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LEGAL, ECONOMIC AND ENVIRONMENTAL CONDITIONS FOR THE APPLICATION OF “FEE FOR DISCHARGING RAINWATER AND SNOWMELT INTO WATERS” IN POLAND

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ABSTRACT: This paper aims to identify and analyse the legal, economic and environmental conditions for the application of fees for discharging rainwater and snowmelt into waters. The article discusses the fundamental problems of rainwater management in Poland and the consequences of several decades of neglect. Economic and legal instruments used in water resources management are indicated. The fee for discharging rainwater and snowmelt to waters is characterised in detail. This paper shows the critical functions of the fee, legislative flaws, problems in practical application, factors determining the amount of the financial burden and potential measures for its optimisation. The directions of legislative changes, conditioning the fulfilment by the fee of the functions ascribed to it, have been indicated. This article is based on a review of the literature, legal acts, and statistical data from the Institute of Meteorology and Water Management and the Polish Central Statistical Office.

KEYWORDS: water management, economic instruments, taxes, rainwater and snowmelt

Introduction

Rainwater is defined both semantically and legally as water resulting from precipitation. Legal regulations specifying the rules for handling rainwater are contained in the oldest codifications. An example is *Lex XII Tabularum* from the archaic law period, of which Point 8 of Table VII states: *a. SI AQUA PLUVIA NOCET ... – b. Paulus (l.16 ad Sabinum) D.43,8,5: Si per publicum locum rivus aquae ductus private nocebit, erit action private ex lege XII tab., ut noxae domino caveator. a. If rainwater damages ... – b. If a watercourse conducted through a public place does damage to a private person, the said person shall have the right to bring an action ... that security against damage may be given to the owner* (Zabłocka & Zabłocki, 2003; Johnson et al., 1961). Today, water resources management is one of the main areas of interest within the concept of sustainable development. Goal 6 of the UN General Assembly Resolution: Transforming our world: the Agenda for Sustainable Development 2030 calls for access to water and sanitation for all through sustainable management of water resources (United Nations, 2015). Integral elements of sustainable water management are the protection of natural retention and the management of rainwater and snowmelt.

Under Polish law, the concept of rainwater and snowmelt appeared with the enactment of the Act of 20 July 2017 Water Law Act (Journal of Laws 2017, item 1566, hereinafter Water Law Act). Previous legislation considered rainwater or snowmelt entering open or closed sewerage systems from contaminated surfaces with a durable surface as wastewater.

A consequence of the statutory change in how rainwater and snowmelt are defined is the creation of new economic instruments for water management. The Water Law provides for a general system of public levies imposed on entities contributing to the reduction of natural retention and those discharging rainwater and snowmelt. The complementary fees include:

- the price being the subject matter of this article is the fee for the discharge into the waters of rainwater or snowmelt caught into open or closed stormwater drainage systems for the release of precipitation or collective drainage systems within the administrative boundaries of cities (from now on a fee for discharging rainwater and snowmelt),
- the price for the reduction of natural retention is imposed on entities limiting natural retention as a result of performing on real estate with an area exceeding 3.500 m², works or construction facilities permanently connected with land, which reduce retention by excluding more than 70% of the real estate from the biologically active area in areas not covered by open or closed sewerage systems.

This article analyses the legal, economic and environmental conditions for applying the rainwater and snowmelt discharge fee. The following research hypothesis has been formulated: the rainwater and snowmelt discharge fee has the potential to be an essential tool contributing to the promotion of rational rainwater and snowmelt management.

For readers unfamiliar with the Polish system of environmental fees, it should be pointed out that the cost analysed is a public levy and cannot be equated with the price for services provided by the public sector.

Analysis of the state of precipitation management in Poland

Management of rainwater and snowmelt in Poland is a particularly neglected area. The main problems include:

- the increasing process of limiting natural retention resulting from urbanisation and the widespread phenomenon of covering areas with concrete. The rainwater and snowmelt management paradigm has been to protect infrastructure by draining precipitation away from urban areas. Rain management on real estate sites has not been and is not of interest to either local government units or investors (public or private). The existing retention reservoirs have a total capacity of no more than 6 % of the annual water outflow. Consequently, 70% of precipitation is irretrievably lost (Supreme Chamber of Control, 2020). At the same time, Poland is facing the problem of drought and scarcity of water resources. The average water resources in Poland are around 60 billion m³. In dry seasons, this volume falls below 40 billion m³. Poland's freshwater resources on a per capita basis stand at 2,000 m³. There is more than two times less water per one Pole per year than the European average (over 4,500 m³) (Figure 1) (Central Statistical Office, 2021).
- insufficiently developed rainwater drainage network (and in many places, a complete lack thereof) resulting in rainwater and snowmelt being discharged to sanitary and combined sewers and directed to sewage treatment plants. Such solutions result in destabilisation of the operation of sewage treatment plants during periods of precipitation; the necessity to incur unjustified investment outlays for adjusting the capacity of infrastructure and sewage treatment plants to the maximum levels of rainfall, and, consequently, an increase in the costs of sewage treatment,
- and unsettled ownership status of stormwater drainage networks. This phenomenon is particularly noticeable in post-industrial areas, where sewerage networks that are several decades old have been left behind by enterprises that closed down, and for which both the municipalities and

the water supply companies operating in the area are unwilling to accept responsibility. Taking over ownership would involve the significant capital expenditure on infrastructure repairs,

