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PREFACE

The publication is the subsequent issue of "Municipal Infrastructure" being a part of the annual series "Information and Statistical Papers", edited by the Central Statistical Office. Since 2004 the publication has been available only in the electronic form on the website of the CSO http:\\www.stat.gov.pl

The sources of data are the results of compilations, got on the basis of statistical reports, drawn up by entities, which scope of economic activities includes supply of water to households and discharge waste water from them as well as collection of municipal and liquid waste, treatment of municipal waste, utilization, recycling, distribution of electricity, heat energy and gas from gas-line network.

The aim of authors is to present the results of statistical surveys and elaborations which will allow the users of the pieces of information to form an opinion on tendencies and directions of changes in the services rendered in order to satisfy communal and living needs.

The publication consists of three parts: methodological notes including glossary of key terms, analytical commentary and a set of tables which constitutes the main part of this publication.

We will be grateful to all persons and institutions, having become acquainted with the publication "Municipal Infrastructure 2007" for sending their comments and suggestions, which will be considered in the next editions as far as possible.

Director
Of Trade and Services Division

mgr Ewa Adach-Stankiewicz

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OBJAŚNIENIA ZNAKÓW UMOWNYCH
SYMBOLS

Kreska /-/	-	zjawisko nie występuje *magnitude zero*
Zero /0/	-	zjawisko istniało, jednakże w ilościach mniejszych od 0,5 *magnitude not zero, but less than 0,5 of unit*
Kropka /.-/	-	zupełny brak informacji albo brak informacji wiarygodnych *data not available or not reliable*
Znak /x/	-	wypełnienie pozycji jest niemożliwe lub niecelowe *not applicable*
"W tym" of which	-	oznacza, że nie podaje się wszystkich składników sumy *indicates that not all elements of the sum are given*

WAŻNIEJSZE SKRÓTY
ABBREVIATIONS

tys. *thous.*	=	tysiąc *thousand*
mln	=	milion *million*
m	=	metr *metre*
m^2	=	metr kwadratowy *square metre*
m^3	=	metr sześcienny *cubic metre*
km	=	kilometr *kilometre*
ha	=	hektar *hectare*
dam^3	=	dekametr sześcienny *cubic decametre*
hm^3	=	hektometr sześcienny *cubic hectametre*
kW.h	=	kilowatogodzina k*ilowatt * hour*
MW.h	=	megawatogodzina *megawatt * hour*
GW.h	=	gigawatogodzina *gigawatt * hour*
J	=	dżul *joule*
kJ	=	kilodżul *kilojoule*
GJ	=	gigadżul *gigajoule*
TJ	=	teradżul *terajoule*
r.	=	rok *year*
cd.	=	ciąg dalszy *continued*
dok. c*ont.*	=	dokończenie *continued*
szt. pcs	=	*sztuka piece*

INTRODUCTION

The publication refers to installations and municipal services in the scope of water-line and sewerage systems, heating management, distribution of electricity and gas from gas-line network as well as collection and treatment of municipal waste. The statistical data have been compiled according to the location of facilities or to the place of rendering municipal services and presented by voivodships and in the division urban areas- rural areas.

GLOSSARY OF KEY TERMS

Municipal management - a branch of national economy, which aim is to satisfy material and living needs of the population. In Poland municipal management includes enterprises conducting an economic activity in the scope of water-line and sewerage systems , heating management as well as distribution of fuels and electricity to households and cleaning of towns.

Municipal infrastructure - basic installations and service institutions, which are essential to functioning of the economy and population.

Water-line and sewerage system

Water-line system* - a set of technical installations which co-operate with each other and ensure water supply to consumers:

- in the required quantity,
- with the appropriate quality,
- at the appropriate pressure,
- in a certain area of activity,
- in a certain period of time.

Water line-system consists of: intakes of surface and underground water, installations used to store and treat water, water-line networks and street outlets as well as water pressure control devices.

Water-line transmission network - conduits leading water from distant water intakes to distribution line.

Water-line distribution network - street conduits used for distribution of water to consumers by the connections to buildings and other objects.

Water-line connections – a system of water-line connections - segments of conduits connecting the water-line network with internal water-line installation in a property of consumer together with a valve past the main water-meter.

Street outlets – publicly available facilities directly connected to street water mains, serving the community for drawing water directly from the mains.

Daily production capacity of water-line facilities - the amount of water which can be produced during 24 hours, considering the capabilities of all production facilities existing at the end of year, without disturbing the equilibrium of the water intakes and with preservation of technical conditions and requirements.

Water delivered to households - the quantity of water collected from water-line network using facilities installed in a building.

Water delivered for production purposes - water delivered to industrial, construction, transport enterprises (plants) etc., i.e. production plants in all divisions of national economy

regardless of whether delivered water is used for technological purposes or for social and living needs of staff (in the lavatories, bathrooms, dining-rooms, canteens, day-rooms and office buildings which are located within the plant).

Sewerage system* - the complete sewage collection - sewage networks, serving discharging of waste, including:

- sewerage network;
- the outlets of devices used to emit sludge into the waters or the ground,
- sewage pretreatment facilities and sewage treatment plants,
- sewage pumping stations.

Active sewerage network – a system of covered (underground) conduits which drain off sewage from buildings and other objects, to collectors or sewage treatment facilities .

Sewerage connections – a system of sewerage connections - segments of conduits connecting internal sewerage installations in a property of the services consumer with the sewerage network after the first inspection chamber from the side of building, and in case of its lack - from a boundary of property.

Waste water discharged – household waste water or a mixture of household waste water with rainfall waste water or a mixture of household waste water with industrial waste water and rainfall waste water.

Electricity

Information on the number of consumers and consumption of electricity concerns households and collective accommodation places that pay bills for consumption of electricity according to rates that households are due to pay.

Until 2004 do not include households in which the main source of maintenance is income from a private farm in agriculture.

Data regarding the consumption of electricity are presented basing on the available information on advance payments, made by consumers .

.

Gas-line network**

Gas-line network is a system of conduits providing gas, supplied by enterprises, which scope of economic activity includes transmission and distribution of gas to consumers. The system of conduits consists of:

- transmission and distribution network (with high-methane gas and nitrogenised gas)- street conduits used for distribution of gas to buildings or other objects by means of connections ;

connection - a system of conduits joining distribution gas-line system with buildings and other objects.

Data regarding the number of consumers of gas from gas line- network were provided by entities which were granted concessions to sale gas and are based on the information concerning the number of agreements concluded by these entities with consumers of gas from gas line-network.

Heating management

Information referring to heating includes residential as well as office and institutional buildings with central heating provided by transmission thermal-line.

Transmission thermal-line is considered as a system of joint installations, co-operating with each other, serving for transmitting and distribution of heat by conduits transferring heating medium to connections to buildings.

Boiler-- house or boiler-room is a building or a premise with boilers and installations used for production of heat energy for heating purposes or for simultaneous heating and supplying of warm water.

Information regarding the boiler-houses or boiler-rooms include types of boilers, their power (i.e. maximum quantity of heat energy which can be produced by boilers in a defined unit of time) , annual production, installed facilities protecting atmosphere (limiting emission of pollutants to atmosphere) .

Collection and treatment of municipal waste

Municipal waste* ** is waste generated in households and by other producers of waste (excluding hazardous waste) which because of its character or composition is similar to waste from households.

Information regarding waste include: total quantity of collected waste during the year , including waste from: households, commerce, small business, offices and institutions as well as municipal services .This information is extended by data concerning selection of waste for recycling, waste deposited on controlled landfills and waste subject to biological and thermal treatment.

Neutralization of waste consists in the processes of biological, physical or chemical treatment as a result of which the nature of waste does not pose risks to human life and health or the environment.

# # #

Results of the statistical surveys carried out on the basis of the following reports: M-06, M-09 and SG-01 part 3 as well as on the secondary use of data from the survey of balance of energy carriers and heating infrastructure and on data coming from internal information systems , owned by the Energy Market Agency S.A. are the sources of information about municipal infrastructure in 2007.

Data on energetics cover all the units which were granted concessions to transmit and distribute fuels and electricity , including those units for which the aforementioned objects constitute secondary economic activity

Technical note

Due to the method of automatic rounding employed in the publication, small differences at a higher level of aggregation may occur. In some tables the amount in the position “Total” may slightly differ from the sum of components. .

