Efficiency of Management of the Production and Consumption Waste Management System

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Abstract: Relevance and Purpose. The organizational and ecological approach to managing the complex of production and consumption waste management is not perfect, the processes of generation and circulation of production and consumption waste are not effective, they do not take into account not only the environmental, but also the economic approach. The aim of the study is the development of organizational and sustainable management of the complex for handling production and consumption waste. Methods. The structure of the production and consumption waste management system is determined by the state and effective functioning of the main participants (associations) in the management system. To increase the sustainability of the management of the production and consumption waste management system, the processes of generation and circulation of production and consumption waste are considered from the point of view of the process and system approach. The main control instruments for the effective organization of management in the field of accumulation and disposal of production and consumption wastes are economic ones. Results. The most important goal of using economic instruments in the management of production and consumption waste is to cover costs and improve the processes of providing services. Conclusions. Estimating and constantly monitoring the costs of a full service is essential to improve the efficiency of management of the production and consumption waste management system. The effectiveness of management in the system of waste collection and processing is associated with the distribution of resource support for the functioning and formation of components included in the system and maintaining the efficiency of the functioning of the components of the control environment.

1 INTRODUCTION

The effectiveness of managing the industrial and consumer waste management system (OPP) at the present stage is significantly related to the intensification and development of informatization processes. Informatization in the monitoring of the functioning of the system for handling OPP, making management decisions determines promising trends in their development.

The informatization of the management system turns into an integral part of the system (Berkes, Folke, Colding, 2000; Bolman, 2017; Brooks, 1995; Dell'Anna, Dalpiaz, Dastani, 2019; Eichfelder, 2008; Erl, 2005; Bieberstein, 2008; Jacobson, 2013; Klotins, Unterkalmsteiner, Gorschek, 2019; Kruchten, 2003; Reussner, 2019; Miettinen, Ruiz, Wierzbicki, 2008; Lvovich, 2020; Bird, 2004; Przybyłek, 2018) and is a complex, highly organized complex aimed at transmitting, processing and storing data for managerial decision-making and includes:

- diverse tasks related to management in various types of activities in the system of handling OPP.
- synchronization of resource allocation at the phases of functioning and development of both the components of the system and the components of the management environment combined into a single

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whole.

The traditional approach to waste management by organizing container collection does not involve sorting them, but their disposal is implemented. The problem of waste recycling is the most important task of our time (Sudhir, Muraleedharan, Srinivasan, 2002; Bani, Rashid, Hamid, 2009; Ozmen, Aydogan, Ates, Uzal, 2016). Solving the problems of effective management and rational use of natural resources in the processes of waste management of production and consumption is becoming more and more relevant. At the same time, it is possible to identify unresolved issues in the field of waste management and management, which require new approaches to managing the management system with OPP, taking into account the management processes and management tools with OPP.

Currently, the organizational and environmental approach to managing the complex of treatment with OPP, from the point of view of sustainability, is not perfect, since the processes of education and treatment of OPP are not effective, do not take into account not only the environmental, but also the economic approach, and therefore requires qualitative development based on effective management.

2 MATERIALS AND METHODS

The main approaches in the management system of the treatment of OPP include process, system, situational. With a process approach, competent management allows you to respond in a timely manner to changing environmental conditions and it becomes possible to solve the tasks through process improvement. The organization of a sustainable process is a logically constructed sequence of actions in the system of handling OPP. For this purpose, the organization of the process is carried out for effective management. Process management in the management system of OPP includes building a system of relations with manufacturers of products and consumers of goods, monitoring and analysis of parameters and indicators of the implementation of relations and the provision of services, modernization of the management model and improving its efficiency.

In general, it is an integrated process that includes various methods of waste collection, transport equipment, storage, processing and disposal. The management model based on an integrated approach allows you to argue the method and technology of recycling waste management and choose an option according to organizational criteria, which allows you to take into account changes in the system and ensure its sustainability. It is also possible to optimize the process of recycling and disposal management, taking into account not only cost minimization, but also resource conservation and environmental protection.

3 RESULTS

For effective management in the system of handling the OPP, the organization of the process is carried out (fig. 1).

