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UDC 332.142.4

QUALITY OF LIFE AS THE TARGET FUNCTION IN MANAGING MONOTOWNS' SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

aBSTRACT. This article's focus is to develop practical recommendations to improve the mechanism of municipal management for sustainable development of monotowns (one-industry towns). The major issues under consideration are economic and administrative relations, developing in the process of monotown functioning; their problems, aggravated at the peak of the financial and economic crisis of 2008-2009, indicate the need for a new conceptual approach to bringing monotowns to the path of sustainable development, as the public policies adopted earlier for monotown management are not adequate for the specific, complex, urgent issues of monotowns and should focus on the quality of life of their population as the main resource of monotowns. This research has developed a mechanism for sustainable self-development of monotowns, supported with financial resources of the local budget, as it is the town that plays the key role in meeting the challenges of sustainable regional and state development. For the municipality, it means that they must increase the social and economic potential of the area through local regulation. The finding of this research is the mechanism to ensure sustainable development of monotowns by means of efficient allocation of their budgetary resources. The mechanism has been experimentally tested in the municipal unit (MU) of New Urengoy. Thus, the integral «quality of life» index as a set of individual criteria, was detailed to the level of expenditure in the budget; through hierarchy analysis and solving optimization problems, the optimal structure of monotown budget expenditures was determined to provide the highest increment of the integral «quality of life» index; evaluation of municipal fiscal management was made that enables the managers of socio-economic departments in the local government of monotowns to control the process of their sustainable development.

KEY WORDS. Budget, quality of life, one-industry town, management mechanism, sustainable/stable development, management efficiency.

The new paradigm of regional development, formed under the influence of rising world trends (globalization, changing technological structures), has established a fundamentally new understanding of space, economy and competitiveness, determined a fundamental change in the role of regions in the world economy and in regional development and management, laid the foundations for the reorientation of the world economy to sustainable development and, therefore, for international quality standards. Thus, «quality» has become a crucial factor in overcoming social and economic crises in the modern world, and «quality of life» has become a key measure of the socio-economic development of the states of the world.

The financial crisis of 2008-2009, having exposed serious weaknesses in the domestic economy and regional development policy (the need to dismantle weak and uncompetitive enterprises, institutions and the legal basis of their functioning, to promote innovative ideas and concepts), only confirmed the urgent need to rethink the role of the social dimension of state development [1]. Reflected in the socio-economic situation of most monotowns, the crisis has highlighted the weakest links of regional systems.

Thus, the problem of obtaining key resources for further development and the problem of practical implementation of a sustainable development strategy in single-industry areas means reorienting the economy of a monotown towards the needs of society, which means that the reproduction processes must help develop the individual, to improve quality of life.

The essential features of monotowns, namely their specific socio-economic environment as a type of social organization fundamentally different from other types of habitat and as a symbiotic unity of the town itself and the local industry, thus creating a monocentric economy to perform certain social functions in the macrosystem, require specific mechanisms for life quality control. Regulatory instruments of single-industry towns applied until now were unable to mitigate the risks of an escalating, dynamic external economic environment, eliminating the possibility of sustainable urban development.

As a mechanism for sustainable self-development of monotowns, we have proposed the efficient allocation of the budgetary resources of the area. This mechanism has been experimentally tested in the municipal unit (MU) of New Urengoy.

Taking into account that budget is the major instrument local government uses in the social and economic sphere, and that the indicator of the social and economic effectiveness of the city is a key element of the management system, reflecting the efficiency of managerial actions undertaken, the indicator for «citizens' life quality» in a single-industry town was applied; life quality was estimated from how its cost to the budget of the city affects quantitative assessment of the category [2], [3].

It is in this truncated understanding of the integral «citizens' life quality» indicator that the ultimate goal of the study is reflected, as ultimately it is not the overall and adequate assessment of life quality that is important, but the efficient allocation of budgetary resources (and, as a result, an improvement in life quality).

Since the integral index is a set of individual criteria, which in turn are the aggregate estimates of priority of these criteria, the properties of these two components can reflect two socio-economic categories: living standard and living conditions (St and Con, respectively) [4], [5]:

$$Ql = f(St \text{ and } Con), \qquad (1)$$

where Ql — quality of living.

For our task, details of individual criteria that form an integral index were developed to the level of budget expenditure:

$$Ql = f(St \text{ and } Con) = f(Ip, Ss, Hc, E, Mb, Hus, C, Tr, E, Ps), \qquad (2)$$

where Ip is the income of the city population for the corresponding time period (year). Any remaining arguments, when brought to the same interval of time as the income of the population, represent costs to society (budget allocations): Ss — social

security; Hc — health care, E — education, Mb — the municipal building , HUs — city housing and utility services, C — culture, Tr — public transport, E — the environment, Ps — costs of creating satisfactory psychological feelings (provision of police, fire service).

All further calculations were based on the hierarchies analysis method HAM [4], using the software Maple 12 (Waterloo Maple Inc.) for analytical and numerical calculations.

On the basis of the calculations made, weight factors were obtained for the period 2007-2012, which determined the value of the integral indicator for city life quality, describing the preference and the influence of various factors on the quality of life in the city for the relevant time period.

