

INTER-MUNICIPAL COOPERATION IN WASTE MANAGEMENT: THE CASE OF POLAND

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Manuscript received: March 10, 2016

Revised version: April 29, 2016

KOŁSUT B., 2016. Inter-municipal cooperation in waste management: The case of Poland. *Quaestiones Geographicae* 35(2), Bogucki Wydawnictwo Naukowe, Poznań, pp. 91–104, 3 tables, 5 figs.

ABSTRACT: This article seeks to present the scale of inter-municipal cooperation in waste management in Poland in the light of the role of three key factors of cooperation. The first shows spatial regularities in the distribution of inter-municipal bodies involved in waste management in Poland, both in the system of voivodeships and historical-cultural regions. The second is institutional conditions confirming the scale of the Europeanisation of public policies taking place in Poland. It embraces the implementation of the EU legal framework in the Polish legal system and the cooperative behaviour of municipalities as a result of those changes. The third is a negative verification of the assumptions of the economic theory upholding the role of financial motivation in establishing cooperation (looking for savings and economies of scale to reduce unit cost); the presented results do not corroborate this type of motivation.

KEY WORDS: inter-municipal cooperation, waste management, Europeanisation, Poland

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Introduction

Inter-municipal cooperation has become a popular way of organising and managing public services in many West European countries. In France with its considerable territorial fragmentation inter-municipal cooperation has been a foundation of public management for more than 100 years (West 2007; Wollmann 2010). In this country there are over 2,000 so-called federative forms of cooperation (*établissements public de coopération intercommunale*) and over 13,400 single-, multi-purpose and mixed inter-municipal associations (*sindicats*) (*Les Collectivités Locales...* 2014). In Spain, since the introduction of the 1978 constitution,

there has been a marked increase in the scale of local cooperation and in the number of associations of municipalities (*mancomunidades*) and *consortia* (Nieto Garrido 2007). Also in Italy examples of formalised cooperation have greatly multiplied over the last dozen or so years (Bolgherini 2011; Rija, Tenuta 2011; Sorrentino, Simonetta 2013; Labianca 2014). The situation is similar in the Netherlands (Hulst, van Montfort 2007b). One can therefore state that in some European Union states the proportion of common activities of local governments is fairly large.

A considerable proportion of studies of inter-municipal cooperation published so far deal with joint operations in municipal waste

management. Research in this field has recently become ever more popular. It focuses on the effect of cooperation on the cost of waste collection and transport, especially in terms of possible financial savings in the days of an economic crisis (Sørensen 2007; Bel, Mur 2009; Zafra-Gómez et al. 2013), the significance of the economies of scale and the size of municipalities in establishing cooperation (Warner, Hefetz 2003; Bel, Costas 2006), and the influence of cooperation on the scale of privatisation of waste-management services (Bel, Fageda 2008). Hence theorising about inter-municipal cooperation in waste management takes place mostly in the framework of economic theories seeking optimum solutions for the delivery of local public services. However, when analysing Poland and other post-socialist states differing in the regional structure, theories of this kind have to be supplemented with institutional and geographical factors. By accommodating them it is easier to explain mechanisms underlying inter-municipal cooperation networks and to enrich the mainstream research conducted by representatives of the West European states with new threads. It should be emphasised that both, institutional theories (e.g. Blom-Hansen 1997; Hulst, van Montfort 2007a, 2012; Sørensen, Torfing 2007; Hulst et al. 2009; Wassenaar et al. 2010; Wollmann 2010; Olsson, Cars 2011; Rayle, Zegras 2013) and conceptions referring to the role of geographical, internal and socio-cultural differences (cf. e.g. Gorzelak, Jałowiecki 1996, 2014; Wollmann 2010; Labianca 2014) have also been examined in the context of the establishment and operation of inter-municipal cooperation networks.

This article seeks to present the scale of inter-municipal cooperation in waste management in Poland, a country in East-Central Europe undergoing a transformation of its political and institutional systems for the last 25 years. The analysis will be performed along three lines: (1) geographical, discovering and explaining regional differences in social and economic phenomena, (2) an institutional approach with special attention given to the conception of Europeanisation, and (3) economic theories dealing with the economies of scale and a search for savings in the cost of public services. The analysis embraces cooperation institutionalised in the form of inter-municipal associations or companies, i.e. so-called

network administrative organisations (Provan, Kenis 2008), characterised by a high level of legitimisation of the goal of operation, a great need for cooperation in order to solve common problems, and formalisation of mutual interaction rules. The information about the scale of inter-municipal cooperation in Poland comes from the author's own database compiled for the purposes of his doctoral dissertation, later published in a book form (Kołsut 2015). The database was built in a long process of data accumulation employing the so-called desk research. This is the only possible way of collecting information about inter-municipal cooperation networks in Poland in the absence of any reliable and exhaustive public data on this subject (as also emphasised in other works, e.g. Hulst, van Montfort 2007c; Swianiewicz 2011; Hausner 2013). The inter-municipal bodies analysed are examples of two aspects of cooperation: the organisation of a joint system of municipal waste collection, and the construction and/or running of waste-management facilities.