* The Act on Collective Water Supplying and Collective Discharging of Waste Water of 7 June, 2001 (Journal of Laws of 2002 No. 72, item 747)

** The Energy Act of 10 April, 1997 (Journal of Laws of 1997 No. 54, item 348 with further amendments)

*** The Waste Act of 27 April, 2001 (Journal of Laws of 2001 No. 62, item 628)

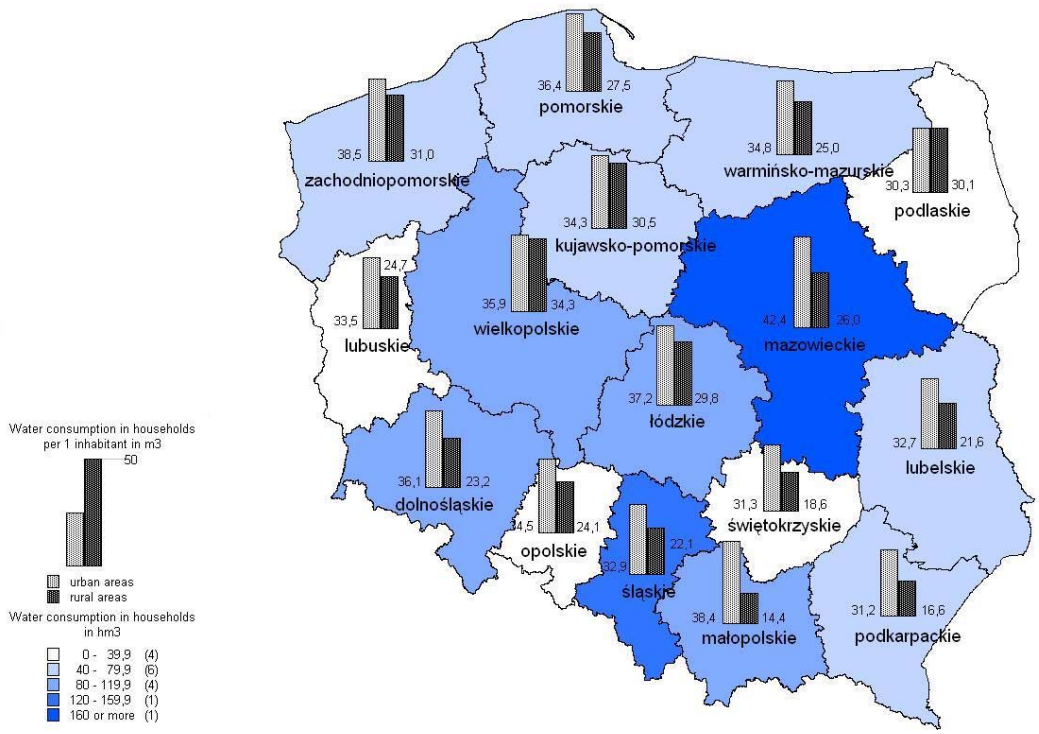
Municipal Infrastructure in 2007

The length of **water-line distribution network** amounted to about 257 thous. km and rose by about 2,3 % (i.e. by about 6 thous. km) in comparison to the previous year. The largest congestion of network according to territorial division [in km per 100 km^2] was observed in Śląskie (152,8), Kujawsko-pomorskie (115,8), Łódzkie (115,4), and Małopolskie (107,8) voivodships.

The prevailing share in the territorial distribution of the network exists in the rural areas and includes about 78 % of the total network in Poland. In these areas increased rate of infrastructural development still takes - 102,4 % (by 101,7 % in urban areas). In 2007 in rural areas about 5 thous. km of new network were built. The highest increase [in km] concerned Mazowieckie (1654,2), Warmińsko-Mazurskie (591,9), Kujawsko-Pomorskie (362,2), and Lubelskie (287,5) voivodships. In Zachodniopomorskie, Podkarpackie, Lubuskie, and Opolskie voivodships the increase was below 96 km. The distribution of the water line network increase by voivodships (in division into rural areas and urban areas) was presented on the graph[1].

The biggest share in water consumption [in m^3] by households for communal and living purposes was recorded in: Mazowieckie (189,7) and Śląskie (142,7) voivodships, whereas the lowest in Opolskie (30,7) and Lubuskie (30,6) voivodships.

Water consumption by voivodships in 2007

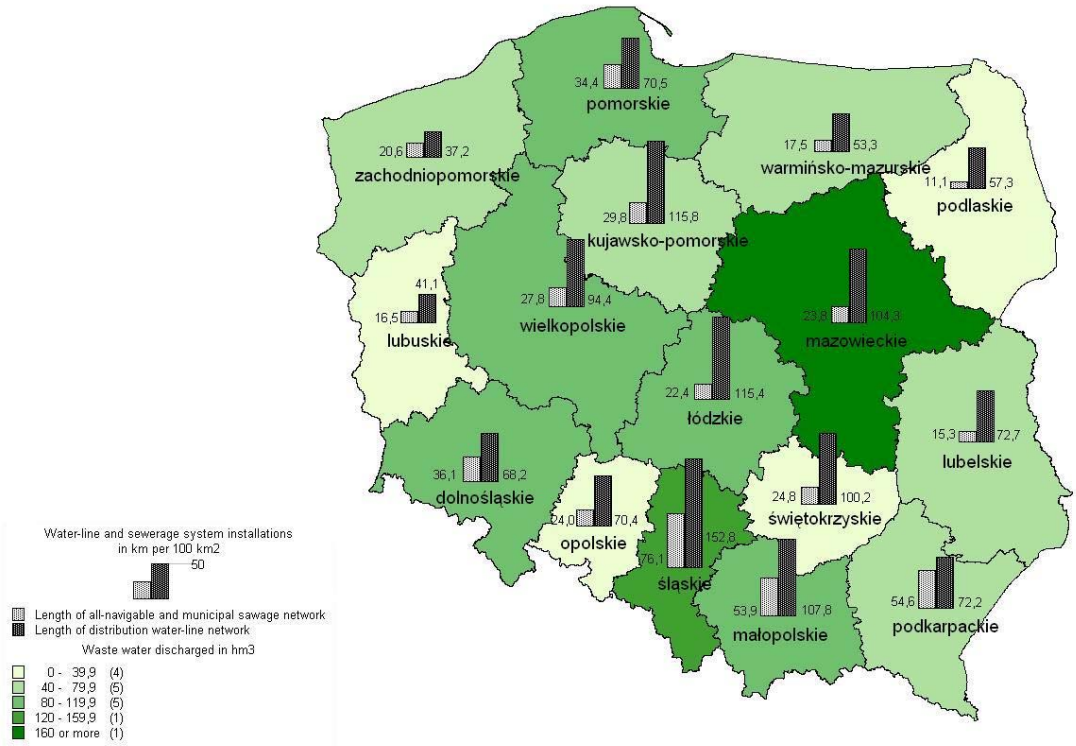


[1] See graph 1 „Dynamics of increase of the water-line by voivodships in 2007".

The way of using water is illustrated by the indicator of water consumption per one inhabitant (see map “Water consumption by voivodships in 2007”) [2]. The value of this indicator in urban areas ranged from 42,4 m^3 in Mazowieckieto 30,3 m^3 in Podlaskie voivodship, whereas in rural areas from 34,3 m^3 in Wielkopolskieto 14,4 m^3 in Małopolskie voivodship.

The length of **sewerage system** amounted to about 90 thous. km and rose by about 5 % in relation to the previous year (i.e. by about 5 thous. km). The largest congestion of sewerage network [in km per 100 km^2] according to territorial division occurs in: Śląskie (76,1), Podkarpackie (54,6), Małopolskie (53,9) and Dolnośląskie (36,1) voivodships.

Waste water discharged by voivoidships in 2007



In rural areas[3] about 3 thous. km of the new network were built- this is an increase by 8,1 % (by 1 thous. km , i.e. a 3,1 % increase in urban areas). The biggest share in the newly-built sewerage system [in km] occurred in Mazowieckie (383,2), Wielkopolskie (374,0) and Małopolskie (332,3) voivodships. As for the remaining voivodships, their share ranged below 326 km.

