CENTRAL STATISTICAL OFFICE

MUNICIPAL INFRASTRUCTURE IN 2013

WARSAW 2014

STATISTICAL INFORMATION AND ELABORATIONS

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PREFACE

The present publication is a consecutive edition of "Municipal Infrastructure". It aims at presenting recipients with the characteristics of municipal services market in Poland in 2013 and tendencies of changes taking place in surveyed area of activity.

The elaboration includes information on installations and municipal services in the scope of water supply and sewage 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 regarding the location of facilities or the place of rendering municipal services and are presented for Poland as a total and with the breakdown into voivodships, and urban and rural areas.

The publication uses the results of compilations, got from statistical reports completed by entities, which scope of economic activities includes supplying of water to households, and discharging wastewater from them as well as collecting of municipal waste and liquid waste, treating and recycling of municipal waste, or distributing of electricity, heat energy, and gas from gas-line network.

The authors will be grateful to all people and institutions for sending their comments, which will shape and enhance the content of next editions of the publication.

Director
of Trade and Services Department
Ewa Adach-Stankiewicz

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Warsaw, October 2014

CONTENTS

SYMBOLS

"–"	– magnitude zero.
"0"	– magnitude not zero, but less than 0.5 unit.
"x"	– not applicable.
"of which"	– indicates that not all elements of the sum are given.

ABBREVIATIONS

thous.	thousand
mln	million
m	metre
m^2	square metre
m^3	cubic metre
hm^3	cubic hectometre
km	kilometre
km^2	square kilometre
ha	hectare
dam^3	cubic decametre
kWh	kilowatt-hour
MWh	megawatt-hour
GWh	gigawatt-hour
J	joule
kJ	kilojoule
GJ	gigajoule
TJ	terajoule
cont.	continued
pc	piece

1. METHODOLOGICAL REMARKS

Sources of information on municipal infrastructure in 2013 are results of statistical surveys carried out on forms M-06, M-09, and SG-01 part 3 as well as the secondary use of data from the survey on balance of energy carriers and heating infrastructure, and data coming from internal information systems of the Energy Market Agency S.A.

Data on water supply and sewage system management are collected within the full survey, which comprises units with a primary, secondary or ancillary activity in management of water supply and sewage systems or liquid waste collection.

Data on energy management cover units which were granted concessions for transmission and distribution of fuels and energy. Information on the number of consumers and consumption of electricity concern households and collective accommodation places that pay bills for consumption of electricity according to rates of “households” tariff group. Data on consumption of electricity are presented on the basis of information on advanced payments made by consumers.

Data regarding number of consumers of gas fuels come from entities which have concessions for gas trade, and are based on number of contracts with consumers of gas from gas supply network.

Information on heating include residential, and office and institutional buildings with central heating provided by transmission thermic-line considered as the system of joint installations, co--operating with each other, used for transmition and distribution of heating medium to recipients. Information regarding the boiler-houses or boiler-rooms cover 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, and installed facilities protecting atmosphere (limiting emission of pollutants to atmosphere).

Survey providing information about municipal waste is conducted as a full survey and includes entities operating in the field of collection and treatment of municipal waste. Results include: amount of waste collected (from households, from trade, small business, offices and institutions, and from municipal services) and amount of waste designated for recovery and disposal operations. Moreover, data on the quantities of waste generated has been prepared on the basis of reporting, TERYT register, dwelling stock balance, and population balance. Information about the quantity of municipal waste generated comprise of data on waste collected and waste not collected. The basis for calculations of the quantity of municipal waste collected was number of residential buildings covered by municipal waste collection. Data on the amount of waste not collected has been estimated for the first half of 2013 due to changes in the waste management

system and covering by the municipalities from 1.07.2013 all real estate owners by the municipal waste management system. The reform of the municipal waste management system was introduced in 2011 with the amendment to the Act on maintaining cleanliness and order in municipalities. The responsibility for the municipal waste management rests with municipalities and involves a necessity to select units collecting municipal waste from real estate owners in accordance with the public procurement law.

For computing data per 1 inhabitant (1,000 population, etc.) as of the end of a year (e.g., population using municipal installations), population as of 31 XII was used, whereas data describing the magnitude of a phenomenon within a year (e.g., consumption) as of 30 VI.

2. 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 supply and sewage management, heating management as well as distribution of fuels and energy to households, and municipal waste management.

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

Water supply system – a set of water network devices serving collection of surface and underground waters, public wells, devices serving storage and treatment of water, water supply networks, and water pressure control devices.

Water supply transmission network – conduits bringing water from distant water intakes to distribution line.

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

Water supply service line – a segment of a conduit connecting water supply network with internal water supply installation in a property of consumer together with a valve past the main water-meter.

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

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

Water delivered for production purposes is 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 lavatories, bathrooms, dining-rooms, canteens, day-rooms, and office buildings which are located within the plant).

Sewage system is a complete sewage collection system serving discharging of wastewater, including sewage network, outlets of devices used to emit sludge into the waters, or into the ground, sewage pretreatment and treatment facilities, and sewage pumping stations.

Active sewage network – a system of covered (underground) conduits discharging sewage from buildings and other objects to collectors or sewage treatment facilities.

Sewage service line – a segment of conduit connecting internal sewage installations in a property of the services consumer with the sewage network after a first inspection chamber from a side of a building, and in case of its lack – from a boundary of a property.

Wastewater discharged – household wastewater or a mixture of household wastewater with rainfall wastewater or a mixture of household wastewater with industrial wastewater and rainfall wastewater.

Septic tank – an installation and device intended for an accumulation of liquid waste where it is generated.

Liquid waste – sewage stored temporarily in septic tanks.

Cast station – an installation and device, placed near a sewer or a wastewater treatment plant, intended for collecting of liquid waste, transported by sewage disposal vehicles from where it was accumulated.

Gas supply 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;
- service line – a system of conduits joining distribution gas-line system with buildings and other objects.

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

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

Biodegradable waste – waste capable of undergoing anaerobic or aerobic decomposition.

Treatment of waste – 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.

Landfill site – a structure for the deposit of waste.

Thermal waste treatment – incineration of waste by oxidation and other processes of thermal treatment of waste including pyrolisis, gasification, and plasmic process provided that substances originating from these processes of thermal treatment of waste are incinerated afterwards.

Composting of waste – aerobic processing of municipal waste that are subject to biological decay in controlled conditions by using microorganisms in order to neutralize the waste.

Waste management – collection, transport, recovery and disposal of waste, including the supervision of such operations and after-care of disposal sites.

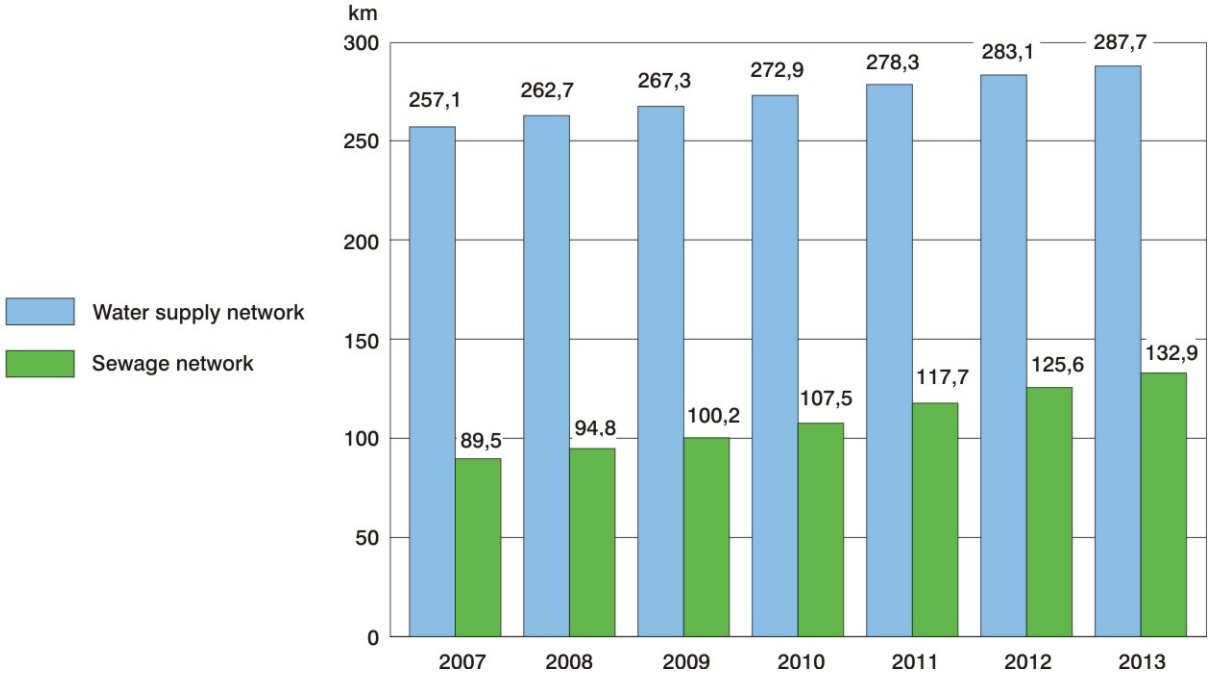
Waste collection – gathering, sorting or mixing of waste for the purpose of transport.

3. MUNICIPAL INFRASTRUCTURE IN 2013

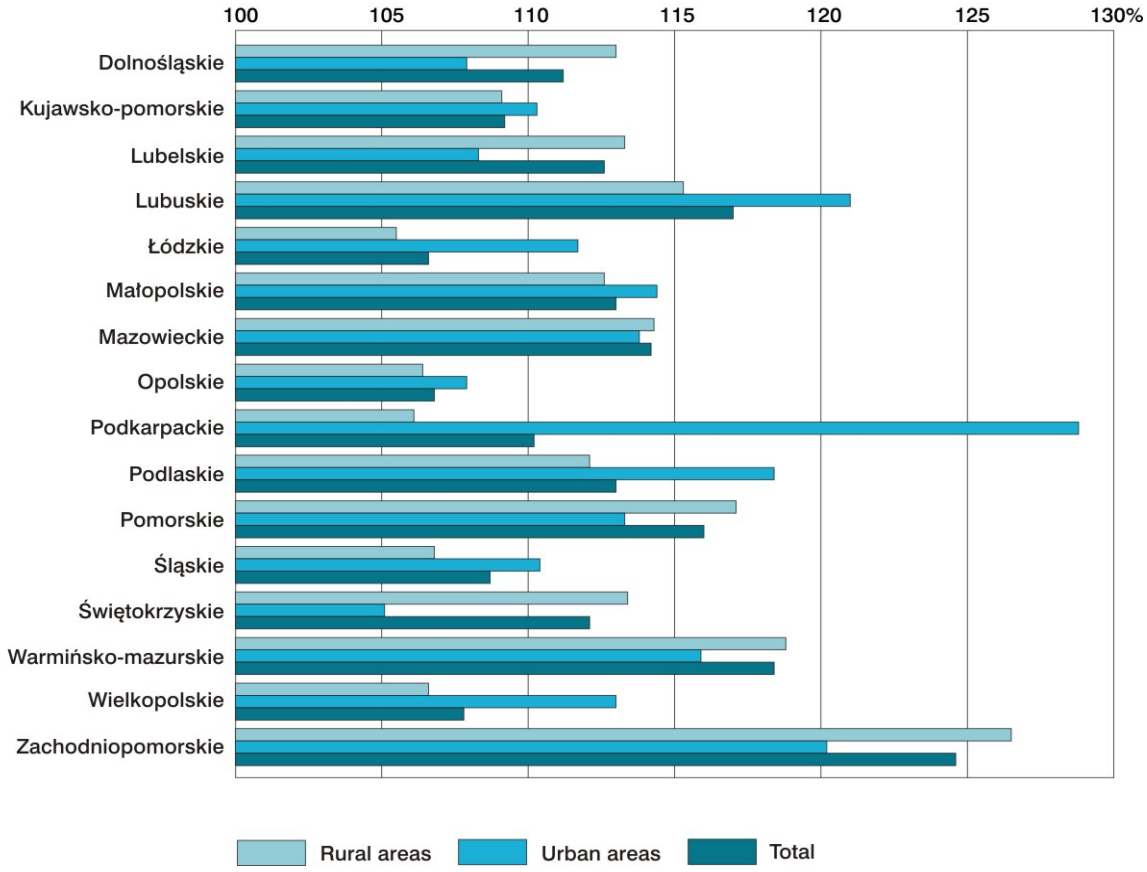
3.1. WATER SUPPLY SYSTEM AND SEWAGE SYSTEM MANAGEMENT

In Poland, throughout the last few years, a significant growth in the investments in the area of technical-sanitary infrastructure was observed. In the years 2007–2013, the length of water supply network increased by 30.6 thous. km, including more than 23 thous. km of networks built in rural areas. Number of connections increased by more than 650 thous., including approx. 418 thous. in rural areas. In the same period, the sewage network was extended by over 43.4 thous. km, including almost 32 thous. km of networks created in rural areas. It was reflected in more than 797 thous. pcs new sewage connections of which more than 465 thous. pcs were created in rural areas.