National context: local government and inter-municipal cooperation in Poland

Poland is the largest country in East-Central Europe. It is a unitary state and its political system is described as a parliamentary republic. It has got a highly complicated and difficult history that affects the current institutional context. From the end of the Second World War until 1990 it was a communist state closely associated with the USSR. In this period there was no autonomous, independent local self-government in Poland. Its administrative tasks were performed by organs of state authorities, so-called national councils, which were considered local democracy dummies (in fact they were strongly subordinated to the communist Polish United Workers' Party). It was only on 8 March 1990, when the first self-government act was passed, that the restoration of local autonomy started, and the first (after 40 years) free election to municipal councils was held on 27 May of that year. Together with the restoration of local democracy, there started a large-scale, difficult and painful process of economic transformation accompanied by social and institutional changes.

In 1990 territorial self-government was restored in Poland at the local level, then embracing 2,384 municipalities. Generally, the number of municipalities has not changed much over the last decades: in 1972 there were 2,365 municipalities, in 1992 – 2,459, and in 2014 – 2,479. Their mean size (just over 15,500 inhabitants) is considered quite great in Europe (cf. e.g. John 2001: 35; *Good practices ...* 2007). In spite of a fairly short period of operation, local government in Poland has got relatively extended powers and responsibilities. It deals with several local matters connected with public services: education, public transport, road, water-supply and sewerage infrastructure, physical planning, etc. Polish municipalities are self-reliant and autonomous in their decisions, although they have not got much taxing power: they cannot impose taxes and design a deliberate tax policy. Local finances mostly rely on government subsidies and shares in state income taxes generated by local communities and local enterprises. But generally the process of task and finance decentralisation in Poland should be regarded as fairly advanced among the states of East-Central Europe (cf. Rodríguez-Pose, Krøijer 2009).

One of the key powers of local government in Poland is the constitutionally guaranteed possibility of a joint inter-municipal performance of public tasks. Those powers are listed in detail in the Communal Self-Government Act of 1990, which states that municipalities can cooperate in the form of unions of municipalities as single or multi-purpose public-law entities (inter-municipal registered associations), inter-municipal public-law agreements, and associations of local government units as private law entities. Communes can also set up, and act together in, public-law companies that are a public-utility form of economic activity. In addition, in 2016 there appeared a long-awaited form of cooperation in metropolitan areas: the metropolitan association (cf. Kaczmarek, Mikula 2007; 2009), although so far no metropolitan area has implemented it in practice. Naturally, the forms mentioned above are supplemented with all kinds of informal cooperation.

In fact, it is hard to assess comprehensively the scale of inter-municipal cooperation in Poland, primarily because of the absence of any data on this subject whatsoever. Government authorities

only publish information about the number (currently 222) and make-up of inter-municipal registered associations, although even this is highly unreliable. As the latest research shows (*Współpraca JST...* 2013; Kołsut 2015) some 40% of associations registered do not in fact exist or take the form of “empty shells” (cf. West 2007). This scale of unreliability of publicly available information makes it necessary to employ other research techniques in order to obtain data from other sources. The problem of no uniform databases can be solved only through in-depth, representative survey or the construction of a detailed and scrupulous information base about the cooperation of entities coming from various sources published in a traditional or an electronic form. An example of the latter is the database created by the present author (Kołsut 2015).

Does geography matter?

At the close of 2013 there were 93 inter-municipal bodies in Poland involved in municipal waste management (Fig. 1). They embraced a total of 874 municipalities (or over 35%), among which were associations and companies dealing with the collection and transport of municipal waste (A) and networks running or building waste processing facilities (B). An analysis of the spatial distribution of the identified inter-municipal bodies shows a great role played by geographical determinants concerning administrative regions (voivodeships) and by historical factors (e.g. resulting from areas belonging to different sectors during the Partition period 1795–1918). Readily visible are also regularities in the spatial grouping of cooperative initiatives.

The spatial distribution of inter-municipal bodies involved in waste management is presented in Fig. 1, divided into networks dealing with waste collection and transport and those dealing with waste processing. Both maps lead to several conclusions. First, they show that the spatial distribution of inter-municipal bodies is uneven and differs clearly by voivodeship. At one extreme are voivodeships of northern and western Poland: Wielkopolska, Warmia-Mazuria, Pomerania, and Lubuska Land, in which most networks of this kind operate (see Table 1), and at the other extreme, Subcarpathia, Małopolska,

