	housing	physical culture and sport	culture and protection of national heritage	health care	education and training	social welfare	agriculture and hunting	transport and communication
Poland [M PLN]	4753.3	518.3	489.2	1736.9	4109.6	1279.6	530.1	2835.8	341.4	1305.5	9362.4
Municipalities [%]	58.8	56.6	47.1	67.0	64.7	69.1	82.6	48.9	89.3	2.6	55.8
Urban-rural communes [%]	21.0	19.0	20.9	18.2	15.7	15.3	7.9	20.4	5.7	23.5	18.3
Rural communes	20.3	24.3	32.0	14.8	19.6	15.6	9.5	30.7	5.1	73.8	25.9

Source: own compilation on the basis of CSO data.

Expenditure of rural communities 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 individual provinces share in total investment expenditure of all rural communes in Poland, a clear dominance of the Mazowieckie, Małopolskie and Łódzkie provinces is visible, whereas communes from the Opolskie, Podlaskie and Lubuskie provinces proved the least involved.

Considering the investments in the natural environment protection and public utilities, in 2009 rural communes from the Podkarpackie province were the most active, since they spent every fifth zloty on this kind of investments (Table 4). Rural communes of the Mazowieckie and Małopolskie 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: 14.0 and 13.4%. In this respect the least active proved to be rural communes of the Warmińsko-Mazurskie (1.8%), Podlaskie (2.2%) and Lubuskie (2.5%) provinces.

**Table 4.** Spatial structure of investment expenditure from rural communes' budgets in Poland per provinces according to the kind of investment in 2009

Administrative Units		Expenditure on:										
		public utilities and environmental protection	public administration	public safety and fire protection	housing	physical culture and sport	culture and protection of national heritage	health care	education and training	social welfare	agriculture and hunting	transport and communication
Poland	[M PLN]	963.7	126.2	156.6	256.6	805.1	199.3	50.2	869.8	17.3	964.0	2427.1
	[%]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Łódzkie [%]		8,9	14.3	8.6	18.1	17.6	5.4	5.7	7.7	15.1	5.1	6.3
Mazowieckie [%]		14,0	12.0	20.9	10.9	10.8	10.6	17.1	14.4	5.3	19.9	15.7
Małopolskie [%]		13,4	8.1	10.6	15.9	8.7	5.3	8.1	13.7	10.4	8.3	10.4
Śląskie [%]		4,3	10.9	9.8	6.9	7.6	6.0	21.2	9.1	1.7	8.7	6.7
Lubelskie [%]		2,9	6.5	6.2	4.0	5.2	6.7	3.1	5.3	4.1	10.8	8.7
Podkarpackie [%]		19,7	6.4	7.5	6.5	4.3	8.0	5.4	7.9	11.4	1.9	6.9
Podlaskie [%]		2,2	2.3	2.9	1.4	2.4	3.7	1.2	2.1	1.0	2.2	6.8
Świętokrzyskie [%]		3,8	4.6	3.0	2.8	3.5	9.0	10.0	4.8	7.3	7.7	5.6
Lubuskie [%]		2,5	3.0	2.4	1.4	1.4	5.3	2.3	3.7	8.1	1.4	1.6
Wielkopolskie [%]		2,9	5.4	6.7	8.3	8.0	7.6	4.6	8.1	4.3	10.6	7.7
Zachodniopomorskie [%]		4,8	4.3	2.9	2.6	5.2	5.6	1.0	2.0	9.0	1.5	3.5
Dolnośląskie [%]		9,3	7.8	3.1	7.8	5.4	12.1	11.4	4.6	0.9	4.1	4.1
Opolskie [%]		2,8	0.6	1.6	1.1	1.5	2.4	3.4	2.4	0.2	0.6	1.6
Kujawsko-pomorskie [%]		3,9	2.2	3.8	2.2	7.5	4.6	1.4	5.2	8.1	4.6	6.5
Pomorskie [%]		2,7	4.6	5.2	7.5	7.8	6.4	1.1	4.9	7.9	9.7	5.4
Warmińsko-mazurskie [%]		1,8	7.1	4.7	2.8	3.1	1.1	2.9	4.1	5.2	2.9	2.5

Source: own compilation on the basis of CSO data.