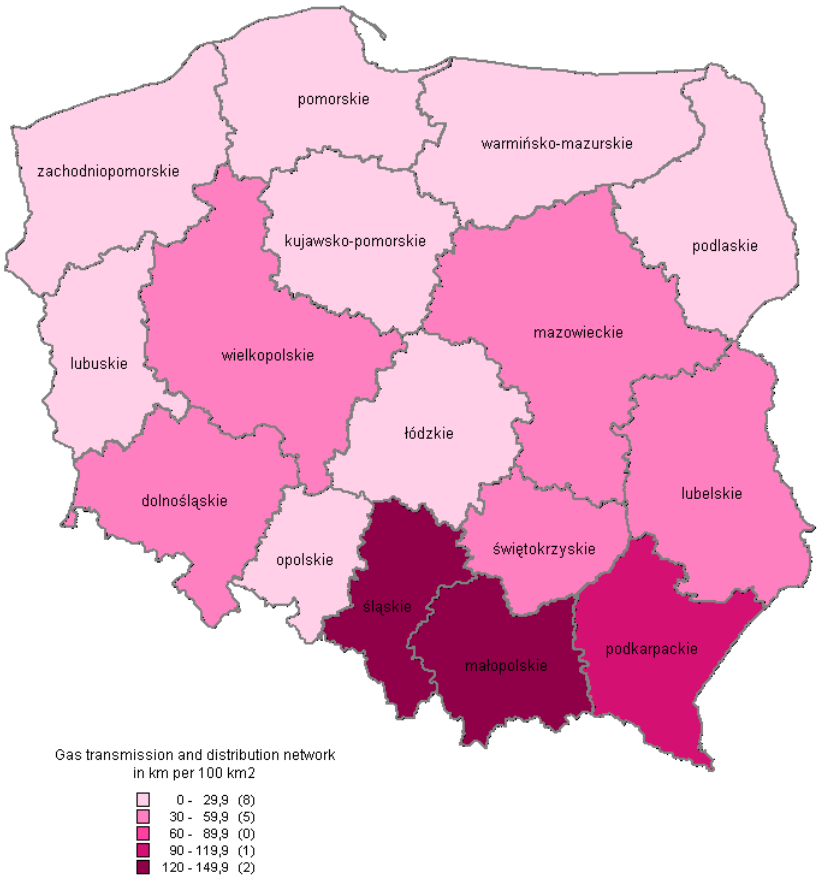
There are significant differences in the total amount of waste water discharged when it comes to particular voivodships[4]. These quantities ranged from about 206 hm^3 in Mazowieckie voivodship to about 28 hm^3 in Opolskie voivodship, along with an increase of

[2] See table 6 “Consumption of water from water-line system in households”.
[3] See graph 2 „ Dynamics of increase of the sewerage system by voivodships in 2007”.
[4] See table 8 „Sewerage system installations”.

the amount of discharged waste water in rural areas[5]. This results from rise in investment outlays on all - navigable sewage systems and systems discharging municipal waste water.

The length of **gas-line network** amounted to about 128 thous. km, of which 109 thous. km fell to the distribution gas network. The largest congestion of gas-line network [in km per 100 km^2] occurs within the areas of: Małopolskie (143,5), Śląskie (127,1) and Podkarpackie (101,8) voivodships, with the dominant position of urban areas where the aforementioned indicator reached a level of 248,1 km.

Gas infrastructure by voivodships in 2007

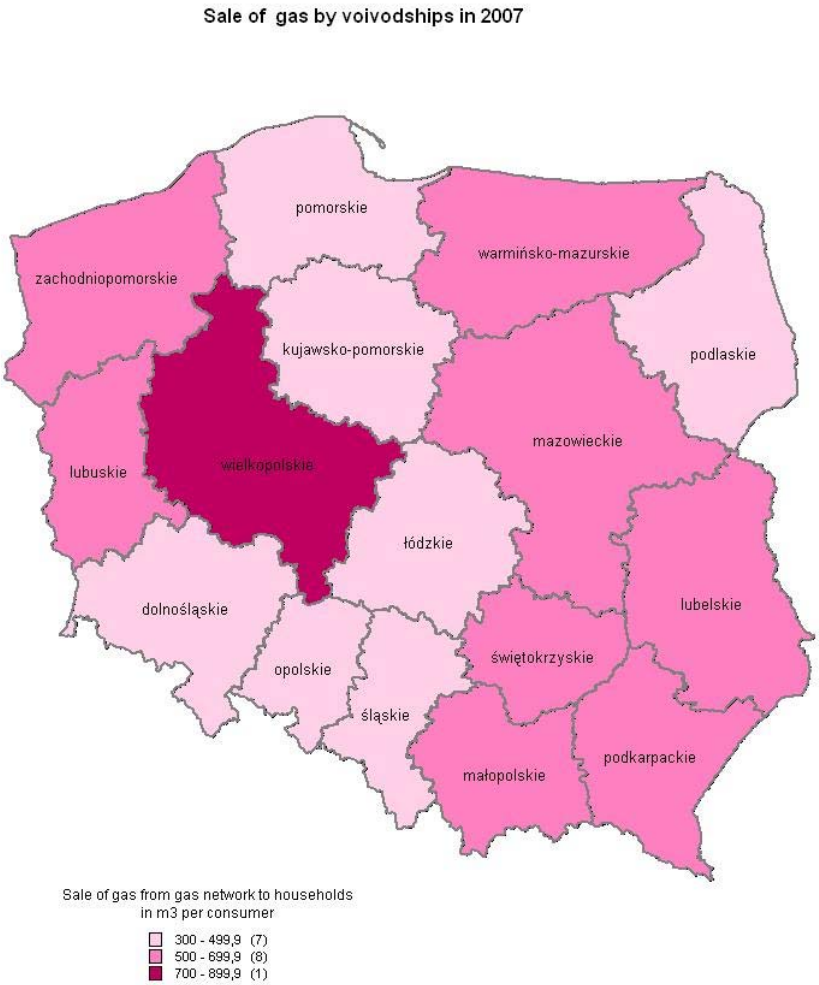


The highest increase in the length of gas distribution network [total, in km] in comparison to the previous year was in Wielkopolskie voivodship, an increase by about 380 km. As for Podkarpackie and Podlaskie voividships the increase was below 50 km.

[5] See graph 3 „Dynamics the quantity of waste water discharged by voivodships in 2007".

In 2007 the rate of infrastructural development has been higher in urban areas - the dynamics is equal to 102,2 % (by 101,9 % in rural areas). There was an increase in percentage of the total rural population using gas from 18,3 % (in 2006) to 18,5 %. The dynamics by territorial layout is presented on the graph 4[6].

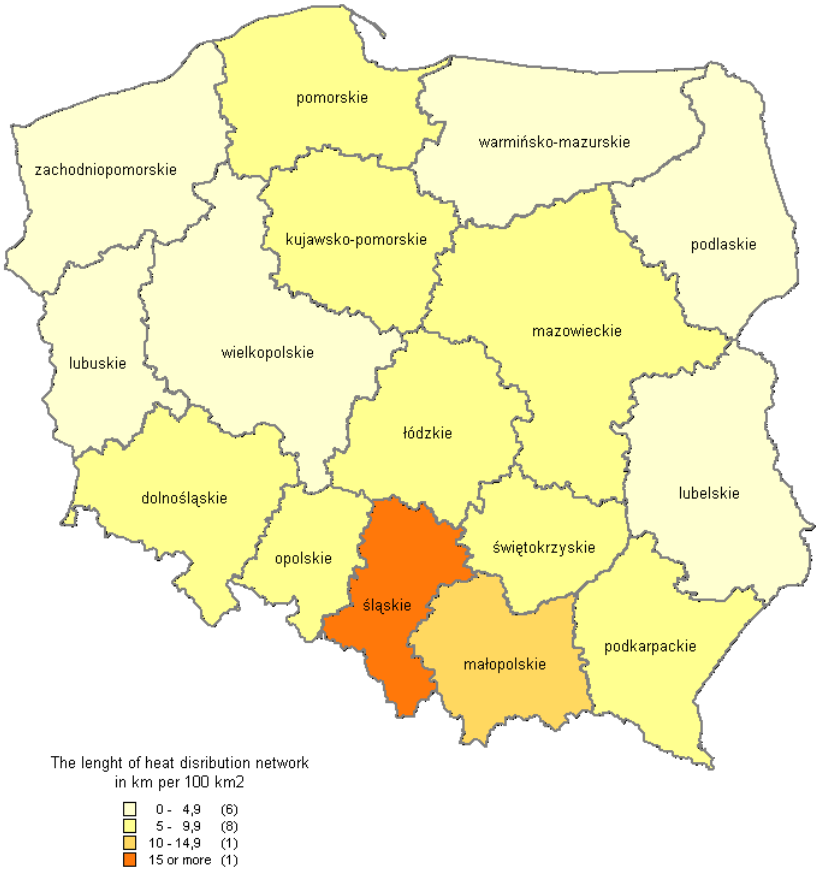
The biggest share in the sales of gas from gas-network [in m^3] to households (per one recipient) was noted in: Wielkopolskie (838,5) whereas the lowest in Łódzkie (343,3) voivodship.