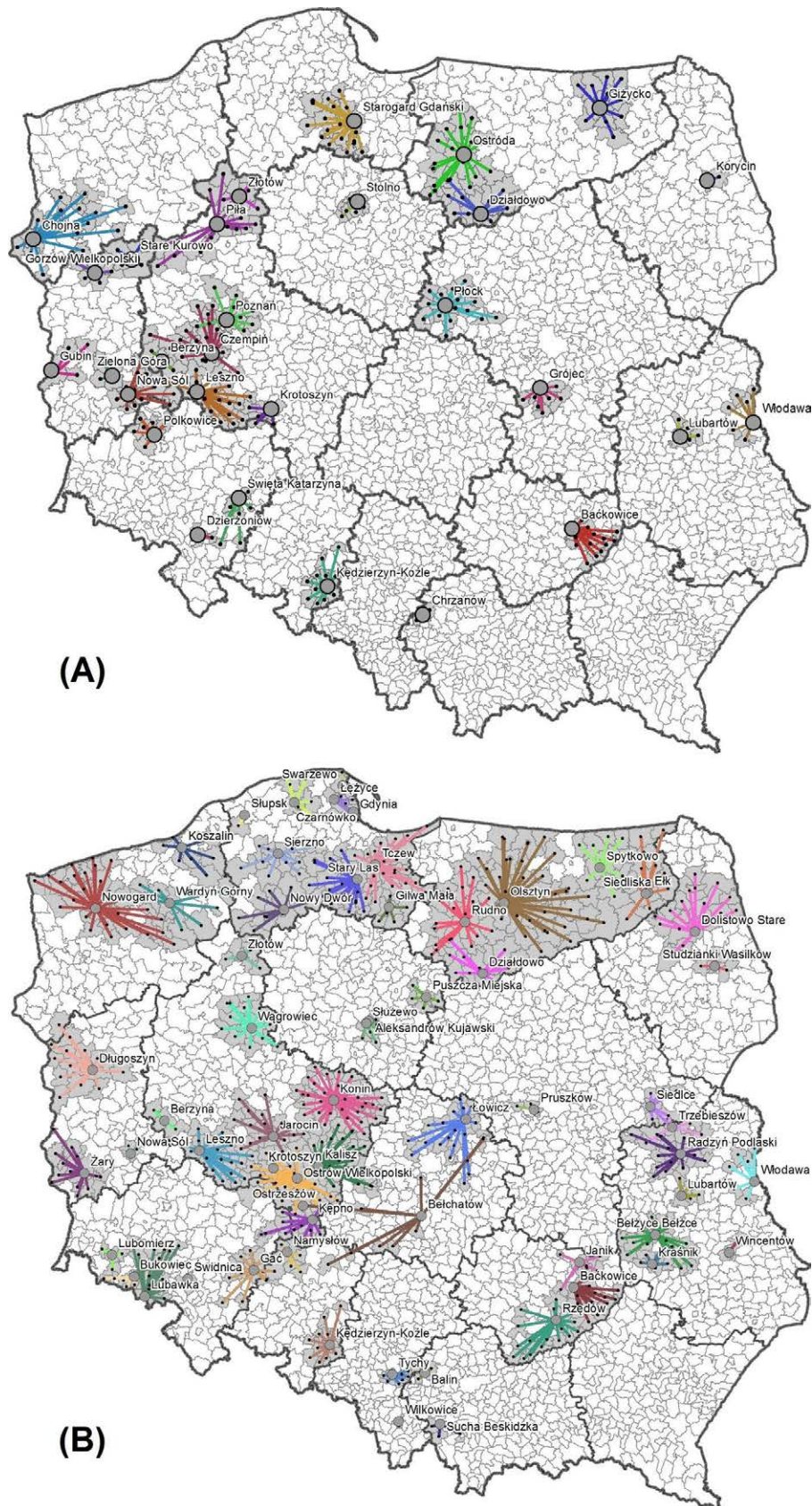


Fig. 1. Inter-municipal bodies involved in waste management in Poland: (A) waste collection, (B) waste processing.

Source: own research.

Silesia, Kujavia-Pomerania, and Mazovia. Such marked inter-regional differences are indicative of the existence of a 'voivodeship factor' and the role of voivodeship governments in initiating and stimulating cooperative behaviour among municipalities (cf. DiMaggio, Powell 1983). It is worth mentioning at this point that a voivodeship government is responsible for the delimitation of so-called waste-management regions; it is also one of the chief institutions deciding about the division of EU means for investments in waste management. Another regularity visible in Fig. 1 is a high degree of spatial compactness and closeness. This can be indicative of a significant role of distance in the diffusion and imitation of self-governmental organisational solutions (especially in the western and northern parts of the country).

The distribution of municipalities cooperating in municipal waste management also shows some regularities connected with the system of historical-cultural regions. Poland is one of the states with wide internal differences in the level of economic development, infrastructural investment

and socio-cultural features determined by long-term historical processes. They result from its regions belonging to different states during the Partition period and the non-existence of the Polish state in the late 18th, the whole of the 19th and the early 20th centuries, and from their different histories in the interwar period and right after the Second World War. On this basis four main historical-cultural regions can be distinguished: (a) Galicia, (b) the Kingdom of Poland (Austrian and Russian sector), (c) the Prussian sector, and (d) the Northern and Western Lands.

An analysis of the spatial distribution of municipalities cooperating in municipal waste management (Fig. 2, Table 2) corroborates some conclusions about the role of historical-cultural regions in moulding present-day social, economic, political and cultural processes and phenomena (as also mentioned, e.g., by Gorzelak, Jałowiecki 1996, 2014; Zarycki 1997; Kowalski 2000, 2003; Bartkowski 2003; Władyka 2008; Furmankiewicz, Stefańska 2010). In the light of the research presented in this article, one can

Table 1. Inter-municipal cooperation in waste management, by voivodeship.

		Voivodeship*																Σ
		LS	KU	LB	LS	ŁD	MŁ	MZ	OP	SC	PD	PM	ŚL	ŚW	WM	WL	WP	
Cooperating municipalities	Yes	57 34%	24 17%	81 38%	61 73%	33 19%	7 4%	52 17%	22 31%	0 –	30 25%	94 76%	27 16%	52 51%	92 79%	181 80%	61 54%	874 35%
	No	112 64%	112 83%	120 62%	132 27%	22 81%	144 96%	175 83%	262 69%	49 100%	160 75%	88 24%	29 84%	140 49%	50 21%	24 20%	45 46%	1 605 65%
Σ		169 100%	144 100%	213 100%	83 100%	177 100%	182 100%	314 100%	71 100%	160 100%	118 100%	123 100%	167 100%	102 100%	116 100%	226 100%	114 100%	2 479 100%

*Voivodeships: LS – Lower Silesia, KU – Kujavia-Pomerania, LB – Lublin, LS – Lubuska Land, ŁD – Łódź, MŁ – Małopolska, MZ – Mazovia, OP – Opole, SC – Subcarpathia, PD – Podlasie, PM – Pomerania, ŚL – Silesia, ŚW – Świętokrzyska Land, WM – Warmia-Mazuria, WL – Wielkopolska, WP – West Pomerania.

