

Analytical support of management accounting in managing sustainable development of agricultural organizations

Alsou Zakirova^{1*}, *Guzaliya Klychova*¹, *Gamlet Ostaev*², *Zariya Zalilova*³, and *Aigul Klychova*¹

¹Kazan State Agrarian University, 65, Karl Marx, 420015 Kazan, Russia

²Izhevsk State Agricultural Academy, 11, Studencheskaya, 426069, Izhevsk, Russia

³Bashkir State Agrarian University, 34, the 50th anniversary of October, 450001, Ufa, Russia

Abstract. Management accounting of an economic entity in the agricultural sector is a complex multidimensional system. Sustainable development of the subject of business in the agro-industrial complex depends on many heterogeneous factors and conditions, which are understood as the reasons (driving forces) of any process determining its character or its separate features. The order of making decisions depends on the functioning of management accounting. In the context of diversity and heterogeneity of factors, a high degree of their uncertainty, complexity of interactions, study of these factors is a serious problem. Therefore, management personnel should carry out a constant analysis of all factors affecting the enterprise and assess their interaction, which reflects the cause-and-effect relations that characterize the sustainable development of the agro-industrial complex. The aim of the article is the justification of theoretical provisions and the development of practical recommendations for the development of analytical support of management accounting in the management of sustainable development of agricultural organizations. Objectives of the research: to study theoretical aspects and methodological tools, to determine the set of factors of sustainable development of a business entity, to develop absolute and relative indicators, which should be applied in management accounting for assessment and analysis of economic, social and environmental sustainability.

1 Introduction

In today's market conditions, there is an increasing need to study the theory and practice of management accounting and its specifics in relation to a specific target audience. For agricultural organizations, the most important is to identify priorities in improving their own business in order to increase its efficiency and uniqueness.

For reliable information and analytical support of agricultural business and management decision making it is necessary to keep management accounting (production accounting, budgeting, management, planning, analysis, evaluation, abstraction, etc.) in organizations.

*Corresponding author; zakirovaar@mail.ru

At the current stage of economic relations between business entities, the success of any agricultural business, to a large extent, depends on management accounting, which should indicate the advantages, novelty and main features of business, distinguishing it from competitors in agriculture.

The success of management accounting as an instrument of the entire business mechanism of an economic entity is currently due to three main factors: purposefulness; systematic nature; and a clearly formed quality of information provision for management decision-making purposes.

Any management decision made in agricultural business should be based on timely analyzed information on macro-, meso- and micro-environment. Thus, management accounting gives stimulus to agricultural business development based on the studied factors.

2 Materials and Methods

The current socio-economic situation in rural areas and the level of development of agriculture requires new tools in the field of management and decision making, such tools, we think, can become management accounting. The increase in sales volumes, the formation of a customer base, as well as the stable growth of income require incredible effort and time, including effective management accounting. Thus it is necessary to be well guided in features of activity of economic subject (the agricultural organisation).

Globalization of markets and acceleration of scientific and technological progress ensure the emergence of new types of resources and products, including in agriculture. Under these conditions, agricultural organizations should be able to make quick and flexible management decisions.

In terms of their economic content, all managerial decisions in agricultural organizations tend to fall into two main areas:

- choice of directions and making investments;
- identification of necessary resources (material, labor, natural, financial) and search for their sources.

Thus the basic criteria of decision-making is maintenance of an acceptable parity of a level of efficiency necessary for the maximum growth of market cost of the organization, corresponding to investment expectations of owners of this agricultural business (the enterprise, the organization).

The use of different methods, techniques and models of management accounting makes it possible to systematically and comprehensively assess factors affecting the sustainable development of any agricultural business (enterprise, organization).

The problems of management accounting are covered in the works of domestic and foreign economists [1, 2, 3, 4, 5, 6] and others. Significant experience in management accounting has been accumulated, however, management accounting of macro-, meso- and micro-environment in agricultural business has its own characteristics, so this method requires development.

All factors influencing the sustainable development of a business entity can be subdivided into: macro environment factors, meso-environmental factors and microenvironmental factors (Figure 1).

