

Ilisio Manuel DE JESUS

FINANCING INFRASTRUCTURE INVESTMENTS IN LOCAL GOVERNMENT UNITS – A CASE STUDY OF THE RURAL COMMUNE OF LIDZBARK WARMIŃSKI

Ilisio Manuel **De Jesus**, PhD – *University of Warmia and Mazury in Olsztyn*

Correspondence address:

Faculty of Economic Sciences, Department of Spatial and Environmental Economics

Oczapowskiego 4, 10-719 Olsztyn, Poland

e-mail: imdj@uwm.edu.pl

ABSTRACT: Investments made by local government units, especially inputs into infrastructure, are a major factor of sustainable socio-economic development. These are the most important tasks faced by local governments. Investments in infrastructure are necessary for people, for the proper functioning of economy, and to facilitate the circulation of goods and capital. A decision to carry out an investment project requires skillful financial management by a given local government and should generate some socio-economic benefits. The execution of investment projects in rural areas mainly involves the construction and modernisation of technical and social infrastructure. As a rule, high costs incurred by such investments will be covered in part by the local government unit where they are implemented. The local government has to seek additional funds from external sources. The aim of the study was to analyse the sources of financing of infrastructure investments and to evaluate their implementation in a selected rural community. The rural commune of Lidzbark Warmiński, located in the district of Lidzbark Warmiński, was used in this case study.

KEY WORDS: commune, budget, infrastructure investment

Introduction

The smallest unit of the local government system in Poland is a commune (in Polish: *gmina*). It is composed of the community of people occupying the territory delineated as a commune. To a large extent, a commune is independent from other organs of the state authorities in Poland. It possess its own economic and legal status. Today, a commune is the basic, lowest level unit of local governments in the state's territorial division (Kozłowski, 2012, p. 93-94). The commune authorities pursue an independent financial policy reliant on the commune's budget. Being the basic element of the financial policy, the budget consists mainly of incomes and expenses, and also of revenues and expenditures (Act of 8 March 1990, Dz.U.1990 no. 16 item 95).

The commune has many competences, as well as rights and obligations. It is, for example, responsible for encouraging sustainable local development. In this area, there are many positive changes, in terms of both satisfying the needs of the commune's inhabitants and providing stimulants of the economic growth. Such desirable transformations should be implemented in a susitanable environment, distinguished by adequate protection of the natural environment and proper management of its resources.

Currently, the principal determinant of local devlopment lies in infrastructural investments, which are essential for the social and economic development. Investment projects in rural areas comprise mostly construction and modernisation of infrastructure components. The development of infrastucture is fundamental to attaining any improvement in the work and living conditions of local inhabitants. Better work and living conditions, in turn, can directly enhance the efficiency of work. In addition, well-developed infrastructure ensures that territorial bonds are maintained and creates the right environment for running businesses.

Research methods

The research objective has been to assess the financing of investments into infrastructure in a commune. The rural commune of Lidzbark Warmiński served as a model. It lies in the Province of Warmia and Mazury (województwo warmińsko-mazurskie), in the district of Lidzbark Warmiński (powiat warmiński). The commune's budget and the financing of infrastructural investment projects were analysed. The time scope of the study spanned the years 2008-2014. Secondary data, which were analysed, originated from

the council of the rural commune of Lidzbark Warmiński and from state statistical offices. The gathered information underwent analysis in the dynamic and spatial approach, with an aim of demonstrating changes in the structure of the commune's budget, in the context of financing and execution of infrastructural investments.

The research employed a comparative analysis method, mainly vertical (dynamic) comparisons, to explore the commune's budget in terms of financed investments, and a monographic method, to evaluate the execution of infrastructural investment projects. The research results have been presented in tables, with attached descriptions and our analysis of the research outcome.

Results of the research

Description of the area analysed

The rural commune of Lidzbark Warmiński is situated in the northern part of the Province of Warmia and Mazury (województwo warmińsko-mazurskie), in the district of Lidzbark Warmiński (powiat lidzbarski). It occupies an area of 372 km². The commune lies about 50 km away from Olsztyn, the capital city of the province. The Local Data Bank states that the rural commune of Lidzbark Warmiński has a population of 6 815 people. Women represent 49% of the population. The population density is 18 persons per 1 km². In 2014, there were business entities seated in the commune, of which 42 were involved in the agriculture, forestry, fisheries and hunting sector, while 74 operated in industries and civil engineering.

