Resource-Targeted Approach to Ensuring Sustainable Development of Agro-Food Systems and Strengthening the Country's Food Security

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Keywords : resource-targeted management, resources, resource potential, sustainable development, agro-industrial complex, agro-food systems, structure, food security.

Abstract : Sustainable development today is one of the areas that receives quite a lot of attention. A special place in the development of the state economy is occupied by the agro-industrial sector, since the efficiency of its development directly affects the level of food security of the country. In general, to ensure uninterrupted and competitive agricultural production, it is necessary to take into account modern management methods and approaches. The purpose of the article is to reflect the need to apply the resource-targeted approach in the strategic analysis of the functioning of the agricultural sector, which will ensure the sustainability of the development of agro-food systems and at the same time have a positive impact on increasing the level of food security of the state. The study was based on the consideration of the structure of the agro-food system and the allocation of structural modules of resource-targeted management of the agro-food system as a whole. As a result, a conceptual model of resource-targeted management was proposed, which is a set of goals and resources that ensure the beginning of the production process, while coordinating all processes, which allows you to get the integration of the entire resource potential.

1 INTRODUCTION

The constantly growing needs of people require a corresponding increase in the volume of production of various goods, the most important of which is food. In the structure of the national economy of any state, the strategically important sector is the agro-industrial complex, where food and raw materials are produced for many other sectors of the economy.

Researchers note that the existing indicative system of public administration system Not only Not coordinated V within the framework implementations strategic programs development, But And unclear interprets current tasks state agro-industrial policies" (Naidanova et al., 2024). This requires the development of methodological approaches to the formation of conditions for balanced, sustainable development of the agro-industrial complex .

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The development of the domestic agro-industrial complex has always been and remains associated with many limitations, primarily of a resource nature. The economic efficiency of using production resources is closely related to material and financial, technical and technological equipment, human resources, transport and logistics and market infrastructure (Oborin, 2021). The synergistic nature of this interaction presupposes the desire to increase the efficiency of " assistance and cooperation" of all types of economic resources (Babina et al., 2013, Naidanova et al., 2024).

The shortage of qualified personnel and financial resources, the lack of agricultural machinery coupled with its moral and physical deterioration, the lack of quality seed and planting material, as well as a number of other problems significantly hinder the possibilities of sustainable development of agro-food systems. This does not contribute to the full implementation of the tasks of strengthening the country's food security. In this regard, it is necessary to search for management technologies, including the use of adaptation methods, allowing, in the current conditions, to ensure the sustainable development of agro-food systems and the most complete achievement of the set goals with existing (extremely limited) economic resources.

The idea of sustainable development for humanity is “one of the most important guidelines in determining and anticipating the future” (Volkova et al., 2022). This idea involves the formation of a socio-economic model that ensures the satisfaction of human needs while preserving natural and other resources for future generations. Sustainable development of regional agro-food systems creates the prerequisites for strengthening food security for the entire country.

2 MANUSCRIPT PREPARATION

Each region, in the context of geopolitical, socio-economic, geoclimatic and other transformations, needs an effective, efficient model for managing the agro-food system (Naidanova et al., 2017).

Agro-food system (AFS) is a multi-level, systemic business process formed under the influence of a wide range of conditions. The parameters of these conditions vary depending on the combination of influence of geographical, natural-climatic, political, economic, social and other determinants.

The structure of the APS is considered from both institutional and functional points of view. The institutional structure assumes that the APS consists of an interconnected set of formal and informal institutions and includes the following groups of participants (Polyanskaya et al., 2024):

- primary producers of agricultural products;
- entities engaged in post-harvest handling and processing of agricultural products into food products (foodstuffs);
- entities engaged in the storage and transportation of agricultural products and food products;
- entities engaged in the distribution, marketing and disposal of food products;
- food consumers (households and institutions);
- state (municipal) bodies and services responsible for supplying the population of the territory under their jurisdiction with food.

2.1 The agri-food system from a functional perspective

From a functional point of view, the agri-food system as an open dynamic system has an “input”, a “process” and an “output” (Fig. 1).

“Input” is the set of resources used by the system, “process” is the transformation of resources into the results of the system’s work (production of agricultural products and food), “output” is useful socio-economic results (ensuring the availability of food products for all citizens), i.e., at the “output” the system shows the results of achieving the goal.

Important determinants of the development of regional agro-food systems are economic resources (their qualitative and quantitative parameters), which together form its resource potential .