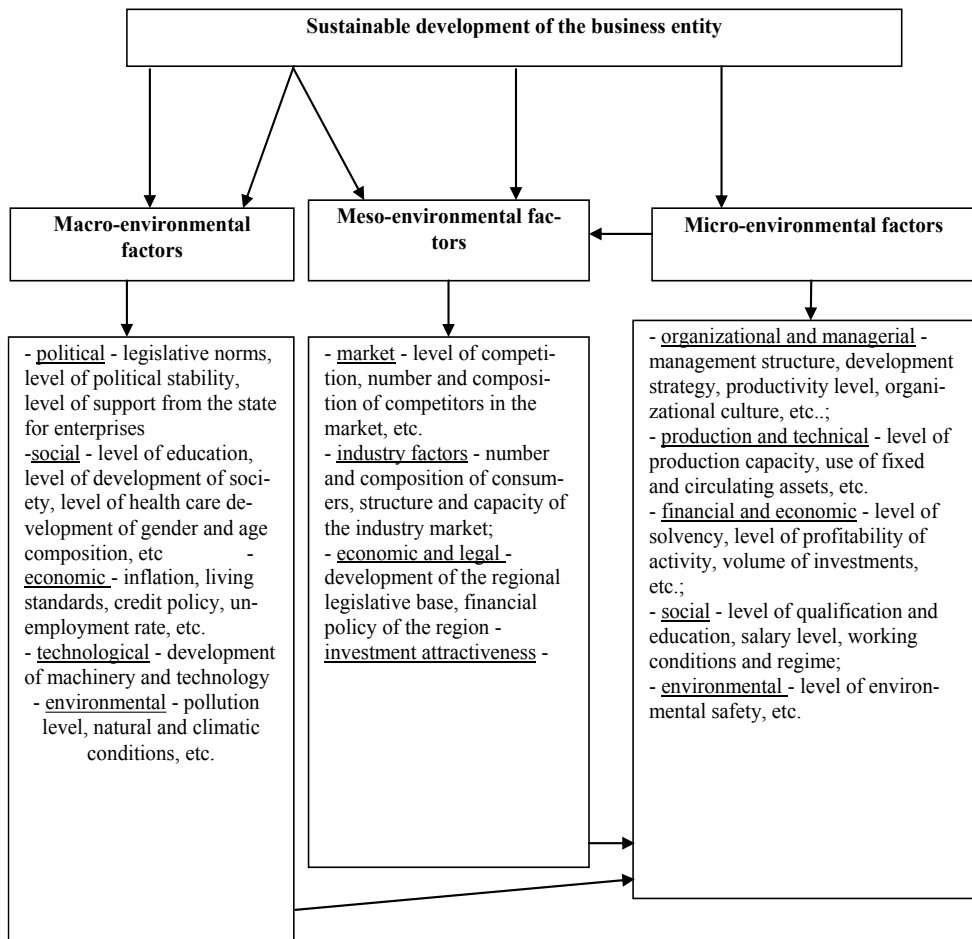


Fig. 1. Set of factors for sustainable development of a business entity.

In management accounting it should be taken into account that macro- and meso-environmental factors, unlike microenvironment, have a high degree of uncertainty, which is associated with their diversity, with complex interrelations between elements of one or several factors and with the dynamics of their development and change.

An important meaning of sustainable establishment and development for any agricultural business (enterprises, organizations) is its connection with macro- and meso-environmental factors, from where it receives economic and other resources and where it orients its agricultural products to sales [7, 8, 9].

In modern conditions, the establishment and development of agricultural business in all regions depends not only on territorial and natural climatic conditions, but also on location in relation to large cities and megacities, where the majority of buyers of agricultural products and processing industry are concentrated. Besides, it is necessary to take into account the importance of social and economic formation, development of local (regional) economy and ecological criteria of rural areas development [10].

Policy factors have a determinant impact on the sustainability of agricultural enterprises. The use of legal regulation of enterprises is driven by the need to protect enterprises from each other, to protect consumers and the interests of society. Regulatory and legal acts effective on the territory of the Russian Federation regulate the activities between citizens

and agricultural commodity producers and establish the legal basis for the implementation of state policy in the sphere of agricultural development as an economic activity for the production of agricultural products and promotion of sustainable development of rural areas.

The main tasks of development of priority sectors of agriculture are:

- 1) increasing the volume and improving the quality of production, as well as processing the main types of agricultural products;
- 2) increasing the export potential of agricultural products and processed products;
- 3) establishment and development of socially important sectors of agriculture, ensuring the normal way of life and employment of the population;
- 4) equalization of disproportions in the agro-industrial sector through state support;
- 5) assistance in establishment and development of agro-industrial infrastructure;
- 6) maximizing the efficiency of regulation of agricultural products, raw materials and food markets;
- 7) increasing the level of profitability in agriculture to ensure its sustainable development;
- 8) improving the quality of life of rural population;
- 9) development of biotechnologies, development of melioration of agricultural lands;
- 9) development and establishment of biotechnology and reclamation of agricultural lands;
- 10) environmentally regulated implementation of land, water and other natural resources in agricultural production, improvement of soil fertility to an optimal level.

No less important are internal factors and conditions, the effect of which is quite relevant at the municipal level. At direct conducting of agricultural production conditions for development of rural territories are created, and the foundation for food self-sufficiency of the country is laid down [11].

When studying the issues of sustainable development, it is necessary to take into account the relationship of the agricultural sector with other sectors of the economy, as components of the agricultural sector.

Thus, management accounting should reflect the degree of sustainable development of agricultural business (enterprises, organizations), depending on the cumulative impact of both macro- and meso-media, and microenvironment factors and conditions. When making management decisions, microenvironment factors determine the potential of agricultural business (enterprises, organizations) for sustainable development, and macro- and meso-media factors characterize the conditions for realization of this potential [12].

It should be noted that environmental factors, unlike internal factors, have a high degree of uncertainty, which is associated with their diversity, with complex interrelationships between elements of one or more factors and with the dynamism of their development and change.

In order to identify the factors that affect the sustainable development of agricultural enterprises, it is necessary to identify some features of agriculture that distinguish it from other sectors:

1. The final outcome (result) of business processes of the agro-industrial complex is largely dependent on weather conditions;
2. The peculiarity of agriculture is the seasonality of production. In this respect, human (labor) resources and agricultural equipment are not used rhythmically during the year, agricultural products are sold unevenly, income is generated;
3. Biological organisms are involved in the production of agricultural products. As a result, not only economic and financial factors, but also biotransformation influence the degree of its formation, which makes it difficult to measure the impact of factors on the final results of management;

4. The most important means of production in agricultural business are land resources, natural characteristics of which are inseparable from weather and territorial conditions;

5. Agricultural business is atypical in comparison with other sectors of production, because part of own production is used for own needs as a means of agricultural production: seeds, fodder, biological organisms. Thus, in comparable prices, commodity products are much less than gross.