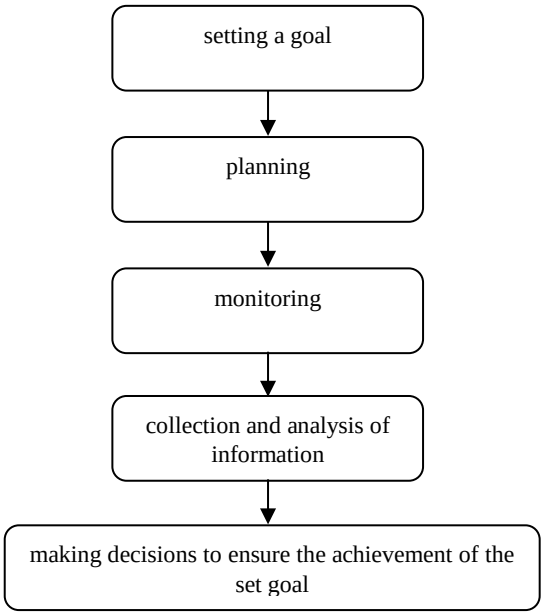

Figure 1: Process organization scheme.

The developed model of OPP handling processes, taking into account the effective management organization of OPP handling system, is shown in figure 2.

To achieve the goal, appropriate tools are used to influence the system (fig. 3).

The use of these methods makes it possible to improve the organizational structure and improve the management system as a whole.

In accordance with the distribution of functions among the participants of the management system with OPP, a management system in the region is proposed, which is shown in figure 4.

The sequence of implementation of the management tasks of the waste collection and processing facility is shown in the form of a block diagram in figure 5.

The block diagram of resource allocation for waste collection and processing facilities is shown in figure 6.

