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**ЕКОНОМІКА ТА УПРАВЛІННЯ НАЦІОНАЛЬНИМ ГОСПОДАРСТВОМ**

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**THEORETICAL ASPECTS OF AFFORDABILITY OF WATER SUPPLY AND DRAINAGE SERVICES FOR THE PUBLIC**

**Abstract.** The article discusses the essence of financial affordability of water supply and sewage to the public on the basis of its criteria used by international organizations and domestic realities of the financial system functioning. The author determines the main indicators of financial affordability of these services and shows their impact on the enterprises financial state and quality of services.

**Keywords:** financial affordability; financial resources; income; tariff; water supply and sewage.

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**ТЕОРЕТИЧНІ АСПЕКТИ ФІНАНСОВОЇ ДОСТУПНОСТІ ПОСЛУГ ВОДОПОСТАЧАННЯ ТА ВОДОВІДВЕДЕННЯ ДЛЯ НАСЕЛЕННЯ**

**Анотація.** У статті розглянуто сутність фінансової доступності послуг водопостачання і водовідведення для населення з урахуванням критеріїв доступності, що використовуються світовими організаціями та вітчизняних реалій функціонування фінансової системи. Виокремлено основні індикатори фінансової доступності даних послуг й показано їх вплив на фінансові результати діяльності підприємств та якість послуг.

**Ключові слова:** фінансова доступність; фінансові ресурси; доходи; тариф; водопостачання та водовідведення.

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**ТЕОРЕТИЧЕСКИЕ АСПЕКТЫ ФИНАНСОВОЙ ДОСТУПНОСТИ УСЛУГ ВОДОСНАБЖЕНИЯ И ВОДООТВЕДЕНИЯ ДЛЯ НАСЕЛЕНИЯ**

**Аннотация.** В статье рассмотрено сущность финансовой доступности услуг водоснабжения и водоотведения для населения с учетом критериев доступности, используемых мировыми организациями и отечественных реалий функционирования финансовой системы. Выделены основные индикаторы финансовой доступности данных услуг и показано их влияние на финансовые результаты деятельности предприятий и качество услуг.

**Ключевые слова:** финансовая доступность; финансовые ресурсы; доходы; тариф; водоснабжения и водоотведения.

**Urgency of the research.** In recent years in Ukraine, the reforms in all sectors of the national economy have been aimed in European integration direction to ensure economic growth and a positive image in the international community. Water supply and sewerage sector is no exception. It is undergoing major changes towards the establishment of economically justified price rates for water supply and drainage and improvement of the institutional and normative basis for a public-private partnership in the field. However, in the circumstances of rising unemployment, inflation and falling real incomes (which is largely due to social and political instability and military actions in Eastern Ukraine) the issue of affordability of water supply and drainage services for the citizens is being exacerbated.

**Target setting.** There is a necessity in an in-depth study of the theoretical foundations of affordability in order to define the nature of the concept, taking into account international experience and peculiarities of economic development in Ukraine. This will facilitate a thorough analysis of the impact of affordability indicators on the financial results and effective management decisions at the macro and micro level.

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**Actual scientific researches and issues analysis.** The issue of affordability of water supply and drainage services has been investigated in the works of these Ukrainian scientists: O. Babak, O. Povagnyy, V. Poluyanov, O. Romaniuk, M. Zabashtansky and many others. However, researchers generally do not focus on the nature of this concept, by examining only its certain aspects that may be considered indicators of affordability.

**Uninvestigated parts of general matters defining.** In Ukrainian scientific literature, the concept of accessibility is often understood literally, based on semantic meaning, abstracting from its actual content. Its fragmented use in legislative documents [1] and scientific literature [2, p. 17] is an example of this. The concept of affordability is absent altogether. Therefore, the issue of defining the nature and indicators of affordability of water supply and drainage services to the public and its impact on the financial results of enterprises gains particular relevance.

**The research objective.** The main objective of the scientific research is the theoretical interpretation of the nature of 'affordability of water supply and drainage services', and definition of its indicators and impact on financial results of enterprises and service quality.

**The statement of basic materials.** O. Romanyuk is the Ukrainian financier, who has investigated the issues of affordability of water supply and drainage services most profoundly. Noteworthy is that the author outlines economic, political and social aspects of affordability as the broad essence of its definition. This is the price rates for services, which would provide financial stability to enterprises and would be acceptable to society from the economic, political and social standpoints. Whereas affordability in a narrow sense – is the economic accessibility, which lies in setting the price rates that allow citizens to attain the necessary volume of water supply and drainage services, without reducing the rest of the budget of essential expenses (assuming set level of budgetary restrictions for a household) [3, p. 15-16].

In the international practice, affordability of water supply and drainage services is measured by the criterion of affordability, which is the maximum share of income that households are willing to spend to purchase these services. Various international organizations distinguish the following levels of affordability:

1. OECD – services are affordable, if the fees do not exceed 1.5% of household income, and expensive if the costs increase to 3-5%;
2. The World Bank and the European Bank for Reconstruction and Development – Average payment amount should be no more than 4% of household income;
3. EPA and the United States of America – a household with average income should spend no more than 2-2.5% of their income before taxes on water supply and drainage services [2, p. 18].

