

COMMUNAL INFRASTRUCTURE AS A NECESSARY CONDITION FOR THE SUSTAINABLE DEVELOPMENT OF THE REGION (case ATU Gagauzia)

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Abstract: *The article is devoted to determining the role and place of communal infrastructure in the process of formation of economic factors necessary to ensure sustainable development of enterprises and improve the quality of life of inhabitants of settlements in the region. The article analyzes in dynamics the level of provision of the region's households with appropriate public utilities, SWOT-analysis of the communal sector development. At the end of the authors make conclusions and findings.*

Key words: *communal infrastructure, sustainable economic development, investments, ATU Gagauzia*

JEL: L95, O18, R11

Introduction

The dynamics of economic development, both at the national and local levels, largely depends on the economic activity of enterprises. The priority direction in the activities of the state is the creation of favorable conditions for sustainable economic growth.

Modern market relations prescribe to consider the enterprise as an economic entity functioning in the conditions of a complex system.

Enterprises are in constant interaction and interrelation with the external environment. Experiencing the impact of the external environment, and at the same time, influencing the environment, is one of the properties characteristic of the system [6].

The sustainable development of the enterprise in this article is assumed to be the functioning of enterprises within a three-dimensional system: economic -

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social - environmental, in order to ensure a harmonious balance between them. Considering the factors affecting the functioning and sustainable development of enterprises operating on the territory of the autonomous territorial unit of Gagauzia, the impact of the communal infrastructure was analyzed.

The importance of the condition of the communal infrastructure in the context of the development of enterprises was considered using different research methods, including: empirical, analytical, comparative method and questionnaire (a questionnaire was conducted among managers of 60 enterprises operating on the territory of ATU Gagauzia) in 2021, where the list included questions about the factors that influence the development of enterprises at the present time.

Results obtained and discussions

Sustainable development and municipal infrastructure are relevant topics in many strategic development documents, including the National Development Strategy «European Moldova 2030» [Error! Reference source not found.].

The legislation of Republic of Moldova (RM) stipulates that the responsibility for organizing the activity of public services of public utilities is assigned to local public authorities [Error! Reference source not found.], [Error! Reference source not found.].

The Organic Law of RM "On Public Utility Services" No. 1402 of 24.10.2002 establishes the unified legal framework for the establishing and organization of the activity of public utility services of administrative-territorial units [Error! Reference source not found.].

Public services supplied (provided) by the public utility may be realized by specialized suppliers, which may be:

- (a) specialized departments of local public administration authorities;
- b) economic entities, regardless of their organizational and legal form;
- c) individuals and/or their associations [Error! Reference source not found.].

During the last 10 years in ATU Gagauzia there is a tendency to create specialized departments at the mayoralties for water supply and sewerage services. During interviewing process 5 mayors of rural settlements, who decided to organize the provision of public utilities services under the mayor's office and to leave municipal enterprises, the following reasons were noted:

- financial instability of municipal enterprises;
- high share of administrative costs;
- insufficiently efficient management of services;
- lack of human resources;
- complex mechanism for providing budgetary and financial support to municipal enterprises.

Ensuring sustainable development of the enterprise is the result of optimally balanced actions between socio-economic interests and the use of natural resource potential, aimed at achieving organizational goals. Sustainable development of the enterprise is determined by the external dynamics and current situation of three components: economic development, social development and environmental conditions.

Communal infrastructure is the facilities designed to meet the needs of the population and the economy in public services supplied (provided) by public utilities. Communal infrastructure is a prerequisite for the sustainable development of the enterprise, because ensuring its functioning without access to public resources and services is simply impossible. The level of communal infrastructure development has a direct impact on investment attractiveness.

According to the survey, regarding the challenges of enterprises in the implementation of investment projects, 61.0% of respondents believe that the development of communal infrastructure is «great importance» and «very great importance» (Fig.1).