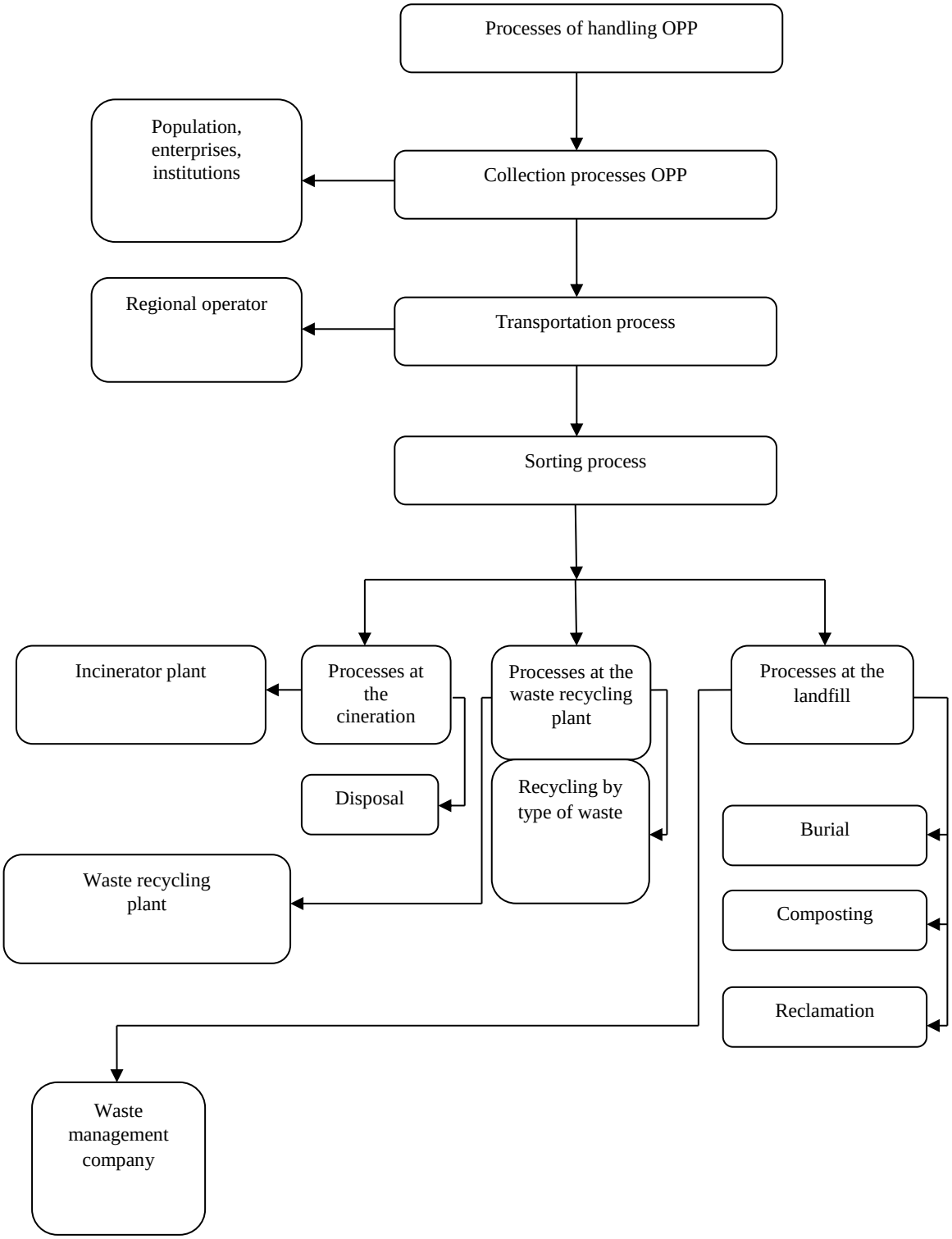

Figure 2: Model of processes for handling OPP.

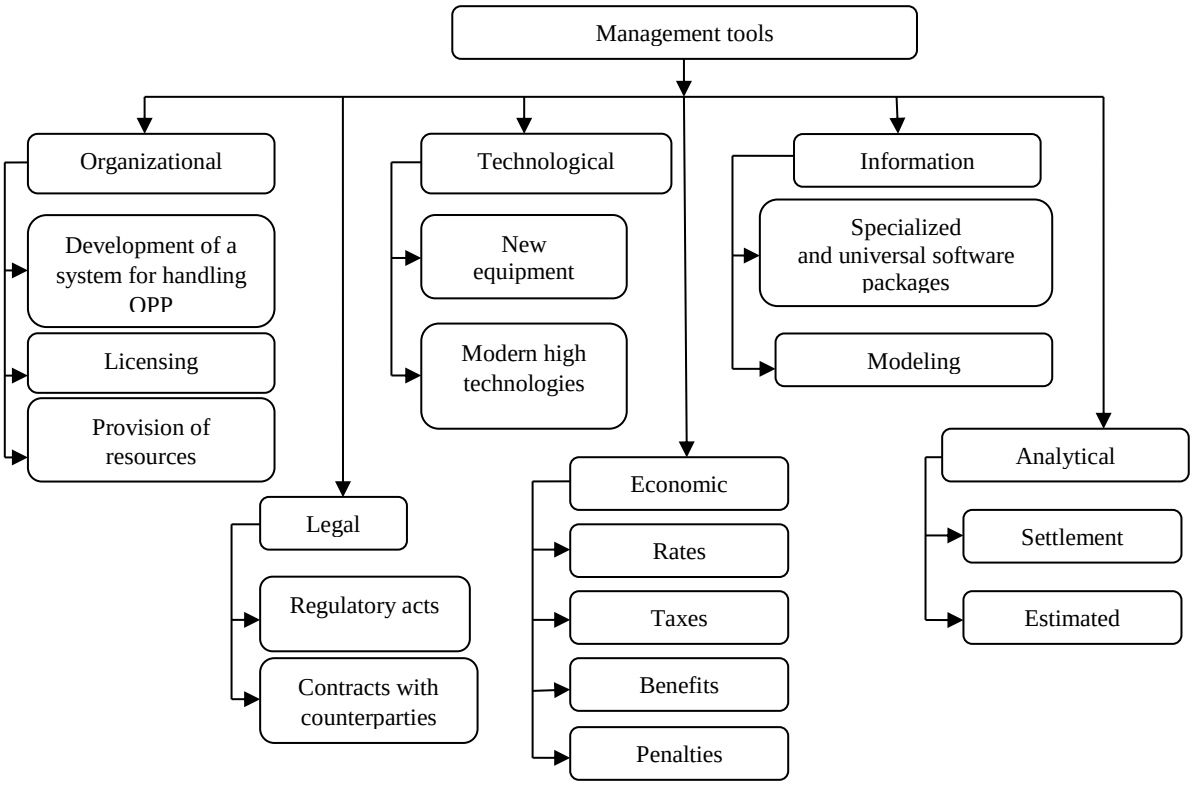

Figure 3: Management tools.