The commune administers 600 kilometers of roads, most of which are unpaved roads with weak road undersurface. Changeable weather conditions have a very bad impact on their technical condition. Frequent maintenance is in order, and road repairs most often include road profiling, making gravel or aggregate surface, replacement and repairs of drainage culverts. Ensuring that all the roads are passable is one of the principal tasks of the Council of the Rural Commune of Lidzark Warmiński. In each consecutive budgetary year, the sum of money allocated to this aim increases.

The residents of the rural commune of Lidzbark Warmiński do not have a sufficient access to the linear infrastructure networks in their commune. The situation is the worst with respect to the accessibility of piped gas installations. In 2014, just 0.2% of the whole population had a connection to gas pipes. The percentage of the population with access to the existing waterworks looks much better. Table 1 presents some statistical data regarding the waterworks.

Table 1. Selected statistical data regarding the waterworks in the rural commune of Lidzbark Warmiński

Specification	Years							
	unit	2008	2009	2010	2011	2012	2013	2014
Length of operating waterworks	[km]	228.3	280.7	289.4	292.2	316.1	316.1	325.3
Water supplied to households	[dam ³]	138.3	143.5	147.8	150.0	161.6	160.4	181.1
Population using waterworks	[person]	3926	4130	4145	4261	4348	4336	4369
Consumption of water in households per capita	[m ³]	20.5	21.5	22.2	22.0	23.7	23.5	26.6

Source: the table drawn by the author, based on data from the Local Data Bank.

The commune has over 325 km of waterworks, to which 4 369 persons have access. In 2015, this number corresponded to 64.1% of the total population of the commune. The water consumption in households increases steadily. In 2014, it reached 26.6 m³ per capita. The total length of sewers owned by the commune is 45.5 km and 653 residential buildings are connected to sewers. In 2008-2014, the length of operating sewers increased by 12.9 km (table 2).

Table 2. Selected statistical data regarding sewers in the rural commune of Lidzbark Warmiński

Specification	Years							
	unit	2008	2009	2010	2011	2012	2013	2014
Length of operating sewers	[km]	4.1	4.0	4.0	4.1	17.1	17.1	17
Connections to residential one-family and multiple residence houses	[number of houses]	55	55	55	55	125	125	125
Sewage discharged to sewers	[dam ³]	13.4	18.9	15.6	12	14	14	24
Population using the network of sewers	[person]	446	444	442	454	666	664	665

Source: the table drawn by the author, based on data from the Local Data Bank.

The high supply of the waterworks forces the commune to continue developing the sewerage network. This is necessary because the current situation creates a risk of polluting the natural environment and groundwater which is the source of potable water. There are two biological wastewater treatment plants with the capacity of 135 m³/daily located in the commune's area.

Analysis of revenues and expenses of the rural commune of Lidzbark Warmiński in 2008-2014

The budget of a commune is composed of an annual plan of incomes and expenses as well as revenues and expenditures (Jesus, Bogulas, 2010, p. 71). The budget income mostly consists of public means, non-refundable amounts of money collected by a local government unit from physical persons and business entities, and of funds obtained from the state budget allocated to public expenses or expenditures, that is subsidies and grants (Brzeziński et al., 2000, p. 48).

As the data contained in table 3 demonstrate, the commune's income over the analysed period was subject to considerable variation. In 2010, the total income was 16 684 426 PLN, and thus was the lowest. In 2013, it equalled 23 801 993 PLN, which means it was the highest. The difference in the income between these years (2010 and 2013) is 7 117 567 PLN, and corresponds to an increase by 42.6% of the 2010 income and a decrease by 29.9% of the 2013 income, respectively.

The contribution of the commune's own income into the general income structure was also highly varied. The trend was on the decrease until 2010, when it bounces back, that is an increasing trend began. The commune's own income constituted 40.3% of the total income in 2008, 33.3% in 2010 and 43.6% in 2014.

