

**NININS 2020**  
**International Scientific Forum «National Interest, National Identity and  
National Security»**

**SUSTAINABLE REAL ESTATE DEVELOPMENT WHEN  
IMPLEMENTING INVESTMENT PROJECTS WITH STATE  
PARTICIPATION**

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**Abstract**

Some topical issues, related to the accumulation of considerable volumes of the real estate under construction, provided within the state target programmes, are considered in the article. The authors suggest that the sustainable development of the real estate, created within the target programmes, are important and relevant for the country. The analysis of the real estate construction in Russian and abroad is carried out, similar features are revealed and the need for the improvement of the investment projects implementation technologies is proved to refine the research directions. As the result the authors defined the key theses of the sustainable development theory, which are essential for forming the conceptual framework of the sustainable real estate development management. The authors offered the definition of the technologies of the implementation of investment projects with state participation. The grouping of causes of construction in progress, used for updating of technologies of implementation of investment projects with state participation, is made, taking into account the features of the state target programmes implementation. Some essential characteristics of the stages of the real estate construction, which use allows to avoid the risks of the irrational use of resources during construction, are revealed. According to the received results the need for expansion of the consideration of the sustainable real estate development due to inclusion of construction in progress is denoted. The target function of research of sustainable development and proper financing has to be performed on the basis of the facility technical condition assessment.

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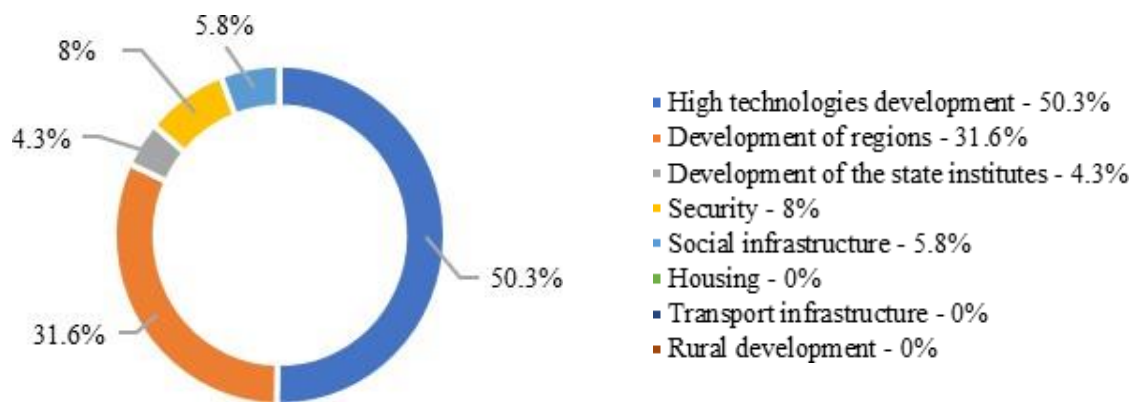
*Keywords:* Construction in progress, investment project, real estate, sustainable develop



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## 1. Introduction

Nowadays the interstate and federal target programmes (target programmes for short) act as the important instrument of the implementation of the state strategic plans, which influence the rates of sustainable development of our country significantly. There are 20 implemented target programmes in the Russian Federation now. They are aimed at the development of high technologies, social infrastructure improvement, regions development, safety and development of the state institutes (Federal target programmes of Russia Ministry of Economic Development of the Russian Federation). The distribution of budgetary funds in 2019 according to the target programmes priorities is presented in Figure 1.



**Figure 1.** Distribution of budgetary funds for 2019 according to the target programmes priorities

The construction of the real estate facilities with different functions, which is performed according to the terms of implementation of investment projects with state participation, is the important component of these programmes. The country's sustainable development is related with the sustainable development of the real estate, created within the target programmes. However, the increase in the quantity of real estate facilities, which are known as the construction in progress, which means the decrease in the country's sustainable development rates in case of financing from the state budgetary funds, became the negative phenomenon of the last decade. It is also known to have "historical roots", as it existed in the practice of construction of the socialist period of our country's history.