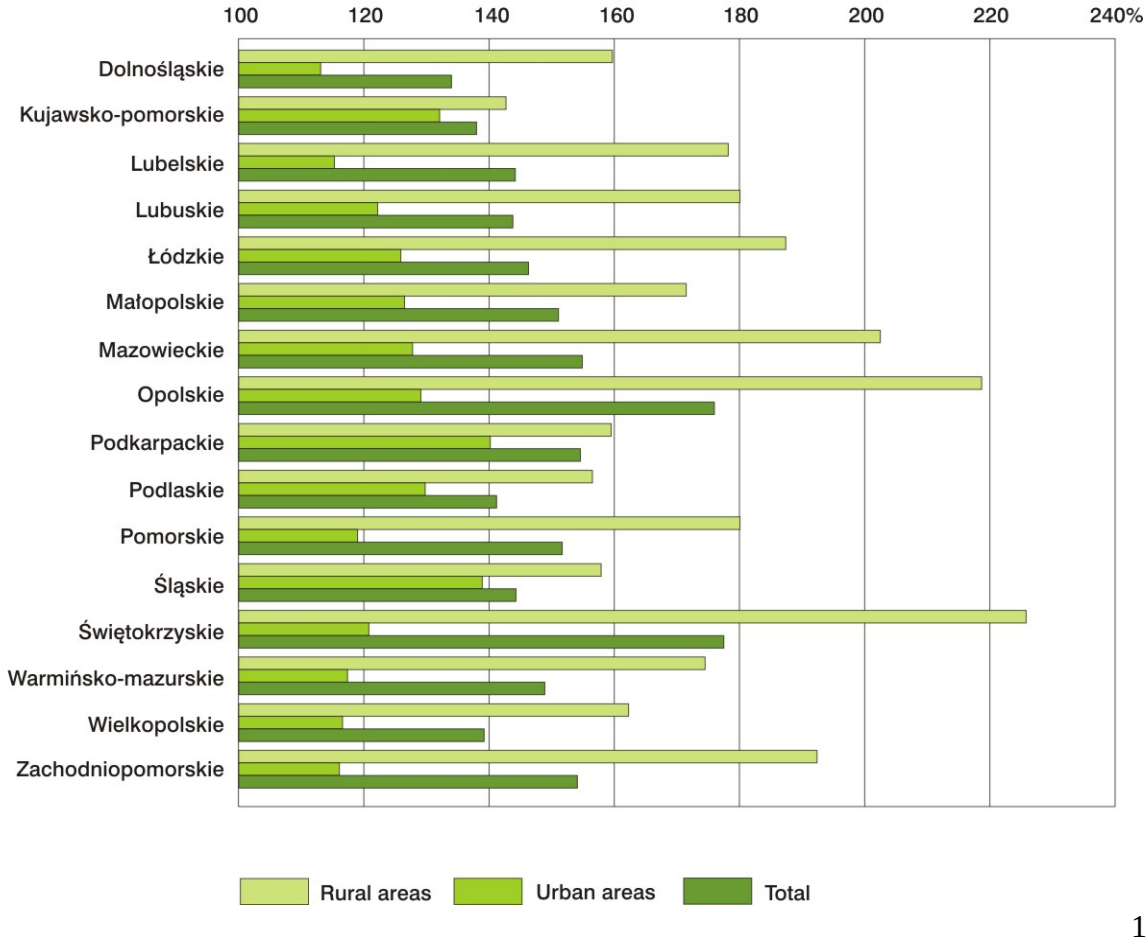
LENGTH OF WATER SUPPLY AND SEWAGE NETWORK IN 2007–2013



CHANGE IN LENGTH OF WATER SUPPLY NETWORK IN 2007–2013



CHANGE IN LENGTH OF SEWAGE NETWORK IN 2007–2013



In the years 2007–2013, the most significant growth in the length of water supply network was observed in urban areas in voivodships: podkarpackie – by almost 29%, lubuskie – by ca. 21% and zachodniopomorskie – by over 20%, and in rural areas in voivodships: zachodniopomorskie – by more than 26%, warmińsko-mazurskie – by almost 19% and pomorskie – by more than 17%.

On the other hand, the greatest growth in the length of the sewage network was observed in urban areas in voivodships: podkarpackie – by more than 40%, śląskie – by almost 39%, and kujawsko--pomorskie – by more than 32%. In rural areas, the most significant growth in the length of the sewage system was recorded in voivodships: świętokrzyskie – by almost 126%, opolskie – by almost 119%, mazowieckie – by more than 102%, zachodniopomorskie – by more than 92%, and łódzkie – by more than 87%.

In 2013, the length of **water supply network** in Poland reached almost 288 thous. and the number of connections – almost 5.2 million. In relation to 2012, the length of newly built or reconstructed water supply network increased by 4.5 thous. km with simultaneous growth in the number of connections to buildings by ca. 96 thous.

In 2013, almost 78% of the length of water supply network and ca. 62% of connections to buildings were located in rural areas. As compared with the previous year, the length of water supply network increased in urban areas by more than 1 thous. km and the number of connections by almost 34 thous. pcs. In rural areas, more than 3.5 thous. km of a new network came to exist, and the number of connections increased by ca. 62 thous. pcs.

In 2013, in relation to 2012, the greatest increase in the length of water supply network was recorded in voivodships: podkarpackie – by 3.2%, dolnośląskie – 3.0%, pomorskie, and małopolskie – 2.4% each, and the smallest in voivodships: kujawsko-pomorskie – 0.8%, and śląskie – 0.9%. The decisive effect on this growth was encouraged by investment projects in rural areas. And so, in rural areas in podkarpackie voivodship the length of network increased by 3.2% (in urban areas – by 3.2%), in dolnośląskie voivodship – by 3.6% (in urban areas – by 2.0%), in pomorskie voivodship – by 2.6% (in urban areas – by 1.8%), and in małopolskie voivodship – by 2.6% (in urban areas – by 1.9%).

In 2013, **the sewage network** was more than twice shorter than water supply network and amounted to nearly 133 thous. km with the number of connections to buildings ca. 2.8 mln pcs. In relation to 2012, the length of newly built or the reconstructed sewage networks increased by

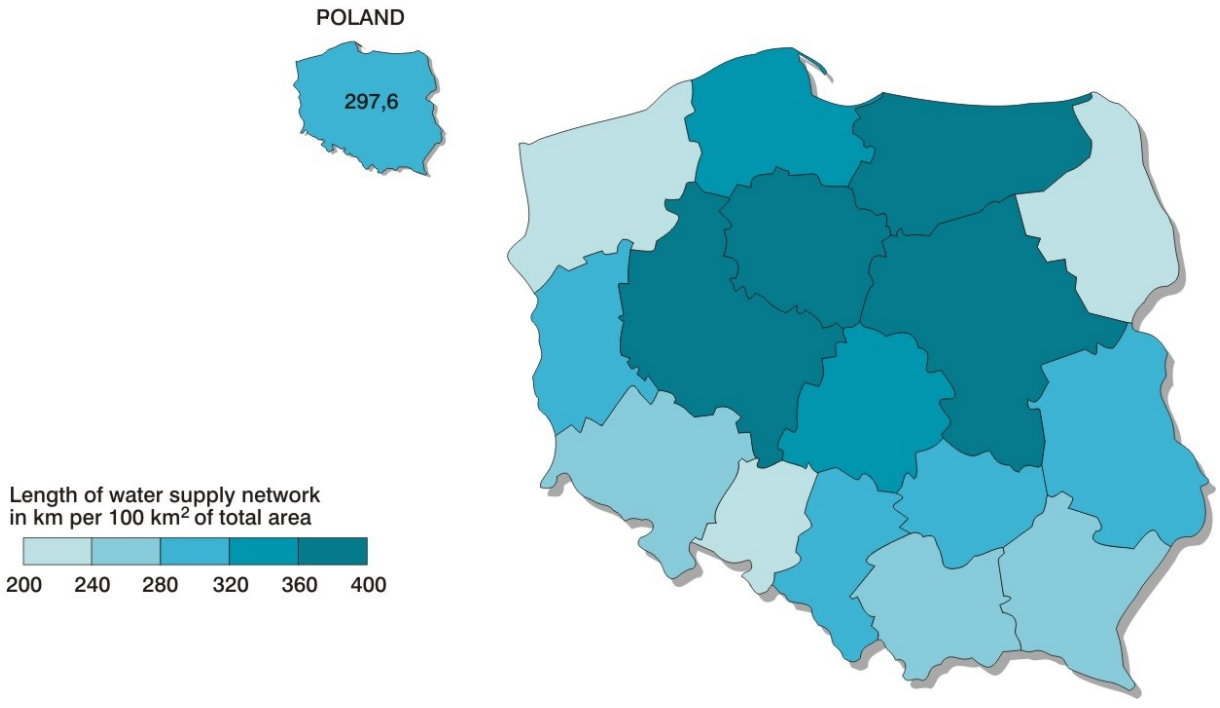
more than 7.3 thous. km with the simultaneous growth in the number of connections by ca. 132 thous. pcs.

In rural areas there were situated almost 57% of the length of the sewage network and ca. 43% of the number of connections. In comparison with 2012, the length of network in rural areas increased by more than 5.5 thous. km, and more than 79 thous. pcs. connections. In similar period, in urban areas more than 1.8 thous. km of network and more than 52 thous. pcs connections were built.

In 2013, the greatest increase in the length of the sewage network was recorded in voivodships: małopolskie – by 8.6%, opolskie – by 8.5%, and pomorskie – by 8.2%, and the smallest in zachodniopomorskie voivodship – by 2.6%. The increase in the length of the sewage network in these voivodships is a result of investment projects being conducted in rural areas. And so, in małopolskie voivoship this network grew by 11.4% (in urban areas – by 4.3%), in opolskie voivodship – by 12.6% (in urban areas – by 1.7 %), and in pomorskie voivodship – by 11.1% (in urban areas – by 3.5%).

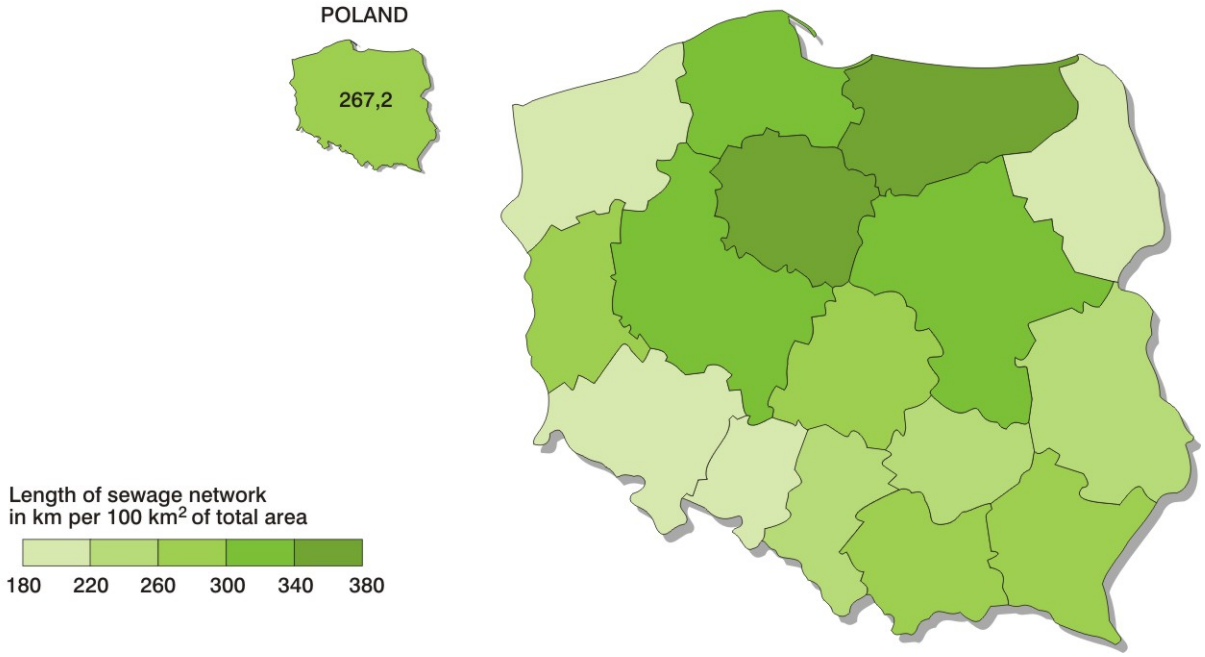
The highest **concentration of water supply network** occurred in voivodships: śląskie – 166.1 km per 100 km^2 (growth, as compared to 2012, by 1.5 km per 100 km^2), kujawsko-pomorskie – 126.5 (by 1.0 km per 100 km^2), and the smallest in voivodships: zachodniopomorskie – 46.4 (by 0.7 km per 100 km^2), and lubuskie – 48.1 (by 0.5 km per 100 km^2).

DENSITY OF WATER SUPPLY NETWORK IN URBAN AREAS IN 2013



As for **sewage network,** the largest **concentration** was recorded in voivodships: śląskie – 109.8 km per 100 km^2 (growth, in comparison with 2012, by 5.9 km per 100 km^2), podkarpackie – 84.5 (by 3.3 km per 100 km^2), małopolskie – 81.5 (by 6.5 km per 100 km^2), and the smallest in voivodships: podlaskie – 15.7 (by 0.6 km per 100 km^2), and lubelskie – 22.0 (by 0.8 km per 100 km^2).