Source: own research.

Table 2. Inter-municipal cooperation in waste management, by historical-cultural region.

		Historical-cultural region				Σ
		former Galicia	former Kingdom of Poland	former Prussian sector	Western and Northern Territories	
Municipalities cooperate with another	Yes	26 7%	310 28%	195 52%	343 53%	874 35%
	No	322 93%	802 72%	181 48%	300 47%	1 605 65%
Σ		348 100%	1 112 100%	376 100%	643 100%	2479 100%

Source: own research.

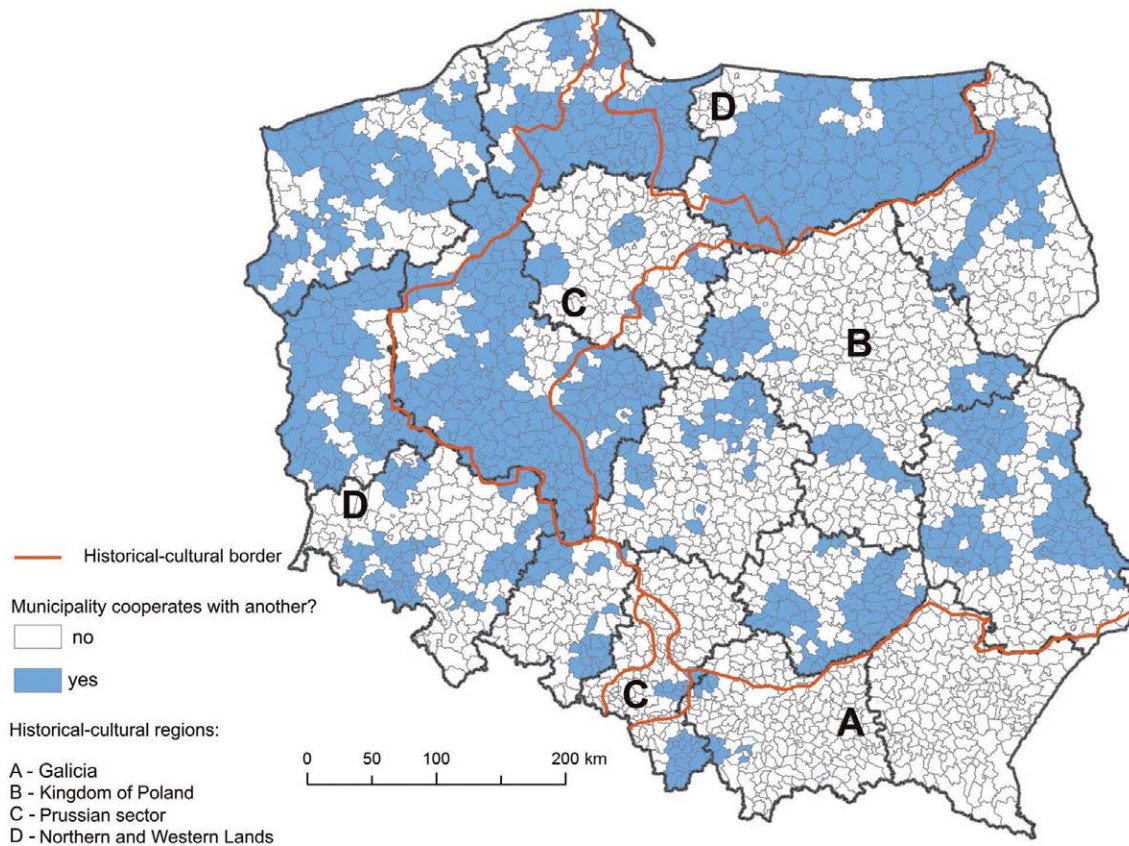


Fig. 2. Municipalities cooperating in waste management, by historical-cultural region.
Source: own research.

observe the tendency to cooperate to be stronger in municipalities located in the former Prussian sector (52% of municipalities, an average for the entire country being 35%) and in Western and Northern Lands (53%), and decidedly the weakest in Galicia (7%), while in the former Kingdom of Poland municipalities cooperate moderately (28%). Those differences are corroborated by most social studies conducted so far.

All available analyses and studies clearly show the inhabitants of the former Prussian sector to have a cooperative spirit, which agrees with the results presented here. The community of this region offers “a relatively more favourable climate for the development of private domestic and foreign entrepreneurship” (Bartkowski 2003: 422), a heritage of Prussian administration, which was thought to be highly professional (see Dyba, Strykiewicz 2012) and which accommodated cooperative strategies in its institutional order (see e.g. Ofiarska 2008: 234–236; Niziołek 2008: 50). The Prussian sector was the only one in which municipal cooperation institutions had developed, although there were laconic

legal provisions allowing cooperation also in the Austrian sector (Ofiarska 2008).

The Northern and Western Lands have had a markedly different past affecting their present-day local processes (see e.g. Zarycki 2004; Swianiewicz et al. 2008). Most of them were re-settled by various social groups after 1945. The stronger cooperative tendency of municipalities in this area is explained in various ways. Kowalski (2000: 108) claims, for example, that “the new community that has formed in the Northern and Western Lands took over some standards of the Wielkopolska community and regions more advanced in socio-economic terms that once were part of the Kingdom of Poland”.