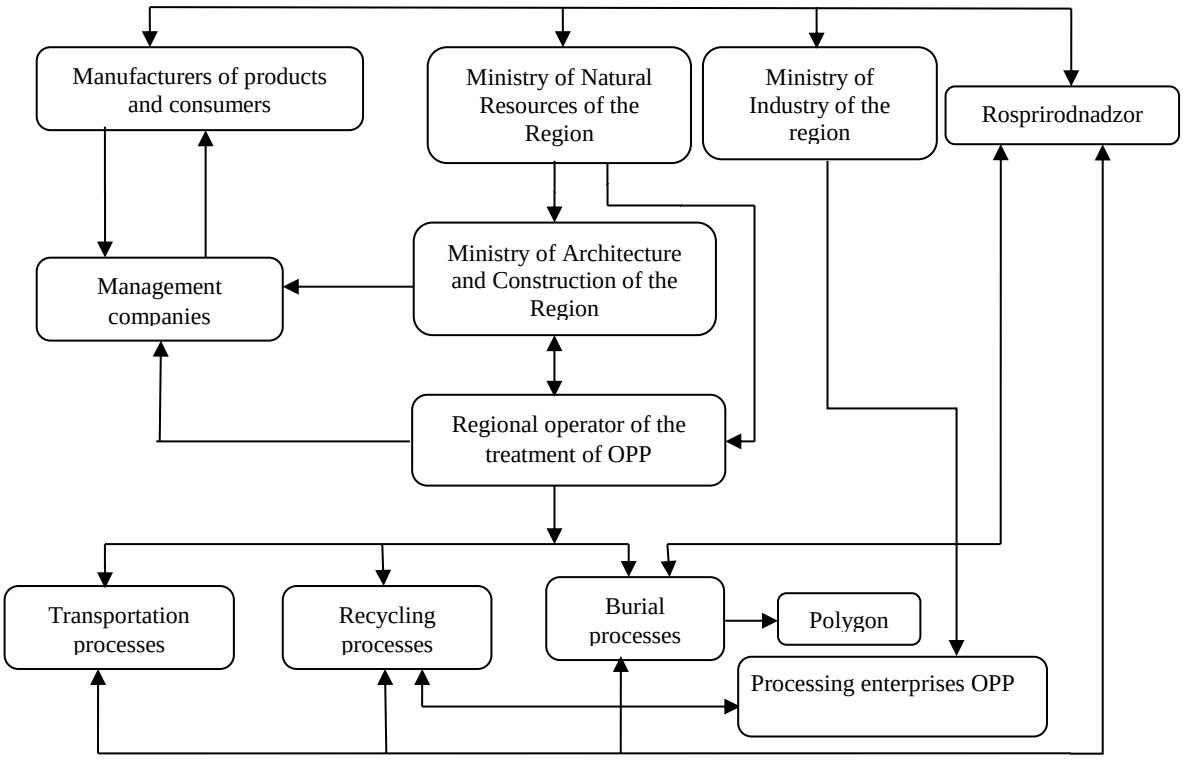

Figure 4: The management system of the management of the OPP of the region.