According the territorial division the largest congestion of **heat network** [in km per 100 km^2] occurred in the following voivodships: Śląskie (27,6) and Małopolskie (11,7). As for the remaining voivodships, their share ranged below 10 km na 100 km^2.

[6] See graph 4 „Dynamics of increase of gas-line network (distribution) by voivodships in 2007"

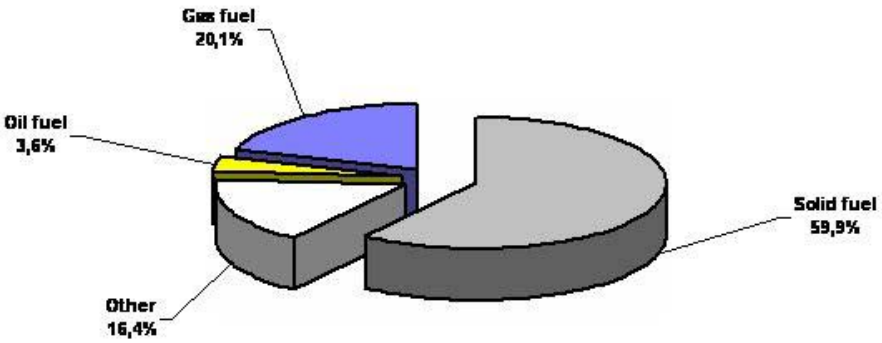
Heat distribution network in km by voivodships in 2007



During the year the total sales of heat energy were about 203 932 TJ, of which the sales of heat energy for the housing heating needs were about 171 457 TJ. This allowed to provide heating to buildings with a total cubic capacity of about 1 772 690 thous m^3.

The share of used fuel at the annual production of heat energy is presented on the circular chart.

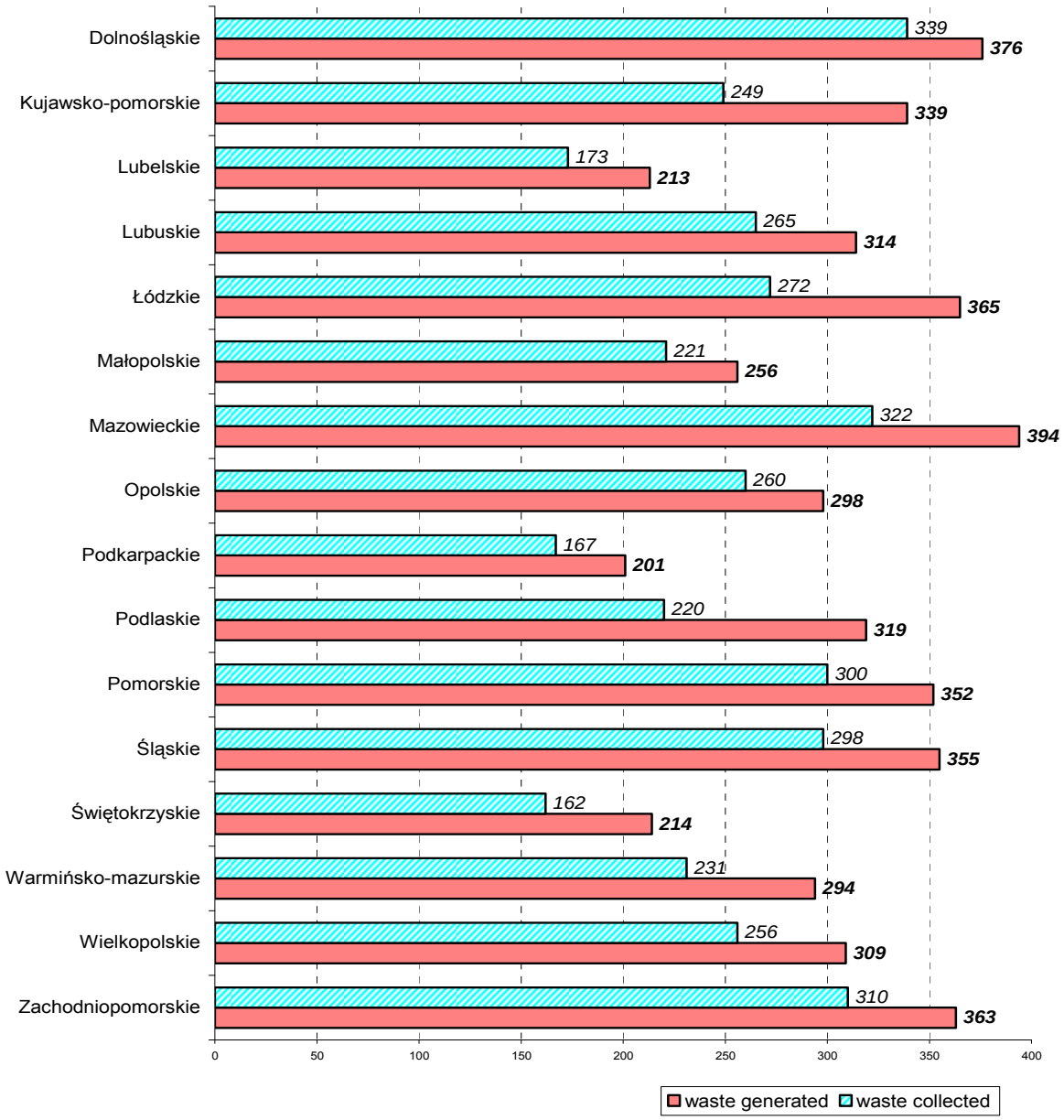
The share of used fuel by type at the annual production of heat energy in 2007



About 10 082,6 thous. tonnes of municipal waste were collected in Poland in 2007, a 2,1 per cent increase from the 9 876,6 thous. tonnes collected in 2006[7].

In the year 2007 about 265 kilograms of municipal waste was collected per resident[8]. For areas not covered by a municipal waste scheme an estimation has been made of the amount of waste generated. The estimation shows the amount of municipal waste generated in Poland to be considerably higher – about 322 kilograms per resident[9].

Municipal waste collected and generated per 1 inhabitant in 2007 [kg]



About 56,9 per cent of municipal waste in 2007 was collected by private refuse collectors (55,7 per cent in 2006) and remaining 43,1 per cent through schemes run by the public sector (44,3 per cent in 2006).

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[7] See map "Municipal waste collected in 2007 by voivodships".
[8] See map "Municipal waste collected in 2007 per 1 inhabitant
[9] See figure „Municipal waste collected and generated per 1 inhabitant in 2007".

In 2007 the majority (about 70 per cent) of mixed municipal waste was collected from private households. The next largest source (about 24,5 per cent) was waste collected from commerce, small business, offices and institutions. Waste from municipal services, such as street cleaning or maintenance of parks or cemeteries, accounted for 5,5 per cent of the total arisings. In the previous year it was 70 per cent, 24 per cent and 6 per cent respectively.

The proportion of municipal waste being landfilled fell from 91 per cent in 2006 to 90,2 per cent in 2007. However the actual tonnage of waste being disposed of in this way increased from 8 986,5 thous. tonnes in 2006 to 9 098,4 thous. tonnes in 2007. At the end of the year 2007 there were 929 operating controlled landfill sites occupying about 3086 ha.

The decomposition of biomass on landfill sites releases landfill gas, which is one of the largest sources of methane emissions to the atmosphere. Released methane is both a potent greenhouse gas and a danger underground – potentially migrating off site do nearby buildings and creating an explosive atmosphere. It has to be dealt with to prevent both its emissions and its danger to the surrounding property. However, the vast majority (78 per cent) of 304 controlled landfill sites with degassing installations in Poland are those with landfill gas escaping to the atmosphere. Other 19 per cent are landfills where the collected gas is used to produce renewable energy (thermal or electrical) and 3 per cent are those where captured landfill gas is flared without energy recovery (converting the methane to carbon dioxide).

Increasing number of instances of uncontrolled landfilling of municipal waste is still a major problem of waste management in Poland as these dealings cause damage to the environment and affects the aesthetic appeal of an area. At the end of the year 2007 in Poland there was 2828 uncontrolled dumping sites, a 12,7 per cent increase from the previous year[10]. Illegal dumping of waste occurred in both urban and rural areas. At the end of 2007 about 70,4 per cent of existing uncontrolled dumping sites was located in rural areas whereas about 29,6 per cent in urban areas. In 2006 it was 73,2 per cent and 26,8 per cent respectively. The number of uncontrolled dumping sites in urban areas has increased by 24,5 per cent and in rural areas by 8,4 per cent since 2006. The types of land most commonly affected by uncontrolled dumping of waste include land near to waste management facilities, derelict land, roadsides, back alleys, private land (particularly on the outskirts of urban areas) and watercourses. During the year 2007 about 7191 of uncontrolled dumping sites was removed, from which 5940 (82,6 per cent) in urban and 1251 (17,4 per cent) in rural areas.

