The actualization and practical implementation of the concept of sustainable development in Ukraine began after 2015, when our country officially joined the global process of ensuring the Sustainable Development Goals. The purpose of the article is to study the place of local self-government in the financial support of the strategy for achieving the Sustainable Development Goals of Ukraine in the context of limited budgetary resources and decentralization. In the course of the analysis of the strategic role of local self-government in the financial support of the

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Sustainable Development Goals of Ukraine, it is found that municipal authorities, whose financial resources account for 35.0% of public finances, are responsible for achieving strategic objectives in the context of 7 Goals (41.2%). In order to assess the strategic potential of financial support for the Sustainable Development Goals at the regional level, the author proposes a methodological approach that takes into account the Pearson’s pairwise correlation coefficients. In this case, the values are taken that show a high density of stochastic relationship between the relevant indicator of formation and distribution of financial resources of local budgets and the indicator of the Sustainable Development Goals. There should also be an unidirectionality of Pearson’s coefficients with the intended purpose of the indicator. The progress in achieving the strategic objective (sub-objective) is based on the indicators with the highest correlation coefficients. It is substantiated that significant progress was made at the regional level in 2015-2021 with regard to Goal 17 «Partnership for Sustainable Development», since positive trends in the dynamics of 55% of the indicators of strategic objectives («sub-goals») were recorded. The author’s further research will focus on assessing progress towards achieving the Sustainable Development Goals in Ukraine, the financial support of which is the responsibility of local self-government bodies, especially in the context of martial law.

Key words: sustainable development, strategic task, goal, financial autonomy, local authority, local budget.


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Актуалізація і практична реалізація концепції сталого розвитку в Україні розпочалася після 2015 р., коли наша держава офіційно приєдналася до глобального процесу забезпечення Цілей сталого розвитку. Мета статті полягає у дослідженні ролі місцевого самоврядування у фінансовому забезпеченні стратегії досягнення Цілей сталого розвитку України в умовах обмеженості бюджетних ресурсів і децентралізації. Під час проведеного аналізу стратегічної ролі місцевого самоврядування у фінансовому забезпеченні Цілей сталого розвитку України встановлено, що органи муніципальної влади, фінансові ресурси яких складають 35% державних фінансів, відповідальні за досягнення стратегічних завдань у розрізі 7 Цілей (41,2%). Для оцінювання стратегічного потенціалу фінансового забезпечення Цілей сталого розвитку на регіональному рівні запропоновано авторський методичний підхід, який передбачає врахування коєфіцієнтів парної кореляції Пірсона, які показують високу щільність стохастичного зв’язку між відповідним показником формування і розподілу фінансових ресурсів місцевих бюджетів і індикатором Цілі сталого розвитку, а також мають бути однонаправлені з цільовим призначенням індикатора; оцінювання прогресу в досягненні стратегічного завдання (підцілі) проводиться на основі індикаторів з найвищими значеннями коєфіцієнтів кореляції. Обґрунтовано, що на регіональному рівні упродовж 2015-2021 рр. значного прогресу досягнуто щодо Цілі 17 «Партнерство заради сталого розвитку», оскільки зафіксовані позитивні тенденції у динаміці 55 % індикаторів стратегічних завдань (підцілі). Перспективою подальшого дослідження автора буде оцінювання прогресу щодо досягнення Цілей сталого розвитку в Україні, фінансове забезпечення яких віднесено до зони відповідальності органів місцевого самоврядування, особливо в умовах воєнного стану.

Ключові слова: сталий розвиток, стратегічне завдання, ціль, фінансова автономія, орган місцевого самоврядування, місцевий бюджет.

Табл.: 3. Літ.: 18.
Formulation of the problem. Sustainable development is a concept that underpins the activities of the United Nations and has become the foundation of public administration in the vast majority of countries. The essence of the state policy of sustainable development is to coordinate and harmonise the economic, social and environmental spheres of the society to meet the urgent needs of present and future generations in such a way as to prevent or minimise the loss of the natural resource potential of the planet Earth. The basis of sustainable development is to ensure parity of relations in the triad of «people – economy – nature». Ukraine, like other UN member states, has joined the global process of implementing the Sustainable Development Goals in 2015 after their approval by the UN Summit. In 2016-2017, large-scale and comprehensive measures were taken to adapt the Sustainable Development Goals to the Ukrainian realities of sustainable development. This process resulted in a national system based on 86 targets to achieve the national Sustainable Development Goals. The content of the national targets, the methodology for calculating 183 indicators for monitoring the implementation of these targets, as well as the targets for Ukraine to achieve the Sustainable Development Goals by 2030, are reflected in the National Report «Sustainable Development Goals: Ukraine» [1]. It is clear that the strategy for achieving the Sustainable Development Goals requires comprehensive financing. That is why financing sustainable development is one of the most pressing issues of our time.