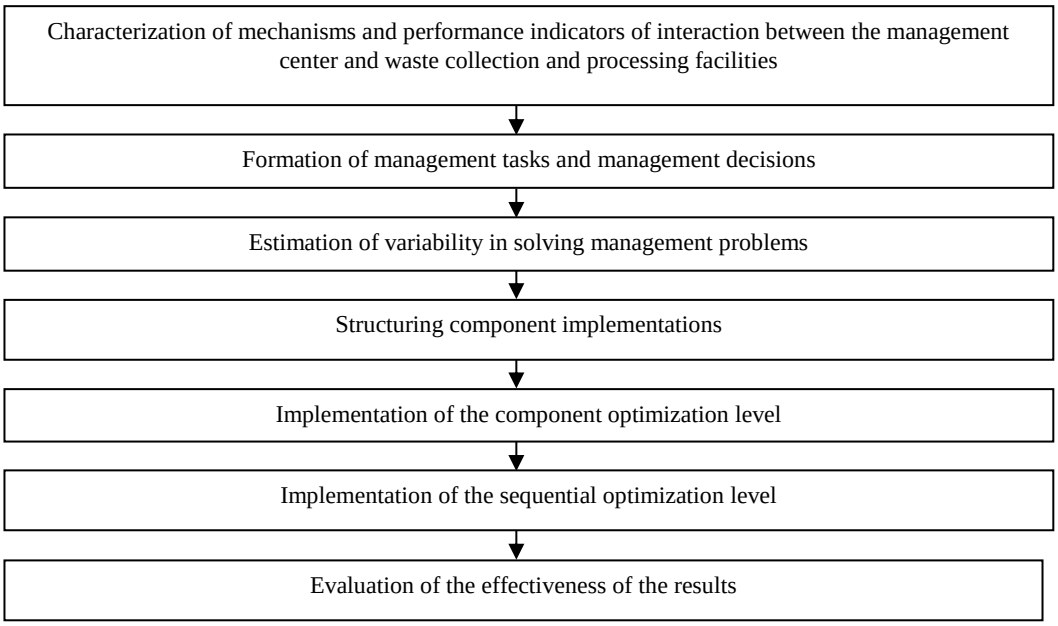

Figure 5. The sequence of implementation of the management tasks of the waste collection and processing facility.

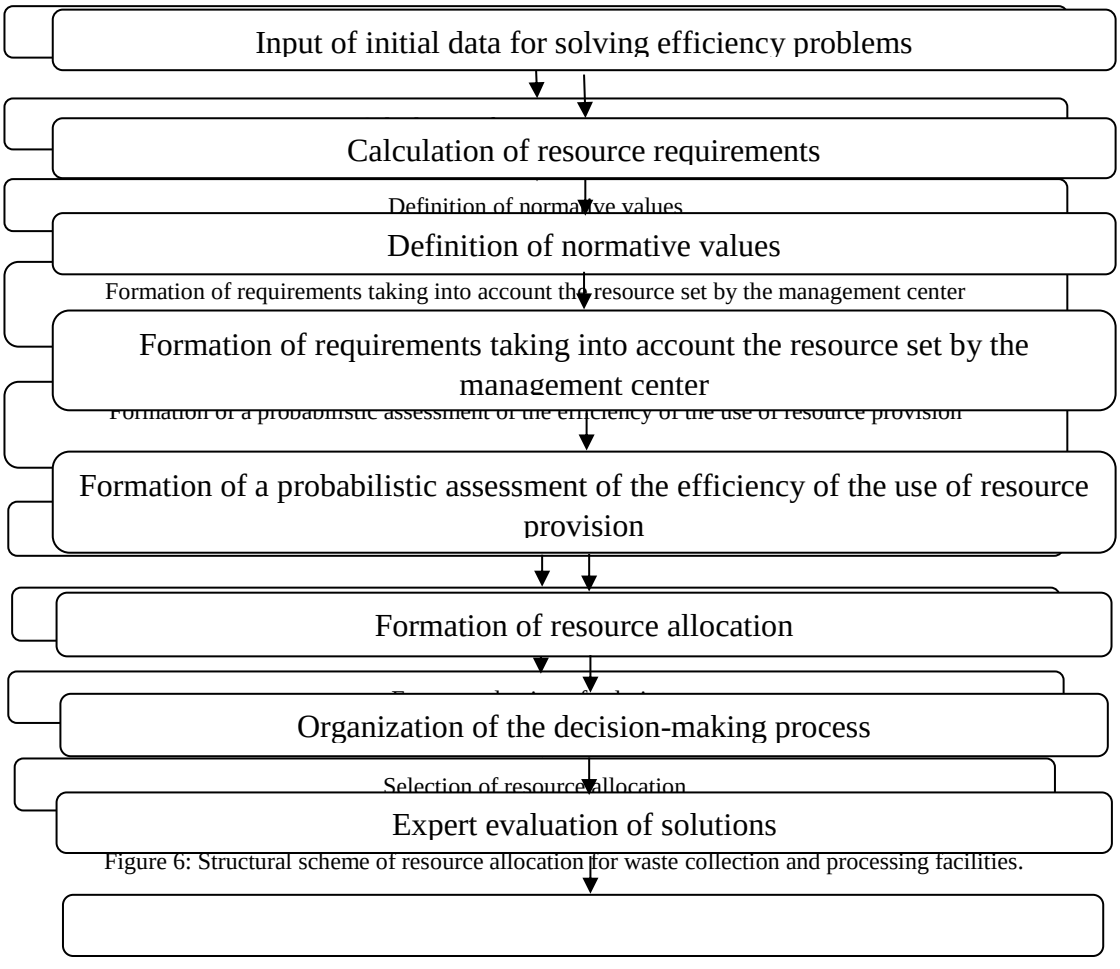

Figure 6: Structural scheme of resource allocation for waste collection and processing facilities.