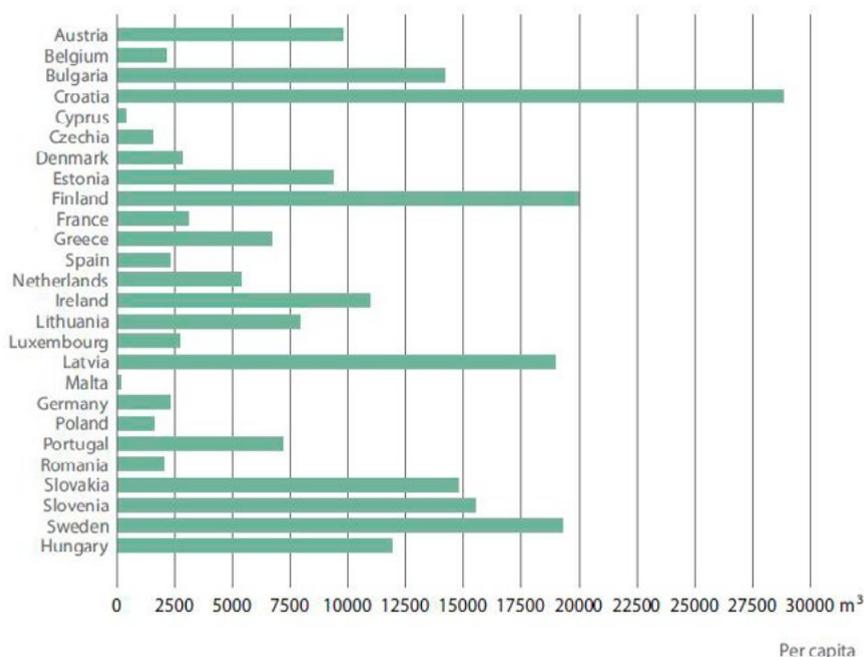


Figure 1. Freshwater resources in European Union countries (long-term average – the minimum period taken into account for the calculation of long-term annual averages is 20 years)

Source: Central Statistical Office (2021).

- the reluctance of many municipalities to regulate rainwater and snowmelt management, and coexisting with financial barriers. Controlling the economy requires decisions that are unpopular with voters, including, for example, the introduction of tariffs for rainwater and snowmelt entering sanitary and combined sewers,
- insufficient monitoring of rainwater and snowmelt, coexisting with widespread non-compliance with environmental standards by entities discharging rainwater and snowmelt into waters and water facilities, and lack of water quality control by authorised state bodies. Rainwater or snowmelt may be released into waters or water installations:
 - in the case of waters originating from contaminated sealed surfaces (including industrial sites, storage areas, transport bases, ports, air-

ports, cities, roads in the category of national, provincial or county roads class G, as well as car parks with an area exceeding 0.1 ha, fuel storage and distribution facilities) without treatment, provided that they do not contain polluting substances in quantities exceeding 100 mg/l of total suspended solids and 15 mg/l of petroleum hydrocarbons. An assessment of compliance with the standards should be carried out by the introducing party at least twice a year:

- a) In terms of regulated polluting substances, based on tests carried out during spring and autumn precipitation,
- b) for other substances based on a review of the treatment facilities.
 - for water from other surfaces without treatment, and for pollutant emission standards have not been specified (Journal of Laws 2019, item 1311 §17).

The change in the way rainwater and snowmelt are perceived under the current Water Law Act is a consequence of the recognition of existing problems and an attempt to activate processes for their gradual solution. Also contributing to solving the issues will be the Drought Investment Law (Draft Law of 18 February, 2022), which has been under development since 2020.

Economic and legal instruments in water protection and management

The objectives in the area of water protection and water management are implemented through legal and economic instruments. Legal instruments include water law permits, environmental standards and specific authorisations, orders, prohibitions and restrictions. The system of financial instruments for water management consists of:

- fees for the use of water resources as defined in article 267 Water Law Act¹: fees for water services, increased costs, fees for the benefit of inland waterways and their sections, as well as water facilities owned by the Treasury and located on inland surface waters, legalisation fee, the annual fee for land covered by waters owned by the Treasury, proceeds from the disposal by Polish Waters² of real estate owned by the Treasury, the annual fee for the use of fishing circuits, fee for a permit to practise amateur fishing, proceeds from contracts concerning inland fishing,

¹ Water services provide households, public entities and business entities with the possibility to use water beyond the scope of everyday water use, regular water use and particular water use (Art. 35 items 1 Water Law Act). They cover nine enumerated services.

² State Water Holding Polish Waters (hereinafter Polish Waters).

- fines imposed in fine and court proceedings, including under Articles 475 – 478 Water Law Act and Article 28 item 4a of the Act on Collective Water Supply and Collective Sewage Disposal (Journal of Laws 2020, item 2028),
- a system of compensatory liability obliging the prevention and remediation of water damage,
- subsidies and grants from national and foreign funds,
- preferential loans and credits.

In theoretical terms, fees are an ancillary source of public sector revenue from taxes. They are imposed in situations where the State wishes to fee the users of certain goods (benefits, services) for their costs. The defining features of a fee are its pecuniary nature, its compulsory nature, its non-returnable nature, its unilateral determination and the fact that it is collected based on normative acts. A fee is distinguished from taxes by its changeability. In return for the fee paid, the entity paying the fee receives a reciprocal contribution. The imposition of fees has economic effects analogous to taxes. Environmental (ecological) fees form a particular group. They constitute compensation paid by those using the environment within the scope of the standards and permits granted. They perform the following functions:

- macroeconomic – motivational, redistributive, preventive,
- microeconomic – a function of an exponent of profitability of protection and modernisation undertakings, the function of a stimulator of economic management of environmental resources (Piontek, 2003).