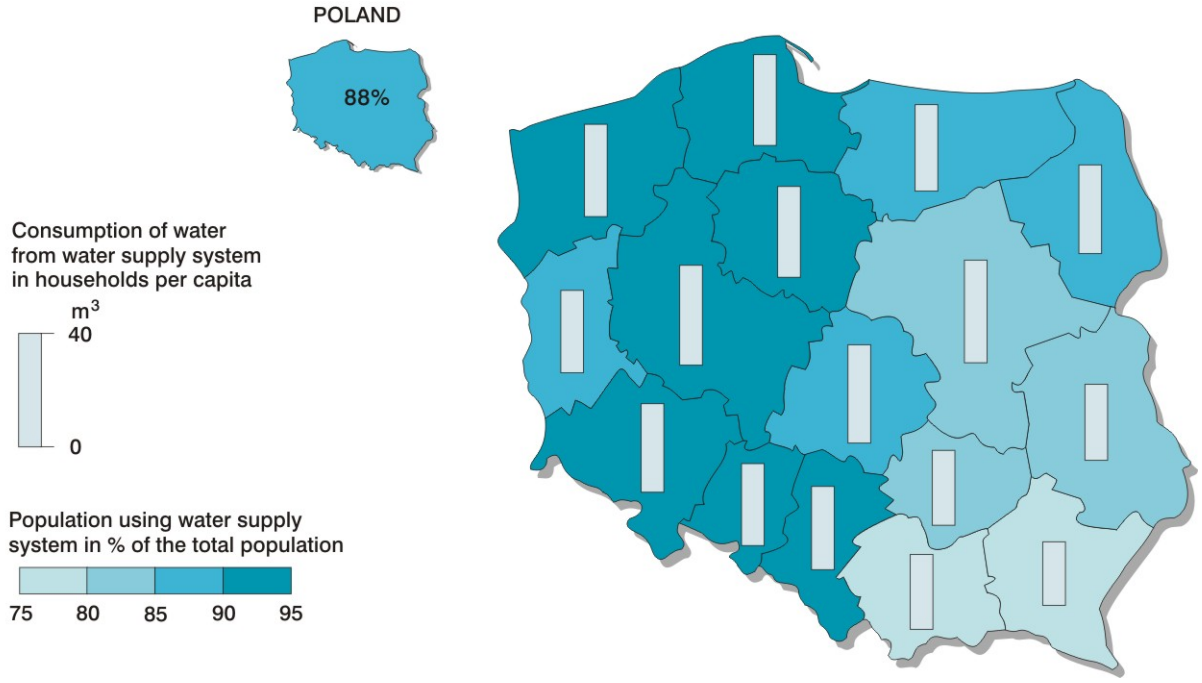
DENSITY OF SEWAGE NETWORK IN URBAN AREAS IN 2013



In 2013, water supply system was used by ca. 88% of the whole population, and sewage systems by more than 65% of the whole population. In urban areas the access to water supply was available to more than 95% of the whole population, and in rural areas it was almost 77%. The sewage system was accessible to more than 87% of the population in urban areas, and to ca. 31% of the population in rural areas.

In comparison with 2012, there was an insignificant increase in the share of population using the water supply system in total population – by 0.1 percentage points, and in case of population using the sewage system – by 0.8 percentage point. The percentage of the population using the water supply system or sewage system increased more in rural areas than in urban areas. In urban areas, the share of population using the water supply system increased, in comparison to the previous year, by 0.1 percentage point against 0.4 percentage point in rural areas. The percentage of the population using the sewage system in urban areas increased by 0.4 percentage point, whereas in rural areas – by 1.5 percentage point.

POPULATION USING WATER SUPPLY SYSTEM IN 2013



In 2013, **the average water consumption by households** was 30.9 m^3 per capita; in urban areas it was 34.0 m^3, in rural areas – 26.3 m^3. As compared to 2012, in spite of the growth in the number of population using the water supply system, water consumption by households slightly decreased, i.e. by 0.3 m^3. In urban areas there was recorded a decrease in use by 0.5 m^3 per capita, whereas in the urban areas there was an increase by 0.2 m^3. This ratio for urban areas fluctuated from 39.4 m^3 per capita in mazowieckie voivodship to 29.3 m^3 in podlaskie voivodship, whereas for rural areas from 35.2 m^3 in wielkopolskie voivodship to 16.8 m^3 in małopolskie voivodship.

In 2013, the quantity of **wastewater discharged from the households to the sewage system** was almost 913 hm^3, of which ca. 88% from urban areas. In comparison with 2012, the quantity of wastewater discharged from the households in urban areas decreased by almost 6.8 hm^3 with a simultaneous growth by 6.2 hm^3 in rural areas.

POPULATION USING SEWAGE SYSTEM IN 2013

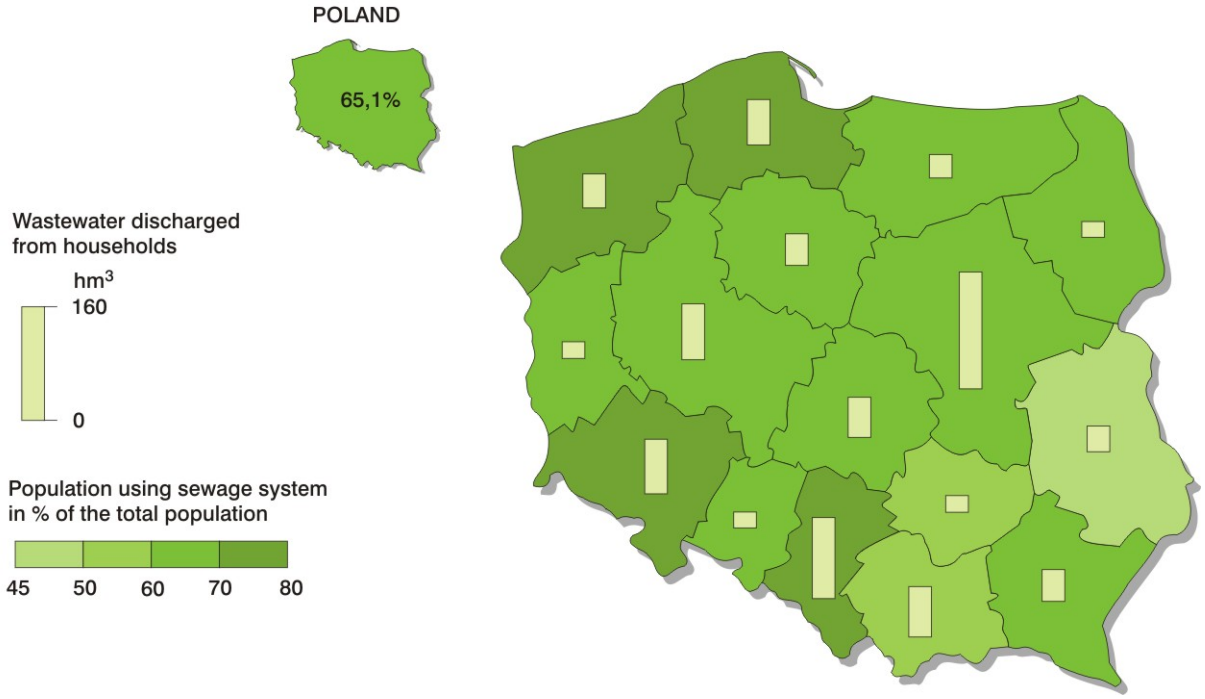


Table 1. The consumption of water from water supply system in households as well as the quantity of wastewater discharged to the sewage system in urban areas and in rural areas in the years 2007-2013

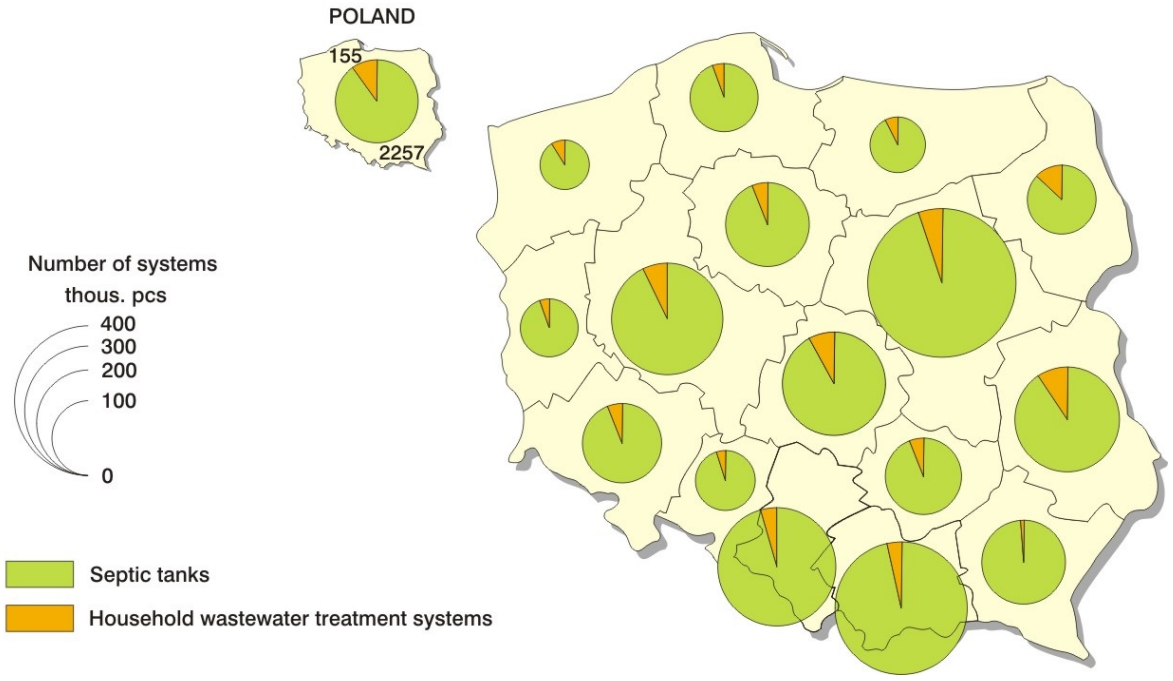
Specification	2007	2008	2009	2010	2011	2012	2013
Urban areas							
The consumption of water from water supply systems in households (during the year) per capita in m^3	36.0	36.1	35.3	35.0	34.8	34.5	34.0
The population using the water supply system in % of the population in total	95.0	95.2	95.2	95.3	95.4	95.4	95.5
The population using the sewage system in % of the population in total	85.0	85.5	85.8	86.1	86.7	87.0	87.4
The wastewater from households discharged to the sewage system in hm^3	827.1	822.8	812.2	813.1	818.9	814.3	807.5
Rural areas							
The consumption of water from water supply systems in households (during the year) per capita in m^3	24.3	25.1	25.0	25.1	25.6	26.1	26.3
The population using the water supply system in % of the population in total	73.5	74.2	74.8	75.2	75.7	76.2	76.6
The population using the sewage system in % of the total population	21.3	22.5	23.5	24.8	27.8	29.4	30.9
The wastewater from households discharged to the sewage system in hm^3	80.4	82.5	86.5	88.5	91.9	98.9	105.1

In the areas of the country with insufficiently developed sewage infrastructure some part of the inhabitants use on-site systems for collection of liquid waste that are a cheaper alternative to the traditional sewage systems channelling sewage to wastewater treatment plants. These are mainly septic tanks and household wastewater treatment systems. In Poland in 2013, there were 2 412 thous. such devices of which ca. 94% were septic tanks.

For several years it has been observed a systematic decline in the number of septic tanks, and by contrast, the number of household wastewater treatment systems increases. The number of septic tanks decreased from approximately 2 318 thous. in 2012 to 2 257 thous. in 2013 (by 2.7%), whereas the number of household wastewater treatment systems increased from approximately 126 thous. in 2012 to about 155 thous. in 2013 (by 23.0%).

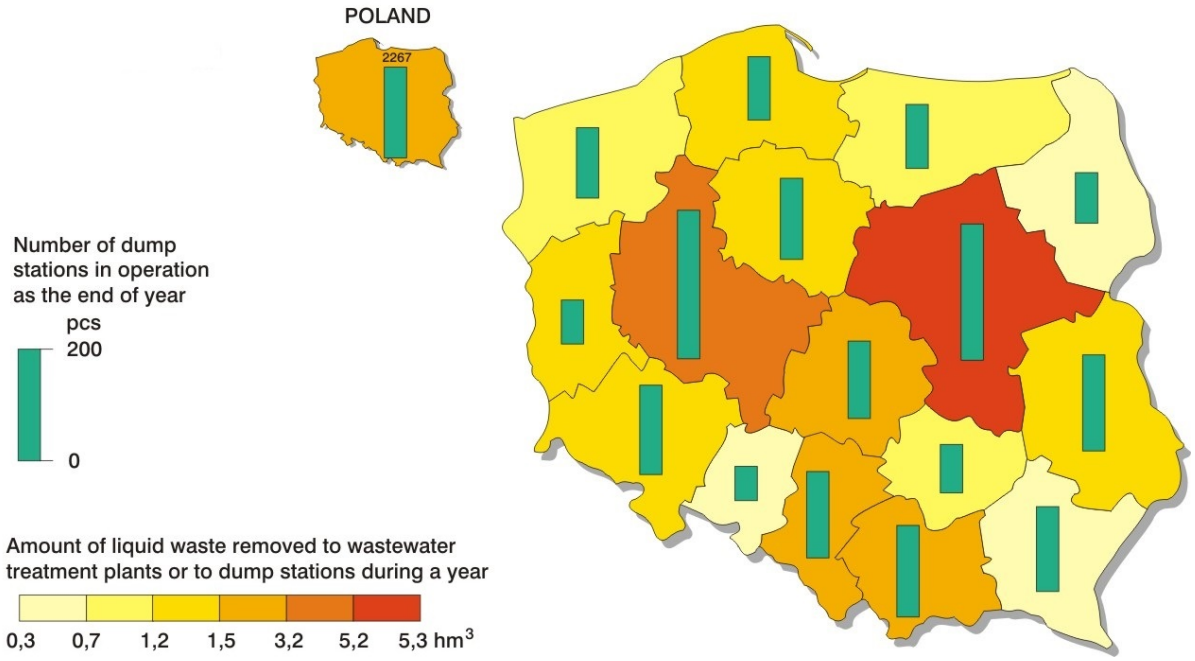
The most, approximately 83.5% of on-site systems for collection of liquid waste, were located in rural areas, whereas other 16.5% in urban areas. In rural areas, there were 83.0% of all septic tanks and 91.1% of the total number of household wastewater treatment systems. In urban areas these figures amounted to, accordingly, 17.0% and 8.9%.