## 2. Problem Statement

According to the experts, the problem of reduction of construction in progress is complex. It demands making some system decisions on the improvement of technologies of the implementation of investment projects with state participation at all the levels of government and management (Doronin, 2019; Grabovoy et al., 2017). If this task is unsolved, that involves the risk of losses for the budgetary system of the Russian Federation as the result of withdrawal of significant investment resources from the circulation, accumulation of cumulative physical and functional deterioration of the facilities under construction and the shortfall of the expected social-and-economic effects and tax revenues from the

economic entities. The main direction of the scientific research and respectively the key question in case of the increase in the level of the employee competences of the government institutions, performing the construction maintenance within the target programmes, is the improvement of the technologies of the implementation of investment projects with state participation for ensuring the real estate sustainable development.

The quantity of real estate facilities, which make up the construction in progress within the target programmes, has been already huge by now. The volume of the state participation through the budgetary investments in construction in progress exceeds 5 trillion roubles annually (Analysis of the effectiveness of the measures taken by the authorities of the Russian Federation, aimed at the reduction of volumes and quantity of construction in progress in 2017–2018 and for the expired period of 2019). At the same time the lack of an effective accounting system, assessment and control of involvement of such facilities in economic circulation induce federal and regional authorities of the Russian Federation to make decisions on construction of new real estate facilities, similar to those, which construction is not completed, without any assessment of the possibility of ensuring of the sustainable development of the started real estate construction. As a result, the efficiency of the measures, taken by the authorities, directed to the identification and reduction of the quantity of construction in progress, is insufficient. The current situation with the low level of indicators of reduction of volume and quantity of the facilities, which make up the construction in progress, contains risks of reducing the rate of the country's sustainable development and risks of failure to achieve the national strategic priorities, the connected with need of creation of fully functioning real estate, which construction is provided in the target programmes.

### **3. Research Questions**

The authors consider the perspective of the construction in progress, according to the analysis of regulating documents and retrospective data on the results of the state customers work in the sphere of the real estate construction with the current level of the competences of the government institutions employee, performing the construction within the target programmes.

Three years ago the "accumulation" of real estate facilities, came under the spotlight of the Russian President whose orders formulated the following priorities, regarding the improvement of the technologies of the implementation of investment projects with state participation (Following the meeting of the State Council of the Russian Federation on 17 May 2016; On the increase in the efficiency of use of budgetary funds).

to provide the inventory of the real estate facilities under construction, and to create the information resource, containing the complete information on such facilities;

to offer some decisions on the completion of construction/reconstruction, preservation, demolition, privatization, transfer to concession of such facilities according to the inventory of the facilities, which construction supposed the use of budgetary funds;

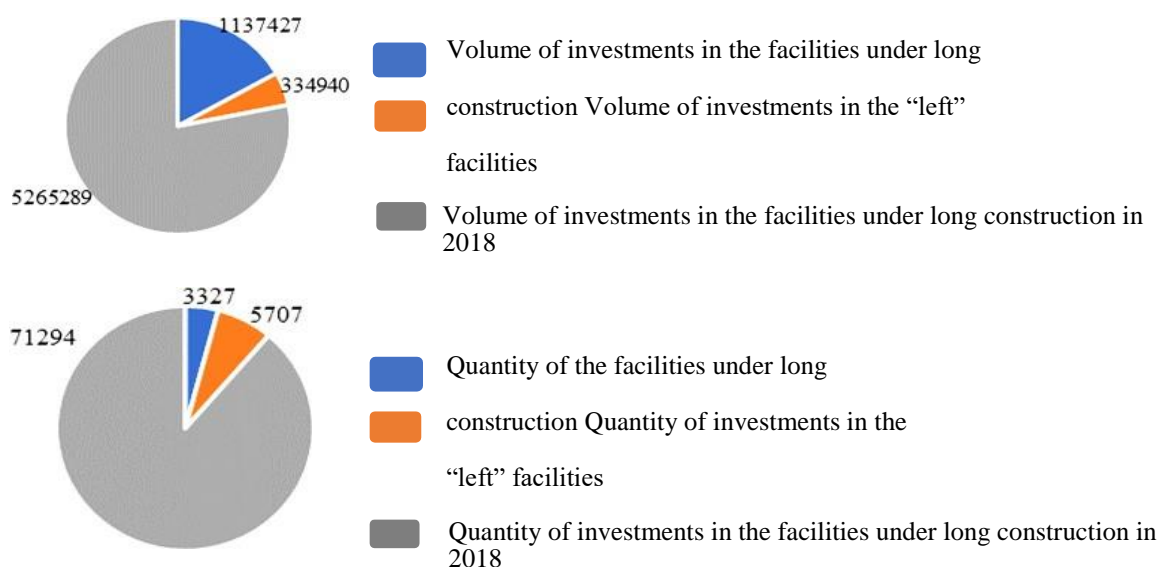
to develop an order and to establish the terms of commissioning of the real estate facilities under construction, with the registration of the property rights.