Table 3. Structure of the budget income of the rural commune of Lidzbark Warmiński in 2008-2014

Specification	Years						
	2008	2009	2010	2011	2012	2013	2014
	[PLN]						
Own income	6803558.0	6277706.7	5549897.3	7218524.9	6805186.7	12359920.4	9343875.0
General subsidy	5539029.0	6398011.0	6499140.0	6286262.0	6408809.0	6498952.0	7209770.0
Earmarked grants	4554139.8	5009506.4	4635388.5	5788805.8	5488380.9	4943120.3	4871301.1
In total	16896727	17685224	16684426	19293593	18702377	23801993	21424946
	[%]						
Own income	40.3	35.5	33.3	37.4	36.4	51.9	43.6
General subsidy	32.8	36.2	39.0	32.6	34.3	27.3	33.7
Earmarked grants	27.0	28.3	27.8	30.0	29.4	20.8	22.7
In total	100	100	100	100	100	100	100

Source: the table developed by the author, based on data from the Central Statistical Office in Poland (GUS).

The largest share in the structure of the commune's own budget is made up of local taxes and fees, mostly the real estate tax and agricultural tax (table 4).

Table 4. Shares of particular categories of income in the commune's own income in 2008-2014 [%]

Specification	Years						
	2008	2009	2010	2011	2012	2013	2014
Local taxes and fees	57.6	61.2	61.0	57.6	60.6	43.9	63.0
Income from the commune's treasure	16.3	6.0	12.2	3.3	4.0	10.3	5.8
Participation in taxes constituting the state's budget income	13.8	17.7	18.9	13.9	16.0	10.8	15.3
The commune's other own income	12.3	15.1	8.0	25.2	19.5	35.0	15.9

Source: the table developed by the author, based on data from the GUS and the Council of the Rural Commune of Lidzbark Warmiński.

The second largest source of income in the category 'local taxes and fees' consisted of the forest tax and tax on civil law transactions. The lowest income among the tax revenues was generated by the tax on inheritance and donations as well as treasury fees.

The analysis of the expenses from the budget of the rural commune of Lidzbark Warmiński is summarised in table 5.

Table 5. Structure of expenses of the rural commune of Lidzbark Warmiński in 2008-2014

Specification	Years						
	2008	2009	2010	2011	2012	2013	2014
Current expenses [%]	85.6	82.1	91.7	70.2	79.9	96.0	88.7
Investment expenses [%]	14.4	17.9	8.2	29.8	19.8	4.0	11.1
The commune's total expenses [PLN]	15263574.8	18979278.4	18316262.4	26416579.5	24348630.4	20301273.7	20814272.4

Source: the author, based on the GUS data.

The above data implicate high variation in the commune's spendings in the particular years. In 2008, the total expenses equalled 15 263 574.8 PLN, they increased considerably in 2011, to 26 416 579.5 PLN, and in 2014 they decreased to 20 814 272.4 PLN. The structure of expenses was dominated by

current spendings, which corresponded to 85% of total expenses. Meanwhile, 15% of total expenses were dedicated to investments. The dynamics of changes in the current and investment expenses was very high. Over the analysed time period, the percentage of current spendings in the commune's total expenses changed from 70.2% in 2011 to 96.0% in 2013.

The financial result of a budget of a commune is the difference between the income and expenses (Jaworska, Balcerzak, Kochanowicz, 2015, p. 26-27). It offers a preliminary evaluation of the budget management by the commune (table 6).

Table 6. Budget expenses juxtaposed with budget revenues in the rural commune of Lidzbark Warmiński in 2008-2014 [PLN]

Specification	Years						
	2008	2009	2010	2011	2012	2013	2014
Revenues	16896727.6	17685224.2	16684425.9	19293592.8	18702376.5	23801992.7	21424946.1
Expenses	15263574.8	18979278.4	18316262.4	26416579.5	24348630.4	20301273.8	20814272.4
Financial result	1633152.8	-1294054.3	-1631836.5	-7122986.8	-5646253.9	3500718.9	610673.7

Source: the author, based on the GUS data.

Over the analysed years, the financial result of the implementation of its budget by the rural commune of Lidzbark Warmiński varied. The budget surplus, that is a positive financial result, occurred in 2008, 2013 and 2014. In 2009, 2010, 2011 and 2012, there was a deficit, i.e. the financial result was negative and equalled: -1 294 054.3 PLN (7% of the total revenue), -1 631 836.5 PLN (10%), -7 122 986.8 PLN (37%), -5 646 253.9 PLN (30%), respectively of the years mentioned. In the whole time period balanced, i.e. in the years 2008-2014, the total revenues of the commune were less than the expenditures by an amount of 950 586.00 PLN, which corresponds to 7% of all the incomes of the commune in the analysed time.