Thus, the most important factor for the quality of life in the New Urengoy municipality is the income of the city population. The weight of this factor increased significantly during the financial and economic crisis (2007: 0.1613, 2008: 0.3429, 2009: 0.4424), and in 2010-2012 there was a downward trend (2010: 0.4219, 2011: 0.3918, 2012: 0.2954).

Moreover, for the period 2008-2009, structural transformation of other weighting criteria for the integral indicator «Quality of Life» took place, social security seeing the most significant growth. This area of city budget spending was a priority during the financial and economic crisis, as evidenced by the results — 2007: 0.0605, 2008: 0.1285, 2009: 1658. For the period 2010-2012, the tendency was similar to the Ip criterion (the income of the city population).

To show how efficiently social and economic development of the city is being managed, we used the Em indicator describing the change in the quality of life (QoL), with the costs (C) required to reach a given quality of life for a certain period of time (a year) [4]:

$$Em = (QoL) / C. \quad (3)$$

Based on the solution of the optimization problem, the optimum *Em(opt)* indicator, and therefore the best rate of the city population's «quality of life» (at the given resource potential) was identified as the benchmark for optimum management of the city budget (for further evaluation of the efficiency of the social and economic development of the New Urengoy municipality) with the following results (Fig. 1).

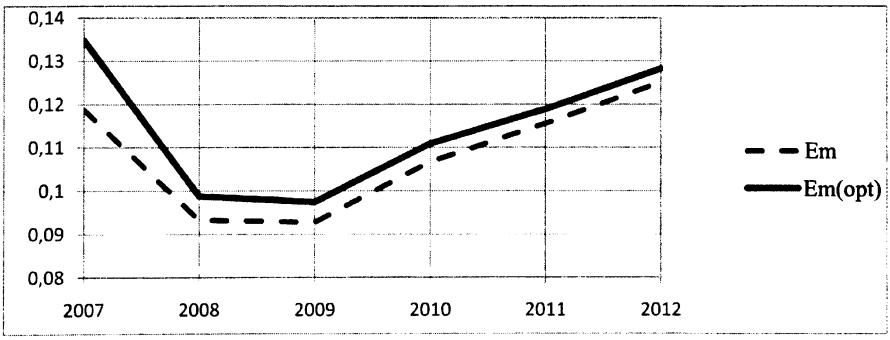

Fig. 1. Efficiency of budget management: real Em and optimum Em(opt)

As Figure 1 shows, after declining efficiency caused by the active phase of the financial crisis, there was improvement in the efficiency of budget management. A certain range — from best Em(opt) to actual Em at equal cost (resource potential) provides an opportunity to implement it through the reallocation of resources between budget envelopes, thereby affecting the change in the per capita income.

These results enable the management of the social and economic unit in New Urengoy City Administration to have a clear idea of their performance and further steps that can improve city budget control.

Quantitative assessment of the «quality of life», measured at cost-of-living rates (Figure 2) shows an unstable trend: in the period 2010-2011, there was a local increase in «quality of life» rates up to pre-crisis levels, and there was a decrease predicted in 2012, caused by the decrease in budget expenditure compared to 2011.

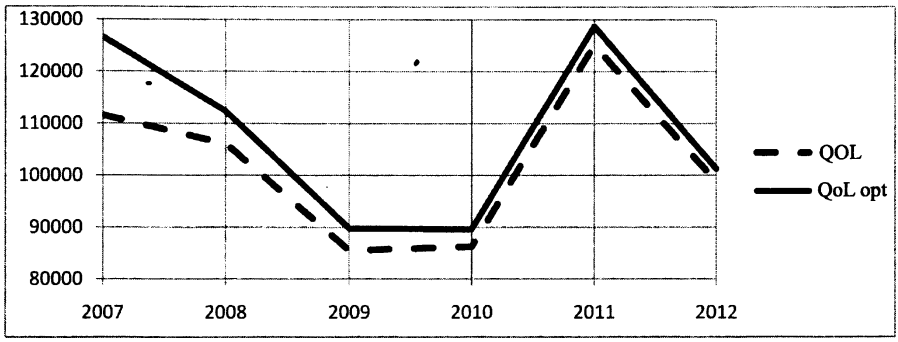

Fig. 2. Temporal variation of quality of life (QOL) and optimum quality of life (QoL opt)

It is easy to notice a decrease in the difference between the actual and the optimal values of QoL, due to better budget management in the crisis and post-crisis period. This, in particular, was due to the limited inflow of funds to the budget, i.e. the need to save when resources are severely limited.

The priority budget expenditures, with the largest increments in the integral «quality of life» index for 2012, are as follows:

— Public Utilities (weight ratio: 0.22);
— Public Health Care (weight ratio: 0.13);
— Social Security (weight ratio: 0.11);
— Education (weight ratio: 0.07).

Thus, these are the areas where we must develop the capacity of municipal management and, accordingly, increase the resource base for them. And of course, the «income» indicator remains the most important for experts, which is justified in view of the growing uncertainty of future well-being associated with the crisis in the economy.

Thus, the calculations have shown the efficiency of applying the integral «quality of life» index as the target function in managing sustainable socio-economic

development of monotowns and the municipal unity (MU) of New Urengoy over a specific time period (2007-2012).

According to this methodology, priorities for further development (and funding) in the MU of New Urengoy can be developed. In this study, such a task cannot be completed because the information available for such a calculation is limited.

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