Sustainable development of agricultural enterprises is determined by factors and conditions, based on the diversity of which, they can be divided into 2 groups: external and internal (Figure 2).

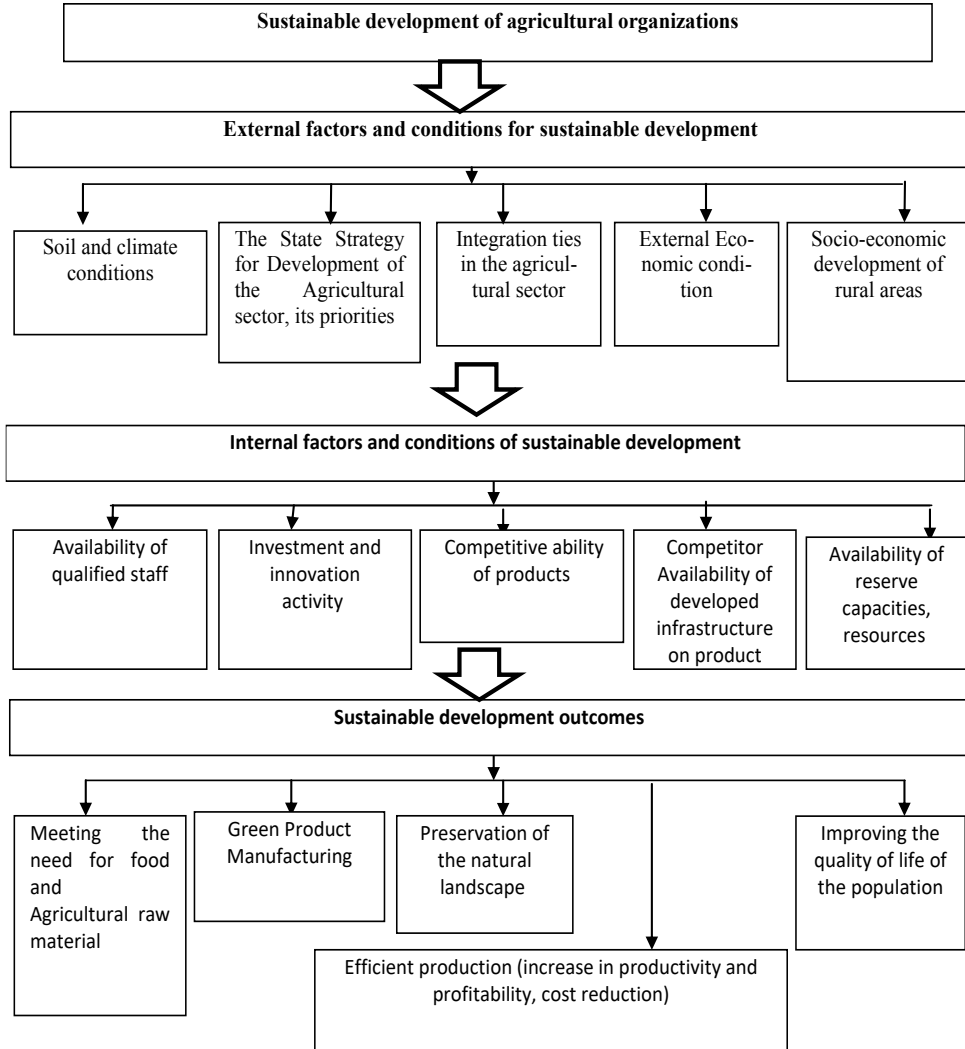


Fig. 2. Main components of the financial strategy of an agricultural enterprise (business entity).

An important role in the sustainable establishment and development of any agricultural organization is its relationship to external factors and the environment from which it receives economic and other resources and where it orients its agricultural products for sale.

3 Results

The problem of measuring and evaluating sustainable development is extremely relevant, especially in the face of overcoming the effects of the economic crisis.

At present, in order to determine whether an enterprise is developing sustainably, it is necessary to identify the most important indicators (indicators) of this process.

In the scientific literature, sustainable development indicators are referred to as criteria and indicators with the help of which the level of development of a company is assessed, its future condition is predicted, and conclusions about the sustainability of this condition are made. In the context of sustainable development, developed indicators should provide information about the status or dynamics of economic, social or environmental aspects of the system under study [13, 14].

For sustainable development and functioning of an agricultural organization, ensuring a balanced solution of socio-economic problems and problems, certain methods and approaches are needed. The problems of preserving the favorable environment and the potential of natural resources to meet the needs of present and future generations of people are also of priority [15].