Analysis of recent research and publications. The essence, specificity and regional features of financial support for sustainable development are studied by such scholars as: I. Dehtiarova, O. Melnyk, & Ya. Romanchenko, who, having analysed the application of the best practices of the European Union, propose a system of economic and financial instruments for the formation of strategies for sustainable development of regions and environmental policy [2]; I. Vasylchuk investigates the place of sustainable development finance in the system of finance and classifies its types according to the motivation of financial capital providers [3]; O. Tulai argues that the financial support of state social programmes aimed at improving the level and quality of life, reducing unemployment, forming modern social protection practices, improving working conditions, developing the healthcare and education systems contributes to the achievement of the Sustainable Development Goals of Ukraine [4]; based on an analysis of 2459 articles (2000-2020) on poverty reduction using V.O. Sviewer, Y.Yu, & J. Huang argue that poverty reduction is the top priority among the 17 Sustainable Development Goals [5]; S. Kovalivska, & V. Barannik propose the main directions of ensuring the achievement of the Sustainable Development Goals through the intensification of interregional cooperation in Ukraine [6]. M. Dziamulych proposed offered recommendations for improving the efficiency of financial planning and public administration of regional development, which consist in creating a favourable investment climate, developing innovative financial instruments and supporting regional entrepreneurship development [7]. O. Liakhovyych et al. substantiate the priority directions of ensuring the financial security of the region based on the impact of the financial market, corporate sector and public finance factors on the achievement of the Sustainable Development Goals [8]. O. Labenko argues that, under the influence of the COVID–19 pandemic and the russian-Ukrainian war, it is impossible for developing countries
to achieve the Sustainable Development Goals by 2030 without additional financing from domestic public resources (or revenues), international public resources, domestic private resources, or international private resources [9]. In addition, this study is a continuation of the author’s previous work on solving the problems of financial support for the regional development [10-12].

Despite the considerable number of scientific papers devoted to solving the problem of financial support for sustainable development, the regional dimension of public financing of the Sustainable Development Goals, which is being actualised in the context of decentralisation of power and relies on the financial resources of local authority, remains insufficiently studied.

**Formulating the goals of the article.** The purpose of the study is to determine the strategic role of financial support for local authority in achieving the Sustainable Development Goals of Ukraine. In order to achieve this goal, it is necessary to answer the question of whether the municipal authorities of Ukraine are capable of achieving the Sustainable Development Goals in the strategic perspective in the context of limited budgetary resources and decentralisation.

**Presentation of the basic material of the study.** The concept of sustainable development was finally formalised at the LXX session of the UN General Assembly during the Sustainable Development Summit (September 2015). As a result of this summit, the resolution «Transforming our world: The 2030 Agenda for Sustainable Development» was adopted [13], which approved 17 Sustainable Development Goals, detailed with 169 objectives to achieve them. Ukraine, as a UN member state, joined the global process of achieving the 17 Sustainable Development Goals, adapting them to the specifics of its own development. As a result, a national system has been developed in which the 17 Sustainable Development Goals are detailed into 86 objectives, the achievement of which is monitored based on the calculation of 183 indicators [1; 14].

When considering the strategic aspects of the process of achieving the Sustainable Development Goals in the regional context, it is advisable to first align the Sustainable Development Goals with the areas that sustainable development is actually aimed at: social (society), economic (economy) and environmental (environment) (Table 1).

Table 1 shows that at the regional level, the social component of sustainable development is represented by five Goals: Goal 1 «No Poverty» (3 strategic objectives in the area of responsibility of the Ministry of Economy of Ukraine and local authorities, monitoring of 5 indicators); Goal 3 «Good Health and Well-Being» (9 strategic objectives in the area of responsibility of the Ministry of Health of Ukraine and local authorities, monitoring of 16 indicators); Goal 4 «Quality Education» (7 strategic objectives in the area of responsibility of the Ministry of Education and Science of Ukraine and local authorities, monitoring of 14 indicators); Goal 11 «Sustainable Development of Cities and Communities» (6 strategic objectives within the area of responsibility of the Ministry of Communities and Territories Development of Ukraine and local authorities, monitoring of 10 indicators); Goal 16 «Peace, Justice and Strong Institutions» (9 strategic tasks in the area of responsibility of the Ministry of Internal Affairs of Ukraine and local authorities, monitoring of 24 indicators).
Systematisation of the Sustainable Development Goals by its components and responsibilities of the authorities