ON-SITE SYSTEMS FOR COLLECTION OF LIQUID WASTE IN 2013



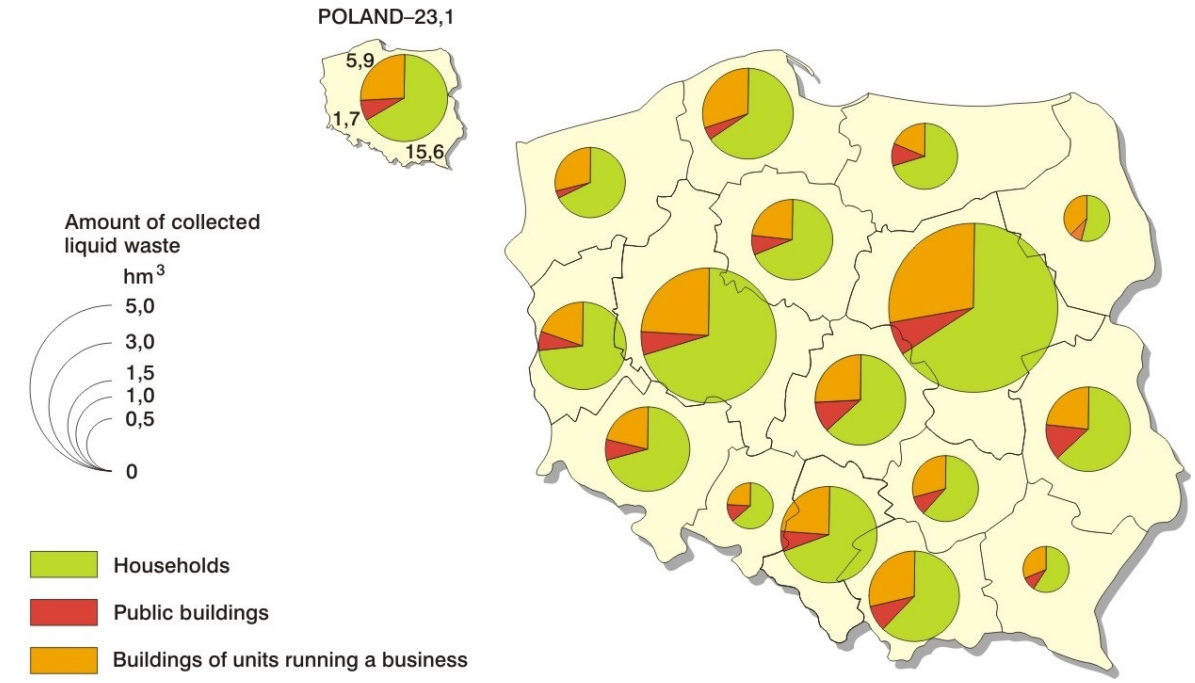
Liquid waste was collected from septic tanks and delivered to the wastewater treatment plants or to dump stations. In 2013, dump stations received ca. 23.1 hm^3 of liquid waste (decrease by 2.9% as compared to 2012), which corresponds to ca. 2% of the total quantity of the wastewater discharged by sewage system to the wastewater treatment plants. About 68% of dump stations were located in rural areas. The total number increased from 2 234 in 2012 to 2 267 in 2013, and in urban areas it decreased by 0.1%, while in rural areas it increased by 2.3%.

DUMP STATIONS AND LIQUID WASTE REMOVED TO WASTEWATER TREATMENT PLANTS OR TO DUMP STATIONS IN 2013



Of the total quantity of liquid waste collected in 2013, 67.2% originated from households, 25.3% from buildings of units running businesses, and the remaining part of liquid waste (7.5%) from public buildings (in 2012, 66.5% , 25.8% and 7.7% respectively). In 2013, 72.9% of liquid waste was collected by private companies (72.2% in 2012), while 27.1% by companies from the public sector (27.8% in 2012).

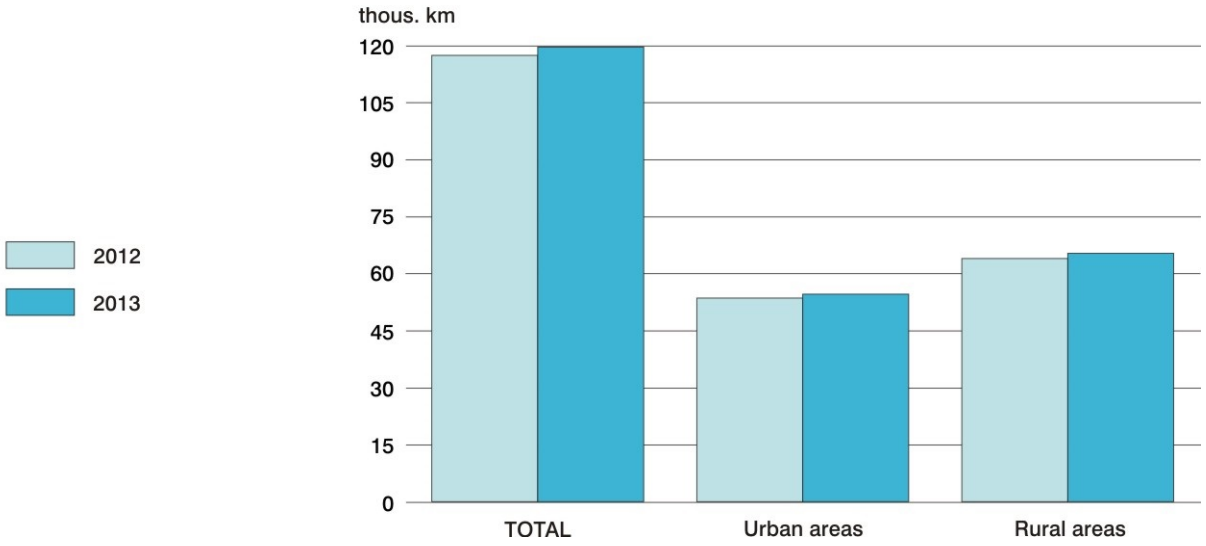
SOURCES OF LIQUID WASTE IN 2013



3.2. ENERGY MANAGEMENT AND GAS ENGINEERING

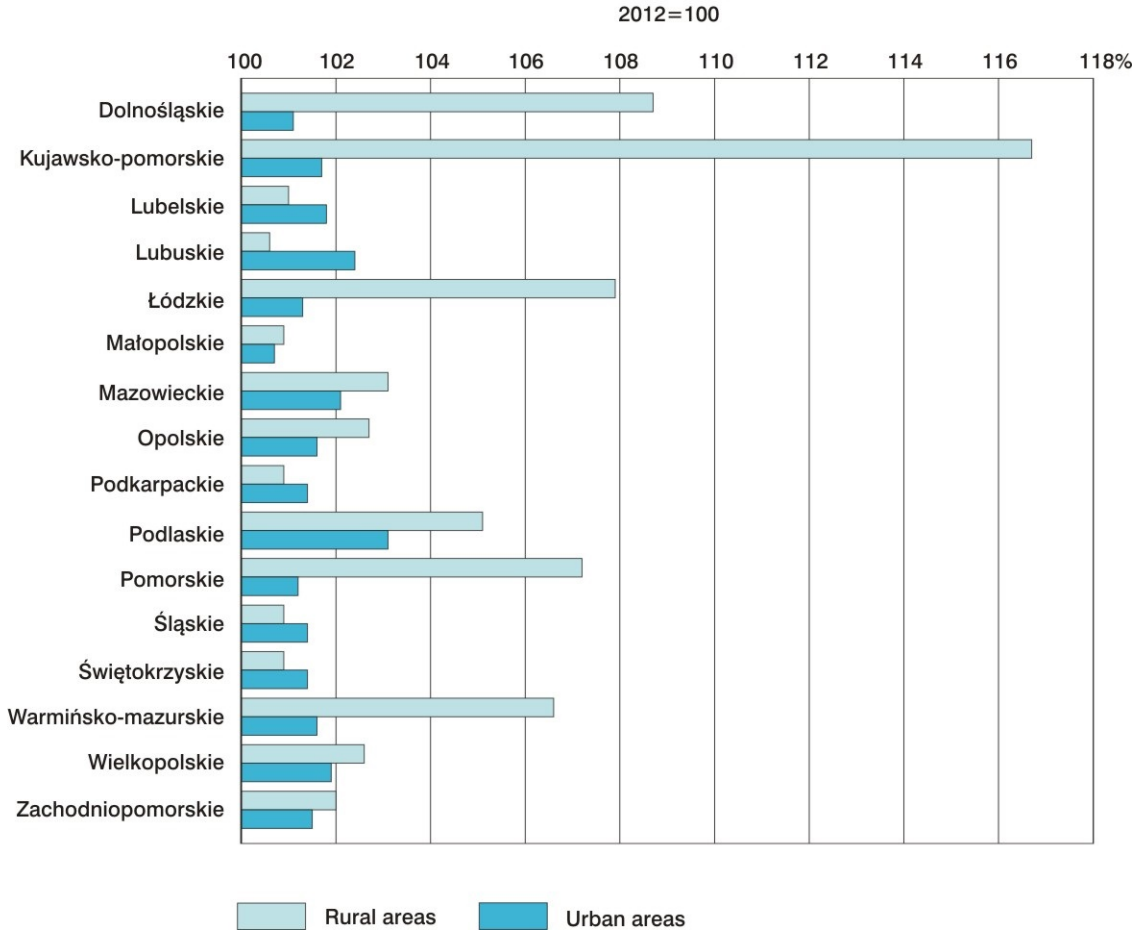
In 2013, in Poland **gas supply network** was in total ca. 140 thous. km long, of which almost 120 thous. km were distribution networks. In relation to 2012, there was a growth recorded in the total length of gas supply network – by over 2.4 thous. km, of which more than 2.1 thous. km distributive network. In urban areas there was situated more than 54 thous. km of gas network and in rural areas – more than 65 thous. km. In comparison with 2012, the length of the distributive network in the urban areas increased by ca. 0.8 thous. km, in rural areas – by almost 1.3 thous. km.

LENGTH OF GAS SUPPLY DISTRIBUTION NETWORK IN 2012–2013



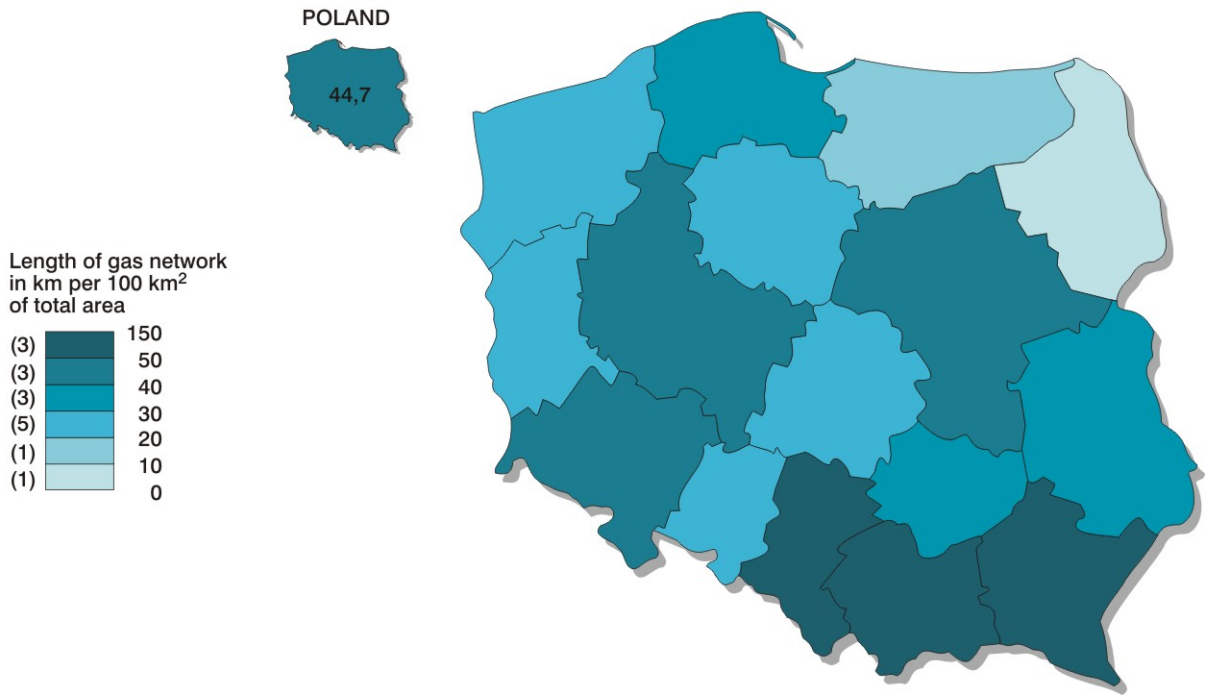
In 2013, as compared to the previous year, the greatest increase in the length of the distributive network was recorded in voivodships: kujawsko-pomorskie – by 4.4%, podlaskie – by 3.7%, dolnośląskie – by 3.3%, and the smallest in małopolskie voivodship – by 0.9%. The decisive impact on growth in these voivodships had investment projects in rural areas. And so, in rural areas in kujawsko-pomorskie voivodship the length of gas supply network increased by 16.7% (in comparison to the increase in urban areas by 1.7%), in podlaskie voivodship by 5.1% (urban areas by 3.1%), and dolnośląskie voivodship by 8.7% (urban areas by 1.1%).