Improving the living standards and quality of life of the population, the progressive development of the economy and social sphere while preserving the reproductive potential of the natural complex of the country is a strategic direction. These approaches allow identifying the following components of sustainable development: economic, environmental and social [16, 17]. Close interconnection of sustainable development elements is shown in Figure 3

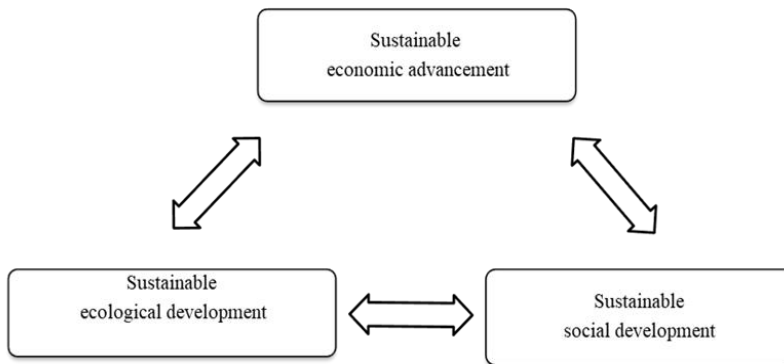


Fig. 3. Sustainable development framework.

In our opinion, it is only when the economic, social and environmental components are balanced that the sustainable development of agricultural enterprises is ensured for a long time.

Based on the selected components, we will define the main criteria and indicators of sustainable development.

Social stability shows the degree of social security of the personnel, characterizes the ability of the enterprise to satisfy its employees with jobs and wages, and improve working and rest conditions. In accordance with the tasks of social sustainability analysis, the indicators may differ according to the following criteria presented in Figure 4

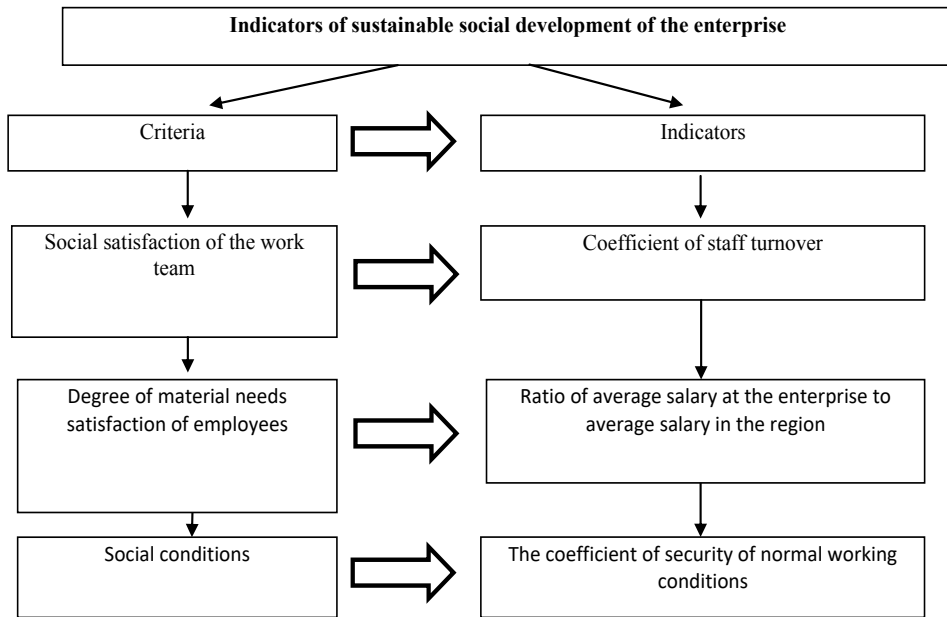


Fig. 4. Basic criteria and indicators of social sustainability of the enterprise.

For the purposes of management accounting, the financial position is assessed on the basis of the balance sheet data. When analyzing the accounting (financial) statements the highest level of financial and economic stability is evidenced by high semantic characteristics characterizing solvency, liquidity, creditworthiness, turnover of funds, profitability.

An indicator in management accounting is also market stability, which characterizes the competitiveness of agricultural business (enterprise, organization) in the market. This indicator reflects a set of marketing strategies, namely: obtaining accurate and objective information about demand, reducing the risk of irregularity in obtaining orders, raising the rating of agricultural business (enterprise, organization), as well as studying the market capacity, competition. In the management accounting the objects of the market stability analysis are the volumes of sales and turnover; position of the enterprise in relation to the competitors; expenses for marketing.

Besides, in the management accounting investment stability (sustainability) is taken into account, which is manifested in the possibility of an economic subject to financial rise and expanded reproduction, taking into account the risk factors and uncertainty in investments [18, 19].

Organizational stability for the purposes of management accounting reflects the efficiency of labor and production organization, assumes the stability of internal organizational structure, coherence and efficiency of connections between different departments and services of agricultural business (enterprises, organizations), their efficiency [20].

Production and technical stability in management accounting characterizes the availability of agricultural business (enterprise, organization) of such production potential, which can provide a break-even production volume. Production stability of agricultural business (enterprises, organizations) is estimated by production and technical potential [21].

This indicator includes a set of financial, material, non-material, information, innovation and other resources that provide economic activity of business (enterprises, organizations),

as well as the progressive use of technology and technology, mechanization and automation of production [22, 23].

Economic stability provides growth of the level of profitability and profitability of the enterprise, increase of business activity, preservation of payment and creditworthiness. We will consider economic sustainability as a set of components presented in Figure 5.