"Output", i.e., the results of achieving the system's goal, depend on the level of use of the resource potential, which, in turn, is determined by the quality of the functioning of the control subsystem. Therefore, the study and modeling of the system as a whole, and especially the control subsystem (subsystem 4 in Figure 1), is of decisive importance.

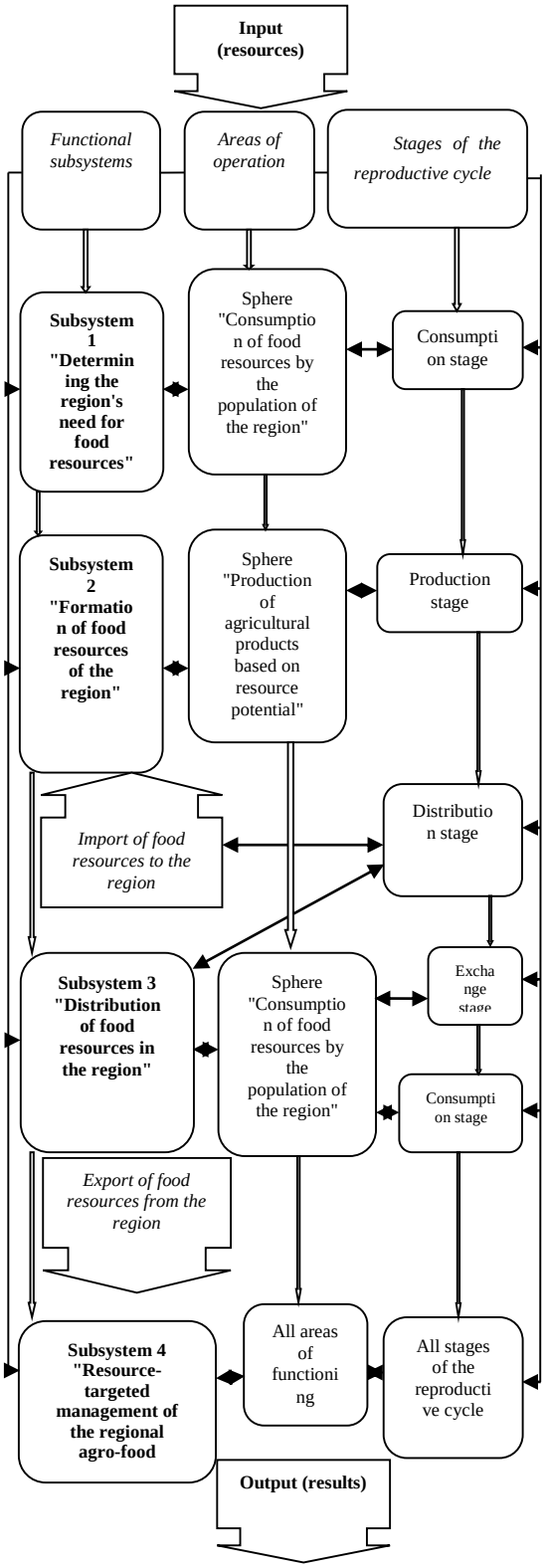

Figure 1: Cyclical-functional structure of the regional agro-food system (Polyanskaya et al., 2024).

2.2 Resource-targeted approach in the management of regional agro-food systems

In the context of ensuring sustainable development in the management of regional agro-food systems, a resource-targeted approach is needed , allowing for the coordination of potential parameters for achieving the goal with available resources in a certain time interval. This approach allows for the most rational consideration of the structure and goals of the system and subsystems, as well as the quantitative and qualitative parameters of the resources intended to achieve the goals (Volkova et al., 2012).

The concept of resource-targeted management of regional projects that we propose agri-food systems includes five modules: theoretical and methodological module, development module, implementation module, analytical monitoring and control module, adapted management module (Fig. 2).

I. Theoretical and methodological module is the basis of the concept of resource-target management, containing principles, methods and management tools, as well as strategic priorities for the development of APS. To solve the problem of low efficiency of agro-industrial production, a scientifically sound, rational organization of labor, machines and materials is necessary, which is possible only if the principles of management are observed.

Based on the general principles put forward by the classics of modern management, we have formulated the following *principles of resource-targeted management* of agro-food *systems* (Table 1).