<table>
<thead>
<tr>
<th>Sustainable Development Goal</th>
<th>Sustainable development area</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No Poverty</td>
<td>Society</td>
<td>Ministry of Economy of Ukraine, local authorities</td>
</tr>
<tr>
<td>2. Zero Hunger</td>
<td>Society</td>
<td>Ministry of Economy of Ukraine, Ministry of Agrarian Policy and Food of Ukraine</td>
</tr>
<tr>
<td>3. Good Health and Well-Being</td>
<td>Society</td>
<td>Ministry of Health of Ukraine, local authorities</td>
</tr>
<tr>
<td>4. Quality Education</td>
<td>Society</td>
<td>Ministry of Education and Science of Ukraine, local authorities</td>
</tr>
<tr>
<td>5. Gender Equality</td>
<td>Society</td>
<td>Ministry of Social Policy of Ukraine</td>
</tr>
<tr>
<td>6. Clean Water and Sanitation</td>
<td>Environment</td>
<td>Ministry of Community and Territorial Development of Ukraine, Ministry of Health of Ukraine</td>
</tr>
<tr>
<td>7. Affordable and Clean Energy</td>
<td>Society</td>
<td>Ministry of Environmental Protection and Natural Resources of Ukraine</td>
</tr>
<tr>
<td>8. Decent Work and Economic Growth</td>
<td>Economy</td>
<td>Ministry of Economy of Ukraine</td>
</tr>
<tr>
<td>10. Reduced Inequality</td>
<td>Economy</td>
<td>Ministry of Communities and Territories Development of Ukraine, local authorities</td>
</tr>
<tr>
<td>11. Sustainable Cities and Communities</td>
<td>Society</td>
<td>Ministry of Communities and Territories Development of Ukraine, local authorities</td>
</tr>
<tr>
<td>12. Responsible Consumption and Production</td>
<td>Economy</td>
<td>Ministry of Economy of Ukraine</td>
</tr>
<tr>
<td>13. Climate Action</td>
<td>Environment</td>
<td>Ministry of Environmental Protection and Natural Resources of Ukraine</td>
</tr>
<tr>
<td>14. Life Below Water</td>
<td>Environment</td>
<td>Ministry of Environmental Protection and Natural Resources of Ukraine</td>
</tr>
<tr>
<td>15. Life on Land</td>
<td>Environment</td>
<td>Ministry of Environmental Protection and Natural Resources of Ukraine</td>
</tr>
<tr>
<td>16. Peace, Justice and Strong Institutions</td>
<td>Society</td>
<td>Ministry of Internal Affairs of Ukraine, local authorities</td>
</tr>
<tr>
<td>17. Partnership for the Goals</td>
<td>Partnership</td>
<td>The Cabinet of Ministers of Ukraine, local authorities</td>
</tr>
</tbody>
</table>

Source: Compiled and classified according to the data in [15, pp. 7, 12-13; 16, p. 15].

The decomposition of the economic component of sustainable development at the regional level is represented by one Goal 10 «Reducing Inequality» (5 strategic objectives in the area of responsibility of the Ministry of Communities and Territories Development of Ukraine and local authorities, monitoring of 8 indicators).

The last 17th Sustainable Development Goal, Partnerships for the Goals, cannot be directly attributed to any of the sustainable development areas, but it is tangential to the other Goals. Goal 17 «Partnerships for the Goals» envisages the solution of 3 tasks, is the responsibility of the Cabinet of Ministers of Ukraine and local authorities, and is checked by monitoring 4 indicators.

On the base of the classification of the Sustainable Development Goals presented in Table 1, we will study the strategic aspects and ways of forming the strategic potential of financial support for sustainable development at the expense of financial resources of local authorities. For this purpose, we take as a basis the impact of consolidated indicators of local budgets of Ukraine (Table 2).
### Table 2

Indicators of formation and distribution of financial resources of local budgets of Ukraine in 2015-2021

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator name</th>
<th>Years</th>
<th>2021/2015, +/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3. Own financial resources of local authorities, billion UAH</td>
<td>2015: 120.5</td>
<td>2017: 170.7</td>
</tr>
<tr>
<td>6</td>
<td>6. Coefficient of expenditure coverage by own revenues of local budgets</td>
<td>2015: 0.430</td>
<td>2017: 0.487</td>
</tr>
</tbody>
</table>

Source: Compiled and calculated based on the data in [17, p. 9-10]

The data in Table 1 shows that in 2015-2021, the financial autonomy of local budgets in Ukraine increased by 23.4%, meaning that in 2021, local budget expenditures were covered by 2/3 of their own revenues, compared to only 43.0% in 2015. The share of own revenues of local budgets in total revenues increased by 24.2%. In other words, the above dynamics show a positive movement of local budgets towards deepening the processes of fiscal decentralisation, when the volume of local authorities’ own financial resources has increased by more than 3 times over the 7 years of the decentralisation reform, while total revenues and expenditures of local budgets have increased by 2 times.