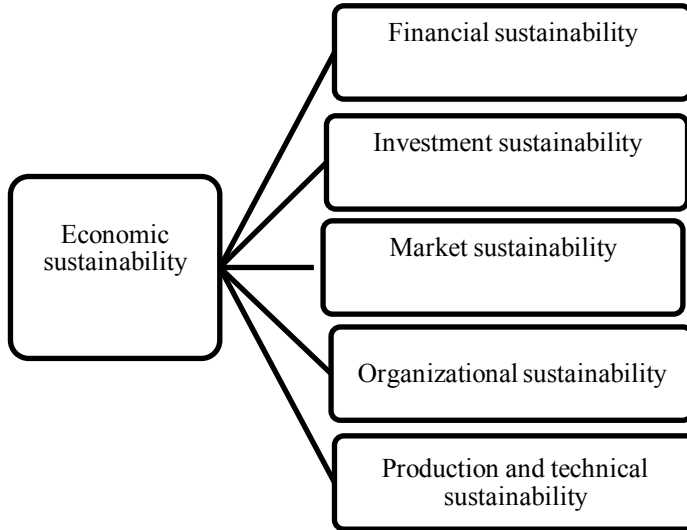


Fig. 5. Economic sustainability components.

One of the conditions for sustainable development is the financial stability of the enterprise.

In our opinion, Table 1 presents the most demanded absolute and relative indicators, which should be applied in management accounting for assessment and analysis of economic stability.

Table 1. Indicators for determining economic stability of an enterprise.

N p/p	Indicators	Formula for calculation	Characteristics	Optimum value
1	Revenue per 100 hectares of agricultural land, thousand rubles.	Proceeds of the business entity / Area of agricultural land x 100	Showing how much revenue falls on 100 hectares of agricultural land.	-
2	Net profit per 100 hectares of agricultural land, thousand rubles.	Net profit of the business entity / Area of agricultural land x 100	Shows the amount of net profit per 100 hectares of agricultural land.	-
3	Current liquidity ratio	Operating assets of the business entity / Current liabilities of the business entity	Shows the ability of a business entity to repay its current short-term liabilities from its current assets	≥ 2
4	Absolute Liquidity Coefficient	(Cash of the business entity + Short-term financial investments of the business entity) / Current liabilities of the business entity	Reflects the ability of a business entity to repay its short-term liabilities using highly liquid assets.	>0.2

5	Financial dependency ratio	Balance sheet currency / Equity of the business entity	Indicates the extent to which assets are financed by borrowed funds	-
6	Coefficient of autonomy	Equity of the business entity / Assets	Shows the share of forming assets at the expense of equity capital	>0.5
7	Financial leverage ratio (financial leverage)	Borrowed capital of a business entity / Equity of a business entity	Financial leverage ratio shows the share of equity capital of a business entity in its assets. The higher this indicator is, the greater the entrepreneurial risk of the business entity.	≤1
8	Coefficient of capital maneuverability	(Equity of the business entity + Long-term liabilities - non-current assets) / Equity of the business entity	Share of equity capital used to finance current assets	0,2-0,5
9	Equity capital multiplier	Business entity assets / equity capital	It characterizes the ratio of equity to advanced funds in the activities of a business entity	-
10	Coefficient of own funds availability	(Equity of business entity + Long-term liabilities - non-current assets) / Stocks.	The share of stock formation at the expense of equity, the value of the indicator reflects the stable financial condition of the business entity	-
11	Sales volume change coefficient	Volume of sales at the end of the period of the business entity / Volume of sales at the beginning of the period of the business entity	Characterizes the sales volume of products in the business entity	-
12	Market share, %	(volume of sales in value terms by business entity / volume of sales in value terms by industry) x 100	Characterizes the business entity in relation to its nearest competitors	-
13	Return on sales, %	Business Entity Sales Profit / Business Entity Sales Proceeds x 100	Return on sales is used as the main indicator to assess the financial performance of a business entity, which has relatively small amounts of fixed assets and equity. Evaluation of profitability of sales allows a more objective view of the state of affairs.	Increasing the indicator
15	Endowment fund, rub	Proceeds from sales of the business entity / Average annual value of fixed assets	Shows the overall return on each ruble invested in fixed assets, i.e. how effective this investment is.	-

In addition, to assess the fixed assets and productivity of an economic business entity, table 2 presents indicators that should also be used in management accounting for managerial and strategic decisions.

Table 2. Indicators for the assessment of fixed assets and productivity of the business entity.