The execution of these instructions was based on certain state documents, plans and complexes of actions, focused on the stage-by-stage decrease in volumes and quantity of construction in progress

(Analysis of the effectiveness of the measures taken by the authorities of the Russian Federation, aimed at the reduction of volumes and quantity of construction in progress in 2017–2018 and for the expired period of 2019; On the recommended form of the plan of the main manager of the means of the federal budget for the decrease in volumes and quantity of construction in progress and recommendations on its preparation). Nevertheless, the available results consideration, made from the positions of ensuring the sustainable real estate development does not allow to prove a considerable improvement of the situation, connected with the reduction of volume and quantity of construction in progress in the country scales yet.

According to the results of implementation of investment projects with state participation in the Russian Federation, the total amount of investments in construction in progress made up 5,265.3 billion roubles on the 1st of January, 2019 (Analysis of the effectiveness of the measures taken by the authorities of the Russian Federation, aimed at the reduction of volumes and quantity of construction in progress in 2017–2018 and for the expired period of 2019).

The analysis of the data on the available facilities under construction allows to distinguish two types of the facilities, having the problematical character: they are the facilities, which construction lasts more than five years, and the facilities, which construction is suspended or preserved (Figure 2).



**Figure 2.** Data on the facilities, which construction lasts more than five years or it is suspended (million rubles)

It is also necessary to note that construction in progress include 15 thousand social facilities with the capacity of investments of 506.3 billion roubles; that makes 25.6 % of the total volume of construction in progress at the regional level. These indicators are presented in Table 1.

**Table 1.** Data on the social facilities under construction

<b>Spheres</b>	<b>Volume of investment (million roubles)</b>	<b>Quantity of facilities</b>
Housing	51.6	3862
Education	199.7	4986
Health care	104.1	2290
Sports	103.2	2490
Culture	47.8	1395

Taking into account the construction in progress scales in the Russian Federation and the share of problem projects, the authors consider the matter of the completion of the real estate construction in the foreign practice, the availability of productive experience of the use of the technologies of implementation of investment projects of such character. Some foreign authors note, that while construction expenses of the project constantly grow, the delays in schedules of their development and some overexpenditure of means, which became a widespread rule in many countries of the world, are frequent. The last polls carried out by Dodge Data & Analytics and McKinsey & Company prove, that more than a half of the projects of real estate construction come to the end with the violation of terms and with the excess of their budget (Beven & Jones, 2016; Changali et al., 2015). The described fact of low efficiency is interesting. In case of the search of new approaches, even with the use of the "lean construction" principles, some projects came to the end with advancing fixed terms, but at the same time exceeded the budget (Golparvar, 2017). Foreign scientists develop forecasting methods on the basis of multiple regression and the use of neural networks for capture of the procedure of decision making by the experts of the project, participating in monitoring and forecasting of schedules, in order to determinate the deviations from the schedules of the construction projects baseline plans (Al-Tabtabai et al., 1997). At the same time many authors note, that the technologies of stage-by-stage constant control of the investment projects implementation, since the very first steps of its implementation, as well as the dynamic approach to risk management along with project management in its lifecycle, adapted to the changing nature of the implementation, are the most important conditions of ensuring completion of the planned volumes in time and ensuring commissioning of the facility (Designing Buildings Wiki official site, n.d.; Tepeli et al., 2019). Thus, according to the character of the real estate, which creation is accompanied by consumption of considerable investment resources and difficulties in their development, ensuring sustainable development of these facilities at all the stages of the lifecycle is problematic and demands permanent updating of the technologies of the implementation of the investment projects in construction.