Expenses from rural communes' budgets on investments in the natural environment protection and public utilities (the same as investment outlays on agriculture and hunting) are characterized by a high average share of rural communes in total investment expenditure (Table 5). Only investments in the transport and communication group reveal a higher share of expenses in investment expenditure total.

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 the Podkarpackie province 1/3 of

the investment expenditure was connected in 2009 with such investments. In the other provinces the share of investments in protection of the natural environment and public utilities in all investments realized from communes budgets was lower. Protection of the natural environment (together with public utilities) was the least important investment direction in the Wielkopolskie, Lubelskie and Pomorskie provinces.

**Table 5.** Structure of directions of investment expenditure from rural communes' budgets in Poland per provinces in 2009 [%]

Administrative Units	Total	Expenditure on:										
		public utilities and environmental protection	public administration	public safety and fire protection	housing	physical culture and sport	culture and protection of national heritage	health care	education and training	social welfare	agriculture and hunting	transport and communication
Poland	100.0	13.9	1.8	2.3	3.7	11.6	2.9	0.7	12.5	0.2	13.9	34.9
Łódzkie	100.0	14.2	3.0	2.2	7.7	23.4	1.8	0.5	11.0	0.4	8.2	25.2
Mazowieckie	100.0	13.1	1.5	3.2	2.7	8.4	2.1	0.8	12.2	0.1	18.6	36.9
Małopolskie	100.0	17.4	1.4	2.2	5.5	9.4	1.4	0.5	16.1	0.2	10.8	34.1
Śląskie	100.0	8.1	2.7	3.0	3.4	11.9	2.3	2.1	15.5	0.1	16.3	31.7
Lubelskie	100.0	5.9	1.7	2.0	2.1	8.7	2.8	0.3	9.6	0.1	21.7	43.9
Podkarpackie	100.0	33.5	1.4	2.1	2.9	6.2	2.8	0.5	12.1	0.3	3.2	29.3
Podlaskie	100.0	8.1	1.1	1.7	1.3	7.2	2.7	0.2	7.0	0.1	8.1	62.1
Świętokrzyskie	100.0	10.0	1.6	1.3	2.0	7.7	4.9	1.4	11.5	0.3	20.4	37.7
Lubuskie	100.0	16.4	2.6	2.6	2.5	7.6	7.2	0.8	22.3	1.0	9.5	27.3
Wielkopolskie	100.0	5.4	1.3	2.1	4.2	12.5	2.9	0.4	13.7	0.1	19.9	36.1
Zachodniopomorskie	100.0	19.5	2.2	1.9	2.8	17.6	4.7	0.2	7.1	0.7	6.2	35.6
Dolnośląskie	100.0	23.3	2.6	1.3	5.2	11.3	6.3	1.5	10.4	0.0	10.2	26.0
Opolskie	100.0	22.9	0.6	2.2	2.4	10.0	4.1	1.4	17.3	0.0	4.8	33.4
Kujawsko-pomorskie	100.0	10.1	0.7	1.6	1.5	16.1	2.4	0.2	12.1	0.4	11.8	41.9
Pomorskie	100.0	6.3	1.4	2.0	4.7	15.4	3.1	0.1	10.4	0.3	22.8	32.0
Warmińsko-mazurskie	100.0	8.5	4.5	3.7	3.5	12.6	1.1	0.7	17.9	0.4	14.1	30.1

Source: own compilation based on CSO data.



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

Selected tangible effects of investments in the environmental protection realized in rural areas are 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 2009, respectively in the Łódzkie and Świętokrzyskie provinces, compared to 750 landfills operating by the end of the same year.

On the other hand, tangible effects of investments in wastewater management have been pronounced. A total of 149 of collective wastewater treatment plants were registered, of which a majority (90) are modernized facilities and 59 are newly constructed objects. The highest number – 14 collective wastewater treatment plants were commissioned for use in the Mazowieckie province and (although fewer) in the Podkarpackie province – 11 objects.

Almost 8 thousand of individual wastewater treatment plants were constructed in rural areas of Poland in 2009. The highest number was constructed in the Kujawsko-Pomorskie province (1473), in Mazowieckie (1175) and in Lubelskie provinces (1012).