№ p/p	Indicators	Formula for calculation	Characteristics	Optimum value
1	Endowment fund, rub	Revenue from sales of a business entity / Average annual value of fixed assets	Shows the overall return on each ruble invested in fixed assets, i.e. how effective this investment is.	-
2	Production profitability, %	Balance sheet profit of the business entity / (Average annual value of fixed assets + Working capital of the business entity)	Shows how effectively the property of a business entity is used.	-
2	Depreciation rate of fixed assets	Depreciation/premature value of property, plant and equipment of a business entity	Shows how much depreciated the fixed assets are.	<50%
3	Fixed asset renewal ratio	Carrying amount of fixed assets of a business entity / Cost of fixed assets at the end of the year	Proves that part of the fixed assets available at the end of the reporting period consists of new fixed assets	Indicator increase
4	Fixed asset growth ratio	(Carrying value of commissioned fixed assets of the business entity + Carrying value of retired fixed assets of the business entity) / Fixed assets value at year end	Characterizes the relative increase in fixed assets due to their renewal	
5	Availability of fixed assets per 100 ha of agricultural land, thousand rubles	Average annual value of fixed assets of the business entity / Area of agricultural land	Characterizes the availability of fixed assets per 100 hectares of agricultural land for the business entity	
6	Return on fixed assets, %	Profit from sales of a business entity / Average annual value of fixed assets of a business entity	Relative economic indicator of the degree of efficiency in the use of invested resources	Indicator increase
7	Working capital profitability, %	Business entity's profit / Average annual value of fixed assets of the business entity	Reflects the efficiency of using the working capital of the business entity	Indicator increase
8	Net profit per 1 management employee, thousand rubles.	Net profit of the business entity / Number of employees of the management apparatus of the business entity	Shows how much net profit per employee of the management apparatus per business entity	-
9	Productivity per 1 employee,	Volume of products manufactured in the	An economic category that reflects the degree	-

	thousand rubles	business entity / Average number of employees of the business entity	of fruitfulness of people's expedient activity in producing material goods	
10	Investment Coefficient	Equity of the business entity / non-current assets of the business entity	Shows the extent to which own sources cover the investments made, and is equal to the ratio of the business entity's own funds to the fixed capital	>1

The social component of sustainable development of enterprises will be presented in the form of the following indicators, presented in table 3

Table 3. Indicators characterizing the social sustainability of the enterprise.

N p/p	Indicator	Formula for calculation	Characteristic
1	Staff turnover coefficient	$\frac{\text{Number of laid off}}{\text{Average Number}}$	The higher the turnover rate, the more alarming the situation in the company. This situation is characterized by frequent dismissals of highly qualified employees and the appearance of a large number of new staff.
2	Disease incidence rate	$\frac{\text{Number of cases}}{\text{Number of workers}}$	Shows the number of cases per employee.
3	Injury Frequency Coefficient	$\frac{\text{Number of accidents} * 1000}{\text{Average number of accidents}}$	Coefficient expressing the number of accidents per 1000 employees
4	The coefficient of security of normal working conditions	$\frac{\text{Number of injuries at the enterprise}}{\text{average number of employees}}$	Characterizes the degree of conformity of real working conditions at the enterprise
5	Average monthly salary per employee	$\frac{\text{Wage fund}}{\text{Number of employees}}$	Characterizes the level of social security of company employees
6	Ratio of average salary at the enterprise to average salary in the region	$\frac{\text{Average salary at enterprise}}{\text{Average salary by region}}$	Characterizes the level of social security of employees

7	Labor protection costs	$\frac{\text{total cost of labor protection measures}}{\text{average number of employees}}$	Allocation of funds for prevention of industrial accidents and occupational diseases, improvement of working conditions and safety
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Environmental sustainability characterizes the ability of the enterprise to rationally use natural resources, apply resource-saving and energy-saving technologies and reduce negative impact on the environment. The environmental component of sustainable development of the enterprise is characterized by the following indicators (Table 4).

Table 4. Indicators characterizing environmental sustainability.

N p/p	Indicator	Formula for calculation	Characteristic
1	Share of environmental payments in net profit, %	$\frac{\text{Environmental payments}}{\text{Net profit}}$	Characterizes the level of environmental payments in net profit
2	Level of environmental research costs as % of net profit	$\frac{\text{Environmental Research Costs}}{\text{Net profit}}$	Characterizes the level of costs for environmental studies of the enterprise
3	Level of expenses for restoring soil fertility per 1 hectare, thousand rubles / ha	$\frac{\text{Costs of restoring soil fertility}}{\text{Area of agricultural years}}$	Shows how much money the company has spent on restoring soil fertility.

Financial and economic stability of an economic agent of agriculture in general should be reflected as its ability to maintain the target structure of sources of financial resources. Assessment of financial stability is to assess the ability of an agricultural organization to meet its financial obligations. The assessment is based on the calculation of indicators characterizing the structure of sources of financial resources and the ability to maintain it.

Also for the purposes of management accounting we can offer an algorithm for calculating the financial cycle of an agricultural organization:

$$FC = TKZ - TK - TDZ \tag{1}$$

where, FC is the financial cycle of the enterprise;

TKZ - the period of turnover of accounts payable (accounts payable), in days;

TZ- the period of turnover of inventory, in days;

TDZ - the period of turnover of funds in the calculations (receivables), in days.

At the same time, a negative value of the indicator indicates the need for the agricultural organization to attract additional sources of financing.

In addition, agricultural organizations need to competently develop the budgeting system in management accounting. Stages of budgeting can be regarded as one of the areas of planning improvement, as an opportunity to improve the efficiency of an agricultural organization.

4 Discussion

As known, one of the elements of management accounting is management analysis - information preparation for evaluation of options and alternatives, for decision-making. If there is such a possibility, internal management reporting should contain initial preliminary analytical calculations, which contribute to a more effective perception of information. For managers at various levels, it is important that management reporting contains information in a form that would be useful to management personnel when working with reports. Thus, for heads of departments the most interesting are the results of the analysis of the use of production facilities, equipment load, their impact on costs and performance. More detailed analysis is presented in the reports, which are intended for senior management personnel. This report presents an analysis of the impact of all major factors on the financial and economic performance of the company. Special attention is paid to the analysis of financial indicators in the management accounting and budgeting system.