The region of the former Kingdom of Poland is considered to be the least uniform of the three Partition sectors (Kowalski 2000: 44); it is also the largest in area. Here one can indicate a few smaller areas with relatively strong cooperative tendencies, but also vast expanses hardly involved in waste-management cooperation. This pattern has even been termed “island capitalism” (Kowalski 2000: 50): “there were categories and

regions socially developed as well as large backward and primitive areas" (Kowalski 2000: 51).

Former Galicia, in turn, is a region clearly differing in cultural terms from the other ones with its indigenous population and long roots of local communities. Its inhabitants did not demonstrate the enterprising and innovative behaviour going beyond the traditional types that was characteristic of the community in the Prussian sector (Kowalski 2000). Galicia's local élites are more closed and hierarchical communities (cf. Swianiewicz et al. 2008), which can also play a part when establishing horizontal relations of inter-municipal cooperation in waste management.

In sum, the analysis of the role of administrative and historical-cultural regions in the scale of cooperation of municipalities in waste management corroborates some conclusions deriving from the research to date. The municipalities most inclined to cooperate are those in the former Prussian sector and the Western and Northern Lands, which backs up Gorzelak and Jałowiecki's findings (1996, 2014). Also confirmed is the high network connectivity of the local governments of Wielkopolska, a region believed to have venture-some inhabitants open to non-traditional, horizontal social relations (cf. Kowalski 2000, 2003; Bartkowski 2003; Dyba, Strykiewicz 2012). In turn, a vast majority of municipalities in voivodeships lying roughly within the boundaries of historical Galicia (Małopolska and Subcarpathia) have not adopted cooperative strategies in municipal waste management, which also confirms earlier findings (cf. Swianiewicz et al. 2008).

Institutional conditions in the light of the concept of Europeanisation

The identification of motives for inter-municipal cooperation and the interpretation of relations in local political networks are often made using institutional theories. Their essence is the opinion that the behaviour and decisions of entities follow from interactions among institutions and the rationality of actors. Their rationality is 'modified', i.e. their needs, interests and preferences largely follow from existing institutions (Ostrom 1986; March, Olsen 1987; DiMaggio, Powell 1983; Hall, Taylor 1996; Stachowiak, Strykiewicz

2008). Institutional theories seek to understand and explain social structures (groups, networks, organisations) with reference to historically and socially rooted norms (cultural, legal), perceived as developing slowly, often in an unpredictable way (Amin 2009: 386–387). Generally speaking, the rules and norms of behaviour influence a person's or organisation's actions, and are formal or informal in character (Helmke, Levitsky 2004).

Over the last dozen or so years, great popularity in institutional research has been gained by the conception of Europeanisation (Featherstone, Radaelli 2003). It is especially useful in explaining the grounds for inter-municipal cooperation in municipal waste management in Poland. On a narrow understanding, Europeanisation describes and explains the effect of the EU policy on political processes, institutions, and power in the member states (Featherstone, Radaelli 2003; Dąbrowski 2014). The concept underlying this notion is institutional isomorphism (DiMaggio, Powell 1983) that can assume various forms. In this context we can observe mechanisms of coercive isomorphism when provisions following from Community directives were introduced into the Polish institutional system (Table 3). They were the direct cause of the 'waste revolution' in Poland.

The term 'waste revolution' is commonly used in Poland to describe institutional changes resulting from the adjustment of domestic law to the European Union requirements (see e.g. Radecki 2012). After the restoration of local government in Poland, municipal waste management was not very high on the list of investment priorities. As recently as 2007 the proportion of waste deposited in storage yards in the total mass of mixed waste collected was about 95%, the system of waste collection and transport was highly deregulated, and the responsibility for waste management greatly diffused. Reforms in this sector were constantly being postponed even though the awareness of the unavoidability of changes must have been there since at least 2003. The first reform was attempted in 2005 on the occasion of amending the law about municipal waste management, but legislative work was conducted in an atmosphere of a sharp dispute (Radecki 2012) about the system's key assumptions. There were two main interest groups. One, represented by the Polish Waste Management Chamber

Table 3. Poland's institutional obligations concerning changes in waste management following from EU directives.

Document title	Essential provisions
Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. Treaty of Accession of Poland signed in Athens on 16 April 2003	Poland is obliged to reduce the amount of biodegradable waste deposited in landfills in proportion to the waste mass produced in 1995 by 25% by 2010, 50% by 2013, and 65% by 2020
Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004 amending Directive 94/62/EC on packaging and packaging waste	By the end of 2014, Poland should reach the following recycling levels of packaging waste: glass – 60%, paper – 60%, metal – 50%, plastic – 22.5%, wood – 15%
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives	By 2015, Poland should set up separate collection systems for at least the following: paper, metal, plastic, and glass By 2020, Poland should re-use and recycle at least 50% of municipal waste mass produced, and at least 70% of construction and demolition waste mass produced.

Source: own compilation on the basis of the legal acts listed.

incorporating private enterprises engaged in waste transport, opted for leaving the solutions in force that assumed competition among firms, with no major interference on the part of public authorities and no responsibility for reducing the waste mass stored. The other group, represented by the National Waste Management Chamber associating communal companies involved in waste transport and management, opted for municipalities taking over all duties and full responsibility in this field. Ultimately, the Parliament took the side of the first lobby, thus postponing the introduction of unavoidable systemic changes.