CHANGE IN LENGTH OF GAS SUPPLY DISTRIBUTION NETWORK IN 2013



At the end of 2013, the largest **concentration of the gas network** occurred in voivodships: małopolskie – 148.7 km per 100 km^2 (growth as compared to 2012 by 11.0 km per 100 km^2), śląskie – 134.0 (by 13.9 km per 100 km^2) and podkarpackie – 106 (by 11.6 km per 100 km^2) and the smallest in podlaskie voivodship – 7.2 (by 0.2 km per 100 km^2).

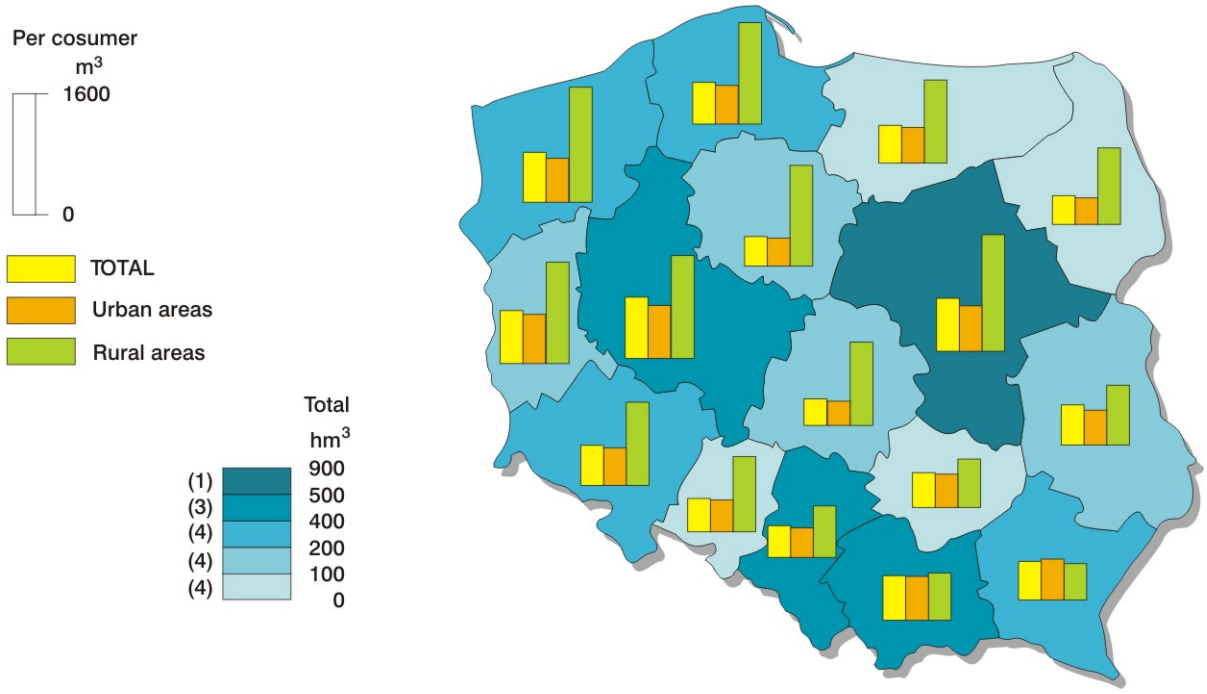
GAS NETWORK DENSITY IN 2013



In 2013, in Poland **the percentage of total population using gas supply system** did not change in comparison with 2012 and amounted to 52.4%. In urban areas the gas supply system was accessible to more than 72% of the population in total, whereas in rural areas to ca. 22%. In comparison with 2012, the percentage of people using the gas supply network increased in rural areas – by almost 0.3 percentage point and decreased by 0.1 percentage point in urban areas.

In 2013, **the consumption of gas from gas supply system by households** was almost 556 m^3 per 1 consumer and in urban areas it amounted to more than 505 m^3, whereas in rural areas to more than 891 m^3. In comparison with the previous year, the consumption of gas from gas supply system increased by 1.4% (in urban areas by 1.3%, in rural areas by 0.8%). The highest consumption of gas from gas supply system in Poland by households per 1 consumer was recorded in wielkopolskie voivodship (810.9 m^3 per 1 consumer), and the lowest in łódzkie voivoship (347.2 m^3). In comparison with 2012, the consumption of gas from gas supply system increased in urban areas by 6.7 m^3 per 1 consumer, in rural areas by 6.8 m^3.

SALE OF GAS TO HOUSEHOLDS IN 2013

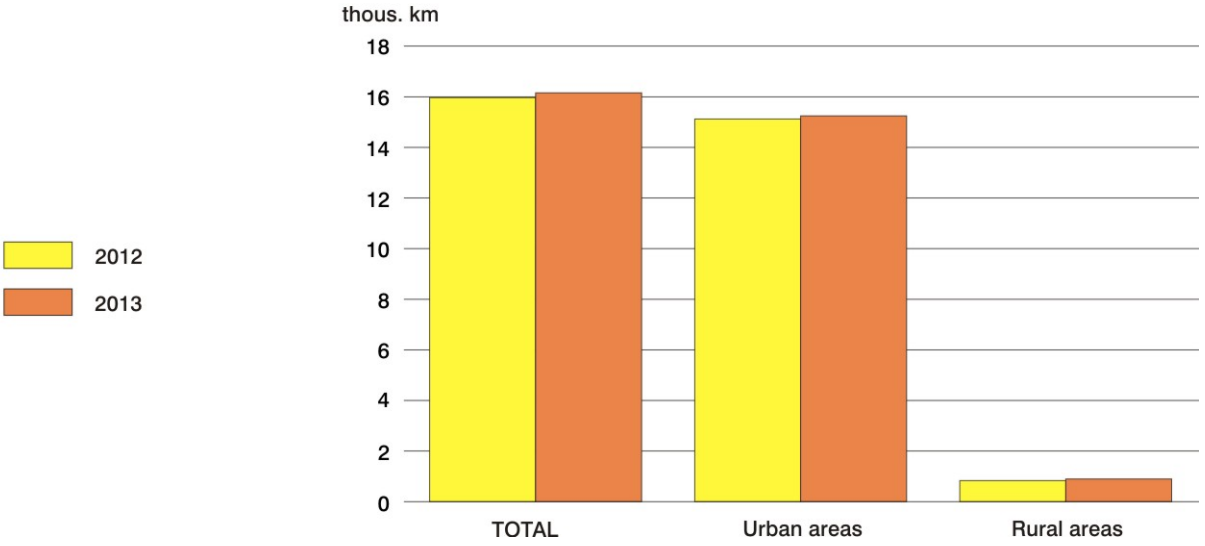


In 2013, **the consumption of electric energy per 1 consumer** was 2 035.0 kWh, and in urban areas it was lower (1 858.8 kWh per 1 consumer) than in rural areas (2 381.9 kWh per 1 consumer). In comparison with 2012, the consumption of electric energy per 1 consumer in Poland decreased by 0.5% and this decline was recorded in urban areas – by 1.2%, whereas in rural areas the consumption increased by 0.4%.

3.3. HEATING MANAGEMENT

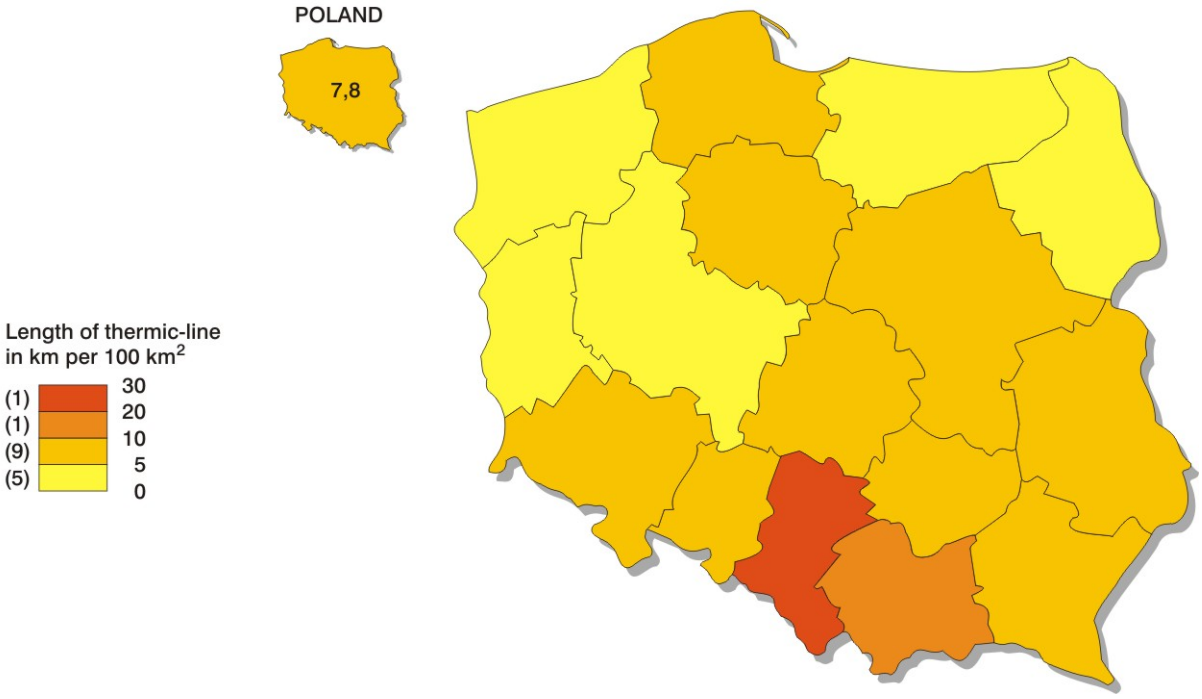
In 2013, **the heat distribution network** in total amounted to 16.1 thous. km and 15.2 thous. km were in urban areas. In comparison with 2012, there was a recorded growth in the length of this network by over 181 km, including 121 km in urban areas.

LENGTH OF THERMIC-LINE IN 2012 AND 2013



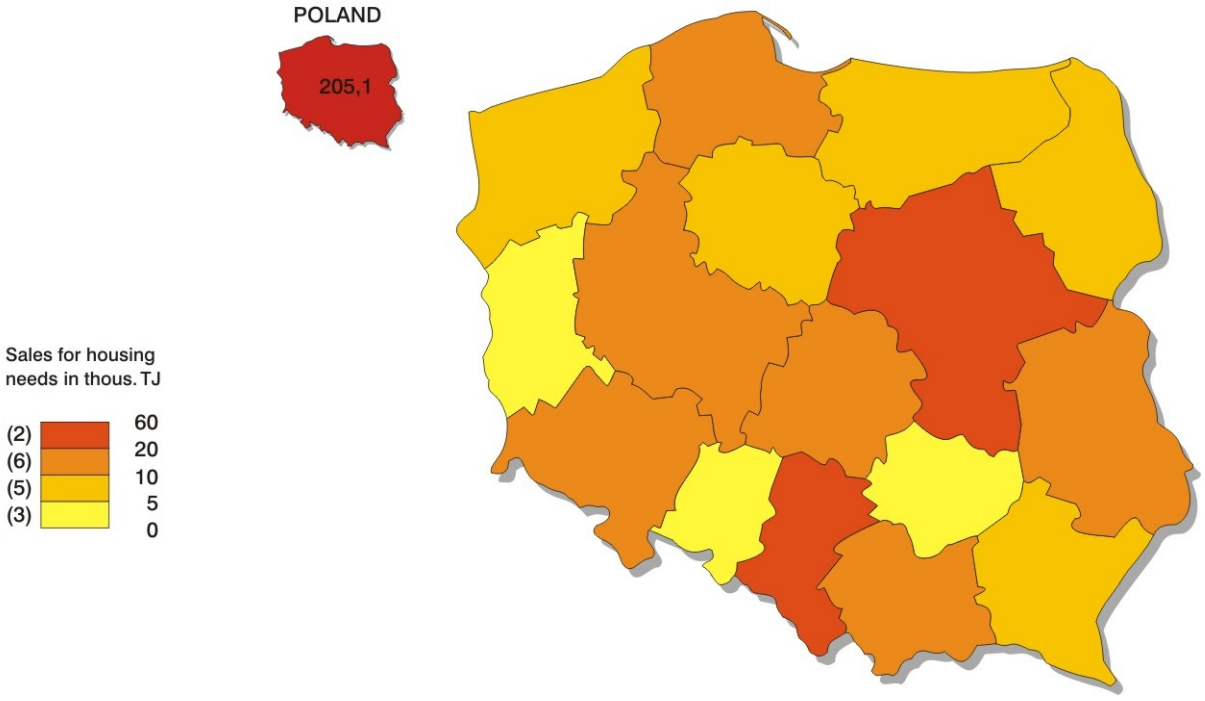
In 2013, the largest **concentration of heat distribution network** occurred in voivodships: śląskie (29.5 km per 100 km^2), małopolskie (13.1 km per 100 km^2), mazowieckie (9.8 km per 100 km^2), łódzkie (9.7 km per 100 km^2) and pomorskie (9.6 km per 100 km^2), while the smallest in lubuskie voivodship – below 3.5 km per 100 km^2.