As of the end of 2021, the volume of financial resources of local authority in Ukraine amounted to 35.0% of consolidated budget revenues, with the share of own financial resources at 12.2%. As noted earlier, local authorities are involved in achieving five social Sustainable Development Goals, one economic goal and a single partnership goal (see Table 1). More than a third of the state’s financial potential is concentrated at the disposal of municipal authorities, and according to the Methodology of the SDG integrated budgeting framework in Ukraine, the Sustainable Development Goals and, accordingly, strategic objectives (sub-goals) are aligned with 152 functional codes of the state budget and 466 programme codes of the local budget [16, p. 12-14]. Therefore, the financial support for the seven Sustainable Development Goals is included in the expenditure side of regional (including the budget of the city of Kyiv) and district budgets, as well as the budgets of city, town and village communities. Therefore, it is advisable to assess the strategic potential of financial support for achieving the Sustainable Development Goals at the regional level.

We propose to assess the strategic potential of financial support for the Sustainable Development Goals at the level of regions and territorial communities by calculating the Pearson’s pairwise correlation coefficient:

\[
 r_{x,y} = \frac{\sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n} (x_i - \bar{x})^2 \sum_{i=1}^{n} (y_i - \bar{y})^2}}
\]  

(1)
where \( r_{x,y} \) is the Pearson’s pairwise correlation coefficient between the independent variable (Sustainable Development Goal indicator) and the dependent variable (indicator of formation and distribution of financial resources of local budgets), \( r_{x,y} \in [-1.0; 1.0] \);

\( x \) is an independent variable (indicator of the relevant Sustainable Development Goal);

\( y \) is a dependent variable (an indicator of the formation and distribution of financial resources of local budgets);

\( i \) is the ordinal number of the element of the set of values of the dependent or independent variable, \( i = \frac{1}{n} \)

\( n \) is the number of elements of the set of variable values.

Calculating the numerical value of Pearson’s correlation coefficient is made easier by using the PEARSON function in Excel with the following arguments:

\[ \text{=PEARSON(array1; array2)}, \tag{2} \]

where array1 is a required argument, a set of values of the independent variable;

array2 is a required argument, a set of values of the dependent variable.

Using formulas (1)-(2), we determine the stochastic relationship between the indicators of formation and distribution of financial resources of local budgets (see Table 2) and the relevant indicators of the Sustainable Development Goals according to the data given in [14]. It should be borne in mind that, according to the Law of Ukraine «On the Protection of the Interests of Entities Submitting Reports and Other Documents During the Period of Martial Law or a State of War» [18], the publication of information for 2022 by the State Statistics Service will resume after the end of martial law. Therefore, the study takes 2021 as the last year of analysis.

It should be noted that an adequate and reliable assessment of the impact of local budget finances on the achievement of the Sustainable Development Goals is possible under the following conditions:

Firstly, the directions of the connection between the indicator and the intended purpose of the indicator should coincide, i.e. if the indicator is a stimulant, the correlation coefficient should be \( r_{x,y} > 0 \), if the indicator is a discourager, then \( r_{x,y} < 0 \); Second, the stochastic relationship between the indicator and the indicator should be of high density, i. e. \( r_{x,y} \in [-1.0; -0.5] \cup [0.5; 1.0] \);

Thirdly, if a strategic objective (sub-goal) involves monitoring several indicators, the impact of financial support on its achievement is assessed by the indicator with the highest Pearson coefficients, which are also closest to meeting the two previous preceding conditions.

If at least one condition is not met during the assessment, no adequate and reliable conclusion can be drawn. This is the position taken in assessing the state of financial support for the Sustainable Development Goals by local authorities.