In 2007 around 41,0 thous. tonnes of waste were incinerated in 2007, which was 9,4 per cent less than in 2006. However, as the proportion of all waste, the amount being incinerated has remained roughly constant at just under 1 per cent.

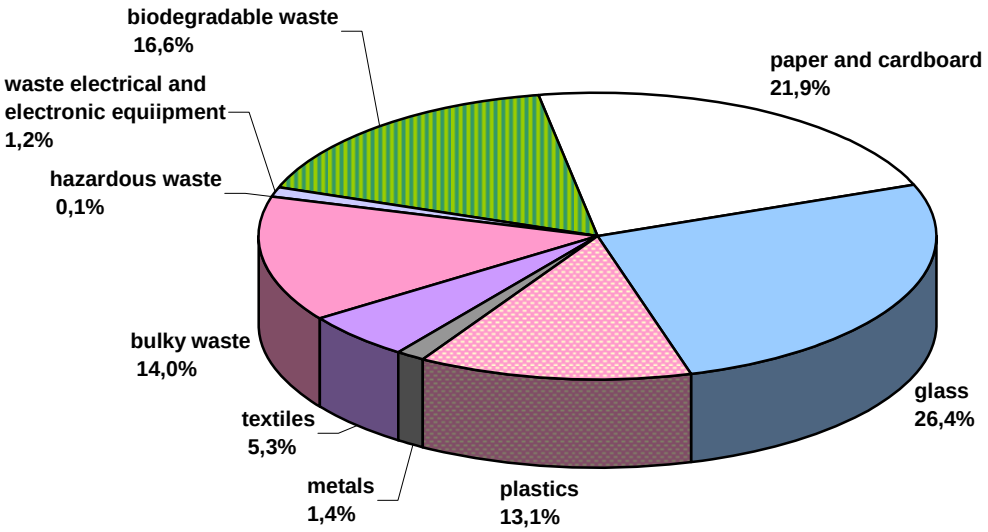
In 2007 about 362,8 thous. tonnes were composted. It was mainly green wastes from gardens, parks and cemeteries, compostable wastes from markets, biodegradable wastes from kitchens and canteens. Compared with 2006, the proportion of municipal waste being composted has remained at 3,6 per cent.

[10] See map “Uncontrolled landfill sites in 2007”.

In 2007 separate collection of municipal waste was provided in 2166 gminas, however biodegradable waste was collected only in 252 gminas. In 312 gminas separate collection was not organized.

The municipal waste recycling rate increased from 4,1 per cent in 2006 to 5,1 per cent in 2007. The total tonnage of materials collected for recycling has increased from around 403,4 thous. tonnes in 2006 to around 513,0 thous. tonnes in 2007. Around 152,6 thous. tonnes of waste for recycling were sorted out from mixed municipal waste, a 5,8 per cent increase from the 144,3 thous. tonnes in the previous year.

Municipal waste collected separately in the year 2007 [%]

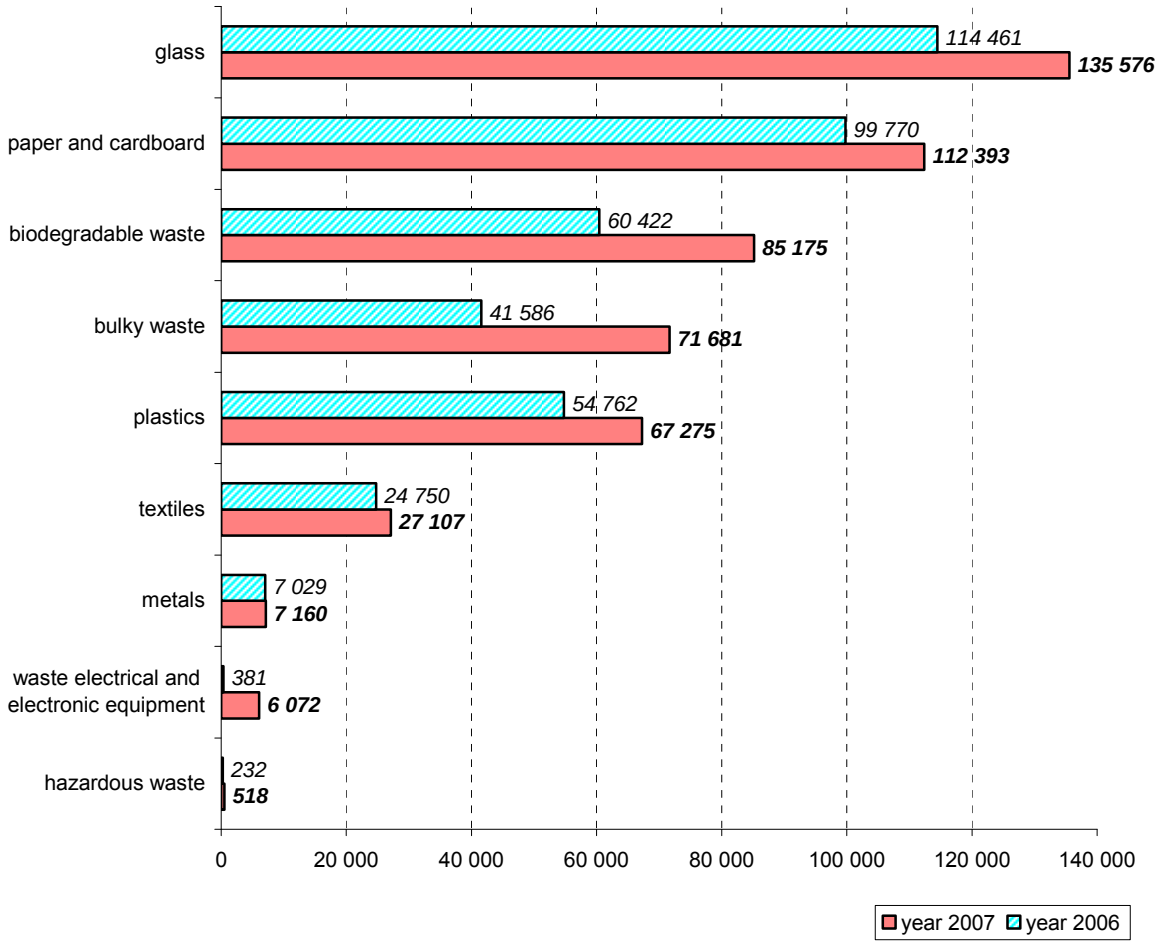


Total amount of glass collected for recycling was 135,6 thous. tonnes (28,4 per cent of the total)[11]. However, the amount of paper and cardboard collected separately increased to 112,4 thous. tonnes (21,9 per cent). The amount of collected separately biodegradable waste was 85,2 thous. tonnes (16,6 per cent), and plastics 67,3 thous. tonnes (13,1 per cent). Considering the most commonly recycled materials, the amount of glass collected for recycling increased by 18,4 per cent since 2006, the amount of paper increased by 12,7 per cent and plastics by 22,9 per cent.

The 7,2 thous. tonnes of metal waste collected in 2007 was an increase of 1,9 per cent of the 7,0 thous. tonnes collected in 2006. Although this account for a small proportion by weight (1,4 per cent) of the total amount of waste collected separately for recycyling, there are particularly strong benefits in recycling them (like reduction of usage of energy resources).

[11] See figures “Municipal waste collected separately in the years 2006 and 2007 [tones]” and “Municipal waste collected separately in 2007 [%]”.