THERMIC-LINE DENSITY IN 2013



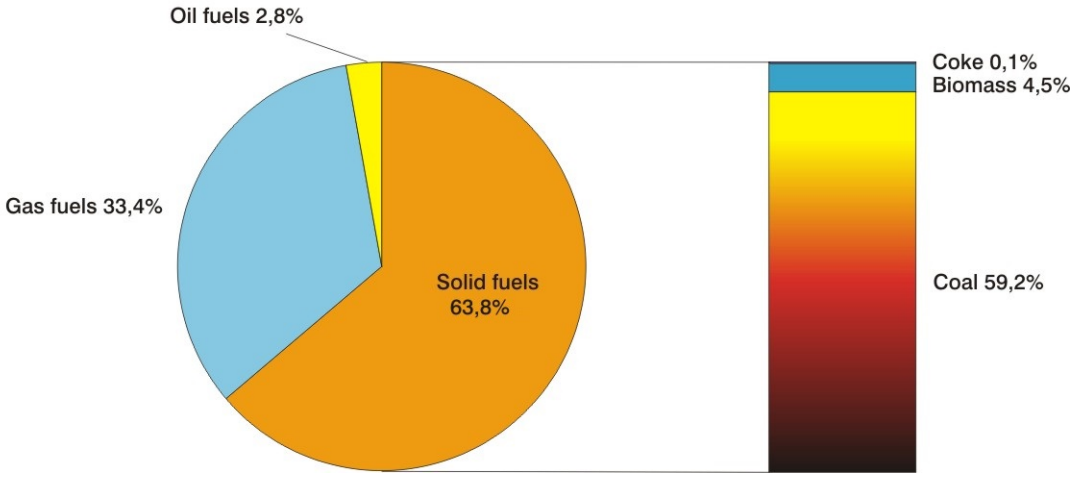
In 2013, more than 205 069 TJ of thermal energy were sold, including ca. 159 090 TJ for heating of residential buildings. It has enabled the possibility of heating of 1 851 757 thous. m^3 of the cubic volume of buildings in total.

SALES OF HEAT ENERGY IN 2013



The largest amount of thermal energy for heating purposes was produced using solid fuels – 63.8%, gas fuels – 33.4%, and oil fuels– 2.8%.

TYPE OF FUELS USED FOR PRODUCION OF HEAT ENERGY IN 2013

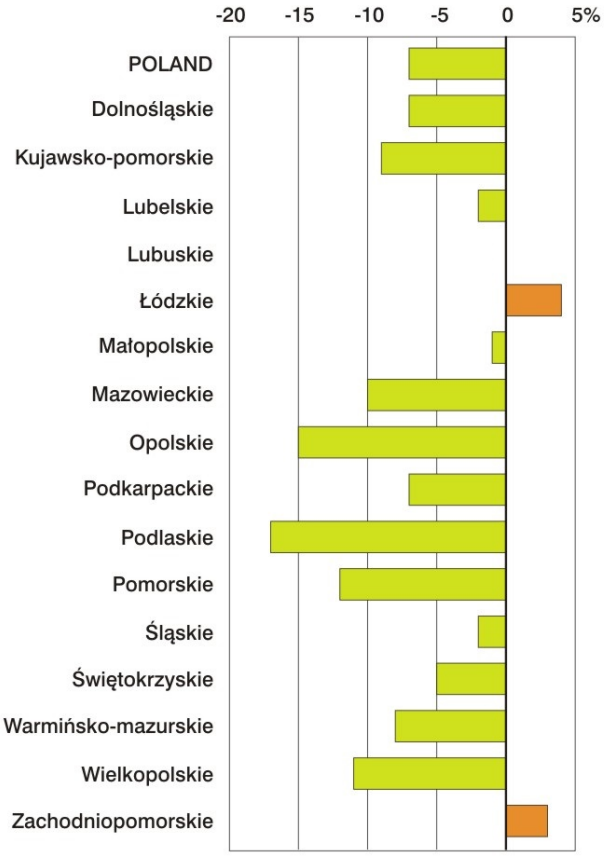


3.4. MUNICIPAL WASTE MANAGEMENT

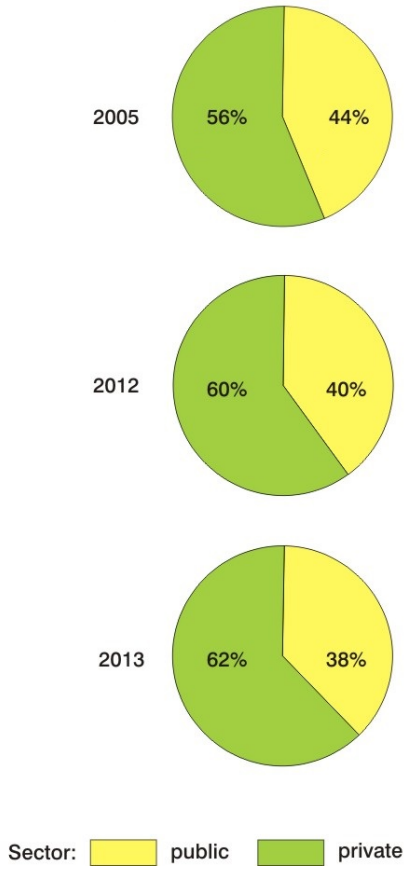
The total number of companies which in 2013 were collecting mixed municipal waste from real estate owners amounted to 1 769 and decreased by 7% in comparison to the previous year. In 2013, private companies collected 61.9% of municipal waste (59.5% in 2012).

CHANGES IN NUMBER OF ENTITIES COLLECTING MUNICIPAL WASTE FROM REAL ESTATE OWNERS IN 2012–2013

POLAND: 2012–1903, 2013–1769



COLLECTED MUNICIPAL WASTE BY OWNERSHIP SECTOR OF ENTITIES COLLECTING MUNICIPAL WASTE FROM REAL ESTATE OWNERS IN 2005, 2012–2013

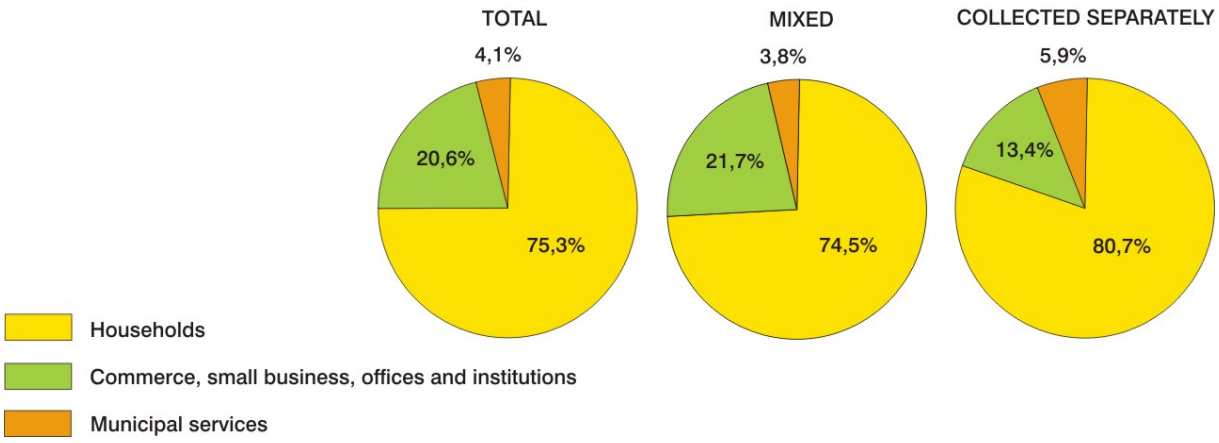


In 2013, in Poland 9 473.8 thous. tonnes of municipal waste was collected (a decrease by 1.1% as compared with 2012). For one inhabitant of Poland there was on average 246 kg of collected municipal waste, the most in the voivodships: lubuskie (306 kg), zachodniopomorskie (302 kg), śląskie (293 kg) and dolnośląskie (293 kg); the least in the voivodships: świetokrzyskie (134 kg), lubelskie (161 kg) and podkarpackie (168 kg).

The quantity of municipal waste generated has also decreased – it is estimated that in 2013 it amounted to 11 294.9 thous. tonnes (in the previous year 12 084.5 thous. tonnes). For one inhabitant of Poland there was attributed about 293 kg of generated municipal waste (in 2012 – 314 kg, whereas the average for the European Union countries was 487 kg).

In 2013, the most (75.3%) municipal waste was collected from households. In terms of quantity, it was 7 138.5 thous. tonnes – an increase by 4.7% as compared to the previous year. The second significant source of origin (20.6%) was trade, small business, offices and institutions. The quantity of waste collected from this source amounted to 1 952.2 thous. tonnes (a decrease by 14.9% as compared to the previous year). Meanwhile, waste from municipal services such as street cleaning or maintaining parks or cemeteries accounted for 4.1% of the total mass of collected municipal waste (383.1 thous. tonnes – a decrease by 17.8% as compared to 2012). In 2012, the share of these three sources was 71.2%, 24.0% and 4.9%, respectively. These changes can be caused by covering all real estate owners in the second half of 2013 with waste management system.

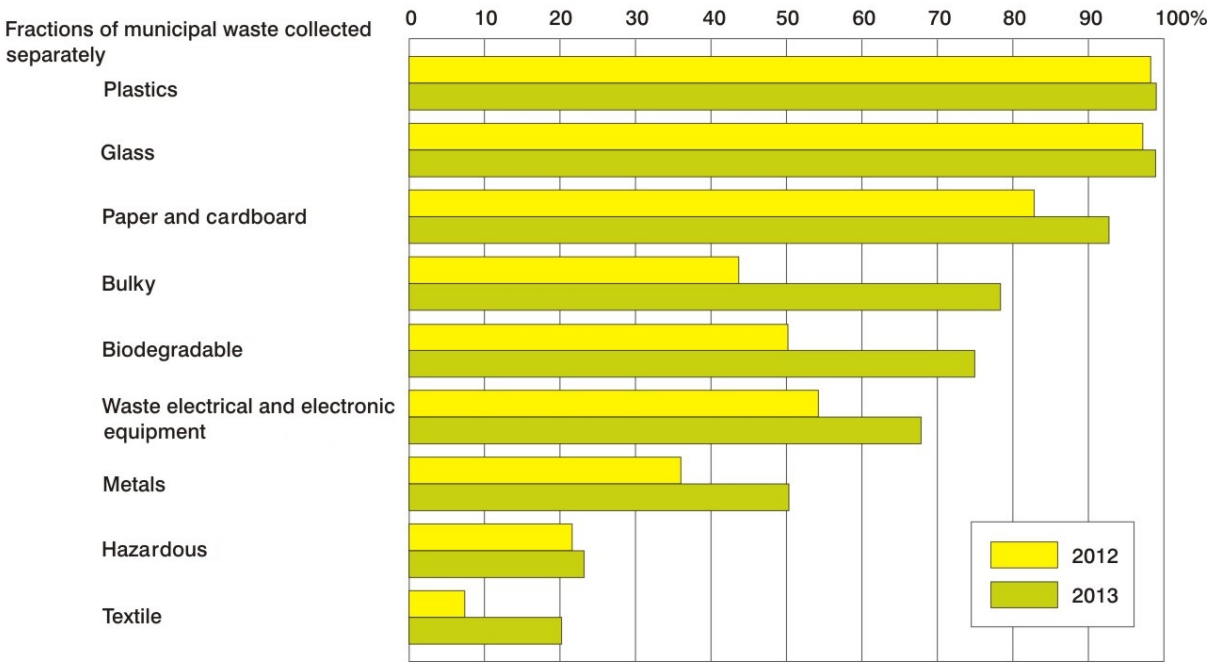
SOURCES OF MUNICIPAL WASTE COLLECTED IN 2013



In 2013, **separate municipal waste collection** was conducted in 2 478 municipalities (in 2012, in 2 410 municipalities). Within one municipality such collection was not organised (in 2012, in 69 municipalities). In 2013, there was a significant increase in the percentage of municipalities where there were collections of such fractions of municipal waste as bulky waste (increase in the share of municipalities by 35 percentage points) and biodegradables (increase by 25 percentage points). Also, there was recorded an increase in the share of municipalities where there were collections of waste electric and electronic equipment, metal waste (each by 14 percentage points), waste textiles (13 percentage points), and paper and cardboard (10 percentage points).

The percentage of municipalities where there were collections of other fractions of waste (glass, plastics, hazardous waste) remained at almost unchanged level (increase by ca. 1–2 percentage points).