The time for the necessary institutional changes came in 2011 and 2012. In the course of legislative work the two interest groups clashed again, but this time the solution was different. It was decided that, given the very long delay in attaining correct values of municipal waste-management indices, radical systemic changes were required. The most important change was the definitive naming of the chief 'actor' of the system: the municipality. Local governments started to be responsible for its organisation from the moment of waste production to its management, including the imposition of duties on property owners. Communes also became responsible for attaining proper levels of recycling and reducing waste intended for storage. Also, the legislators obliged regional governments to group municipalities into areas of at least 150 thous. inhabitants. In each such area regional facilities were to be assigned for municipal waste processing. And again municipalities were the units expected to build, maintain and run the facilities. The new

solutions were supposed to accelerate qualitative changes in the waste-management system in Poland. This is a very clear example of the Europeanisation of a public policy based on the mechanism of coercive isomorphism (DiMaggio, Powell 1983).

Changes in the legal system of municipal waste management started another process as a result of municipalities adjusting to the new conditions. It can be termed mimetic isomorphism (DiMaggio, Powell 1983). In this case organisations are not forced to change. An institutional change takes place because in the conditions of uncertainty they seek to minimise untypical behaviour and mimic that of other organisations (not always directly, sometimes through entities mediating in the flow of knowledge) via co-operation and interaction. This way of thinking brought about a huge wave of local cooperative decisions. Communes started to cooperate on a large scale. This can be seen in Fig. 3, which shows the incomes of inter-municipal associations involved in municipal waste management; the data reflect the scale of activity of those units. Until 2012 they totalled just over 50 million zlotys, and when the new regulations had come into force, the figure jumped to more than 250 million zlotys¹. This tendency for cooperative behaviour of the Polish municipalities was additionally reinforced by a large stream of Community funds earmarked for waste-management projects. In all,

¹ Legal changes were related to a new kind of local tax, which is currently inter-municipal associations' own revenue.

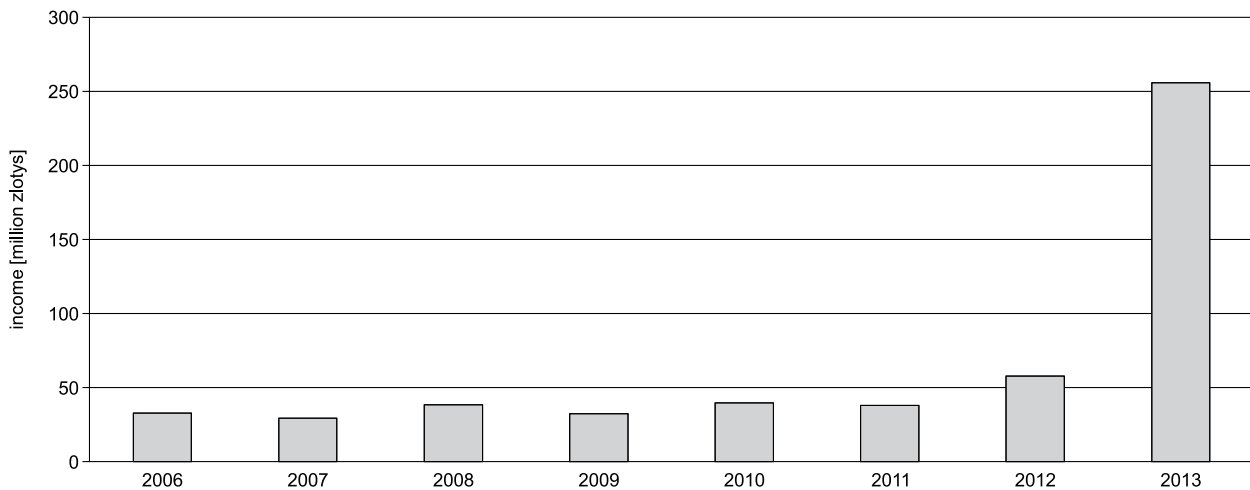


Fig. 3. Dynamics of incomes of inter-municipal bodies organising waste collection and transport in the years 2006–2013.

Source: own compilation on the basis of the Ministry of Finance data.

over the years 2007–2013 projects co-financed by the European Union amounted to a total of EUR 2,230 million, of which inter-municipal bodies spent ca. 30%, or EUR 670 million (Kolsut 2015).

The economic theory doesn't work?

The factors of inter-municipal cooperation are often connected with rational economic motivation (Bel, Warner 2015). This kind of argumentation explains cooperation using the *homo oeconomicus* notion, or concrete human rationality seeking to maximise profits and make a choice on the basis of its expected economic results. It involves a conscious choice of inter-municipal cooperation from among various alternative decisions of local authorities intended to ensure financial benefits to a municipality. Significant among them is a search for savings in public service delivery and for economies of scale. In this context, independent variables are usually the population size, population density, own income per inhabitant, and debt per inhabitant (Bel, Warner 2013).