**Table 6.** Selected tangible effects of investments in environmental protection in the country per provinces in 2009

Provinces	Sewerage network			Wastewater treatment plants			Landfills objects
	collective	House sewers		collective		individual	
	In km	number	new	modernized			
Poland	3535.68	905.05	149	59	90	7844	2
Dolnośląskie	252.30	54.64	13	3	10	445	-
Kujawsko-pomorskie	194.20	36.74	3	1	2	1473	-
Lubelskie	104.86	41.98	8	5	3	1012	-
Lubuskie	44.02	4.87	1	1	0	139	-
Łódzkie	83.27	37.94	6	2	4	645	1
Małopolskie	583.86	121.12	13	6	7	380	-
Mazowieckie	423.38	122.82	31	14	17	1175	-
Opolskie	153.14	45.89	4	0	4	152	-
Podkarpackie	597.47	174.64	18	11	7	28	-
Podlaskie	75.25	12.91	2	1	1	338	-
Pomorskie	248.59	50.82	13	7	6	199	-
Śląskie	89.49	44.60	5	1	4	201	-
Świętokrzyskie	125.47	30.43	1	1	0	124	1
Warmińsko-mazurskie	71.47	18.65	6	1	5	218	-
Wielkopolskie	333.18	74.64	22	4	18	1126	-
Zachodniopomorskie	155.70	32.36	3	1	2	189	-

Source: own compilation based on CSO data.

In 2009 a total of 3.5 thousand km of collective sewerage network came into being in Poland rural areas and 900 km of house sewers, which makes up a significant portion of rural facilities registered by the end of the same year. 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 commissioned for use were noted in the Podkarpackie and Małopolskie provinces, whereas the poorest in the Lubuskie, Warmińsko-Mazurskie, Podlaskie and Łódzkie.

## CONCLUSION

Investment tasks in environmental protection are financed from many sources diversified as to their character and effectiveness. Among these currently the most important have been own means, from which comes almost half of the outlays on the environmental protection. In the structure of financing investments in the environmental protection expenditures from communes' budgets are hardly important, although in 2009 their share was the highest among the funds obtained for this purpose from the central budget and from the budgets of local government units on all levels. Commune investment expenditure focuses almost exclusively on wastewater management and water protection, and on waste management.

Rural communes, which in Poland constitute 63.8% of communes, financed 20.3% of the outlays on environmental protection investments realized by a all communes. Protection of the natural environment is an important objective of local policy. It occupies the second position among the aims of rural communes investments (together with public utilities). The widest scale of investment expenditure on the environmental protection in 2009 was registered in the Podkarpackie province, where rural communes financed about 20% of total investment outlays realized by all rural communes in Poland. For the rural communes of the Podkarpackie province environmental investments were the priority among the investment tasks.

Tangible effects of environmental investments financed from rural communes' budgets in Poland in 2009 revealed a considerable spatial diversification. Considering the investments in wastewater management, three provinces (Podkarpackie, Małopolskie and Mazowieckie) realized collective sewerage network constituting almost half the length of all investments of this kind completed in 2009 in rural areas of Poland. A similar situation was registered for the length of house sewers and collective wastewater treatment plants. Also in case of individual wastewater treatment plants, almost half of such facilities commissioned for use in 2009 was localized in rural areas of four provinces: Kujawsko-Pomorskie, Lubelskie, Mazowieckie and Wielkopolskie.

## REFERENCES

- Bank Danych Lokalnych (BDL), Główny Urząd Statystyczny, [www.stat.gov.pl](http://www.stat.gov.pl).
- Górka K., Poskrobko B., Radecki W.: *Ochrona środowiska*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, 406 ss.
- Korporowicz V.: *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 2007, s. 35-44.
- Narodowe strategiczne ramy odniesienia 2007-2013 wspierające zatrudnienie i wzrost gospodarczy. Narodowa Strategia Spójności*, Ministerstwo Rozwoju Regionalnego, Warszawa 2007, 165 ss.
- Ochrona środowiska 2010*, GUS, Warszawa 2010, 609 ss.
- Ustawa z dnia 8 marca 1990 r. o samorządzie gminnym*, tj. Dz. U. nr 142 z 2001 r., poz. 1591 z późn. zm.

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