CONDITION OF SEPARATE COLLECTION OF MUNICIPAL WASTE IN MUNICIPALITIES IN 2012–2013



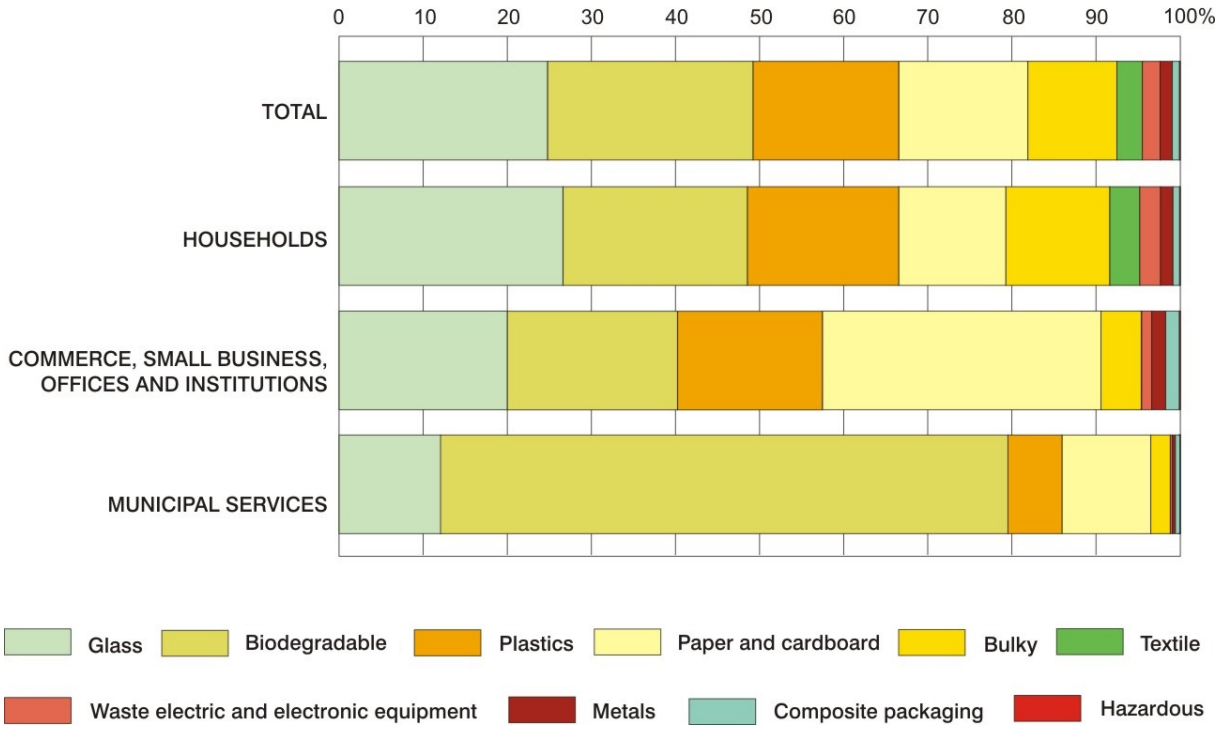
In 2013, there was recorded an increase in the share of separately collected waste in the total quantity of all collected municipal waste – from 10.5% in 2012 to 13.5%. Total weight of separately collected waste increased from about 1 005 thous. tonnes in 2012 to about 1 275 thous. tonnes in 2013. For one inhabitant of Poland there was about 33 kg of separately collected municipal waste (the year before – 26 kg).

In 2013, the most (80.7%) of separately collected waste came from households (mainly glass waste). The waste collected separately from trade, small business, offices and institutions (mainly paper and cardboard) constituted 13.4%. Waste from municipal services (mainly biodegradables) accounted for 5.9% of the quantity of municipal waste collected separately. In the previous year it was 71.4%, 17.7%, and 10.9% respectively.

In 2013, the quantity of separately collected glass waste amounted to 8.2 kg per capita and it was an increase by 13.9% as compared to the previous year. For one inhabitant of Poland in 2013 there was about 5.7 kg of separately collected plastics (23.9% more than in 2012) and about 5.1 kg of paper and cardboard waste (6.3% more).

In 2013, 9 473.8 thous. tonnes of municipal waste was collected, of which 3 292.1 thous. tonnes was destined for recovery operations (ca. 35% of the quantity of municipal waste collected). Almost 1 499 thous. tonnes of municipal waste was designated for recycling (15.8% of the quantity of municipal waste collected). These were both municipal waste collected separately and secondary raw materials waste sorted out from mixed municipal waste. In the previous year these figures amounted to 1 244 thous. tonnes (13.0%).

MUNICIPAL WASTE COLLECTED SEPARATELY BY FRACTIONS AND SOURCES IN 2013



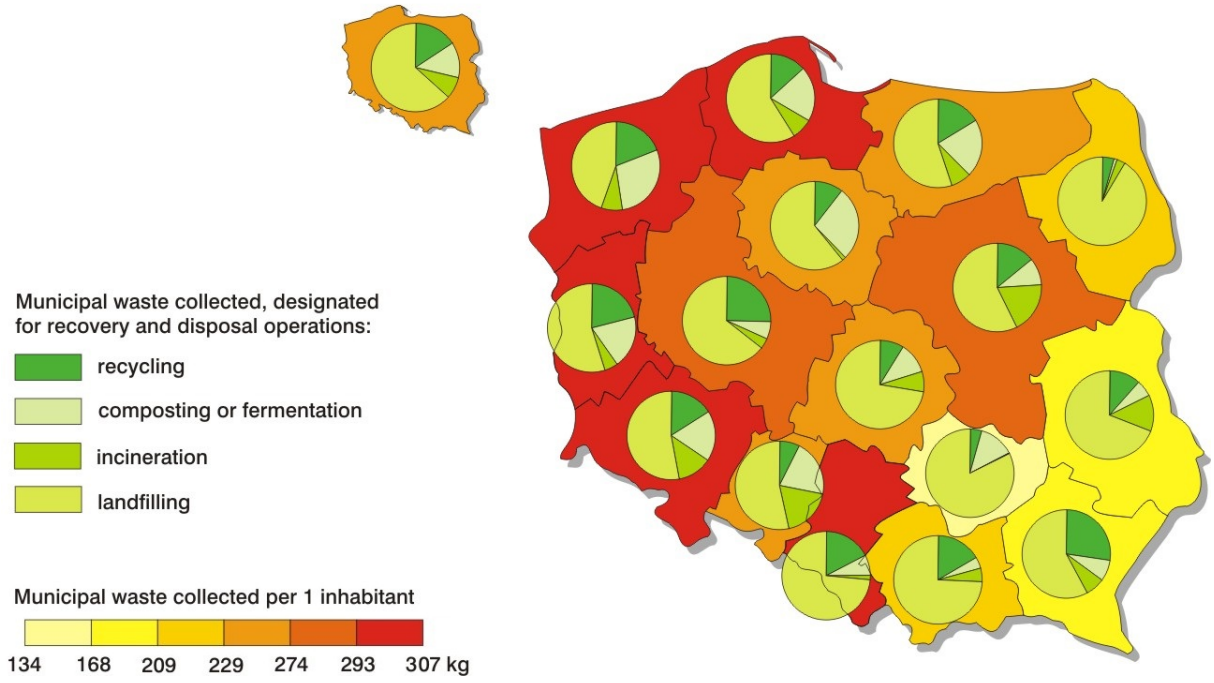
About 1 230 thous. tonnes of municipal waste were channelled to biological processing processes (composting or fermentation). These were mainly green waste from gardens, parks and cemeteries, waste from marketplaces, biodegradable kitchen waste and waste from gastronomy. As compared with the previous year the share of waste destined for such treatment in total quantity of collected municipal waste increased by 1.2 percentage points to the level of 13.0%.

Almost 563 thous. tonnes of municipal waste (ca. 6%) was designated for incineration with energy recovery.

Altogether 6 181.7 thous. tonnes of municipal waste was sent to neutralization, of which 5 978.7 thous. tonnes (63.1%) were designated for landfilling, and 203.0 thous. tonnes (2.1%) for neutralization by incineration without energy recovery. In comparison with 2012, it was observed a significant decrease in the share of municipal waste designated for treatment by

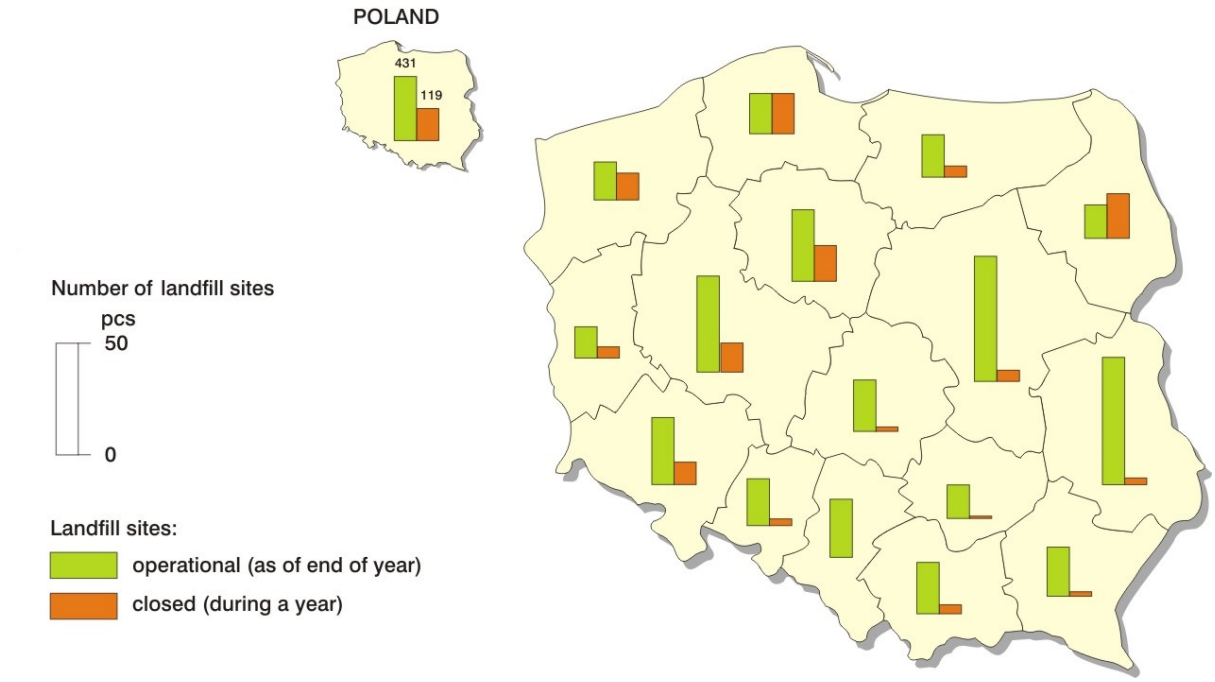
landfilling. In 2012, this waste constituted almost ¾ of total quantity of municipal waste collected (7 158.2 thous. tonnes).

MUNICIPAL WASTE MANAGEMENT IN 2013



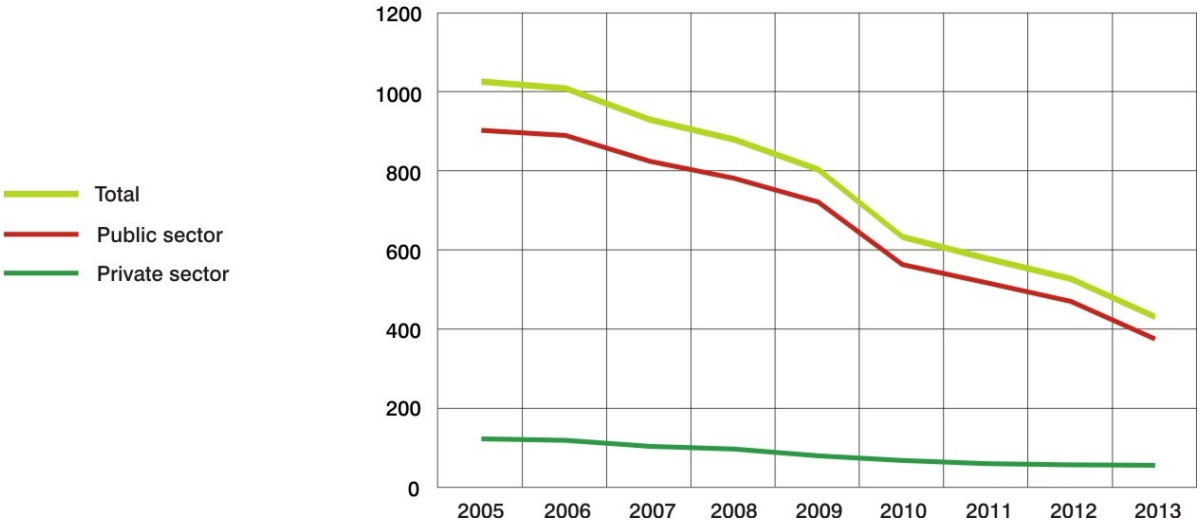
At the end of 2013, there were 431 operational landfill sites receiving municipal waste. These landfills occupied the total area of more than 1 944 ha. In 2013, 119 landfill sites of this type were closed, with the area of almost 365 ha.

CONTROLLED LANDFILLS IN 2013



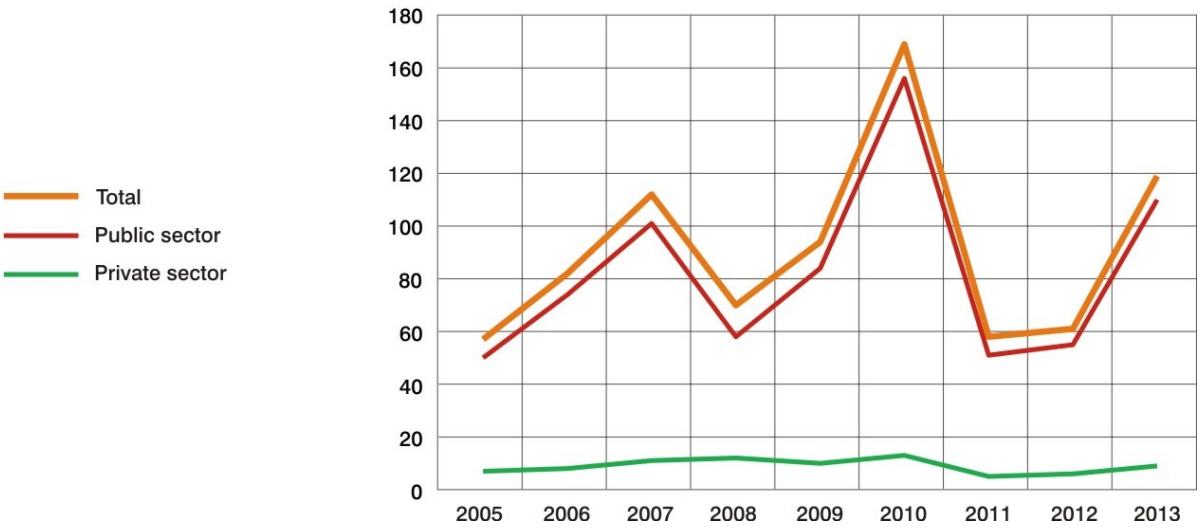
In order to adjust landfill sites to technical and organizational requirements resulting from the provision of law, the number of operational landfill sites has been systematically falling for several years.

