

THE CONDITIONS OF THE WATER SECTOR IN POLAND

1. Introduction

Water is the main source of life for all organisms on earth. According to the preamble of the EU Water Framework Directive (2000/60/EC), “water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such” [Cf. Arabska 2016, p. 16].

The aim of this article is to identify and assess the conditions of the water sector in Poland. The author has used a comparative analysis, drawing on the data of the OECD, Eurostat and national statistical offices. Furthermore, this work refers to and constitutes a continuation of the author’s previous studies, including those conducted within an international research project FESSUD [Lis 2015, 2016].

Poland ranks among the countries with relatively scarce water resources. The annual stock of freshwater amounts to 1600 m³ per 1 inhabitant, while in most European countries this stock is approximately 5000 m³ per 1 inhabitant. Furthermore, surface water resources in Poland are characterized by great temporal and territorial changeability. Consequently, there are temporary surpluses and deficits of water in rivers. Storage reservoirs can compensate for this changeability only to some degree, due to the fact that the total capacity of these reservoirs does not exceed 6% of an annual volume of water drainage from the county area. The main source of water supply is surface water. The water collected from rivers and lakes cover over 84% of needs. Underground water resources are used primarily to supply the inhabitants with drinking water [See more in GUS 2016, p. 33].

Between 2000-2012 there were substantial investments in the technical infrastructure connected with the water sector. In that period, the water and sewage network was extended, obsolete and inefficient infrastructure was eliminated from use, new sewage treatment plants were built and the existing ones were modernised, devices used for the reduction of the pollutant load in sewage were installed. In the years 2000-2012, the number of cities with sewage treatment plants increased by 102 from the level in 2000 (69% of total population had access to sewage treatment plants). The water supply network grew three fold in that period and amounted to 283 thousand km in 2012. It shall be noticed at this point that such an investment scale would not be possible without the financial support from gminas – the owners of water and sewage service enterprises (from 15 to 30% of the investment value), financial means from the state’s budget (from 10 to 20%), funds from the Euro-

pean Union (from 10 to 25%), as well as the resources from ecological funds (from 10 to 20%) and bank loans (up to 10%).

The vast majority of Polish people, i.e. 88% of total population in 2013, use the water supply network (See more in GUS 2016, p. 473). The largest share of water consumption belonged to the industry sector, accounting for over three-quarters of total consumption. Konin has the largest water consumption, being one of the main lignite coal fields and having a complex of power plants. The largest water consumption by households is in Warsaw, i.e. the city with a largest number of inhabitants (over 1.7 million people). It shall be noted, however, that water consumption decreased systematically in 2000-2013. This reduction in consumption results above all from the fact that measuring devices (water meters) were installed, less water was lost during distribution, water prices increased, house water devices were modernised and the users began to show a saving approach to water consumption.

Collective water supply is provided by water and sewage service enterprises, the number of which is approximately 1800 in Poland. A comprehensive analysis of this sector is extremely difficult, due to the lack of detailed statistical data concerning all of these enterprises. Moreover, the sector of water and sewage services is very fragmented and consists of a number of supply regions (local markets) on the area of one or more gminas.

2. Characteristics of the water sector in Poland

In Poland, the roles of collective water supply and collective sewage discharge, as well as other issues connected with water and sewage networks, belong to gminas. These services constitute gminas’ own tasks and are part of municipal utilities management, which encompasses in particular public utilities tasks aiming at current and uninterrupted fulfilment of collective needs of inhabitants by providing commonly available services.

A vast majority of gminas, the total number of which amounts to 2479 in Poland, commission water and sewage service enterprises to provide collective water supply. These enterprises, which have a very fragmented structure – over 1800 entities, play a monopolistic role in a given gmina or a few gminas together. They operate as commercial companies and partnerships (38%), budgetary establishments and auxiliary enterprises (30%), water companies (16%), natural persons running business activities (13%) and other legal forms, such as: civil law partnerships, state-owned enterprises,

cooperatives (3%). Besides such a fragmented structure of the water sector and a variety of legal forms of conducting activities in this area, there has been considerable improvement over the last two decades with regard to the water and sewage networks infrastructure. In the years 1989 – 2015, the water system network expanded over three times, obsolete and inefficient facilities were excluded from exploitation, new sewage treatment plants were built and the existing ones were modernised, and finally, devices for reducing the load of pollution in sewage were installed.