Under Article 9 of the Water Framework Directive, water managing Member States must follow the principle of cost recovery of water services. Water services' costs should be considered: environmental and material costs, the results of the economic analyses, and the "polluter pays" principle. States shall have the right to assume the social, environmental and economic impacts of cost recovery and the geographical and climatic conditions of the specific region or regions. Water service users are divided into at least four groups: industry, public institutions, households and agriculture. The water charging policies by the Member States shall encourage users to use water resources efficiently, contribute to the achievement of the environmental objectives of the Directive and ensure recovery of the costs of water services. At the same time, The European Green Deal envisages extensive tax reforms that will shift the tax burden from labour to pollution as part of its efforts to make national budgets green (European Commission, 2019).

The objectives of the application of water fees declared in the Water Law Act (2017) include an adaptation of water consumption to existing water resources (environmental resources) in individual river basins, protection of the environment from substances posing a threat to the aquatic environment, special protection of underground water resources and lake waters, rational

management of rainwater and snowmelt, creation of incentives for water retention and reasonable use of other resources (stone, gravel, sand). (Article 277, Section 2, item 1 Water Law Act) The legislator allows for differentiation of the fee rates depending on: the quality, type and purpose of the water taken, the kind of sewage generated, the variety of substances contained in the sewage and their temperature. The criterion of the part of the territory of the state is also an acceptable criterion for differentiating rates (Article 277, section 2, item 2 Water Law Act).

The water service fees category includes fees for:

- intake of groundwater or surface water (Article 268, Section 1, item 1 Water Law Act),
- discharging wastewater into waters or onto the ground (Article 268, Section 1, item 2 Water Law Act),
- discharge into waters of:
 - rainwater or snowmelt caught into open or closed stormwater drainage systems used for the disposal of precipitation or by collective drainage systems within the administrative boundaries of cities (Article 268, Section 1, item 3 Water Law Act),
 - water from the drainage of land within the administrative boundaries of cities (Article 268, Section 1, item 3 letter b Water Law Act),
- intake of groundwater and surface water for fish farming and aquaculture (Article 268, Section 1, item 4 Water Law Act),
- discharge into water or onto the land of sewage from the farming of fish and other aquatic organisms (Article 268, Section 1, item 5 Water Law Act),
- decrease of the natural land retention as a result of execution on the property with an area exceeding 3,500m² of works or building facilities permanently connected to the ground, having an impact on the decrease of this retention by excluding more than 70 % of the property from the biologically active area in the areas not covered by the open or closed sewage systems (Article 269, Section 1, item 1 Water Law Act),
- extraction of stone, gravel, sand and other materials from surface waters, including internal sea waters, the Bay of Gdańsk and territorial sea, and cutting plants from waters or the shore (Article 269, Section 1, item 2 Water Law Act).

Characteristics of the fee for discharging rainwater and snowmelt

Taxpayers of the fee for rainwater and snowmelt discharge are entities owning outlets of sewerage systems through which precipitation is discharged into waters.

The analysis of the subject of the fee requires a detailed interpretation of the term “within the administrative borders of towns and cities” contained in Article 268 Section 1, item 3, letter an of the Water Law Act. The imprecision of this provision has given rise to legal disputes as to whether the condition refers only to the discharging of rainwater or snowmelt into the water – water contained in collective sewerage systems within the administrative boundaries of towns and cities. Is it also the case for the discharge into the water of rainwater or snowmelt fed into open or closed stormwater drainage systems used for the release of precipitation? According to judicial interpretations (for example, Judgement II SA/SZ 473/18), the clause “within the administrative boundaries of towns and cities” should only refer to the situation of rainwater and snowmelt discharge via a collective sewerage system (Kostrzewska & Krystman, 2019). Consequently, the subject of the fee are the following activities:

- discharge into waters of rainwater or snowmelt contained in open or closed stormwater drainage systems³ used for the disposal of precipitation, irrespective of where the activity takes place,
- discharge into waters of rainwater or snowmelt discharged into collective⁴ drainage systems within the administrative boundaries of towns and cities (Figure 2).

The following activities are exempt from the tax obligation: discharge into waters of rainwater or snowmelt discharged into collective drainage systems outside the administrative borders of towns and cities, and release of

³ A stormwater drainage system is a set of facilities dedicated exclusively to the drainage of precipitation, including pipelines, ditches, three open or closed channels, drainage systems and road profile systems, maintenance holes, and pretreatment facilities.

⁴ A collective sewerage system is a sewerage network within the meaning of Article 2, item 7 of the Act on Collective Water Supply and Collective Sewage Discharge (i.e. sewerage pipes together with fittings and devices by means of which sewage is discharged, owned by a water supply and sewerage company) terminated with a sewage treatment plant or a final point of discharge of sewage (Article 16, item 59 Water Law Act). The combined sewerage system discharges a mixture of domestic sewage, industrial sewage and rainwater and snowmelt, forming municipal sewage (Article 16, item 63 Water Law Act). However, the legislator does not define the concept of sanitary sewers, which can be defined as sewers intended exclusively for the disposal of domestic and industrial wastewater. Consequently, the right to recognise a sewer as a sanitary sewer is vested in its owner.

rainwater and snowmelt into sanitary sewers. According to the provisions of Article 9 item 1 of the Act on Collective Water Supply and Collective Sewage Disposal, the discharge of rainwater and snowmelt into the sanitary sewerage system is prohibited and is subject to prosecution under the Code of Conduct in Misdemeanours (Journal of Law of 2020, item 2028).