Based on the definition of economic affordability of O. Romanyuk and international experience of defining affordability, we can consider the affordability of water supply and drainage services for the public, the main criterion of which is household incomes. They are directly proportional to the level of affordability of water supply and drainage services for the public: the higher they are (with constant price rates, other household spending, and other factors), the greater the affordability (the larger amount of services people can afford), and vice versa. If the level of income declines, the affordability of the services decreases as well. Thus, such affordability is directly related to household income.

Herewith, in our opinion, it is necessary to distinguish another important indicator that inversely affects the affordability of water supply and drainage services with other factors constant – a price rate. Increasing its amount reduces the affordability of services (if the cost of services increases, their consumption decreases) and reducing it, by contrast, increases the willingness of citizens to consume more services.

Therefore, the affordability of water supply and drainage services for the public – is the value of household income that allows citizens to consume the desired amount of water supply and drainage services at an adequate quality, at a constant price rate, not hindering the consumption of other goods and services. That is the main indicators of affordability of afore-mentioned services are the level of household income and the price rate.

Theoretically, water supply and drainage services are paramount for the citizens and have no substitutes, so the demand is inelastic relative to prices. Even in a depressed economy, people (whose

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income decreases) are inclined to reduce the expenses on luxury and durable goods rather than on essential commodities. However, for businesses – service providers that are natural monopolists, it is disadvantageous increase or decrease prices. John. K. Galbraith, who thoroughly examined the factors of changing market conditions and the behaviour of economic entities, said, "...with a decrease in demand combined with a decrease in elasticity, which is the result of depression, there is a special reason for price rigidity caused by the existence of monopoly power" [4, p. 637]. That is why in conditions of stagnation, one should not expect a significant reduction in consumption of services.

However, this situation in practice goes beyond economic law and is possible only in a perfect water consumption system that, in our opinion, is a set of elements, implementation of which ensures effective formation and use of financial resources of water supply and drainage companies. Among the elements are: offering water to the population at economically justified price rates; strong culture, high consumer awareness concerning the necessity of conserving water resources, and responsibility for timely payment for services rendered; profitability and development of enterprises; financing investments in order to maintain high quality of services; liberal policies of state financial support in the field; favourable legislative and institutional framework for the development of water supply and drainage enterprises finance, as well as transparency of their activities, etc.

In Ukraine, the situation is opposite to the one mentioned above. Price rate for water supply services is not economically justified; a number of benefits that reduce the actual service fees; enterprises are experiencing a deep financial crisis. Moreover, inadequate legislation, weak institutional framework, lack of transparency in enterprise activities make it impossible to develop advanced methods of financing economic entities in the field. The weaknesses also include wasteful use of water due to the inefficiency of price rate formation and national mentality. The psychology of a significant number of Ukrainians allows using services without paying for them. This remnant has remained from the Soviet era, when public services were provided for free or at a negligible cost, while their actual cost the state transferred to companies in the form of non-cash subsidies.

At present, water consumption in Ukraine can be characterized as excessive and wasteful. This is facilitated by the practice of non-payment by the population and the lack of minimum standards of water use. Therefore, the potential of reducing water consumption is high. Purchasing these services, consumers make decision based on their income and the price rates, which may force citizens to reduce (up to the minimum required level) or increase consumption, in case of increase or decrease in their incomes and prices for services.

It is a question of public's paying capacity and willingness to pay for services. This could affect the volume of realization, and therefore – the financial results of water and sewerage companies. The decline in purchasing power has a negative impact on the financial results of afore-mentioned entities because it involves the emergence of non-payment, or reduction in consumption of services. As a result, companies experience growing deficit of working capital and increased reserve for doubtful debts. In other words, companies are at risk of not receiving the amount of financial resources that is necessary to carry out their main activities, and possibly experience losses if the trend of underfunding companies remains in the near future.

In a democracy, the socio-political factor has a great impact on the affordability of water supply and drainage services for the public. We know that the key to winning the election and the voters' support is drafting and implementing preferential social policy strategies, which in this area manifest in giving benefits to pay for services, the effect of which on affordability is the same as that of income. Let us consider how an increase or decrease in affordability of the water supply and drainage services affects the financial results of the enterprises (Fig. 1).