The majority of Polish people, almost 88% of total population, use the water supply network [GUS 2016]. The largest share of water consumption belonged to the industry sector, accounting for over three-quarters of total consumption. When it comes to particular towns and cities, Konin – being one of the main lignite coal fields and having a complex of power plants – has the largest water consumption, whereas Warsaw – the city with a largest number of inhabitants (over 1.7 million people) – has the largest water consumption per household.

The development of the water and sewage network infrastructure was possible owing to subsidies for the realisation of infrastructural investments under EU pre-accession and post-accession programmes (after May 1, 2004), with significant support from gminas, central authorities (Ministry of Environment, National Water Management Authority) and the National Fund for Environmental Protection and Water Management.

Of key importance in the water sector is the process of establishing tariffs for collective water supply and collective sewage discharge. What causes highest doubts in this process is a dual nature of gminas, being both the owners and regulators (authorising tariffs) of water service enterprises. An average gross price of water for households amounted to 4.12 PLN/ m³ (i.e. 0.93 euro, with an average NBP exchange rate of 30 December 2016 amounting to 4.4240 PLN/EUR) in a tariff for 2016, with a growing trend compared to previous years, and a minimum price of 1.80 PLN/m³ (i.e. 0.41 euro) and maximum price of 23.92 PLN/m³ (i.e. 5.41 euros) [cena-wody.pl, 30.12.2016]. The price of water is very diverse, incomparably more diverse than the price of electricity or gas supply. According to Tadeusz Rzepecki, the President of the Council of “Wodociągi Polskie” Chamber of Commerce and President of Tarnowskie Wodociągi sp. z o.o.:

“the differences in water prices stem mainly from the necessity to treat water. The cost of purifying abyssal water differs from that of surface water. The quality of the former is also different; for example, the town of Kielce is supplied with water which comes from limestone, which makes it practically ready for consumption, whereas the city of Bydgoszcz, which takes water from the Brda River, has to treat water due to substantial quantities of iron and manganese”.

The differentiation of water prices is also influenced by considerable expenditures of some water service enterprises on the development and modernisation of the water supply network in particular areas of the country. In the areas where enterprises did not have to carry out a costly extension of the network, the costs were relatively low, and in turn the price for a m³ of water was low as well. According to Dorota Jakuta, the President of “Wodociągi Polskie” Chamber of Commerce:

„Growths in prices result from using new infrastructure of high value compared to the previous one. In accordance with the provisions of the “tariff” regulation, a price should also include risk. It is necessary for future investments. Finishing the modernisation of water and sewage system and fulfilling the European water purity norms – both the water we drink and the one that flows out of the treatment plant – causes growths in prices. Poland has a chance, thanks to the undertakings it gives, to improve the quality of surface waters, and especially those taken as sources of drinking water.” [Jakuta 2014].

The water and sewage service sector in Poland is characterised by generally low profitability, with maintained financial liquidity. Enterprises finance their activities primarily with their own capital. Foreign capital is mainly the means obtained from the European Union funds, with a relatively low share of commercial loans. In general, the owners of water and sewage service enterprises (usually one gmina, less frequently a few gminas together) realise among all the goal associated with providing the capacity to purchase water possibly to all the recipients in a given gmina [Lis 2015]. The goals connected with expanding the accessibility to the water and sewage networks and with the protection of the natural environment seem to be realised, as long as they do not disturb the realisation of the demand-related goal. Furthermore, the role of the political factor shall also be highlighted, which results from the fact that gminas serve as owners in this sector.

Polish water service enterprises, despite a small scale of their activities, improve the already high quality of drinking water. Taking into consideration the requirements laid down in the Regulation of the Minister of Health of 13 November 2015 on the quality of water for human consumption (Journal of Laws of 201, item 1989), it shall be highlighted that 99% of the population using the collective water supply, had an access to water which was compatible with this regulation. By contrast, in 2006 it was approximately 93% of the population [Hudzik 2016, p. 22].

3. Global conditions of the water sector in Poland

The needs connected with an access to water in the contemporary world are likely to grow dynamically, especially in the regions of Southern and Northern Africa,

Southern and Central Asia and Southern America. In developed countries, on the other hand, including the European Union countries, they are going to decrease dramatically [OECD *Highlights* 2012, p. 4]. Taking into consideration these two divergent trends, the OECD [2012] anticipates a growth in the global demand for water of 55% in 2050, in comparison to the year 2000. Thus, some problems with drinking water will concern approximately 40% of the world's population.