Most works analysed in the survey articles by Bel and Warner (2013, 2015) found that the frequency of cooperation decreased with an increase in the population size of units. Similar conclusions were drawn by Delcamp (1997), Warner and Hefetz (2003), and Warner (2006). Also Bel et al. (2013) as well as Bel and Costas (2006) examined factors of collective waste management in one of the Spanish regions and confirmed empirically

that small local governments largely cooperated in order, as they claimed, to reduce the costs of service delivery. Large municipalities, in turn, definitely more often decide on privatisation because of the greater supply of firms offering this type of services in towns. A comparison of the cost of waste collection in Spanish municipalities performing this task on their own and those cooperating in this field demonstrates that the latter form is almost 20% cheaper (Bel, Costas 2006: 15; Bel, Mur 2009). Sometimes, however, a somewhat different dependence can be observed. A study of Norwegian municipalities carried out by Sørensen (2007) shows that an increase in the values of the ownership concentration index (the Herfindahl index), i.e. the absence of cooperation, is accompanied by a decrease in the waste collection duty, and hence in the economic motivation for cooperation. Thus, the costs deriving from ownership dispersion exceed the benefits of the growing scale of services delivered. It should be stressed at this point that in the light of the research conducted so far, the negative correlation between the population size of municipalities and the level of their cooperation depends on the size interval. Bel and Costas (2006) demonstrate that in municipalities with over 20 thous. inhabitants the unit cost of individual waste collection is lower than in municipalities performing this task in cooperation. A search for an optimum size of municipalities taking into consideration all costs (financial, transaction, political) of services delivered was also conducted in Poland (Swianiewicz,

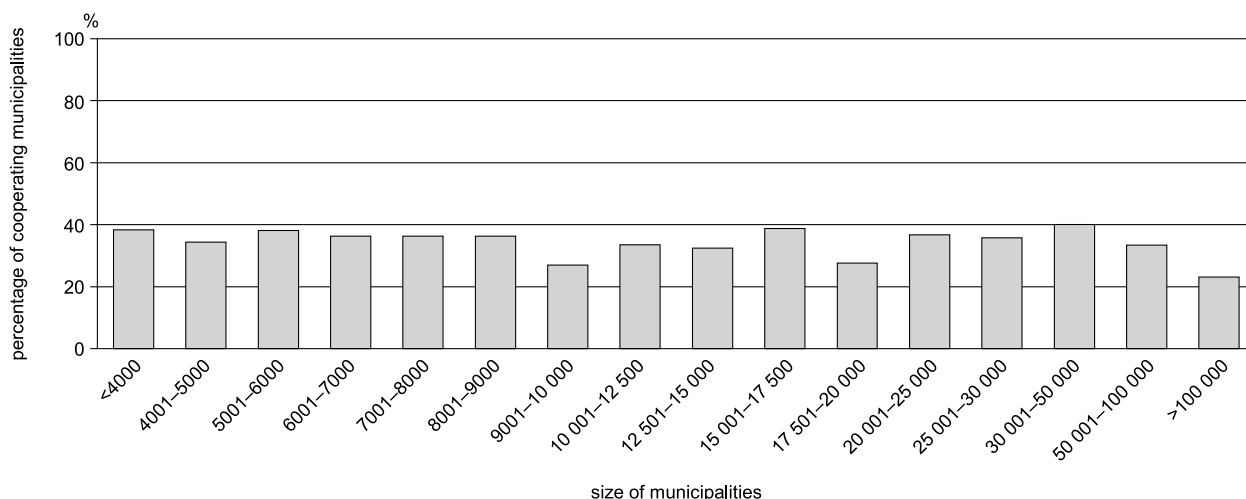


Fig. 4. Membership of inter-municipal bodies engaged in municipal waste management versus the size of municipalities.

Source: own research.

Herbst 2002). The result was the conclusion that an optimum size of Polish municipalities was close to 30,000 inhabitants because "above this size the final loss in democratic efficiency exceeds the final profit resulting from improved economic efficiency" (Swianiewicz 2009: 11).

When seen against the size of Polish municipalities as measured by the population number, the level of inter-municipal cooperation in waste management looks somewhat different than in the West European countries. Fig. 4 presents the share of municipalities cooperating in waste management in their total number divided into 16 classes of similar size. This is a graphic, rather simplified image showing the relation between the scale of cooperation and the size of municipalities. On its basis one cannot speak of a readily

visible negative correlation between those two variables. On the contrary, the connection seems to be very slight. A distinctly lower proportion of cooperating municipalities can only be noted in the class of cities with more than 100 thous. inhabitants, because a decided majority of those units organise their own systems of waste collection, transport and management. Such a relationship between the scale of inter-municipal cooperation and their size shows that this process in Poland is probably determined by different factors than in the West European states.

Similar conclusions can be drawn from an analysis of the dependence between the scale of inter-municipal cooperation and municipalities' own incomes per inhabitant (Fig. 5). It does not show economic motivation to play any significant