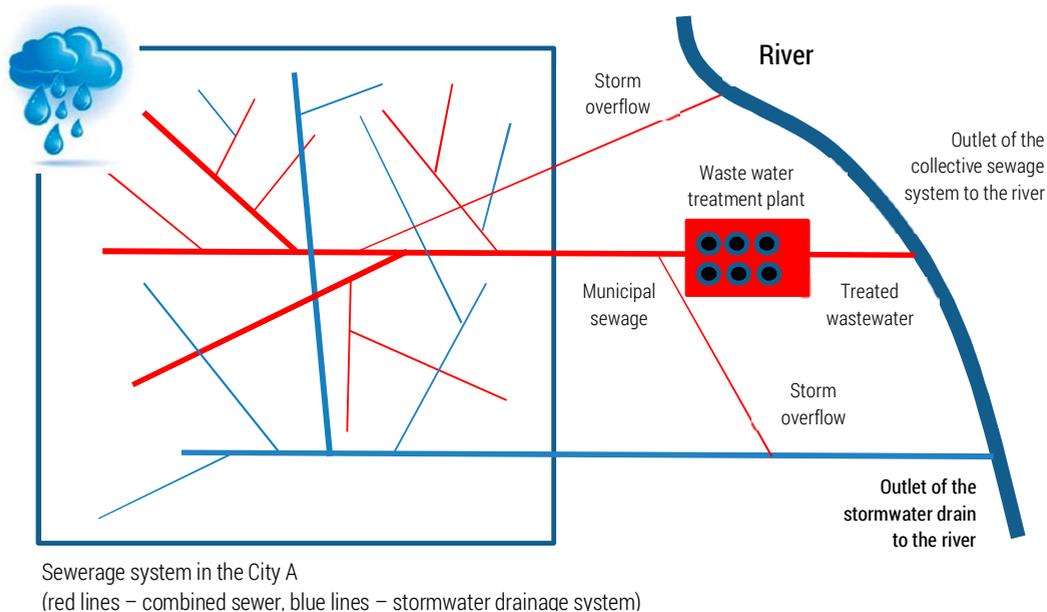


Figure 2. Illustrative diagram of a sewerage system and storm water stormwater drainage

Source: author's work.

A fee for the discharge into waters of rainwater or snowmelt discharged into collective drainage systems within the administrative boundaries of towns and cities is currently not collected. The Water Law does not specify the rules for the collection of the variable part of the fee as well as the fee rates. It remains unclear whether the existing legal state results from the legislator's intentions or mistakes made in the legislative process.

The fee for the discharge of rainwater and snowmelt caught into open or closed stormwater drainage systems for the disposal of rainfall shall consist of:

- a fixed fee – is determined as the product of the unit fee rate, time expressed in days and the maximum quantity of discharged water (in m^3/s), as specified in the water permit or integrated permit (Article 271, item 4 Water Law Act). The unit fee rate for the maximum amount of

rainwater or snowmelt discharged, as specified in the water permit or integrated permit, is set at PLN 2.50 per day per 1 mm³/s (Journal of Laws 2021 item 736 §6). The maximum statutory fee rate is 5 PLN per day per 1 m³/s. A fixed fee shall be payable from the date on which the water permit or the integrated permit becomes final until the date of expiry, revocation or lapse;

- a variable fee – determined as the product of a unit fee rate, amount of discharged water (in m³) and time expressed in years, taking into account the existence of water retention facilities and their capacity (Article 272, item 5 Water Law Act). The unit fee rates are shown in Table 1. The quantity of water discharged is determined every quarter according to meter readings or statements made by taxpayers⁵.

Table 1. The rate of the variable fee for the discharge of rainwater and snowmelt caught into open or closed stormwater drainage systems for the disposal of rainfall within the administrative boundaries of towns and cities

| Specification | Maximum specified in the Water Law Act | Applicable pursuant to the Regulation |
|---|--|---------------------------------------|
| | PLN per 1 m ³ per 1 year | |
| without facilities for the retention of water from sealed areas | 1.50 | 0.75 |
| with water retention facilities with a capacity of | | |
| up to 10% of the annual runoff from sealed areas | 1.25 | 0.625 |
| more than 10% of annual runoff from sealed areas | 1.00 | 0.50 |
| more than 20% of annual runoff from sealed areas | 0.75 | 0.375 |
| more than 30% of annual runoff from sealed areas | 0.15 | 0.075 |

Source: author's work based on Journal of Laws from 2021 item 2233 and item 736 §8.

The level of unit rates for the fixed and variable parts of the rainwater and snowmelt fees results from a political compromise. It implements the principle of cost recovery of water services to a limited extent.

The amount of both the fixed and the variable part of the fees is determined by Polish Waters and communicated to the obliged entities in the form of information. A taxpayer disputing the amount of the price selected is enti-

⁵ By 31 December 2026 PGW Polish Waters is obliged to equip entities obliged to pay for water services with measuring instrument (Art. 552 item 7 Water Law Act). Consequently, the fee will be calculated solely on the basis of the readings of the metering equipment.

tled to complain. In situations where the taxpayer has not paid the fee specified in the information provided, an administrative decision shall determine the fee amount. Neither the lodging of a complaint nor an appeal by a taxpayer against a decision determining the fee amount shall suspend its enforcement. Fees are paid to the bank account of the Polish Waters every quarter.

Taxpayers shall submit their declarations on the volume of water discharged to the Polish Waters within 30 days after the quarter end to which they relate (art. 552, item 2b Water Law Act). They shall include information on the quantity of rainwater or snowmelt discharged (in m³), together with information on the existence of any water retention facilities. The amount of discharged rainwater and snowmelt declared in the declarations is calculated as a product of the area from which the water is removed, surface runoff coefficients and the amount of actual precipitation determined based on self-made rainfall measurements or measurements conducted by IMGW-PIB within the framework of the measurement station network.