Municipal waste collected separately in the years 2006 and 2007 [t]



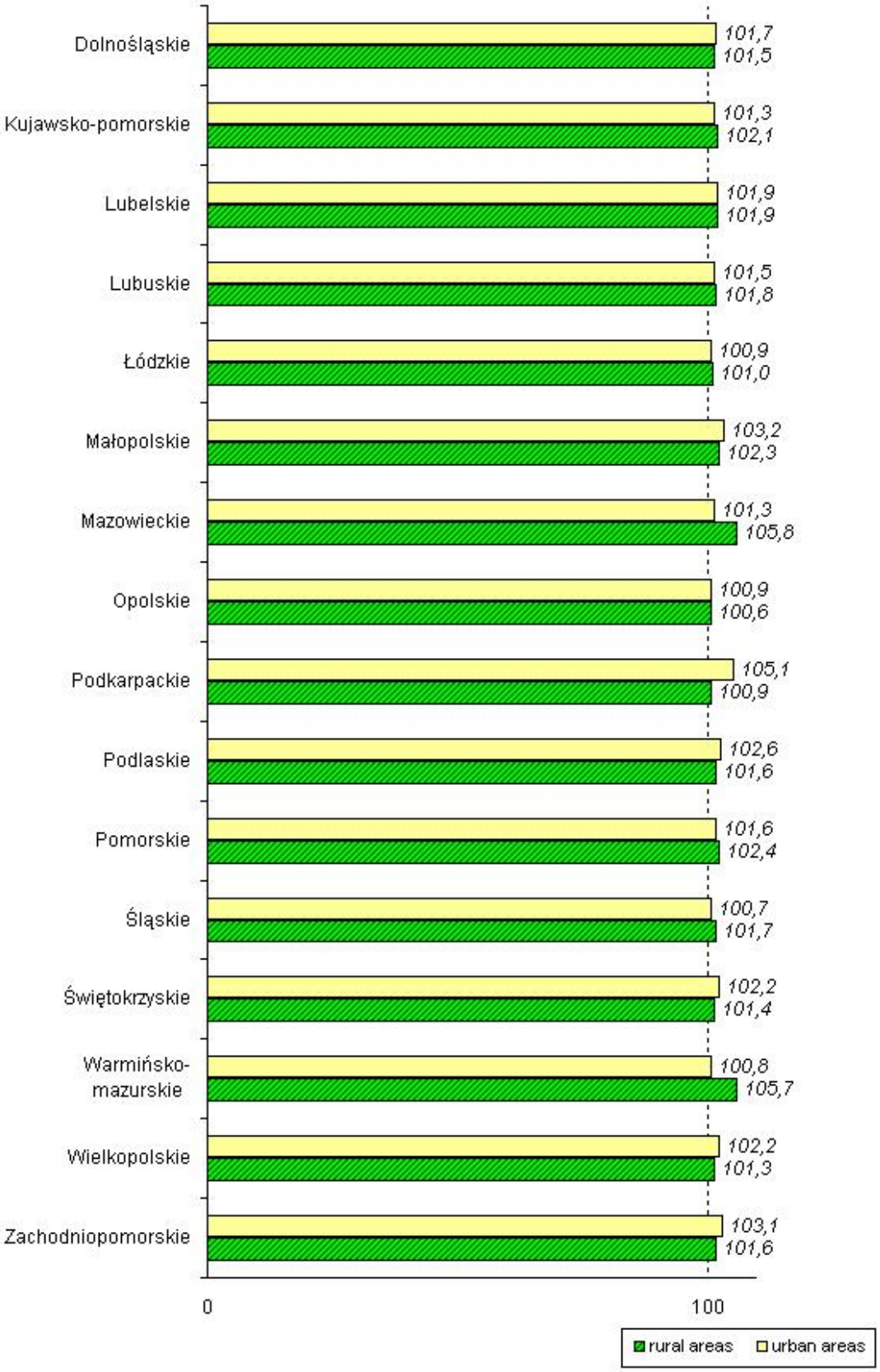
As not all settled areas have been connected to the sewage network yet it means that sewage is discharged into on-site wastewater disposal systems (septic tanks or on-site wastewater treatment facilities). The number of septic tanks, in which liquid municipal waste is temporarily stored, dropped from about 2453,3 thous. to 2444 thous. in the year 2007. The number of wastewater treatment sites adjacent to homestead has risen by 19 per cent from about 35,2 thous. in the year 2006 to 41,9 thous. (by 19%).

In 2007 about 19,6 thous. dam^3 of liquid municipal waste was collected, a 5,6 per cent increase from 2006. About 60 per cent of collected liquid waste originated from private households, 30 per cent from buildings of units running businesses and remaining 10 per cent from public buildings. In 2006 it was 60 per cent, 29 per cent and 11 per cent respectively.

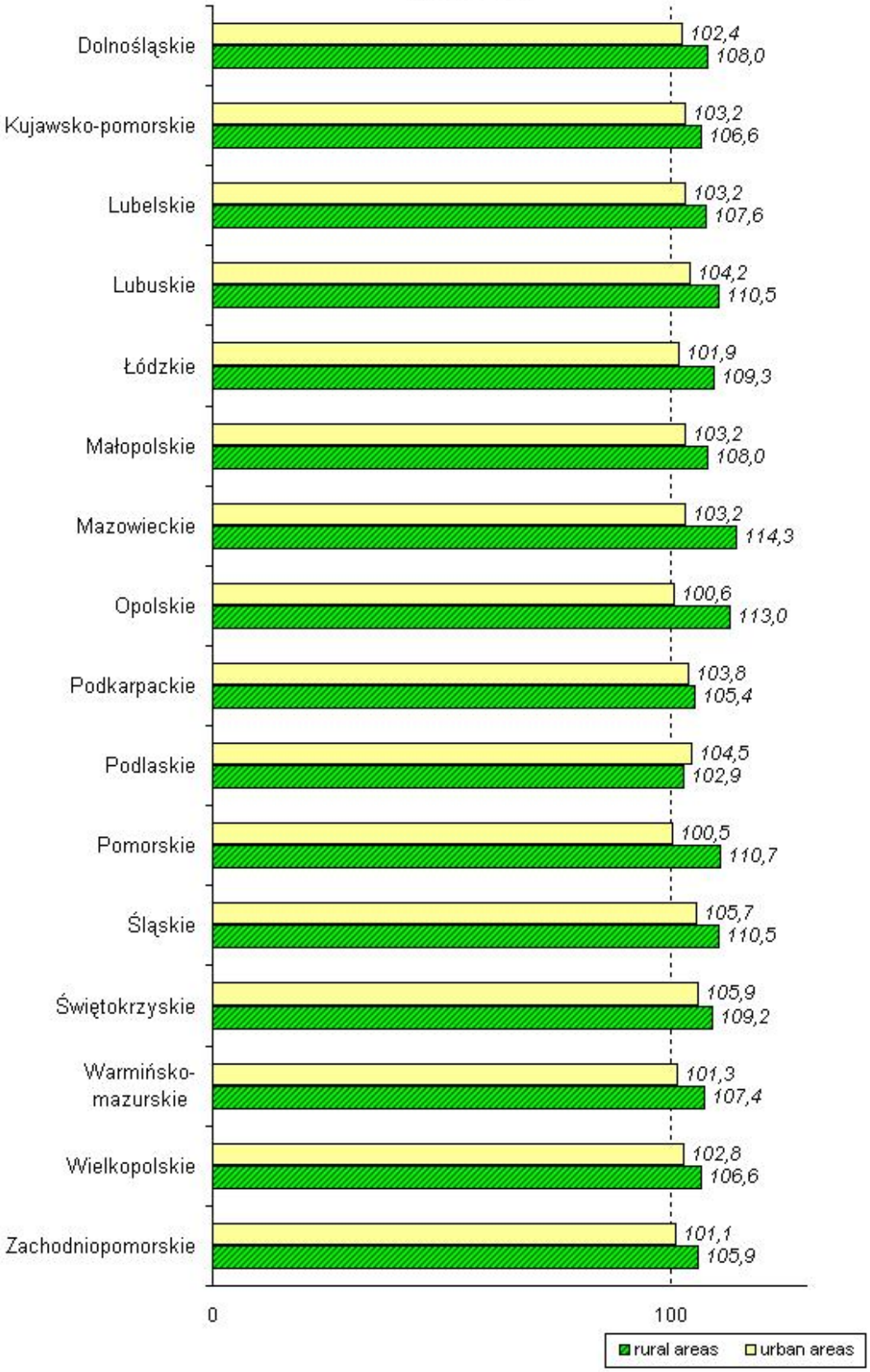
The number of dump stations, receiving sewage from septic tanks' users, was 2056 compared with 2031 in the previous year.