The needs to have an access to fresh water are generated mainly by farming, energy production, consumption of households and industrial production. That is why there are such discrepant trends in developing and developed countries. When it comes to developing countries, farming constitutes a crucial and relatively low-efficient branch of the economy, with a considerable share of industrial production strengthened by cheaper labour force. The other group of countries is characterised by higher water consumption, which is largely generated by energy producers in the process of cooling [OECD 2012, pp. 208-209].

The matter of water quality around the world refers to two groups of countries: the developing and developed ones. A problem in the first group is excessive exploitation of ground waters, pollution of surface and ground waters by agriculture and unsewered waste [Report... 1987, OECD 2012, *Water...* 2016]. The other group faces some problems associated with so-far unmonitored pollution (medicine, steroids, hormones, personal protective equipment, disinfectants, surfactants, petrol additives) [Bochnia 2016, p. 23].

The main factors which have an influence on the demand for fresh water and its quality from a global perspective may include: a) variables connected with human activity, b) variables connected with the environment. Among the key variables connected with human activity there are the demographic factors¹, urbanisation, increase in income and economic activity. In turn, the main variables associated with the environment might be climate changes, including an increase in temperatures around the world, and atmospheric phenomena, such as floods and droughts.

The subject matter of functioning of the water sector is one of the areas of sustainable development. It is understood as a process of transformations which ensures fulfilling the needs of the contemporary generation without diminishing the development chances for future generations, in particular owing to the actions focused on economic and social development, as well as in terms of the environment [Raport... 1987]. The Sustainable Development Goals have been included in the 2030 Agenda for Sustainable Development, passed on 25 September, 2015 in New York. The basis for this conception were the Millennium Sustainable Development Goals, which had been partly realised by 2015.

The Sustainable Development Goal no. 6 is to ensure availability and sustainable management of water and sanitation. Detailed tasks were formulated within this goal, which the author have divided into three groups. The first group is dominated by the tasks associated with the availability of the water system network and those which indirectly touch upon the issue of the capacity to purchase water by all citizens, and in particular, ensuring by 2030 common and equal access to safe drinking water, obtaining by 2030 access to adequate sanitation conditions for all people and increasing by 2030 the efficiency of water usage in all sectors, and significantly reducing the number of people suffering from water deficiency. The second group concerns the issue of water quality, and in particular improving by 2030 the quality of drinking water by decreasing the level of pollution with chemical substances, decreasing by a half the amount of untreated sewage and increasing the significance of recycling, as well as protecting and restoring by 2020 the ecosystems connected with water. The third group of tasks focuses above all on the management of water resources, including implementing by 2030 integrated management of water resources on all levels, also thanks to cross-border cooperation, expanding cooperation and building the ability of international support for developing countries in terms of actions and programmes associated with water and sanitation, as well as other related ones, including obtaining and desalinating water, water efficiency, sewage treatment, recycling and technologies of water reuse, supporting and strengthening the share of local communities in improving water and sanitation management.

4. Direct conditions of the water sector in Poland

Fresh water resources in a given country result from its climate conditions, geomorphology, land use or cross-border water inflows. In absolute values, France, Germany and Sweden have the greatest resources of drinking water, whereas Hungary, Bulgaria and the Netherlands have the greatest cross-border inflows of drinking water. Based on the estimates per 1 inhabitant, the greatest resources of fresh water belong to Croatia, Finland and Sweden (over 19000 m³ per inhabitant), whereas the smallest resources of fresh water are found in Malta, Cyprus, the Czech Republic and Poland (less than 1700 m³ per inhabitant). The stock of fresh water in Poland amounts to slightly more than 1600 m³ per inhabitant, while the median for the EU-28 states equals 6008 m³ per inhabitant. Additionally, the stock of surface waters in Poland is characterised by high temporal and territorial changeability. Consequently, there occur temporary surpluses and deficits of water in rivers. Storage reservoirs amortise this changeability only to some degree. Their total capacity does not exceed 6% of the

¹ The demand for water grows twice as fast as the population growth [OECD, 2012, p. 214].

capacity of an annual outflow of waters from the area of the country. The main sources of water supply are surface waters. Water taken from rivers and lakes cover over 84% of needs. Exploitative resources of subsoil waters are used mainly to provide the inhabitants with drinking water. The above data indicate clearly that there is a need to manage water resources very carefully in Poland, and to monitor and influence the key factors shaping the demand for water.