The use of surface runoff coefficients considers the degree of sealing of the surface from which precipitation is drained. The degree of sealing depends on the type of development, the use of the character and the type of surface. It considers factors such as evaporation, rainfall infiltration and the degree of slope. The legislator does not specify the values of the surface runoff coefficients, leaving the taxpayers to determine them themselves or to use documents and literature. Examples of surface runoff coefficient values are shown in Table 2.

Table 2. Surface run-off coefficients

| Surface run-off coefficients ψ from car parks depending on the type of development and the type of surface according to GDDKiA (2009) | | | |
|--|-----------------------|---|-------------|
| Type of development | ψ | Type of surface | ψ |
| Very dense housing, paved surface | 0.70 ÷ 0.80 | Roofs (sheet metal, tar paper) | 0.90 ÷ 0.95 |
| Compact development | 0.50 ÷ 0.70 | Asphalt surfaces | 0.85 ÷ 0.90 |
| Loose development | 0.30 ÷ 0.50 | Sealed stone and clinker paving | 0.75 ÷ 0.85 |
| Undeveloped land | 0.10 ÷ 0.25 | Surfaces as above, but without grouted joints | 0.40 ÷ 0.50 |
| Parks and green areas | < 0.15 | Rockfill surfaces | 0.25 ÷ 0.60 |
| | | Gravel surfaces | 0.15 ÷ 0.30 |
| | Unreinforced surfaces | | 0.10 ÷ 0.20 |

| Surface runoff coefficients ψ according to Błaszczyk et al.(1974) | | | |
|--|-------------|-----------------------------------|-------------|
| According to the land development plan | ψ | Without the land development plan | ψ |
| Roofs | 0.90 ÷ 1.00 | Compact development | 0.50 ÷ 0.70 |
| Asphalt roads | 0.85 ÷ 0.90 | Loose development | 0.30 ÷ 0.50 |
| Stone and clinker paving | 0.75 ÷ 0.85 | Villa development | 0.20 ÷ 0.30 |
| Gravel roads | 0.15 ÷ 0.30 | Non-developed areas | 0.10 ÷ 0.20 |
| Parks, gardens, meadows, green squares | 0.00 ÷ 0.10 | Parks and large green areas | 0.00 ÷ 0.10 |

| Surface runoff coefficients ψ according to Branicki (2017) | | | | | | |
|--|------------|------|------|------|------|------|
| Type of development and use | Slopes [%] | | | | | |
| | up to 0.5 | 1.5 | 2.5 | 5.0 | 7.5 | 10.0 |
| | ψ | | | | | |
| Surface area of the water reservoir | 1.00 | | | | | |
| Industry and storage areas | 0.60 | 0.62 | 0.65 | 0.70 | 0.75 | 0.80 |
| Roads and streets | 0.60 | 0.62 | 0.65 | 0.70 | 0.75 | 0.80 |
| Footpaths, cycle paths, tram tracks, car parks | 0.50 | 0.52 | 0.55 | 0.60 | 0.65 | 0.70 |
| High-intensity residential development (compact development) | 0.60 | 0.62 | 0.65 | 0.70 | 0.75 | 0.80 |
| Extensive development (medium intensity), loose development | 0.40 | 0.42 | 0.45 | 0.50 | 0.55 | 0.60 |
| Services | 0.35 | 0.37 | 0.40 | 0.45 | 0.50 | 0.55 |
| Services with accompanying greenery (e.g. cemeteries), walking alleys | 0.20 | 0.22 | 0.25 | 0.30 | 0.35 | 0.40 |
| Areas with low intensity of development, single-family housing, villas | 0.30 | 0.32 | 0.35 | 0.40 | 0.45 | 0.50 |
| Parks and gardens | 0.10 | 0.12 | 0.15 | 0.20 | 0.25 | 0.30 |
| Arable land | 0.05 | 0.08 | 0.10 | 0.15 | 0.20 | 0.25 |
| Forests and ecological greenery | 0.01 | 0.02 | 0.04 | 0.06 | 0.10 | 0.15 |

Source: author's work.

The fee for introducing rainwater and snowmelt constitutes revenue for Polish Waters. The rules for payment of the fee are governed by the provisions of Section III of the Tax Ordinance Act (Journal of Laws from 2021, item

1540). Polish Waters performs the functions of the tax authorities, the directors of the catchment boards as the first level tax authority, and directors of regional boards for water management as a tax authority of the second degree (Article 300, Water Law Act).

Differentiation of the fee for rainwater and snowmelt

The factors shaping the amount of the fee for rainwater and snowmelt can be divided into:

- exogenous factors: volume of precipitation, legally defined fee rates,
- endogenous factors: degree of sealing of the property surface, use of water retention facilities.

The main factor determining the fee for rainwater and snowmelt is the amount of precipitation. This factor is exogenous and cannot be shaped by the taxpayer.

Poland is located in a moderate warm transitional climate. It is characterised by large temporal and spatial variations in precipitation. Wet and dry summers alternate. For example, the average area rainfall in Poland in 2019 was 573.3 mm. It increased by 72.1 mm to 645.4 mm in 2020. Regions of average rainfall coexist with regions of severe rainfall deficit. Upland and mountain areas have the highest precipitation values, and lowland areas have the lowest. In 2020, the highest annual precipitation totals (in urban areas) were recorded in Bielsko-Biała – 1,182.1 mm, Zakopane – 1,127.6 mm, outside mountain areas in Katowice-Muchowiec – 854.5 mm and Racibórz – 840 mm. The lowest rainfall occurred in Szczecin with 410.2 mm, Hel 436.1 mm and Poznań-Ławica 492 mm. The highest rainfall occurs in the summer half-year (May-September). In addition, extreme weather phenomena are becoming more frequent, including heavy rainfall. The amplitudes of deviations caused by them are above 200% of the multi-annual averages (IMGW-PIB, 2019; IMGW-PIB, 2020). Changes in precipitation in 2018–2021 in Poland and for the exemplary measuring station, IMGW-PIB Czeladź is presented in Figure 3.