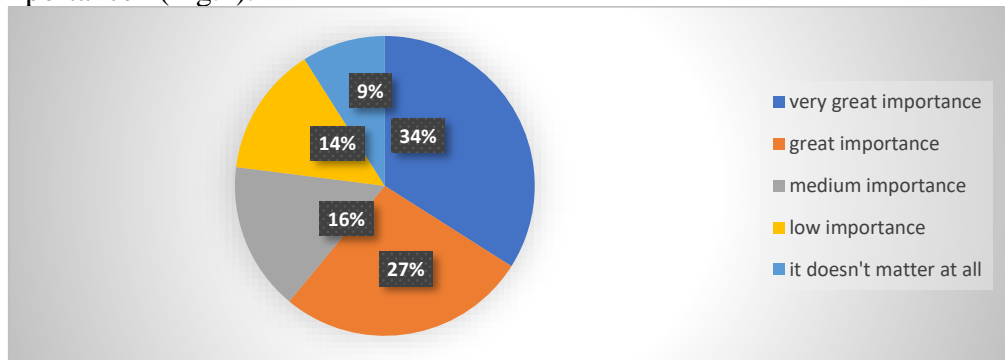


Figure 1. Results of the survey on the importance of communal infrastructure development in the settlements of Gagauzia for the realization of investment projects

Source: Developed based on the results of questionnaire survey of economic agents operating on the territory of ATU Gagauzia

Communal infrastructure plays a determining role not only in the sustainable economic development of enterprises, but also reflects the level of improvement of settlements and the quality of life of residents. It is the main integral element of the environment of settlements and has a significant impact on the living conditions of the population and business development. The quality of public utilities directly affects the level of comfort, health and safety of citizens, as well as the investment climate and sustainable development of enterprises.

Based on the results of interviews with managers of enterprises from ATU Gagauzia, the three most important components of public services supplied

(provided) by public utilities were identified: water supply, wastewater disposal and sewerage, and solid waste management.

Access to uninterrupted water supply is an important condition for enterprises, particularly in the production sector to ensure production cycles.

It should be noted that according to the data from the mayoralties of Gagauzia, in 17 localities there are municipal enterprises, and in 9 localities (villages) the provision of communal services is carried out through the communal economy department of the mayoralties, with payment to a special account of the mayoralties.

According to the latest official data, as of 2022, almost 85,0% of the population of ATO Gagauzia have access to centralized water supply services, including 90% in urban areas and 79% in rural areas. According to this indicator, ATO Gagauzia ranks first (after Chisinau) among other regions of the Republic of Moldova, the average level in the country is about 60% (Table 1). All settlements in the region (100%) have a centralized water supply system [7].

Table 1. Information on the availability of water supply, sewerage and natural gas to households in Gagauzia for the period 2018-2022

Indicators	2018	2019	2020	2021	2022
Total number of households (houses and apartments) in ATU Gagauzia, units	50632	51101	51320	51450	51420
Total number of households connected to a centralized water supply system, units	40417	41697	42118	42962	43597
share of of households connected to a centralized water supply system, %	79,83	81,6	82,06	83,5	84,78
Total number of households connected to a centralized sewerage system, units	9510	10020	10020	10435	11168
share of of households connected to a centralized sewerage system, %	18,78	19,6	19,52	20,28	21,72
Total number of households connected to a centralized natural gas system, units	44463	45066	43833	44991	45862
share of of households connected to a centralized natural gas system, %	87,82	88,19	85,41	87,45	89,19

Source: Developed on the basis of data from the mayor offices from ATU Gagauzia

Data on the volume of extracted and used water by development regions of RM in 2022 are presented in Table 2.

Table 2. Data on the volume of extracted and used water by regions of RM development in 2022. (mln. cubic meters)

Type	Volume of extracted water, 2022	Volume of water used, 2022
Total countrywide	160,0	120,6
Region North	36,1	23,5

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Region Center	35,4	33,2
Region South	15,8	13,6
Region Gagauzia	4,1	2,9

Source: Developed on the basis of data from the National Bureau of Statistics of RM [1].

Despite the fact that the population of ATU Gagauzia is relatively well provided with water supply services, the quality of water supplied to the system is one of the lowest in the country and does not meet the minimum normative requirements. In particular, groundwater - the only source of supply for centralized systems in the region - contains significant excesses of maximum permissible concentrations of fluorine, boron, sodium, hydrogen sulfide and iron.

Poor water quality has a direct negative impact not only on the health of the population, but also on the economy.

Water supply is essential for the construction and maintenance of residential and commercial facilities, public infrastructure and roads. This, in turn, contributes to the creation of jobs, stimulates economic growth and increases investment attractiveness.

An important economic sector for ATU Gagauzia is agriculture, and more than 60% of the population lives in rural areas. The water supply system is necessary for rural and urban agriculture, as well as for the food industry, which in turn has a huge impact on the economy. Without free access to water, agriculture cannot produce efficiently, which can lead to shortages, higher prices for products and reduced competitiveness.