Integrity in management eliminates the need to know a multitude of incoherent facts . At the same time, principles are not a panacea, but only the basis for creating a manager's toolkit for a specific case. For successful management, integrity must be armed with appropriate methods.

The methods and tools of management include the methods and tools of influence of the managing subject on the managed objects (subjects).

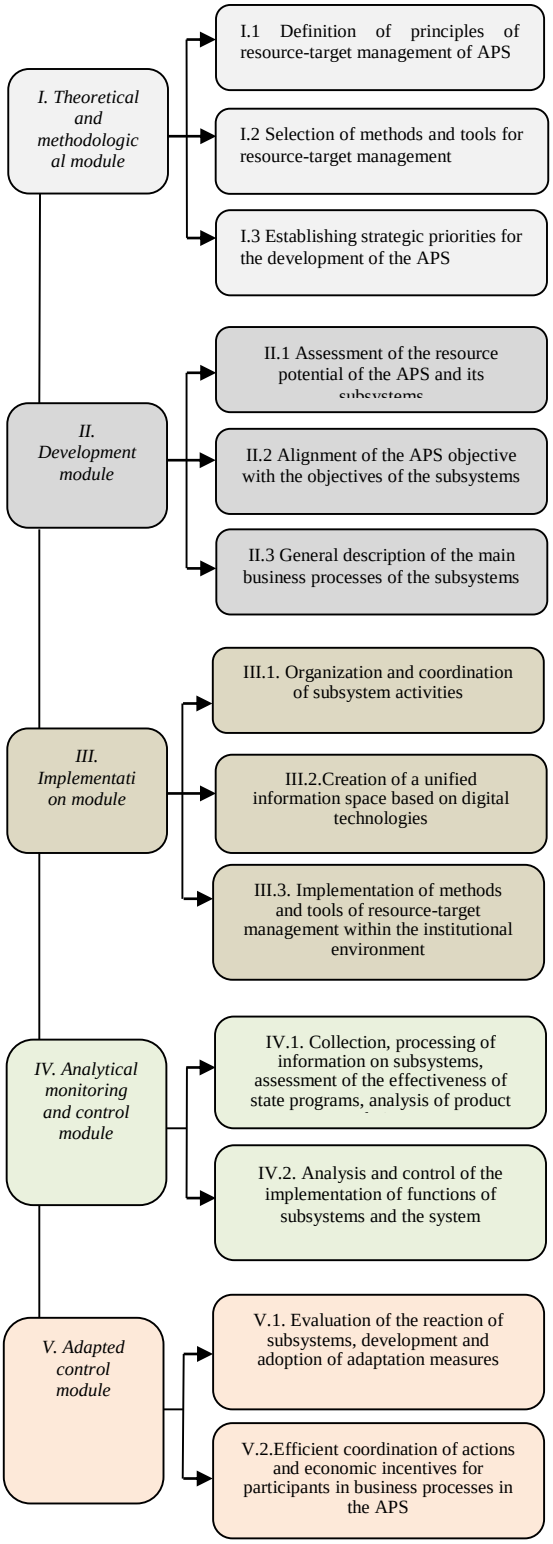

Figure 2: Structural modules of resource-targeted management of the regional agro-food system (Developed by the authors).

Table 1: Conceptual principles of resource-targeted management of agri-food systems.

Name of the principle	Content of the principle
Clear formulation of goals, their measurability	Specific, quantitatively measurable results that a system (subsystem) should strive for in a certain time period
Common sense of the subjects of management	A rational understanding of whether the goals can be achieved with the available resources
Unity and coherence of actions	The goals and activities of subsystems must be coordinated and aimed at achieving the overall goal of the system.
Maintaining discipline	Strict performance of one's duties and acceptance of responsibility for one's activities, which will ensure a highly organized system. Each participant in the system must respect the interests of others
Timely, reliable, continuous, complete accounting and control	Formation of a reliable, sufficient information base to substantiate effective management decisions. Proportionate sanctions should be applied for violations of discipline
Specialization and division of labor	Concentration of a subsystem participant on a small number of goals and objectives, since by directing its resources and efforts in one direction, it achieves greater competitiveness and works more efficiently
Centralization of management	The presence of a control center is as necessary as the presence of specialization and division of labor. The degree of centralization, its proportions with decentralization, depend on the conditions of functioning of the subsystems
Balance of authority and responsibility	Responsibility for decisions taken must be proportionate to the powers vested in the participants.
Increased motivation	Any activity is more effective if the subjects are interested in it and are confident in achieving their goals.
Ensuring high quality work	Each participant in the system must strive to perform their work with high quality (in the production of products, provision of services, commercial and sales operations, management, etc.)