The indicated spatial-temporal variation in precipitation implies a variation in rainwater and snowmelt drainage fees. An analysis of the burden of the variable part of the fee between 2018 and 2021 in Poland shows an increase in the average price value from PLN 0.41/m² in 2018 to PLN 0.48/m² in 2020 and PLN 0.47/m² in 2021. For the example analysed rainfall station of IMGW-PIB Czeladź, the value of the fee was PLN 0.39/m² in 2018, PLN

0.49/m² in 2019, PLN 0.58/m² in 2020 and PLN 0.57/m² in 2021, an increase of 48% (Figure 4).

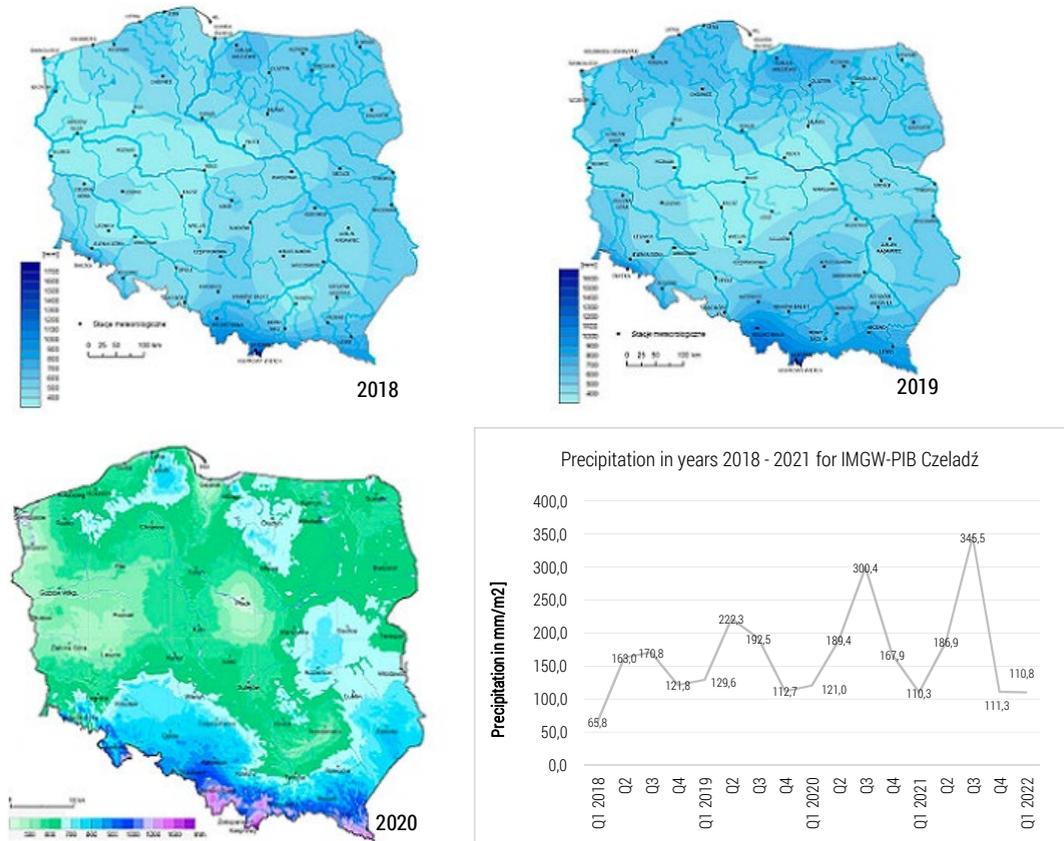


Figure 3. Annual precipitation totals in Poland in 2018–2020 and quarterly precipitation IMGW-PIB Czeladź in 2018–2022

Source: IMGW-PIB (2018; 2019; 2020).

According to the spatial distribution of precipitation, the highest loading of the variable part of the fee occurs in upland and mountainous areas and the lowest in lowland areas. The variation of the price in 2020 in selected regions is shown in Figure 5.

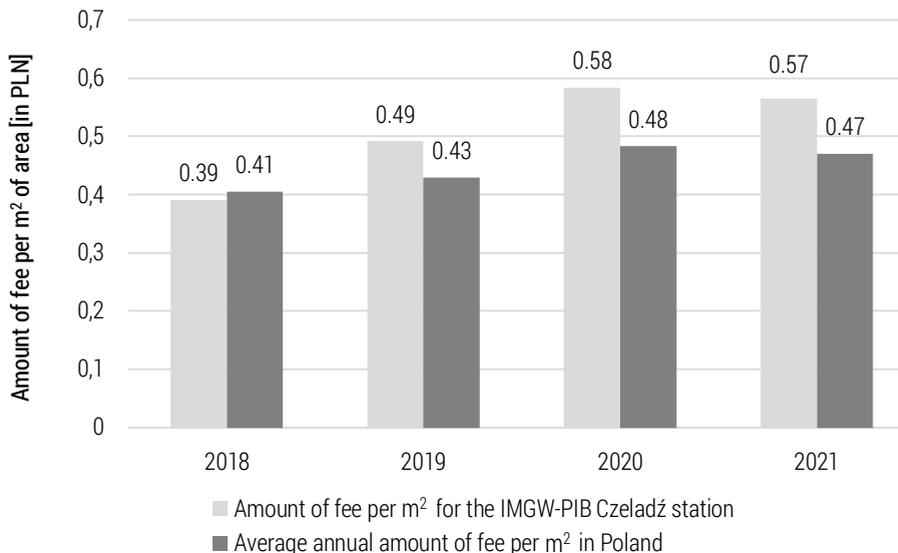


Figure 4. Changes in the fee burden per m² of the area between 2018 and 2021: average for Poland and IMGW-PIB station Czeladź

Source: author’s work.