4 DISCUSSION

The system of dealing with OPP is analyzed as an integral one, related to the field of intersectoral, the effective functioning of which is ensured by aspects of investment, organizational and technical, state support, and the organization of sectoral interaction.

State support includes: subsidizing the interest rate on loans, the introduction of resource-saving technologies, the revision of educational standards, the organization of educational and educational activities, the provision of consulting support and recommendations, the development and implementation of a program for the development of the industry, the provision of accessible and reliable information.

Organizational and technical includes: coordination of actions for the balanced development of the OPP system, expansion of the scope of activities and ensuring the self-sufficiency of specialized enterprises, rational use of resources, training of qualified personnel in the field of management with OPP.

The investment includes: the construction of waste processing enterprises, the purchase of high-tech equipment, long-term investments in the technical modernization of processing enterprises, the development of innovative potential based on technologies for handling OPP. Industry interaction includes: integration of waste collection participants and recycling organizations, organization of recycling complexes.

The effective functioning of the AKI management system is based on the development of human resources, ensuring the social well-being of the population.

The characteristic features of management in the waste collection and recycling system are:

- a variety of information resources used in making management decisions: data from periodic monitoring of system performance indicators, evaluation of consumers of their performance results;
- the multivariance of structural solutions is associated with the variety of information resources that provide management of the system.

The problem associated with the organization of waste collection, transportation, recycling, disposal and neutralization of OPP is solved with the help of recycling technologies.

To solve the problems of increasing the efficiency of management in the system of circulation of OPP, there are various methods of an empirical nature that allow effective management with sufficient predictability of results. However, the facet of the applicability of the methods is the time tied to the phase of the stable functioning of the system. to solve the problems of improving management efficiency in each specific case, it is necessary to take into account: the state and structure of the existing environment, the connection of the system in question with others. The management decision-making process should be based not only on the data of a specific existing environment, but also on the description of the whole system.

The interaction is carried out through the components of the environment of the management center and facilities, and is aimed both at transmitting information flows about the state of objects characterized by performance indicators of functioning, and at making management decisions on the distribution of resources.

When searching for the best option for the functioning of the control system, it is necessary to ensure the flexibility and adaptability of the function that combines the requirements of the system as a whole.

For resource provision at the stages of functioning of the management environment in the OPP system, it is effective to use a conceptual framework for a formalized description and management decision-making.

The OPP management system is considered as a set of objects homogeneous in their main activities and united by the management center of the system to fulfill the set goals: improving work efficiency through resource allocation and ensuring effective functioning. At the same time, the main economic indicators of activity are considered as performance indicators: the effectiveness of investments, profit, the structure of the organizational system of the OPP and the economic efficiency of the components of such a structure.

The main management objectives in the OPP system are:

– efficient allocation of resource (investment) provision between the objects included in the management system of the OPP ;

– ensuring high-quality functioning of facilities;

– ensuring resource efficiency of facilities in the implementation of activities;

– effective interaction of systems and objects in the process of carrying out such activities.

Management in OOP systems is based on information systems that allow you to receive and store information, including retrospective, on the evaluation of the effectiveness and quality of functioning based on the results of periodic monitoring of activities and ratings. Data on the indicators of the cost structure and their distribution of software, obtained during the period of operation of the system, form the basis of structural and functional decision-making.

5 CONCLUSIONS

In accordance with the distribution of functions among the participants of the OPP management system, it is expected to establish close interaction between all participants. The implementation of the proposed components ensures an increase in the efficiency of the management of the OPP circulation system. As a result of the implementation of the proposed approaches, it is proposed to create an effective system for processing OPP, forming an integral management system for the sphere of handling OPP. The efficiency of management in the waste collection and processing system is associated with the distribution of resource provision for the functioning and formation of components included in the system and maintaining the efficiency of the components of the management environment. Improving the efficiency of management processes in waste collection and recycling systems can be achieved through the analysis of waste management systems, technologies and models; investigation of the impact of individual impact factors on the efficiency of waste collection and recycling processes; implementation and evaluation of the effectiveness of models to improve the efficiency of decision-making processes in the management system with OPP. The OPP management system is considered as a set of objects that are homogeneous in their main activities and united by the management center of the system to fulfill the set goals: improving work efficiency through resource allocation and ensuring effective functioning. As performance indicators, the main economic indicators of activity, the structure of the organizational system of the OPP and the economic efficiency of the components of the structure are considered.

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