Management reporting should take into account the specifics of the organization and information needs of management, while allowing for control and analysis of various deviations in indicators. The presence of this information in the reports makes it possible to implement in practice the principle of management by deviations, the essence of which is that the manager of a higher level begins to regulate the activities of the responsibility center with a lower status only in case of a deviation from the specified parameter.

In the economic literature there are two main methods of controlling the costs and revenues of organizations: comparison of indicators and budgeting [24]. The first method is based on generalization of deviations from certain norms by places of costs. The second method (budgeting) involves comparison of planned indicators with actual costs for the subdivision as a whole and is an important tool to control optimal and rational use of resources.

In the economic literature there are two main methods of controlling costs and revenues of an organization: a comparison of indicators and budgeting [24]. The basis of the first method is a generalization of deviations from certain norms at cost points. The second method (budgeting) involves comparing planned targets with actual costs for the unit as a whole and is an important tool for monitoring the optimal and rational use of resources.

In modern conditions, the question often arises of the appropriateness of introducing such a labor-intensive operational management technology as budgeting at the enterprise, since it remains unclear how it can help achieve the organization's strategic goals [25, 26].

We agree that the budgeting system is, above all, an operational management technology. However, the fact that it should be created taking into account the strategic goals of the organization is also undeniable. Consequently, within the framework of budgeting, information must be accumulated that is necessary for evaluating activities in the reporting period and promptly clarifying the direction of activity when moving towards strategic guidelines [27].

The budgeting process is organized and managed by the Budget Committee, which has the authority to redistribute budget funds between budget lines, develop measures to eliminate the budget deficit and prioritize payments. The Budget Committee reviews and approves the budgets, makes adjustments and analyses their implementation. The activity of the Budget Committee is regulated by the Regulations of the Budget Committee. The budgets for the period are formed, based on the tasks facing the enterprise, on the basis of existing contracts with contractors and forecasts of possible transactions, taking into account the results of market research.

When setting budgeting in the accounting and information system of internal management of the organization, a number of procedures are carried out, the sequence of which is defined by regulations designed to clearly structure this process in the

organization. Regulations of the budgeting system is a document which in a systematic form contains description of procedures of planning, accounting, control and analysis functioning in the organization. The regulations are defined in accordance with the budget cycle, which includes planning of the organization's activities, preparation of projects, adjustment and coordination of budgets with due account of changing conditions. Budgeting regulations establish the methodology for setting up budget management in an agricultural organization, which should consist of the following stages.

The first stage presupposes analysis of organization's activity, in the process of which the existing planning methodology at the enterprise is studied and its drawbacks are revealed, as well as determination of the purpose and task of budgeting implementation.

The second stage involves the development of the financial structure of the organization. Based on the existing organizational structure, financial responsibility centers are formed, which are developed according to the classification reflecting the levels of responsibility.

In the course of formation of the budget structure of an organization - the third stage - various forms of basic, supplementary and operational budgets are developed, the sequence of their preparation is determined for both the financial responsibility centers and the enterprise as a whole, a list of reporting forms, budget indicators, planning and accounting items of all economic activities of the enterprise is formed.

The fourth stage involves preparing up budgets of the organization corresponding to the financial objective.

At the fifth stage, the analysis of budget execution and adoption of management decisions based on its results are performed. At this stage, the approach to the analysis, its depth, regulations and responsible employees are determined.

The sixth stage of budgeting system development involves the selection and implementation of the budget management automation program. The main conditions for the choice of this or that automated system are such characteristics of software products as the possibility of creation, control and analysis of organization's budgets, import and export of data into accounting systems, the possibility of changing the system, availability of the system of data access restriction and qualified support of the developer, the cost of the system [28].

The next stage involves training staff in the skills of building and operating a budgeting system, including automated budgeting. Job descriptions determining the sequence of measures mandatory for each employee must be documented and issued to the employees..

5 Conclusions

Thus, it should be noted that agricultural organizations use quite a few different indicators to assess sustainable development. Therefore, it is necessary to form a system of indicators that will reflect the sustainable development of an agricultural organization within the concept of sustainable development, which includes social, economic and environmental aspects. For agricultural organizations, in addition to the assessment of sustainable development on various indicators, it is necessary to determine the criteria of their effectiveness. This will also serve as a basis for defining a further development strategy. The proposed management accounting methodology facilitates prompt management decision making, which will enable the development of specific business process management mechanisms.

On the basis of the proposed indicators for determining economic, social and environmental sustainability and methodological approaches to their analysis, it can be noted that they are a toolkit for management decision making, therefore, it is necessary to apply and develop them for further management purposes. Therefore, agricultural business,

with proper management accounting and decision making based on these measures, has opportunities for sustainable development and additional income generation, taking into account such factors as macro- and meso-environmental and microenvironmental factors.