Financing of investment projects in the rural commune of Lidzbark Warmiński in 2008-2014

The amounts and structure of funds allocated to investments in the rural commune of Lidzbark Warmiński in 2008-2014 were highly varied. Out of the 32 million PLN spent on investment projects, 12 m PLN was derived from external funds gained for this purpose (table 7).

Table 7. Sources of the financing of infrastructural investments in the rural commune of Lidzbark Warmiński in 2008-2014

Specification	Years						
	2008	2009	2010	2011	2012	2013	2014
	[PLN]						
Own funds	3154403.0	4978439.0	2843544.0	4194178.0	3354565.0	589447.0	1348552.0
Loans and credits	55000.0						
Funds from other sources	521000.0	320993.0	30440.0	981000.0	136574.0	42316.0	140030.0
The EU funds	4152369.0	41436.0	204000.0	3668325.0	760477.0	207664.0	798347.0
In total	7882772.0	5340868.0	3077984.0	8843503.0	4251616.0	839427.0	2286929.0
	[%]						
Own funds	40.0	93.2	92.4	47.4	78.9	70.2	59.0
Loans and credits	0.7						
Funds from other sources	6.6	6.0	1.0	11.1	3.2	5.0	6.1
The EU funds	52.7	0.8	6.6	41.5	17.9	24.7	34.9

Source: the author, based on data supplied by the Council of the Rural Commune of Lidzbark Warmiński.

The average contribution of external funds to the total investment spendings in 2008-2014 was over 37%. The dynamics of changes in the structure of investment expenses was very high in that time period. In 2008, the total worth of external funds was 4 728 369 PLN, which corresponded to 60% of the total investment expenses in that year. In turn, the external funds allocated to investment projects in 2009 equalled 362 429 PLN, that is just 7% of all expenses to investment projects. In the structure of sources of funds for investments into infrastructure, the major role is played by the EU funds. The average contribution of EU funds in 2008-2014 into the total structure of investment spendings in the commune of Lidzbark Warmiński was 25.6%. The dynamics of changes in the sums of EU funds obtained in the particular years over the analysed time correlates with the amounts of money acquired from external sources. As the ratio of external funds allocated to investment projects decreased, so did the total value of the EU funds obtained by the commune.

The role of the other forms of financing was much smaller. The funds originating from other sources, including the state budget, in the whole analysed period of time equalled 7% of the expenses in the total structure of investment spendings. However, their share in the general structure of external funds was as high as 18%. The contribution of bank loans and credits into

the total structure of investment expenses was very small. It was only in 2008 that the commune's authorities financed investment projects with a sum of 55 000 PLN loaned from a bank. This amount corresponded to 0.7% of all investment expenses. In the following years, this source of financing was discontinued.

An evaluation of the performance of infrastructural investments in the rural commune of Lidzbark Warmiński in 2008-2014

When making an evaluation of the investment projects executed in the commune, their classification was done in the context of their number and type. Over the analysed years 2008-2014, 275 investment projects were completed in the rural commune of Lidzbark Warmiński (table 8).

Table 8. Investment projects conducted in the rural commune of Lidzbark Warmiński in 2008-2014 according to types of investments

Type of investment projects	Executed investment projects	
	[numer]	[%]
Construction, modernisation and renovation of buildings	74	27
Purchase and repairs of machines and devices	48	17
Schools	28	10
Community clubs and other culture venues	27	10
Waterworks	25	9
Roads and bicycle paths	21	8
Analytical reviews and expert opinions	14	5
Sewerage	7	3
Football pitches and other sport facilities	6	2
Volunteer fire brigades	6	2
Pavements, bus stops and squares	6	2
Purchase of land parcels	5	2
Wastewater treatment plants	4	1
Street lights	3	1
The commune's website	1	0
In total	275	100

Source: the author, based on data provided by the Council of the Rural Commune of Lidzbark Warmiński.

Most investment projects were performed in the category of construction, modernisation and renovation of buildings, which made up 27% of all completed investment projects. Investments that require large financial inputs, such as the construction of waterworks or sewers, made up from 9% to 3% of the total structure of investments.