Graphs and maps

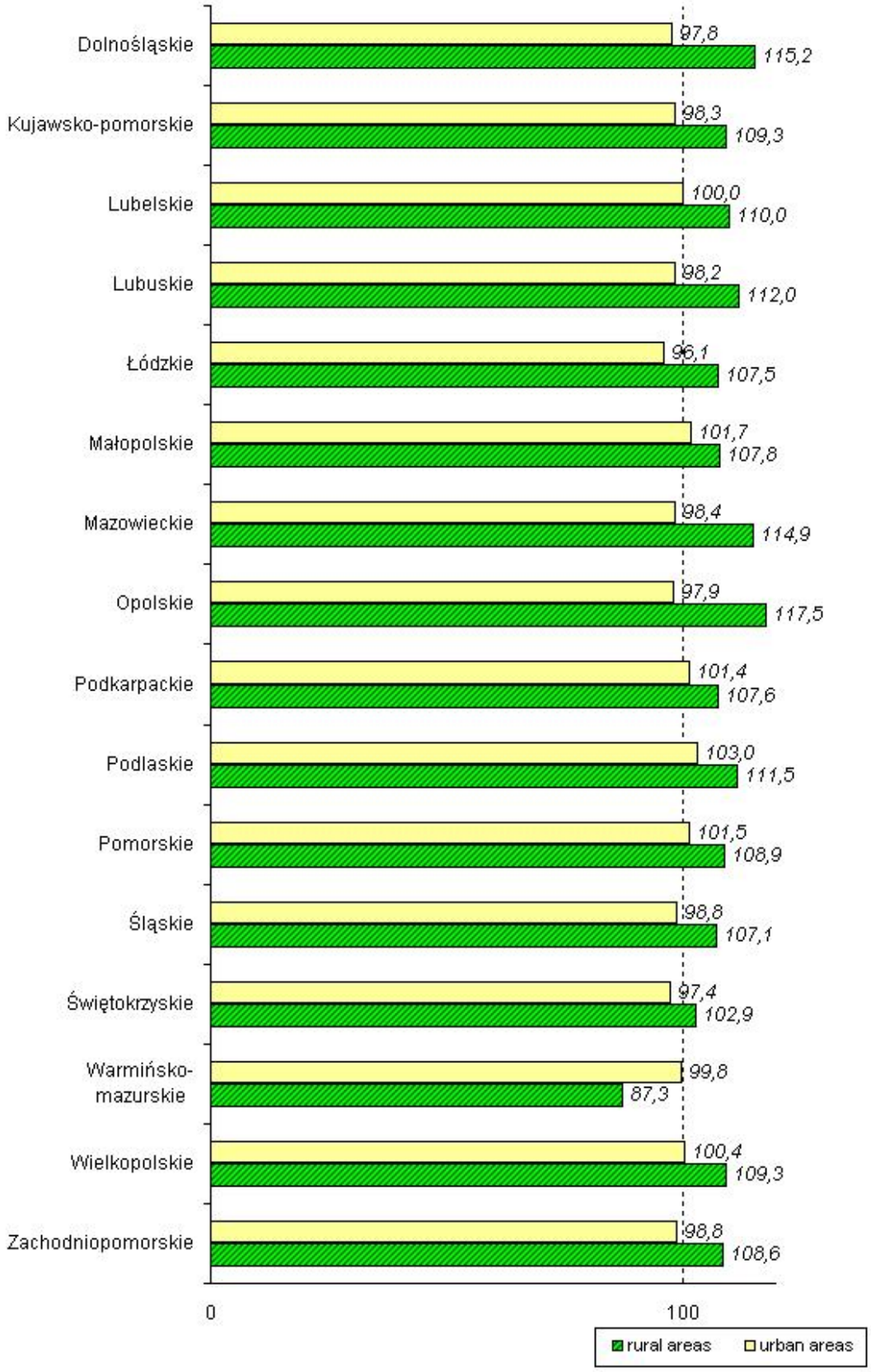
Dynamics of increase of the water-line by voivodships in 2007 [2006=100] **Graph 1**



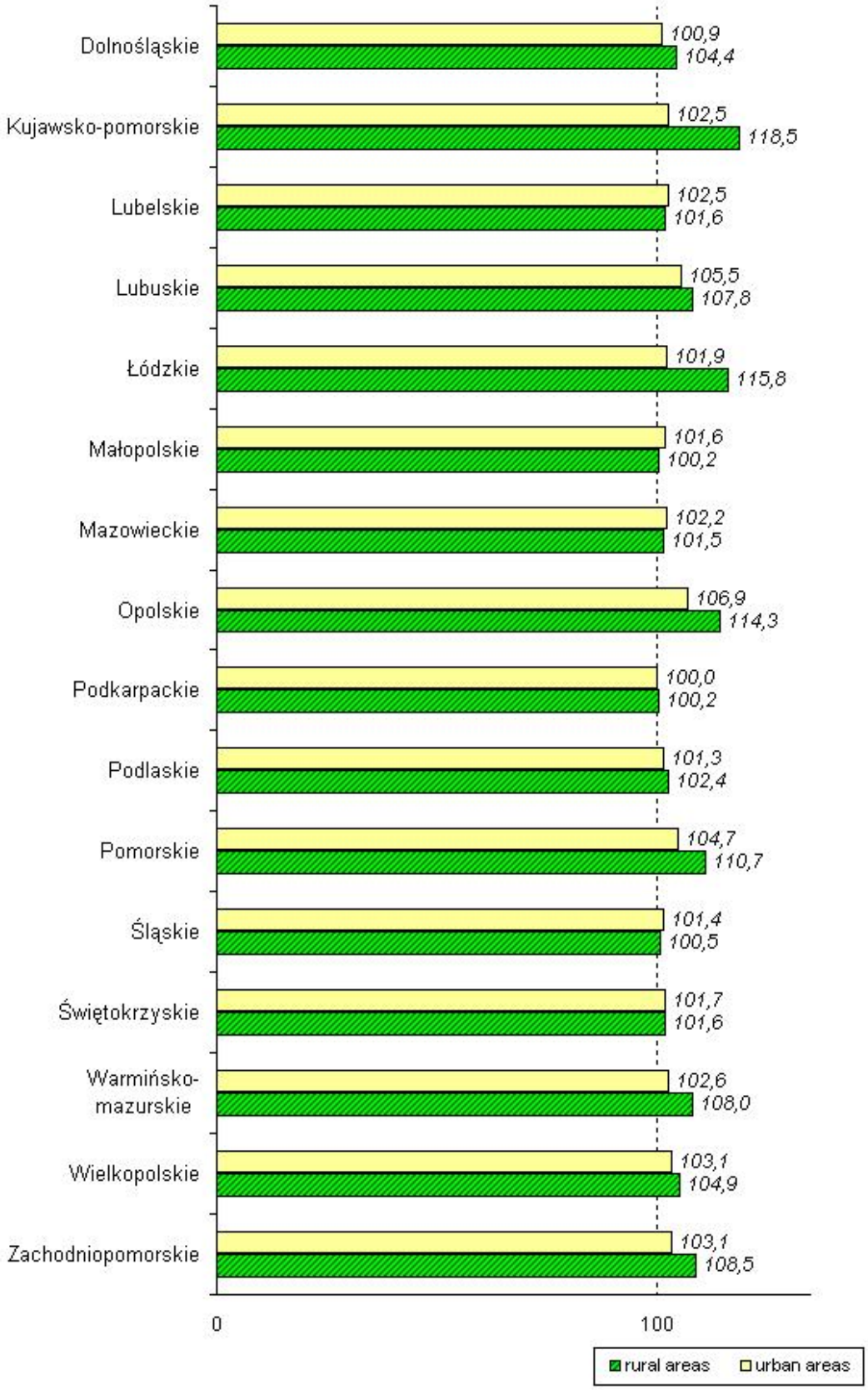
Dynamics of increase of the sewerage system Graph 2
by voivodships in 2007
[2006=100]