LANDFILL SITES IN OPERATION IN 2005–2013



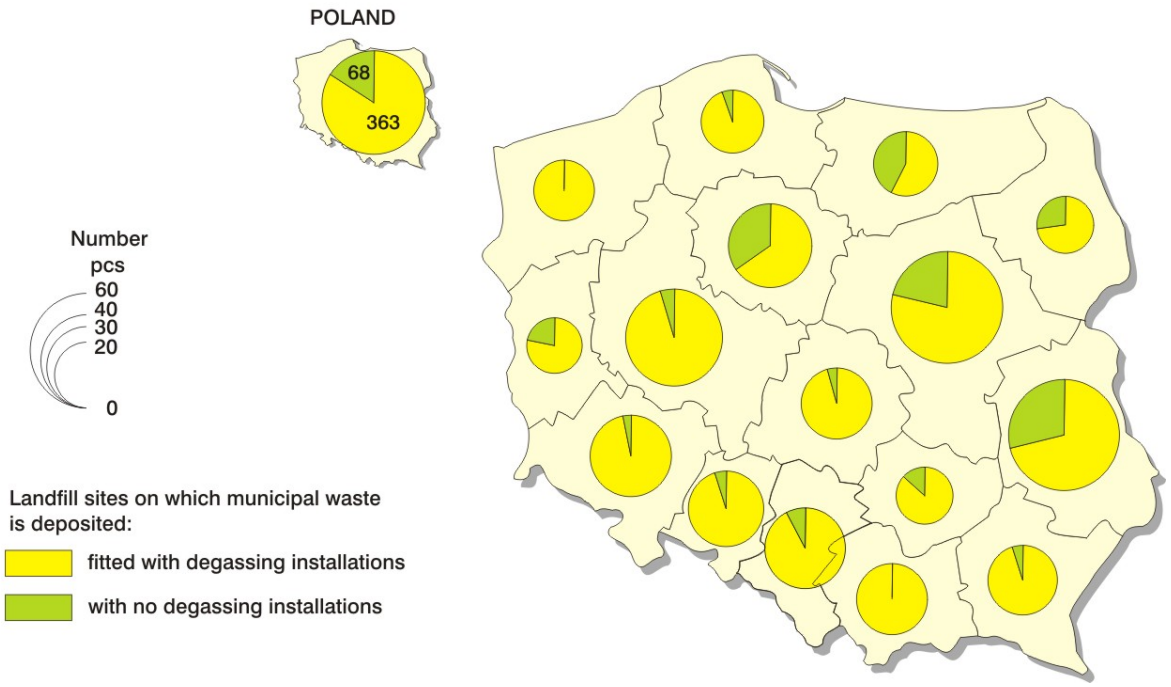
In 2013, the percentage of landfill sites equipped with weigh bridges increased slightly and amounted to 95.8% (in the previous year 95.3%), while the percentage of landfills equipped with degassing installations amounted to 84.2% (in the previous year 81.6%).

LANDFILL SITES CLOSED IN 2005–2013



Degassing is a process required by European Union law. Biogas should be collected from all landfills receiving biodegradable waste. Collected gas must be treated and used, and if its quantity is too small for effective energy production it should be neutralised e.g. through combustion in burners or torches.

DEGASSING OF LANDFILL SITES IN 2013

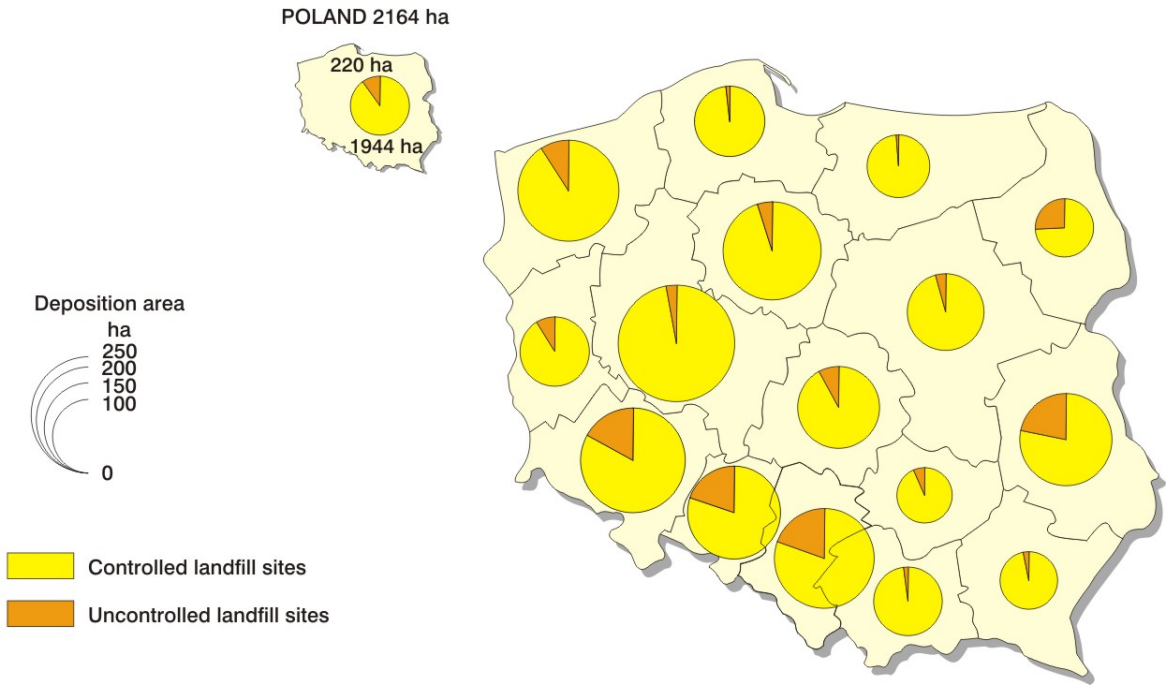


In 2013, in Poland out of 363 landfill sites with degassing installations almost 55% were such where gas was channelled directly to the atmosphere.

On remaining landfill sites, collected gas was neutralized by burning with or without energy recovery. In 2013, as a result of neutralisation of landfill gas by burning, about 82 621 thous. MJ of thermal energy was recovered (20% more than in 2012) and about 162 428 thous. kWh of electrical energy was recovered (1% less than in 2012).

About 90% of the municipal waste deposition area in Poland in 2013 was the area of operational controlled landfill sites. The remaining part was the area of uncontrolled landfill sites, which are defined as places not intended for municipal waste deposition.

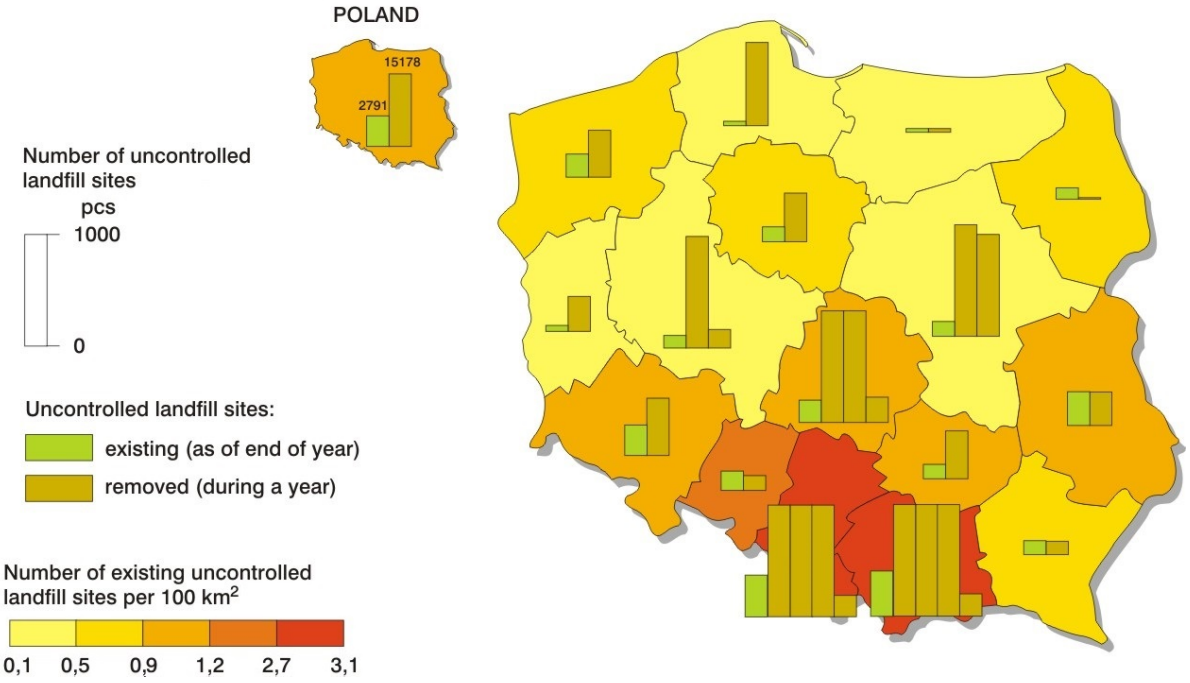
MUNICIPAL WASTE DEPOSITION AREA IN 2013



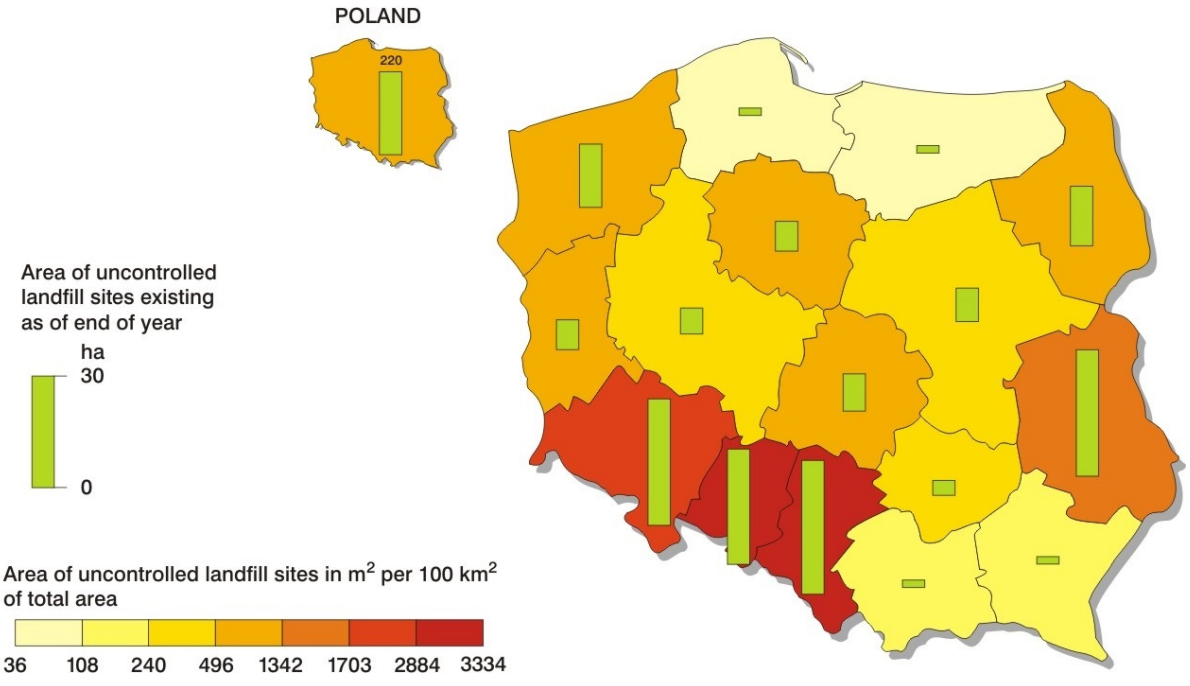
At the end of 2013, in Poland there were 2 791 illegal dumps, i.e. by 19.6% more than in the previous year. In urban areas there were 1 111 such dumps (an increase by 79% as compared to 2012) and in rural areas – 1 680 (a decrease by 2% in comparison with 2012).

In 2013, 15 178 uncontrolled landfill sites were removed, 90% of which in urban areas. As compared with the previous year, the total number of removed illegal dumps increased by about 42.9% (in urban areas there was an increase by 54.4%, while in rural areas a decrease by 13.7%). During the removal of uncontrolled landfill sites about 102.5 thousand tons of municipal waste was collected, of which 92.1% in urban areas.

UNCONTROLLED LANDFILL SITES IN 2013



AREA OF UNCONTROLLED LANDFILL SITES IN 2013



4. GRAPHS AND MAPS

5. LIST OF TABLES