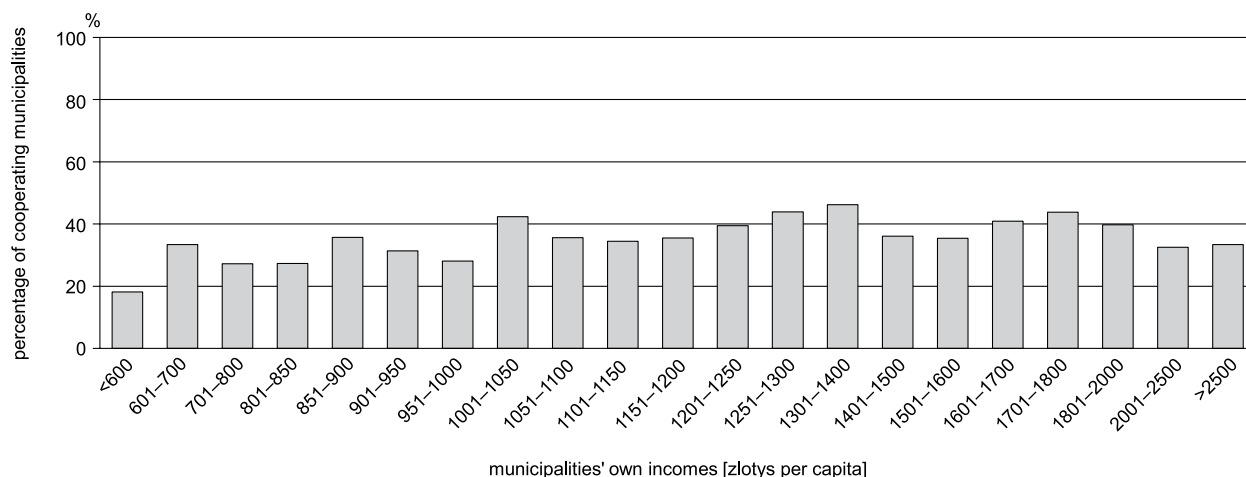


Fig. 5. Inter-municipal cooperation and municipalities' own incomes.

Source: own research.

role, either. Communes that tended to cooperate more often turned out to be those with average and high values of their own incomes per inhabitant, while those with the lowest own incomes (under 1,000 zlotys per inhabitant) tended to engage in cooperation networks more rarely. This distribution of the analysed variables shows that poorer units tend to cooperate less frequently than more wealthy ones. It is perhaps smaller financial possibilities which make municipalities seek more economical (in a short-term perspective) ways of organising and delivering services connected with municipal waste management. The high costs of setting up an organisation coordinating the operation of networks may not go with economising. Hulst and van Montfort (2007a) observed similar problems.

A problem in the operation of inter-municipal waste-management bodies has so far been this sector departing from the economic reality. Another unfavourable thing is the scale of institutional changes (described as a 'revolution'). Poland goes through the process of parallel changes in two fields: (1) the system of responsibility for waste until the time of its processing, i.e. for its collection and transport (municipalities take over those duties), and (2) the stage of its processing (incineration, recycling, storage). If the entire system was to be financed, the prices for waste admitted to facilities that process it are still too low for the system to work efficiently². Readily visible is the rivalry and dispute between two groups representing the interests of mechanical-biological waste processing facilities and thermal processing facilities. Besides, the waste-management market is still clearly under-invested and may go on being so for a long time because of municipalities' limited finances.

Conclusions

Municipal waste management is one of the most popular fields of inter-municipal cooperation in Poland. Some 35% of municipalities

organise joint systems of waste collection, transport and/or management (Kolsut 2015). Cooperation in this field is more common than in public transport, wastewater management or physical planning. In the light of the research conducted, however, inter-municipal cooperation in waste management in Poland cannot be regarded to be determined by similar factors as in the West European countries analysed so far.

The analysis conducted does not confirm that economic factors play a role in setting up inter-municipal waste-management bodies in Poland. The indices measuring the dependence between cooperation and economic factors (see Bel, Warner 2013; 2015) do not corroborate this relation to hold in the case of Poland, i.e. the smallest and least wealthy municipalities do not cooperate more often than medium-sized and large units or the wealthiest ones. It is therefore hard to treat savings-oriented economic motivation as basic. One of the arguments accounting for this state of affairs is practically the total absence of very small municipalities. The mean population size of a local unit is over 15 thous., there are no municipalities with under 1,000 inhabitants. Besides, Poland is a country with a much more complicated institutional situation that has significantly affected the processes of inter-municipal cooperation in waste management over the recent years.

The last few years in the waste-management sector have been the time of a so-called 'waste revolution' (Radecki 2012). This is primarily due to the quick, sudden and radical introduction of the EU regulations into the Polish law. Municipal waste management is one of those fields where the necessary changes leading to the restructuring of the sector were continually postponed (until 2007 ca. 95% of waste was stored). For a long time there did not appear an impulse generating any visible change in the institutional system. The impulse was only provided by the EU legal norms, and in practice by sanctions threatening Poland for the lack of specified, measurable effects in waste management. After the introduction of the new legal rules there was a clear turn towards inter-municipal cooperation. Local units started to build or modernise collectively municipal waste-management facilities (incinerators, sorting plants, composting plants). In this case big cities usually undertook those tasks on their own, and medium-sized towns, usually together

² See e.g. the interview with the Vice-Minister for the Environment: Mechanical-biological facilities will be turned into sorting plants (<http://www.portal-samorzadowy.pl/gospodarka-komunalna/instalacje-mechaniczno-biologiczne-beda-zamieniane-w-sortownie,64868.html>; accessed 10 Jan. 2015).

with the rural municipalities surrounding them. Besides, the radical change in the rules of the game and the high level of uncertainty caused municipalities to organise jointly also systems of waste collection and transport, even if this kind of behaviour generated higher costs in a short-term perspective than a municipality acting on its own.

Thus, cooperation was set up by municipality of various sizes, mostly due to changes in the institutional system. However, cooperative measures were not common throughout Poland, being taken much more often in the northern and western regions (Wielkopolska, Pomerania, Warmia-Mazuria, Lubuska Land). It seems that the causes of this state of affairs should be sought in the role of voivodeship governments and in socio-cultural factors determined by historical-cultural regions. Poland is a country fairly diversified spatially in terms of territorial structures and the attitudes and preferences of its inhabitants. The southern and eastern areas (especially former Galicia) are inhabited by deeply rooted, traditional communities less inclined to enter into a horizontal, network type of social and organisational relations and much less inclined to cooperate, in contrast to the northern and western regions of Poland.

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