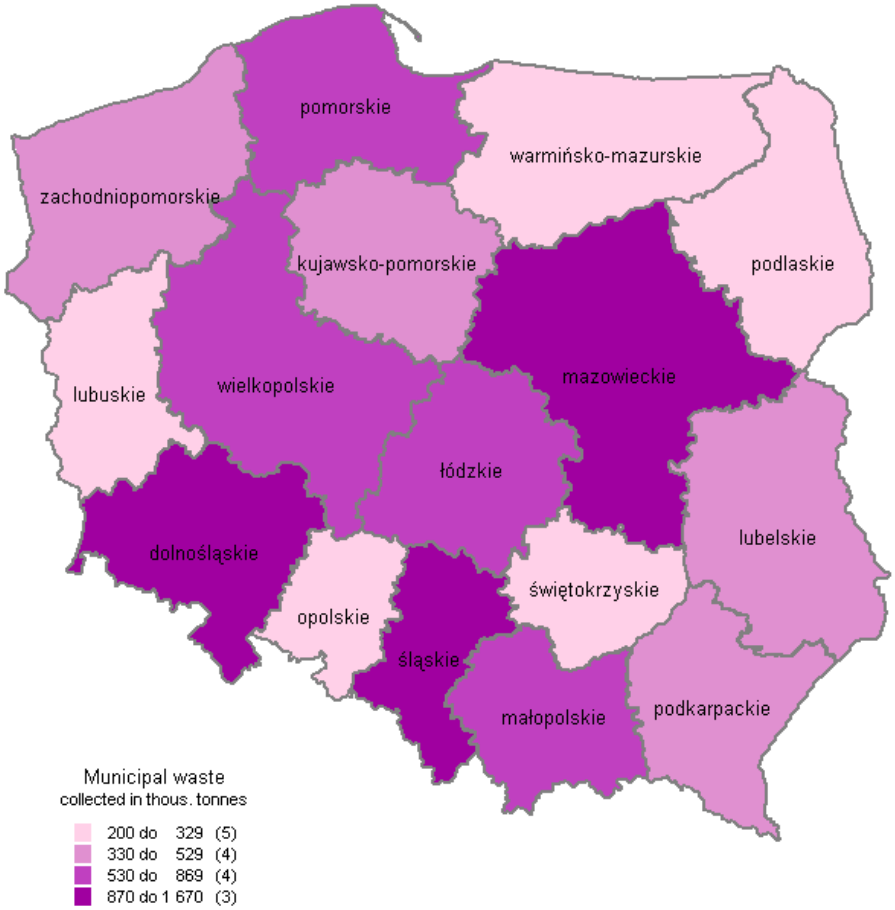
Dynamics of the quantities of waste water discharged by voivodships in 2007 [2006=100] Graph 3



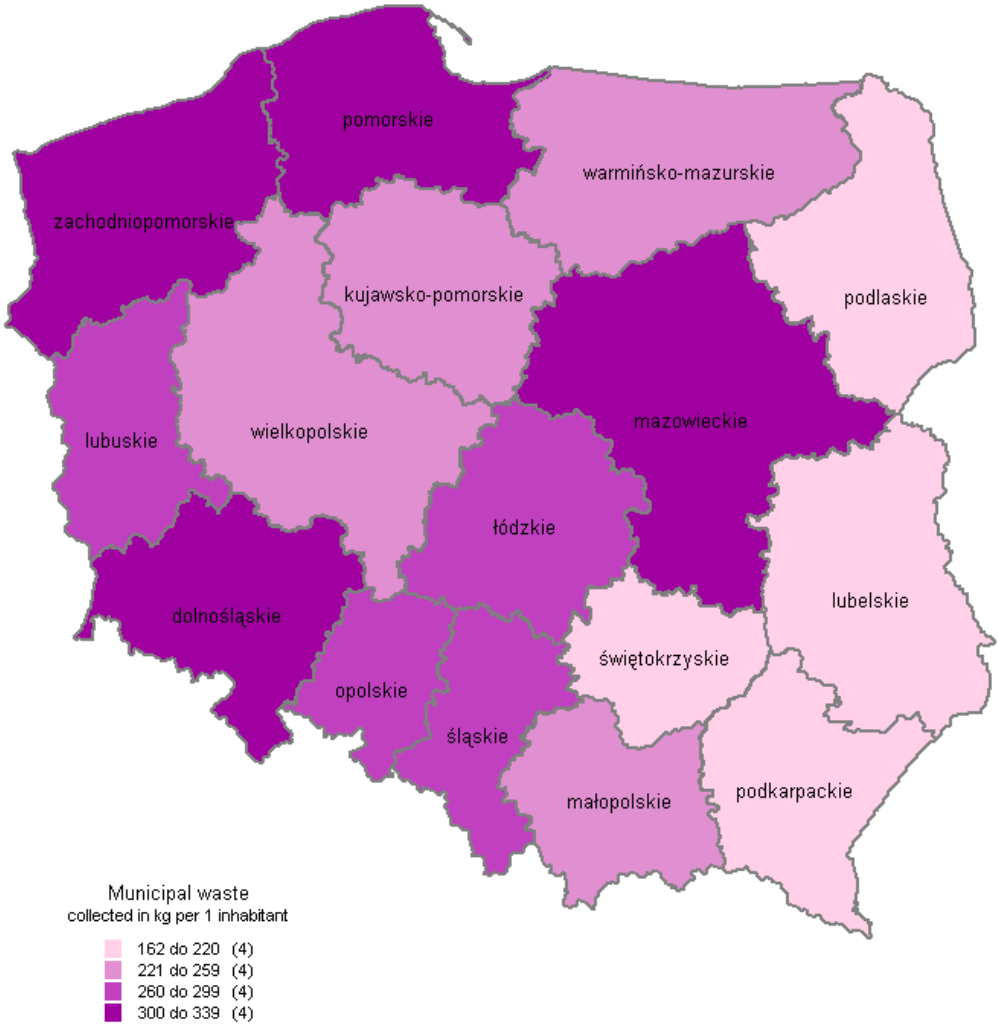
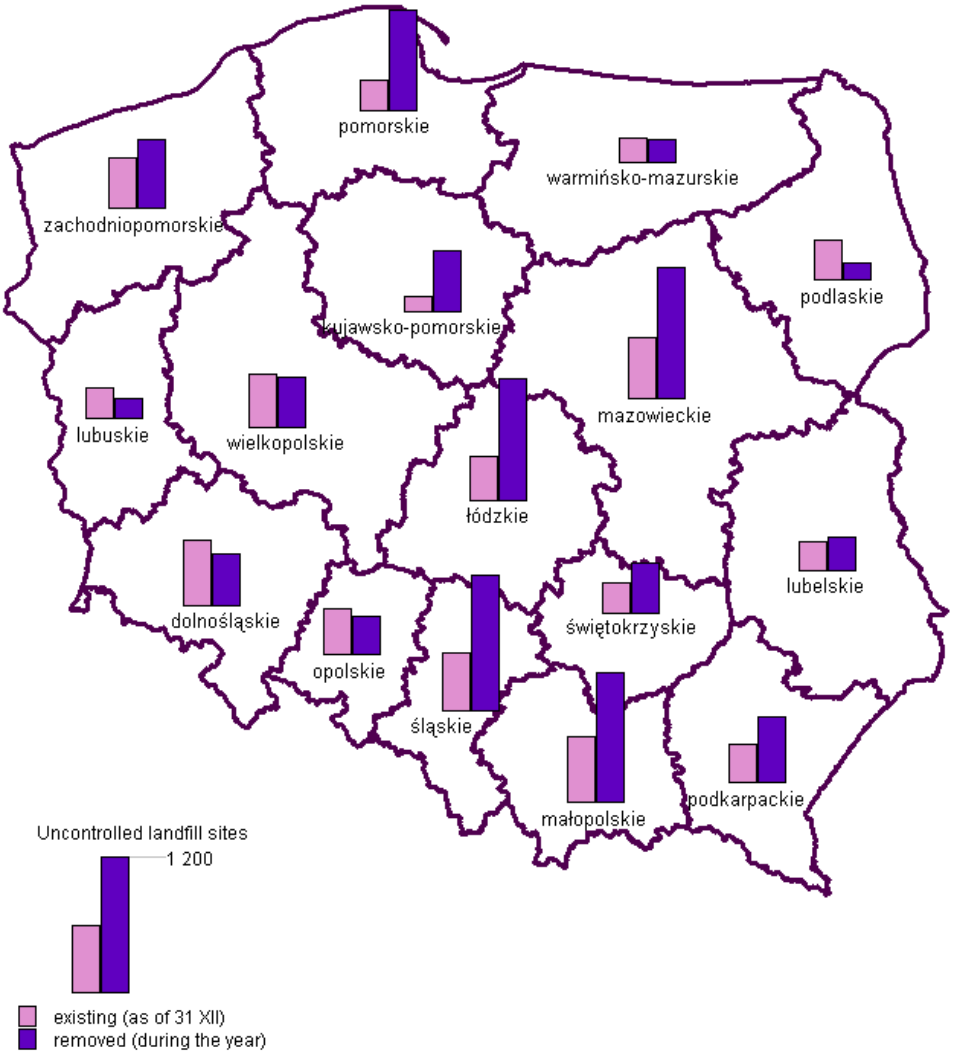
Dynamics of increase of gas-line network (distribution) Graph 4
by voivodships in 2007
[2006=100]



Municipal waste collected in 2007 by voivodships



Municipal waste collected in 2007 per 1 inhabitant



Uncontrolled landfill sites in 2007