The above-presented stock of drinking water in the European Union member states shall be complemented with the demand side. In the years 1990-2014 there occurred a considerable decrease in the consumption of fresh water in m^3 per inhabitant. The fresh water consumption median in m^3 per inhabitant in the EU-28 states amounted to 511 m^3 in 1990, while in 2013 it was already only 226 m^3 . It means that there occurred a double decrease in water consumption within the period in question. The largest reductions in water consumption in m^3 in the years 1990-2014 took place in Slovakia (four times smaller water consumption), in the Czech Republic and in Germany (two times smaller water consumption). In Poland, water consumption decreased from 399 m^3 per inhabitant in 1990 to 297 m^3 in 2014.

In the structure of fresh water consumption in the European Union member states, with a division into agriculture, industrial production, energy production and publicly available distribution networks, a predominant role is played by water consumption for the purpose of energy production. It constitutes more than a half of fresh water consumption. This water is used for cooling in energy production processes. In Germany and the Czech Republic about a quarter in the structure of fresh water consumption is dedicated to industrial production, whereas in Poland and Hungary it is only a few percent. This result partly reflects diverse potential of industrial production in specified countries and different technological advancement when it comes to energy production.

Annual water consumption in publicly available distribution networks in m^3 per inhabitant, irrespective of the system – private or public, equalled in 2013 from 33 m^3 per inhabitant in Malta to 159 m^3 per inhabitant in Italy. The median for the EU-28 states amounted to 76 m^3 per inhabitant. In Poland this value was below the median and amounted to 52 m^3 per inhabitant. It means that water consumption by publicly available distribution networks, i.e. by households, is in Poland clearly optimised, which cannot be noticed in the case of energy production.

The access of the population to public water distribution networks in the European Union countries is very high, with the median amounting in 2013 to 96% for the EU-28 member states. In Poland this index was much below the average and equalled 88% in 2013, 85.8% in 2004, compared to 72% in 1990.

In Poland, similarly to the Czech Republic, Slovakia, Estonia, Latvia and Romania, the significant backlog in the area of water infrastructure was caught up for in the period of economic transformation. According to the author, **a growth in the water system infrastructure in Poland is not as effective as in the case of other countries which invest in water system infrastructure, in a sense that there occurs a very high increase in the length of the water system network, yet without a significant increase in the population which has been connected to the network.** The main reason for the lack of effectiveness of this kind of investments is excessive fragmentation of residential buildings on scarcely populated areas, including a mass change of land specification in local development plans, from agricultural functions to housing functions. Kowalewski et al. [2014] estimate that an average of 6-7% of the country's area included in local development plans faced a change in its specification from agricultural to non-agricultural. Excessively large areas were intended for housing in local development plans, which many a time exceeded several times the economic needs and possibilities of gminas [Kowalewski et al., 2014]. They made it possible to populate 62 million people across the entire country, following the state at the end of 2012. In a number of gminas, the studies of conditions and directions of spatial management and local spatial development plans allocate for construction the areas whose demographic absorbency exceeds even ten times the number of gmina's inhabitants, causing spatial chaos and a waste of space and capital [Kowalewski et al., 2014]. Consequently, there occurred a necessity to build new water system networks, which increased insufficiently the number of connections to the network for local communities. Furthermore, there is a political factor, which results to some extent from the ownership structure of water and sewage service enterprises.

Among the main reasons for such a considerable drop in water consumption in the EU member states, but also the differences in the conditions of water consumption, there is the price factor – tariffs which determine water prices, and consequently shape the economical attitudes of households, demographic processes, transfers of more intensive (in terms of resources) branches of industry outside Europe, reduction in water-consumption of industry, more efficient use of water in the process of cooling during energy production, reduction of losses in water distribution, efficient farming techniques and installing measuring devices (water meters), modernisation of water devices in houses and flats.

5. The main challenges of the water sector in Poland

Water service enterprises are extremely fragmented in Poland. Most of them serve as owners of small water system networks. The realisation of infrastructural investments by these enterprises is possible

owing to direct or indirect funds from the European Union. In the face of the global trends associated with decreasing consumption of water in developed countries, a necessity to expand the access of local communities to water system infrastructure as well as very ambitious goals and tasks specified in the conception of sustainable development, with considerable fragmentation of residential development areas in Poland, the domestic water sector faces a great challenge for further development.