The results of calculating the numerical values of Pearson’s correlation coefficients for Goal 17 «Partnership for the Goals» are summarised in Table 3.
The results of the assessment of the stochastic relationship between the indicators of formation and distribution of financial resources of local budgets of Ukraine and the indicators of Goal 17 «Partnerships for the Goals»

<table>
<thead>
<tr>
<th>Sustainable Development Goal indicator</th>
<th>An indicator of the formation and distribution of financial resources of local budgets:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Total revenues of local budgets of Ukraine, billion UAH</td>
</tr>
<tr>
<td>17.1.1. Ratio of private remittances from abroad to GDP, %</td>
<td>0.0131</td>
</tr>
<tr>
<td>17.1.2. Net inflow of foreign direct investment (according to the balance of payments), mln USD</td>
<td>0.6015*</td>
</tr>
<tr>
<td>17.2.1. Ratio of gross external debt to exports of goods and services in annual terms, %</td>
<td>−0.9925*</td>
</tr>
<tr>
<td>17.3.1. Number of public-private partnership projects</td>
<td>0.4539</td>
</tr>
</tbody>
</table>

* $r_{xy} \in [-1.0; -0.5] \cup [0.5; 1.0]$.

Source: formulated by the author and carried out calculations in Excel based on the data of Table 2 and [14], using formulas (1)-(2).

In Table 3, goal 17.1 «Mobilise additional financial resources by encouraging investment by foreign and domestic investors», is interpreted by two stimulus indicators, where two Pearson correlation coefficients each meet the second condition, but only indicator 17.1.2 «Net inflow of foreign direct investment (according to the balance of payments)» twice meets the first condition, so it is taken as a basis. Among the indicators of the XVII Sustainable Development Goal presented in Table 3, indicator 17.2.1 is a disincentive, as it reflects strategic objective (sub-goal) 17.2 «Consistently reduce the debt burden on the economy» and its downward dynamics indicates the correct vector of sustainable development. According to the numerical values of the Pearson correlation coefficient, which indicate a high-density stochastic relationship, it can be concluded that further increase in the revenues and expenditures of local budgets, along with deepening their decentralisation and expanding their financial autonomy, will most likely ensure the achievement of the above sub-goal 17.2. The remaining indicators are stimulators, i.e., the correct vector of sustainable development will be a tendency towards their growth, and financial support from local budgets should fully contribute to this process. With regard to strategic objective 17.1, it should be noted that only the growth of total and own revenues of local budgets stimulates the mobilisation of additional financial resources by encouraging investment by foreign and domestic investors. The achievement of objective 17.3 «Develop partnerships between government and business to achieve sustainable development goals» is most affected by decentralisation, namely the growth of the share of own revenues in the consolidated revenues of local budgets and the coverage of expenditures by own
revenues of local budgets. Overall, 55% of the indicators met the evaluation requirements in 2015-2021.

Similarly, progress in achieving the remaining goals that are the responsibility of local authorities and are financed from local budgets is assessed.

**Conclusions.** The results of the analysis of the strategic role of local authority financial support in achieving the Sustainable Development Goals of Ukraine allow us to draw a number of important conclusions.

Firstly, the regional level of financial support for sustainable development in Ukraine is the responsibility of local authorities (local budget revenues account for 35.0% of consolidated budget revenues) to achieve 41.2% of the Sustainable Development Goals, in particular: Goal 1 «No poverty», Goal 3 «Good Health and Well-Being», Goal 4 «Quality education», Goal 10 «Reduced inequality», Goal 11 «Sustainable Cities and Communities», Goal 16 «Peace, Justice and Strong Institutions» and Goal 17 «Partnerships for the Goals».

Secondly, a methodological approach to assessing the strategic potential of financial support for the Sustainable Development Goals at the level of regions and territorial communities is proposed. The basis of this approach is the calculation of Pearson’s pairwise correlation coefficients between the relevant indicator of the Sustainable Development Goals and the indicator of formation and distribution of financial resources of local budgets. In this case, the value of the pairwise correlation coefficient should correspond to a high density of stochastic connection, be unidirectional with the intended purpose of the indicator, and the assessment of the state of achievement of the strategic objective (sub-goal) is carried out by the indicator with the highest values of correlation coefficients.

Thirdly, it is proved that the process of financing for achievement ensured progress in achieving Sustainable Development Goal 17 «Partnerships for the Goals» in Ukraine at the regional level in 2015-2021, as 55.0% of indicators of strategic objectives (sub-goals) showed a positive trend.

Assessment of progress in achieving the remaining Sustainable Development Goals through financial support from local budgets of Ukraine will be a promising area for further research by the author, along with an assessment of the status of achievement of the Sustainable Development Goals in Ukraine, taking into account the consequences of martial law in the context of the russian-Ukrainian war.

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