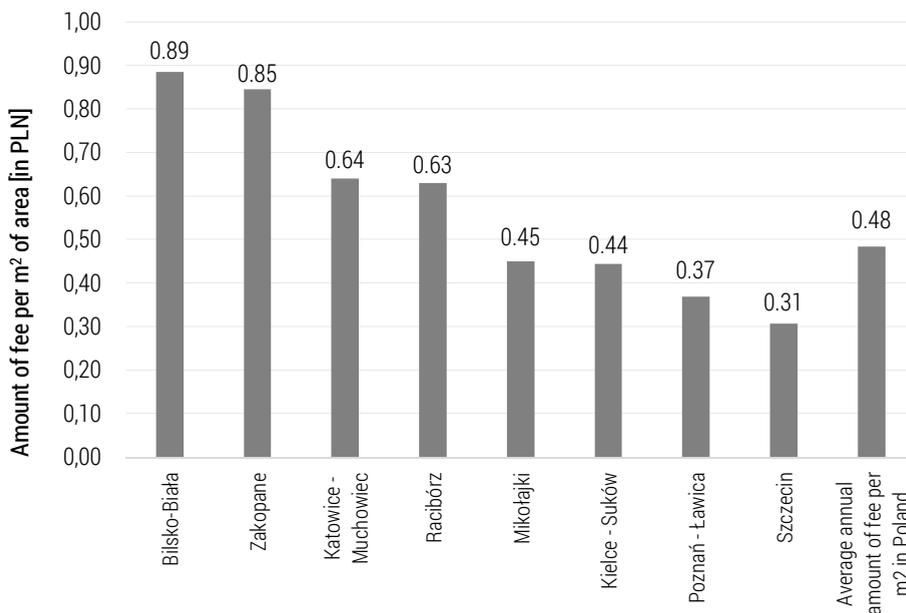


Figure 5. Fees per m² of space in 2020 in selected regions of Poland

Source: author’s work.

In 2020 in Poland, the average fee for the variable part of the rainwater and snowmelt discharge fee was PLN 0.48 /m². In urban areas with the highest precipitation (Bielsko-Biała, Zakopane), it reached the level of PLN 0.89 /m² of space, and in areas with the lowest precipitation (Szczecin), only PLN 0.31 /m². Consequently, a taxpayer discharging rainwater and snowmelt from 1,000 m² of reduced surface area in Bielsko-Biała was required to pay a fee of PLN 890 and in Szczecin – PLN 310.

Of particular importance is the avoidance of high-intensity development in favour of extensive and loose development (an additional effect is the improvement of the quality of life of the inhabitants). Intensive development precludes the possibility of managing rainwater and snowmelt in urban areas. At the same time, it forces infrastructure adaptation to extreme weather events, which cause increasing damage to public and private assets. Such an approach requires conscious management of rainwater and snowmelt at the municipal level. To take account of its requirements in land-use planning, balancing the benefits and losses of urban expansion, and resisting the pressure exerted by profit-maximising developers.

Examples of optimisation measures for the fee burden that are feasible for taxpayers within their properties include:

- avoid unjustified surface sealing, including maximising the proportion of biologically active areas and using unsealed surfaces. According to current legal regulations, at least 25% of the size of plots designated for development must be arranged as biologically active areas (Journal of Laws from 2019, item 1065 §39). Runoff coefficients for green regions are set at less than 0.15, which reduces the chargeable size by approximately 90%,
- use of water on the property: the creation of artificial water reservoirs (ponds, lakes, fire fighting reservoirs), collection of rainwater in underground reservoirs and its use for watering green areas and the use of systems infiltrating rainwater and snowmelt into the ground.

The use of the indicated solutions remains subject to geological conditions, which may prevent or significantly limit their applicability.

Transfer of fee burden

The transfer of the burden of the fee for the discharge of rainwater and snowmelt to the owners of the properties from which the water is discharged is determined by the legal regulations on the formation of prices and fees for municipal services and the use of public utilities. The provisions in question are highly imprecise and leave expansive room for interpretation by courts, municipalities, water and sewerage companies, and introducers. The problem addressed requires consideration of two circumstances:

- rainwater and snowmelt are fed into stormwater drainage systems,
- rainwater and snowmelt are fed into combined sewer systems.

The municipality's task is the sewerage activity under Article 7 of the Act on Municipal Self-Government (Journal of Laws from 2022, item 559). At the same time, in the current legislation, there is no legal basis to establish, in the form of a local law act, a fee (public contribution) for discharging rainwater and snowmelt to the stormwater drainage system. Court judgements confirm the above legal status, including the decision of the Voivodeship Administrative Court in Opole (Judgement I SA/Op 72/21) and the judgement of the Provincial Administrative Court in Gdańsk (Judgement III SA/Gd 716/20) invalidating resolutions adopted by the municipalities in this scope. The power of local self-government units under Article 4 of the Act on Municipal Management (Journal of Laws 2021, item 679) to determine the amount and manner of determining public tributes for municipal services and the use of public facilities and equipment may be exercised only within limits defined by law. At the same time, the judgements referred to indicate that prices set by municipalities for municipal services and prices for the use of public facilities and equipment may only be the equivalent for service paid for under market conditions. Any form of coercion (including life coercion) cannot be imposed on the recipient. The concept of compulsion is understood broadly and refers to the necessity for the recipient to conclude a contract for the disposal of rainwater and snowmelt and to the impossibility of opting out of public service. In court opinions, the establishment of prices by municipalities for introducing rainwater and snowmelt into stormwater sewers creates such a compulsion. It stems from at least two premises:

- many taxpayers have limited options to immediately opt out of the service and manage rainfall on their property,
- for certain groups of taxpayers, the possibility of disconnection from the stormwater drainage system due to environmental and geological conditions does not exist.