References

1. A. Uyar, C. Kuzey, *Advances in Accounting* **35**, 170-176 (2016) doi.org/10.1016/j.adiac.2016.06.004
2. P. Lebedev, *Procedia - Social and Behavioral Sciences* **213**, 293-298 (2015) doi.org/10.1016/j.sbspro.2015.11.540
3. W. van Erp, F. Roozen, E. Vosselman, *Scandinavian Journal of Management* **35**, 101077 (2019) doi.org/10.1016/j.scaman.2019.101077
4. G.S. Klychova, M.M. Nizamutdinov, L.N. Safiullin, L.M. Mavlieva, *Mediterranean Journal of Social Sciences*, 5–18 (2014) DOI: 10.5901/mjss.2014.v5n18p215
5. G.S. Klychova, L.N. Safiullin, A.R. Zakirova, *Mediterranean Journal of Social Sciences* **5-18**, 193-196 (2014) 10.5901/mjss.2014.v5n18p193
6. G.S. Klychova, A.R. Zakirova, Z.R. Zakirov, G.R. Valieva, *Asian Social Science* **11-11**, 308-312 (2015) DOI: 10.5539/ass.v11n11p308
7. J. da Silva, V. Fernandes, M. Limont, W.B. Rauen, *Journal of Environmental Management* **260**, 110147 (2020) doi.org/10.1016/j.jenvman.2020.110147.
8. G. Secundo, V. Ndou, P.D. Vecchio, G.D. Pascale, *Technological Forecasting and Social Change* **153**, 119917 (2020) doi.org/10.1016/j.techfore.2020.119917
9. J.H.P.P. Eustachio, A.C.F. Caldana, L.B. Liboni, D.P. Martinelli, *Journal of Cleaner Production* **241**, 118383 (2019) doi.org/10.1016/j.jclepro.2019.118383
10. M. Sultana, J. U. Ahmed, Y. Shiratake, *Journal of Co-operative Organization and Management* **8**, 100105 (2020) doi.org/10.1016/j.jcom.2019.100105
11. H. Wang, B.M. Swallow, *Land Use Policy* **59**, 272-283 (2016) doi.org/10.1016/j.landusepol.2016.07.037
12. P. Rikhardsson, O. Yigitbasioglu, *International Journal of Accounting Information Systems* **29**, 37-58 (2018) doi.org/10.1016/j.accinf.2018.03.001
13. H. Elzahar, Kh. Hussainey, F. Mazzi, I. Tsalavoutas, *International Review of Financial Analysis* **39**, 96-112 (2015) doi.org/10.1016/j.irfa.2015.03.005
14. J. Leontieva, E. Zaugarova, G. Klychova, A. Zakirova, A. Klychova, *MATEC Web of Conferences* **170**, 01087 (2018) doi.org/10.1051/matecconf/201817001087
15. B. Yuan, Y. Zhang, *Journal of Cleaner Production* **243**, 118543 (2020) doi.org/10.1016/j.jclepro.2019.118543
16. R. Cervelló-Royo, I. Moya-Clemente, M. R. Perelló-Marín, G. Ribes-Giner, *Journal of Business Research* **8** (2019) doi.org/10.1016/j.jbusres.2019.10.031
17. G.S. Klychova, B.G. Ziganshin, A.R. Zakirova, G.R. Valieva, A.S. Klychova, *Journal of Engineering and Applied Sciences* **12**, 4958-4965 (2017) DOI: 10.3923/jeasci.2017.4958.4965
18. G. Klychova, A. Zakirova, E. Sadrieva, F. Avkhadiev, A. Klychova, *E3S Web of Conferences* **91**, 06002 (2019) doi.org/10.1051/e3sconf/20199106002
19. O. Pavlatos, H. Kostakis, *The Journal of Economic Asymmetries* **18**, e00106 (2018) doi.org/10.1016/j.jeca.2018.e00106

20. A.-Y. Chang, Y.-T. Cheng, *Journal of Cleaner Production* **207**, 458-473 (2019) doi.org/10.1016/j.jclepro.2018.10.025
21. M. Ike, J. D. Donovan, Ch. Topple, E. K. Masli, *Journal of Cleaner Production* **216**, 139-151 (2019) doi.org/10.1016/j.jclepro.2019.01.151
22. A. Klychova, G. Klychova, A. Zakirova, R. Sungatullina, K. Mukhamedzyanov and E. Philippova, *E3S Web of Conferences* **110**, 02072 (2019) doi.org/10.1051/e3sconf/201911002072
23. B.M.R. Pais Seles, A.B. Lopes de Sousa Jabbour, Ch. J. Chiappetta Jabbour, H. Latan, D. Roubaud, *Ecological Economics* **163**, 189-204 (2019) doi.org/10.1016/j.ecolecon.2019.04.013
24. M. Arnold, M. Artz, *Accounting, Organizations and Society* **73**, 50-67 (2019) doi.org/10.1016/j.aos.2018.06.001
25. L. Liu, H. Wang, Sh. Xing, *Computers and Electronics in Agriculture* **160**, 1-7 (2019) doi.org/10.1016/j.compag.2019.02.030
26. J. Molina-Maturano, S. Speelman, H. De Steur, *Journal of Cleaner Production* **246**, 119001 (2020) doi.org/10.1016/j.jclepro.2019.119001
27. J.P. Fernandes, *Land Use Policy* **82**, 563-572 (2019) doi.org/10.1016/j.landusepol.2018.12.044
28. J. Tummers, A. Kassahun, B. Tekinerdogan, *Computers and Electronics in Agriculture* **157**, 189-204 (2019) doi.org/10.1016/j.compag.2018.12.044