A method is a set of methods for implementing management functions, i.e., techniques used by a managing subject (system) to influence managed

objects or subjects; an instrument is a means (tool) used within the framework of a specific method.

The *establishment of strategic priorities* includes the definition of the most important areas of activity; the selection of the most significant resources, on the basis of which the competitive advantages of the APS participants as a business process will be formed. The establishment of priorities is determined by the development strategy of the region and the desire to resolve the main problems of the agro-industrial complex.

II . The development module includes an assessment of the resource potential of each subsystem, coordination of the subsystem goals and the system goals, as well as a general description of the main business processes in each subsystem. The following blocks are distinguished in the components of the resource potential of the APS: natural and climatic, land, social and labor, material and technical, the integral assessment of which makes it possible to rank regions by the level of functional blocks, identify the weakest points of the resource potential, justify a set of measures to eliminate threats and determine regions in need of investment by types of priority investments.

By *coordinating the goals of subsystems and the goals of the system,* the maximum synergistic effect of its functioning is ensured.

General description of the main business processes solves two problems. Firstly, it is a study of agribusiness, which allows finding the most vulnerable spots and eliminating unnecessary operations. Secondly, it is a formalization of actions: if there are clear instructions and an algorithm for each task, then the elements and the entire system function more efficiently. Any business process is cyclical, it begins with consumer demand and ends with its satisfaction, etc. This is confirmed by the cyclical-functional structure of the APS (Fig. 1). The central link in the APS is the consumer, and all other participants in the system should be guided by it - production, processing, distribution, trade, transport, logistics, management.

III . The implementation module includes the organization and coordination of the activities of each of the APS subsystems, the creation of a single information space based on digital technologies, and the introduction of resource-target management mechanisms within the institutional environment.

Organization and coordination of the activities of each of the subsystems is the creation of such management relationships that will ensure effective connections between the subsystems and the complete achievement of their goals and the goals of the system.

The creation of a single information space based on digital technologies is necessary in order to provide governing bodies with information for business analytics and substantiation of effective decisions.

The implementation of methods and tools of resource-target management within the institutional environment consists of the implementation of resource-target management mechanisms in the practice of the activities of the relevant institutions. The effectiveness of the implementation depends on the quality of all the "preparatory" work carried out within the framework of modules I and II .

IV . The analytical monitoring and control module includes the collection, systematization and processing of information on subsystems, calculation, analysis and control of indicators on subsystems and the system as a whole. The results of this module depend on the quality of preparation of all modules, especially module III.2 .

V. The adapted management module logically continues the analytical monitoring module, is reflexive and includes: procedures for assessing the response of subsystems to environmental stimuli, development and adoption of adaptive measures , effective coordination of actions and economic incentives for participants in business processes in the APS.

3 RESULTS

Based on the cyclic-functional representation of the APS , we have proposed a conceptual model of resource-target management (Fig. 3).

At the “input” is the totality of goals and resources of the entire system and the control subsystem, the “process” is the coordination of goals and resources, at the “output” is the integration of resource potential to obtain useful socio- economic results – sustainable development of the APS. The resource-target approach allows us to combine the use of various research methods for assessing the resource potential of agro-food systems when interpreting it as a static value (resources, opportunities that have developed at a given point in time) and as a dynamic value (the process and result of the development of these systems).

4 CONCLUSIONS

Thus, resource-target management should be used as an unconditional unity of resources and goals. Following the system approach and the law of synergy, it is possible to ensure sustainable development of agro-food systems only if the goals of the system and all its structural links are consistent with each other and with the available resources. The resource-target concept as a management technology promotes resource conservation and effective performance of functions by each link of agro-food systems , which ensures the successful achievement of their goal - full food supply of the population of the regions and the formation of prerequisites for national food security.

ACKNOWLEDGEMENTS

The article was prepared with the support of the project 24-05-01 " Quality food supply as a factor in improving the standard of living of the population of the Republic of Buryatia ", implemented at the Federal State Budgetary Educational Institution of Higher Education "Buryat State University named after Dorzhi Banzarov" , as well as the grant "Young Scientists of VSGUTU-2024" , implemented at the Federal State Budgetary Educational Institution of Higher Education "East Siberian State University of Technology and Management" .

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