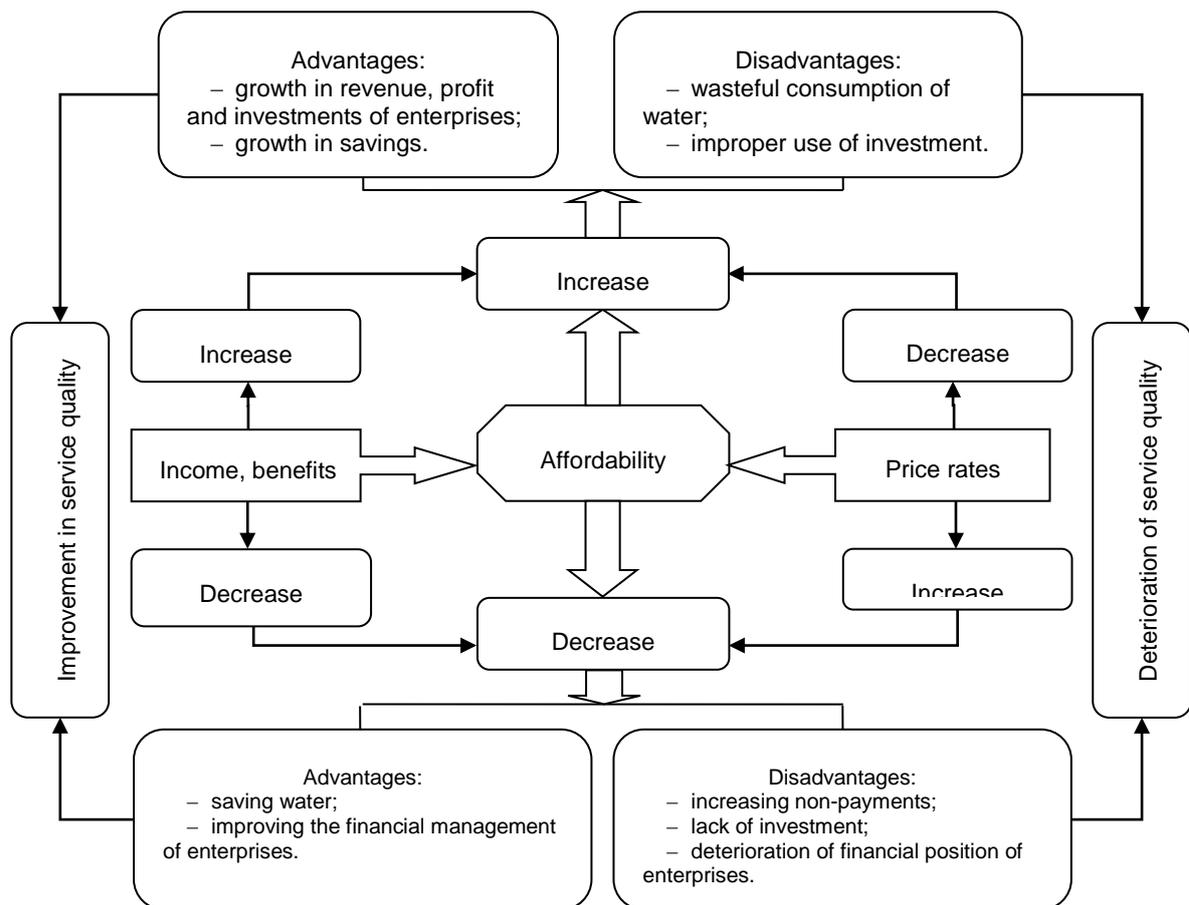
As shown in Fig. 1, increasing income (and/or benefits) or decreasing the price rate for services could lead to increased affordability of services for the public, as citizens are able to purchase a greater amount of them. This shall also positively affect the financial performance of enterprises, as the increase in services realization will thereby increase the revenue and net profit of service providers. Thus, the released financial resources can be directed toward investments in modernization of water supply and drainage systems. Accordingly, the quality of services will improve as well. In the event that the amount of service consumption by citizens does not increase along with higher levels of their

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income or lower rates for services, the savings will increase, which when converted into investment could increase potential economic growth at the macro level.

Nevertheless, the increasing affordability could have negative consequences for the society: citizens, getting water at reduced rates or using other benefits to pay for services are inclined to waste water; enterprises may not use the received additional financial resources to invest and spend them improperly, resulting in reduced quality of services. This situation threatens strategic depletion of water resources and aggravation of financial crisis at water and sewerage companies in Ukraine.

Reduction (or lack) of benefits, lower incomes or increased price rates can reduce the affordability of water supply and drainage services for the public, which also has positive and negative aspects. The positive ones include water conservation (through reduction in its consumption) and, thus, stimulation of financial management improvement in the company (development of cost-effective energy and water consumption methods). The negative aspects: increase in non-payments by the citizens, many of whom will not be able to pay for services in conditions of declining income or growing rates (about 80% of Ukrainians live below the poverty line [5]); leaching of working capital in companies makes it impossible to invest in reconstruction and in renewal of fixed assets; the companies are ill-suited for receiving loans and the practice of their permanent underfunding could worsen the financial position of the companies.



**Fig. 1. Indicators of water supply and drainage services affordability and the main advantages and disadvantages of its increase or decrease**

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**Conclusions.** The affordability of water supply and drainage services represents a level of household income, which allows citizens to utilize the desired amount of quality services at a certain price rate, without hindering the consumption of other goods and services. Both reduction and increase of its main indicators has dual advantageous and disadvantageous properties, leading to improvement or deterioration in the financial performance of companies and the quality of services. Verifying theoretical propositions on practice, providing comprehensive analysis of affordability of water supply and drainage services (including its relationship with macroeconomic indicators) and developing a valid mechanism of effective management require further research.

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