Overall, access to clean water is a key element of economic development and sustainability. Poor water infrastructure, water scarcity or water pollution can lead to serious economic and social problems, including poor public health, reduced productivity and increased costs for treatment and ecosystem restoration.

ATU Gagauzia significantly lags behind all other regions of the country in terms of provision of sewerage services: only 17% of the population is covered, compared to the average indicator for the Republic of Moldova of 40%. Only 7 out of 26 settlements in the region (3 urban and 4 rural) have centralized sewerage systems. Sewerage is almost non-existent in rural areas (about 2% coverage) and fragmented in the region's cities (less than 40% of the urban population).

The quality of wastewater treatment is very low: the treatment plants in Comrat are practically inoperative, in Ceadir-Lunga - partially functioning, and in Vulcanesti only 5% of the project capacity is used. It should be emphasized that due to the high degree of physical and moral deterioration, the treatment plants in Comrat and Ceadir-Lunga cannot be reconstructed any more - completely new plants need to be built [7].

Sewerage systems play an important role in the economy, having a significant impact at both macro and micro levels. In the social aspect, sewerage

systems reduce the risk of spreading infectious diseases and improve public health. Poor sewerage provision has a negative impact on the health of residents. According to the National Bureau of Statistics of Moldova, average consumer spending on health care in 2022 amounted to 5.3% of total consumer spending and increased by 0.4 percentage points compared to 2020 (4.9%). A similar trend is observed in the number of registered patients, which in 2022 amounted to 3,024.6 thousand cases, 305.6 thousand more than in 2020 [4]. The above statistics indicate an increase in consumer spending on health care, a decrease in the working capacity of the population, a decrease in labor productivity, and as a consequence, a deterioration in the state of human capital.

Some aspects of sewerage systems, such as drainage and water management, can help reduce damage from floods and other natural disasters, which helps to maintain economic stability.

Thus, a sewerage system has a broad impact on the economy by improving sanitation, promoting environmental sustainability, infrastructure development and attracting investment.

The sanitation and solid waste management system plays a significant role in the economy and society at large. An effective municipal solid waste management system allows the recovery and recycling of materials such as paper, plastic, glass and metal, which helps to save natural resources and reduce the cost of raw material production. The dynamics of municipal waste volumes by RM development regions for 2019-2021 are presented in Table 3. The data presented in the table show that in ATU Gagauzia, which is much smaller in terms of territory and population than the South region, practically the same amount of municipal waste is collected from the population and economic agents. This indicates that the solid waste collection system in Gagauzia is of higher quality than in the South region.

The system of sanitation and solid waste management is an integral part of the infrastructure of settlements, and its effective functioning contributes to sustainable development, employment growth and reduction of negative impact on the environment.

Table 3. Dynamics of municipal waste volumes by RM development regions for 2019-2021.

Type	Number of vehicles used for sanitation works, units			Volume of municipal waste collected from the population and economic entities, thousand cubic meters			Volume of municipal waste collected from the population, thousand cubic meters		
	2019	2020	2021	2019	2020	2021	2019	2020	2021

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Total countrywide	866	885	975	3 204,0	3 336,3	3 311,4	2 102,9	2 217,5	2 188,7
Region North	223	228	249	465,7	502,4	491,5	319,9	352,5	335,0
Region Center	193	208	232	445,1	491,9	504,7	308,5	325,9	356,2
Region South	109	120	135	183,7	185,7	235,4	121,6	131,3	162,7
Region Gagauzia	63	71	72	215,3	211,0	229,8	123,2	117,9	132,9

Source: Developed on the basis of data from the National Bureau of Statistics of RM [3].

According to the published results of the global study of the countries in the world on the level of environmental efficiency for 2022, the Republic of Moldova was ranked 84th among 180 countries. The study was conducted by the Center for Environmental Policy and Law at Yale University (Yale Center for Environmental Law and Policy) [4].

Based on the information presented above, we will conduct a SWOT analysis of the development of public utilities in ATU Gagauzia (Table 4).