Table 9 shows the value of inputs into the technical and social infrastructure in the rural commune of Lidzbark Warmiński. The data suggest that during the analysed period of time, nearly 13.4 million PLN was spent on technical infrastructure investments, while 7.8 m PLN was allocated to social investments. Most funds dedicated to technical infrastructure were spent in 2011. Their total value reached nearly 4.8 m PLN and corresponded to 35% of the total spendings on technical investments.

Table 9. Value of the inputs into infrastructure in the rural commune of Lidzbark Warmiński in 2008-2014 [PLN]

Specification	Infrastructure			
	Technical		Social	
	[PLN]	[%]	[PLN]	[%]
2008	1342627.1	10.0	848726.2	10.8
2009	2818895.2	21.0	576947.5	7.4
2010	849827.8	6.3	649157.9	8.3
2011	4746649.0	35.4	2713332.6	34.6
2012	1982072.8	14.8	1889032.8	24.1
2013	159881.9	1.2	521505.1	6.7
2014	1495595.8	11.2	634510.2	8.1
Ogółem	13395549.5	100	7833212.2	100

Source: the author, based on the data from the Council of the Rural Commune of Lidzbark Warmiński.

The least inputs into technical infrastructure were expended by the commune in 2013. Their value was about 160 000 PLN and equalled 1.2% of the total inputs into technical investments. Over the analysed years, more than 7.8 m PLN was spent on social infrastructure. Similarly to technical infrastructure, most funds were allocated to social infrastructure in 2011. Their value exceeded 2.7 m PLN.

Conclusion

During the analysed time period, the rural commune of Lidzbark Warmiński carried out several infrastructural investment projects. These investments were made mainly to deal with the shortages in technical and social infrastructure. The high demand for capital of the completed investment projects to a large extent exceeded the financial capacities of the commune, and therefore external sources of finances were sought for (credits, subsidies, the EU funds).

The analysis of the sources of funds for infrastructural investment projects presented in this article substantiates the following conclusions:

- in the general structure of investment spendings, the dominant share consisted of own funds, with their average contribution of 63%; with respect to external sources of funds financing infrastructural investment projects, the major role was played by funds from the European Union. The average contribution of the EU funds to the general structure of investment spendings in 2008-2014 was 30%;
- there was a decrease in the funds allocated to investment projects in the last two years of the analysed period compared to the previous years, which may indicate both a falling number of investment projects undertaken by the commune and a weakening ability to acquire external source funds;
- the share of bank loans and credits in the general structure of investment expenses was very low. It was only in 2008 that the commune financed some investment using 55 000 PLN borrowed from a bank, which corresponded to 0.7% of all investment spendings;
- in respect of the types of investments, the largest share in the expenses is composed of construction, modernisation and renovation of buildings, and it equals 37% of the total investment made over the analysed years; nearly 13.4 m PLN was spent on technical infrastructure and 7.8 m PLN was allocated to social infrastructure.

Investment funds, if spent rationally and effectively, contribute to the growth in a commune's income, thus they can improve the material position of the commune's residents (Pomianek, Cegiełka, 2015, p. 2015).

Literature

- Brzeziński B. et al. (2000), *Prawo finansów publicznych*, Toruń
- De Jesus I. M., Bogulas B. (2010), *Dochody z nieruchomości w budżecie gminy Grudusk*, "Ekonomiczne problemy usług" No. 582(48)

- Jaworska S., Balcerzak J., Kochanowicz Z. (2015), *Ocena budżetu jednostki samorządu terytorialnego na przykładzie gminy Stary Lubotyń*, "Zeszyty Naukowe Wyższej Szkoły Ekonomiczno-Społecznej w Ostrołęce" No. 3(18)
- Kozłowski w. (2012), *Zarządzanie gminnymi inwestycjami infrastrukturalnymi*, Warszawa
- Pomianek I., Cegiełka M. (2015), *Wydatki inwestycyjne jednostek samorządu terytorialnego jako instrument wspierania przedsiębiorczości – przykład gminy Stanisław*, "Zeszyty Naukowe WSES w Ostrołęce" No. 3(18)
- Ustawa z dnia 8 marca 1990 r. o samorządzie terytorialnym (Dz.U. 1990 nr 16 poz. 95 z późn. zm.)