In light of the presented legal status and court judicature, there is no legal basis for establishing any form of payment for rainwater and snowmelt discharge into the municipal stormwater drainage systems and, consequently, for shifting the burden of a fee to the entities introducing it. The price constitutes a burden on municipal budgets. In situations where water supply companies own stormwater drains, the cost of the fee should be refinanced from the municipalities' budget. Transfer of the price is possible in a limited number of situations where a private entity owns the stormwater sewer.

In the second of the analysed circumstances, the legislator establishes a fee for discharging rainwater and snowmelt into the combined sewerage system, making their collection impossible as a consequence of not specifying the principles of its collection. Rainwater and snowmelt discharged into

the collective sewerage system, after mixing with domestic and industrial wastewater, forms the category of municipal sewage. They are, therefore, subject to the Act on Collective Water Supply and Collective Sewage Disposal and should be included in the tariff for collective sewage disposal approved by Polish Waters.

Proceeds from the fee between 2018 and 2020

Between 2018 and 2020, approximately 11,700 permits were in force for discharges to a water of rainwater and snowmelt captured in open or closed stormwater drainage systems for the disposal of precipitation. 550 million m³ of rainwater and snowmelt were discharged into the waters. The revenue received by Polish Waters from the levy amounted to PLN 347.6 million in 2018–2020 (SWH Polish Waters, 2022). At the same time, according to estimates provided by the Polish Waters, for one-third of the outlets to rivers carrying sewage or rainwater and snowmelt, the water permits required by law have not been issued (Forsal, 2021).

As a consequence, the loss in revenue from the levy received by the Polish Waters in the years 2018–2020 should be estimated at a level of several tens of millions of zlotys. This state of affairs is a consequence of both a lack of knowledge of the law on the part of those introducing rain and snowmelt water and sewage, as well as insufficient supervision by the Polish Waters. The indicated lack of supervision must be seen as a form of mismanagement.

Discussion

From a theoretical point of view, the essential functions of the rainwater and snowmelt fees are as follows: the function of an exponent of profitability of protection and modernisation undertakings and the process of creating motivation to take into account the problem of rainwater management in spatial management, to maintain natural retention, and to undertake actions for the retention of precipitation in urban areas. Under the existing legal conditions, these functions are carried out to a limited extent.

Contrary to the statutory assumption of universality of taxation, the fees are borne by entities reducing natural retention on properties over 3.500 m² as well as by municipalities and a narrow group of entities directly discharging rainwater and snowmelt into waters through owned outlets. Without a legal basis, the fee will not be payable by entities introducing rainwater and snowmelt into collective sewerage systems or introducing rainwater and snowmelt into municipal stormwater drainage systems. Consequently, the

price does not create incentives and economic efficiency for retention conservation and development projects. The design of the fee system violates one of the basic principles of taxation – the principle of universality of taxation, according to which taxpayers who fulfil the criterion covered by the tax should bear the same tax burden.

One of the main principles of forming tariffs for collective water supply and sewage disposal is the prohibition of cross-subsidisation, i.e. covering costs related to one type of economic activity conducted by a water and sewage company or one tariff group of service recipients with revenues from a different kind of activity performed. It is unacceptable for entities producing exclusively domestic or industrial wastewater to be charged with the cost of collecting and treating rainwater and snowmelt. The above principle requires separating a tariff group of customers discharging rainwater and snowmelt within tariffs.

The incentive function of the fee is geographically determined and depends on the spatial variation of precipitation. High motivation for precipitation management is induced in regions with high and average precipitation and relatively higher water resources. As the number of rainfall decreases, the incentive function of the fee decreases. The variability of precipitation results in the unpredictability of the fee imposed on the taxpayer, which violates the principles of tax certainty and tax convenience. How the subject of the price is constructed does not take into account the geological conditions existing on the properties from which rainwater is discharged. Geological conditions determine the possibilities of preserving natural retention and managing precipitation. In situations where it is not possible to collect waste on the property, the taxpayer is forced to pay a fee without being able to take steps to avoid it or optimise the burden.

Conclusions

Verifying the adopted research hypothesis makes it possible to formulate the thesis that the rainwater and snowmelt discharge fee may constitute an essential economic instrument contributing to rational rainwater management in Poland. It requires a thorough revision of the legal provisions, particularly the subject, the object and the fee rate. As part of the proposed revision of the fee subject, it is necessary to postulate the introduction of regulations making it possible to transfer the cost burden from the outlet holder to entities discharging precipitation through the storm and collective sewerage systems. About the subject matter of the charge, clarification of the following issues is required:

- taking account the geological conditions in determining burden levels and,
- the predictability of the fee.

A solution ensuring the predictability of the fee burden could be replacing the current precipitation in the fee calculation algorithm with a rolling average of the area precipitation for ten years. Ensuring equality of taxation requires spatial differentiation of fee rates. The unit rates of fees should be shaped on a regional basis and increase with decreasing precipitation and decrease with increasing precipitation. The proposed solution is admissible in light of the previously referred Article 277 Section 2 item 2 Water Law Act. It will ensure nationally comparable charging of those discharging precipitation to sewerage systems, as well as economic efficiency and motivation to take measures for rainwater management.

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