New requirements will be put on water service enterprises, including domestic, European and international regulations associated among all with water quality, system security, reduction of odour inconveniences and other negative external effects generated by the water sector. For instance, the European Committee adopted, following the guidelines from the World Health Organisation (WHO), Directive 2015/1787 of 6 October 2015 amending Council Directive 98/83/EC on the quality of water intended for human consumption. An important change introduced by this directive includes the possibility (not (yet) obligation) to draw up Plans for Water Health Security (PBZW) [Hudzik 2016, p. 22]. This document is said to encompass the assessment of threats for water supply systems, establishing critical points, finding the weak points and gaps, conducting a risk analysis, as well as the elimination of the threats. PBZW constitutes a strategic program of changes in the area of the functioning of an enterprise within the scope of self-improvement and an incessant concern for water health security [Arabska 2016]. According to Agnieszka Arabska, the head of the Service of Water Production and Sewage Treatment at Aquanet Poznan [2016, p. 19]: *"changes do not concern so much the processes themselves as they refer to the awareness and mentality of the participants who are directly engaged in the process as well as all the employees of a given enterprise, including the administrative employees and the management"*.

In the face of a decreasing trend of water consumption in Poland, water service enterprises will have to improve their operational efficiency, in particular their organisational ability, efficient property management, business expenditure optimisation, with secure management of accounting liquidity and improving the quality of customer services [Cf. Deloitte 2016].

As a result of growing urbanisation, it is important that organisations in the water sector have a strong influence on government and local authorities in terms of correcting the system of spatial planning and in localising new industrial, service and housing investments. Of key importance here are actions taken in order to reduce the disruptions of the natural circulation of water, including abiding by the rules concerning the share of unhardened surfaces on investment areas, a larger share of green areas, revitalisation of riverside areas [Lorek 2014]. Additionally, it is crucial to reduce the fragmen-

tation of single-family residential housing, which has a very negative effect on the costs of functioning of water service enterprises.

6. Summary

The aim of this article was to identify and assess the conditions of the water sector in Poland. A large discrepancy has been noticed in water-related needs between developing and well-developed countries. These needs are likely to grow in the former group, whereas in the latter – including Poland, they will gradually diminish until they reach a stability point. The decisions concerning the consumption of fresh water must be carefully taken in Poland, since the country does not possess large resources of fresh water. Unfortunately, the predominant role in the structure of water consumption is played by energy production, which in Poland is based on coal, and is very water-consuming at the same time. Besides, the author has indicated that unreasonable spatial management in Poland has led to the problem of an increase in the length of water system networks, with an insufficient growth in the population's access to these networks. The Sustainable Development Goals formulated for the water sector, i.e. specified tasks which are reflected in the European Union regulations and national laws and regulations, will constitute a serious challenge for the extremely fragmented water sector, which consists of water service enterprises, the majority of which administer small distribution networks. Supporting the operation of these enterprises with the EU funds, especially in terms of financing the water system infrastructure, will amortise the influence of the global and European trends and conditions. It is important for water service enterprises to take a maximum advantage of the period up to 2020 and improve their operational efficiency, in particular by optimising possessed property, improving the quality of water, improving customer service, and complying with the EU regulations in terms of risk assessment. Only by fulfilling these conditions will it be possible to reduce the process of consolidation, and subsequent privatisation of the water sector in Poland.

References

1. **Arabska, A.**, 2016, Plan bezpieczeństwa zdrowotnego wody w Aquanecie, Wodociągi-Kanalizacja, Nr 2(144)/2016, p. 16-19.
2. **Bochnia, T.**, 2016, Bezpieczeństwo krakowskiego systemu zaopatrzenia w wodę, Wodociągi-Kanalizacja, Nr 2(144)/2016, p. 20-23.
3. **Bogdanowicz, M.**, 2016, Liczba przedsiębiorstw z działu Pobór, uzdatnianie i dostarczanie wody w Polsce, Izba Gospodarcza „Wodociągi Polskie”, <http://igwp.org.pl/index.php/nasza-aktywnosc/analizy-ekonometryczne/544-liczba-przedsiębiorstw-z-działu-pobor-uzdatnianie-i-dostarczanie-wody-w-polsce>.
4. **Deloitte**, Water Tight 2.0. The top trends in the global water sector, 2016, London.
5. **GUS**, 2016, Ochrona Środowiska, Warszawa.
6. **Hudzik, G.** 2016, Na straży jakości wody, Wodociągi-Kanalizacja, Nr 4(146)/2016,