Table 4. SWOT analysis of the development of public utilities in ATU Gagauzia

Strengths	Weaknesses
<ul style="list-style-type: none"> - Presence of a Sectoral Regional Program of Water Supply and Sanitation Development in the Region of ATU Gagauzia (2018-2025); - Inclusion of communal infrastructure development projects in the Gagauzia Regional Development Strategy and strategic plans for the development of localities; - Provision of public utilities in all 26 localities of Gagauzia; - High level of gasification of the population (100% of all localities); - Reduction of losses through the implementation of measures to install resource consumption control and metering devices; - Satisfactory condition of water supply networks 	<ul style="list-style-type: none"> - Absence of municipal enterprises in all localities of Gagauzia; - Insufficient level of investment in fixed assets in the public utilities sector; - Low level of innovation activity; - Insufficiency of material and technical base of municipal enterprises; - Politicization of the process of setting tariffs for public utilities by local authorities which leads to the fact that tariffs do not cover costs; - High dependence on budget financing of the public utilities sector; - Growth of tariffs for public utilities against the background of low purchasing power of the region's population; - Unsatisfactory technical condition of water supply systems (technical water), which leads to losses and theft;

<p>water supply networks in rural areas (19 out of 23 settlements have a renewed network of pipes, which are in good condition;</p> <ul style="list-style-type: none"> - Implementation of new organizational forms of communal services provision through a single model of communal services management based on inter-communitarian cooperation (one of the first enterprises in the Republic of Moldova in the village of Congaz - municipal enterprise "Congaz Sulari"). 	<ul style="list-style-type: none"> - Irrational use of water; - Lack of urban development plans and technical plans for infrastructure development; - Lack of an effective wastewater treatment system; - Lack of systems for sorting municipal solid waste at collection.
Opportunities	Threats
<ul style="list-style-type: none"> - Growing demand for public services, in an effort to improve the quality of life; - Development and implementation of National and Regional programs for the development of centralized water supply, sewerage and wastewater treatment systems and solid waste collection systems; - Introduction of regionalization of public services provision as well as inter-communitarian cooperation through the creation of regional operators-providers of public utilities services; - Improving the competitiveness of enterprises providing public utilities services; - Use of new innovative technologies for water and wastewater treatment and solid waste management; - Attraction of funds from various sources to finance the sphere of public utilities from state, regional and local budgets, funds of international programs and donors, domestic and foreign investors. 	<ul style="list-style-type: none"> - Bankruptcy of municipal enterprises; - Changes in legislation regulating the activities of enterprises in the utilities sector; - Declining solvency of the population; - Changes in utility tariffs under the influence of external factors; - Increasing shortage of workers in the utilities sector; - Inflation processes; - Decrease in investments in fixed assets in the public utilities sector; - Reduction of water resources debit used for delivery to consumers; - Increase in theft and losses in water supply to consumers; - Deterioration of water quality, which is categorized as technical water; - Resistance of local authorities to regionalization of services and inter-municipal cooperation (for political, economic and tariff reasons); - Political disagreements between national and regional authorities that could affect the amount and purpose of external financing; - Cessation of funding for projects in the field of public utilities from international programs and projects, donors;

	<ul style="list-style-type: none">- Emergence of accidents and breakdowns in water supply and sewerage systems;- Environmental catastrophes, natural disasters.
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Source: Developed by the authors

The presented results of the SWOT-analysis in Table 4 determine the current situation of the public utilities sector in the autonomy, potential opportunities for improvement and modernization, as well as the risks that may lead to deterioration of the quality of public utilities.

Conclusion

Despite the processes implemented for the development of the communal infrastructure in the settlements of Gagauzia, its level does not meet the modern requirements of the population and economic agents.

Managers of enterprises operating in Gagauzia note the importance of improving the quality of communal infrastructure for the purposes of socio-economic development, investment attractiveness of both individual enterprises and the region as a whole.

Thus, utility infrastructure is a prerequisite for the sustainable development of the enterprise, as it provides access to necessary resources and services, improves the quality of life of people, creates a favorable environment for business and ensures the competitiveness of the enterprise.

The mayors of 9 localities in Gagauzia, in the process of creating the system of providing public services, do not comply with the legislation in force in the Republic of Moldova regulating this sector of economy, as they provide these services without establishing a municipal enterprise.

The availability of modern infrastructure, including water supply, sewerage and treatment facilities, can make the region more attractive for investors and enterprises, which will definitely contribute to the sustainable economic growth of the region's economy, as well as to the improvement of the quality of life of the inhabitants of Gagauzia.

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