p. 22-23. 7. **Jakuta, D.**, 2014, Cenowa huštawka, Wodociągi – Kanalizacja, Nr 5/2014. 8. **Kowalewski A.**, Mordasewicz J., Osiatyński J., Regulski J., Stępień J., Śleszyński P., 2014, Ekonomiczne straty i społeczne koszty niekontrolowanej urbanizacji w Polsce – wybrane fragmenty raportu, Samorząd Terytorialny, 25, 4 (280), p. 5-21. 9. **Lis, P.**, 2015, Financialisation of the water sector in Poland, Fessud Working Paper Series No. 101, University of Leeds, p. 1-50. 10. **Lis, P.**, 2016, Wyzwania dla sektora wodnego w Polsce, w: Pająk, K., Gospodarka niskoemisyjna i jej wpływ na rozwój województwa wielkopolskiego, Wydawnictwo Naukowe PWN, p. 80-91. 11. **Lorek, A.**, 2014, Problemy i wyzwania zrównoważonej gospodarki wodno-ściekowej w regionie śląskim, Studia Ekonomiczne, Nr 166, p. 159-168. 12. **OECD**, OECD Environmental Outlook to 2050: The Consequences of Inaction, 2012. 13. **OECD Highlights**, Environmental Outlook to 2050: The Consequences of Inaction. 2012, OECD, p. 1-8. 14. **Report** of the World Commission on Environment and Development: Our Common Future, Annex, 1987, ONZ, Development and International Economic Co-Operation: Environment. 15. **Water Policy Reforms in Eastern Europe, the Caucasus and Central Asia. Achievements of the European Union Water Initiative, 2006-16**, OECD, UNECE, 2016.

Ліс П. Умови водного сектора в Польщі

У статті визначено та оцінено умови водного сектора в Польщі. Проаналізовано глобальні та прямі умови водного сектора в контексті розгляду структури і динаміки споживання води в країнах з економікою, що розвивається, і розвинутою економікою. Розглянуто пріоритетність питань наявності прісної води та її якості. Обґрунтовано інвестування проектів підвищення якості прісної води для споживачів з точки зору сталого розвитку та оцінки ризику порівняно з альтернативними підходами у вирішенні розглянутих проблем. Дано рекомендації щодо напрямків розвитку водного сектора на прикладі Польщі, що враховують інтереси підприємств, що працюють в секторі водопостачання.

Ключові слова: вода, водне господарство, водний сектор, підприємства водопостачання, водопостачання і каналізація, умови розвитку сектора водозабезпечення.

Ліс П. Умовия водного сектора в Польше

В статье определены и оценены условия водного сектора в Польше. Проанализированы глобальные и прямые условия водного сектора в контексте рассмотрения структуры и динамики потребления

воды в странах с развивающейся и развитой экономикой. Рассмотрена приоритетность вопросов наличия пресной воды и ее качества. Обосновано инвестирование проектов повышения качества пресной воды для потребителей с точки зрения устойчивого развития и оценки риска в сравнении с альтернативными подходами в решении рассматриваемых проблем. Даны рекомендации относительно направлений развития водного сектора на примере Польши, учитывающие интересы предприятий, работающих в секторе водообеспечения.

Ключевые слова: вода, водное хозяйство, водный сектор, предприятия водообеспечения, водоснабжение и канализация, условия развития сектора водообеспечения.

Lis P. The Conditions of the Water Sector in Poland

The aim of this article was to identify and assess the conditions of the water sector in Poland. The author has distinguished global and direct conditions of the water sector. What has been emphasised among the global conditions was a different structure and dynamics of water needs in developing countries and in developed countries. It has been assumed that the global Sustainable Development Goals formulated in 2015 focus primarily on the issue of fresh water availability rather than the issue of water quality. Nonetheless, the latter aspect is reflected in the European Union water policy and in state regulations. According to the author, adapting water service enterprises to more and more complicated regulations, requiring increasingly large financial resources, will constitute a major threat for the development of the exceptionally fragmented water sector in Poland. This sector is made up of water service enterprises, the majority of which administer small networks of distribution. This threat will be strengthened by a decreasing – in the long term – demand for fresh water, given rather small water resources in Poland. Additionally, it has been assessed that the pace of the growth of water network infrastructure was faster than the pace of an increase in the access to the public water distribution network. The author has also highlighted the danger for the water sector stemming from a scattered structure of residential developments, which came as a result of poor land management. Apart from this, the author believes that it is crucial to improve the operational efficiency of the water sector, in particular by optimising possessed property, improving water quality and customer services, as well as conforming to the EU regulations in terms of risk assessment.

Keywords: water, water sector, water and sewage service companies, water sector conditions.

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