Let us also point out one more essential characteristic of the current situation with the real estate under construction. According to both expert community, and representatives of government institutions, the qualification of staff of the government institutions performing the construction maintenance within the target programmes, acts as the negative factor, interfering ensuring the sustainable development of the real estate, created during the implementation of investment projects with state participation. Modern construction develops so actively, that even the availability of profile higher education in this area becomes insufficient. It is important to provide training of employees in the organization of effective management of projects of the real estate construction with state participation, taking into account the emergence of construction in progress. At the same time, the actual level of employee competences and

the effectiveness of their activity differs much: as the analysis proved, only seven regions of the Russian Federation completed all the planned measures for the decrease in volumes of construction in progress and the quantity of the facilities under construction. 36 regions have not executed any planned measure (Analysis of the effectiveness of the measures taken by the authorities of the Russian Federation, aimed at the reduction of volumes and quantity of construction in progress in 2017–2018 and for the expired period of 2019).

#### **4. Purpose of the Study**

According to the authors, the solution of the matters of the sustainable development of the real estate, created within the implementation of investment projects with state participation, requires the use of some provisions of the theory of sustainable development, aimed at the specification of the directions of updating of the strategy and technologies of sustainable development in science and education, concerning the studied subject.

#### **5. Research Methods**

The term "sustainable development" evolved during two centuries, but in general the development of any country's economy is to be performed in the stability conditions according to the authoritative domestic scientists in the field of development, such as Granberg, Danilov–Danilyan, Baburin and others (Baburin et al., 2011; Danilov-Danilyan et al., 2005; Granberg, 2004). In this regard we can give some characteristics of the sustainable development, which are most essential to this research, considering certain treatment, necessary for updating of the technologies of the implementation of the investment projects with state participation. Let us formulate several theses for this purpose.

The fact, that the matter of ensuring stability firstly arose not in the environment of public administration, but in the sphere of environmental management, is important for the real estate. The ancestors of this concept wondered, how steady can be the forecasts of the sufficiency of forest resources in the future in case of certain volumes of cutting of green plantings in the present. Thereby the interrelation between the desirable results in strategic prospect and the way, these resources are used in the present was defined.

Later this key idea found its expression in the decisions of some authoritative organization, such as the UN International commission on the environment and development, which in 1987 published the sign report "Our general future", containing the term of "sustainable development" and its interpretation, which means that "the satisfaction of real requirements of today's time does not undermine capability to satisfy the own needs of future generations".

As for the social-and-economic environment of the country, consideration of sustainable development received the continuation regarding determination of strategic prospects of the use of the real estate. In our opinion the closest definition of the concept of "sustainable development" is its definition by the academician Granberg (2004): "... the balanced social-and-economic development, which does not destroy the environment and provides continuous progress in society" (p. 39). In our opinion, the double nature of the balanced development, which consists in the double nature of the

purposes, is interesting for the analysis of strategic prospects of sustainable development of the real estate, created within the implementation of investment projects with state participation. The purpose "current" means, that that if we want the development to perform and the requirements of national economy are to be satisfied, it is necessary to consume resources in the present. The purpose "future" is formulated as follows: if we want the development to be steady, the stock of resources in national economy has to be filled for the future generations requirements. Respectively, the strategic prospects of the sustainable development of the real estate, which need to be also considered, when updating technologies of the implementation of the construction investment projects have to be considered as follows:

- on the one hand, the allocation of resources (budgetary funds) within financing of the target programmes on the implementation of investment projects with state participation, for ensuring the country's development by creation of real estate is now reasonable;
- on the other hand, ensuring the stable real estate development means the availability of the opportunity in the strategic prospect of replenishment of the resources, used at during its maintenance.

These provisions determined the possibility of the research of the matters of ensuring the sustainable the real estate development, focused directly on the technologies of the implementation of the investment projects with state participation, regarding identification of the reasons, generating the emergence of construction in progress, integrated to the irrational use of resources during various stages of the real estate lifecycle.

First of all, we will define "technologies of the implementation of the investment projects with state participation" in relation to the real estate. This concept includes a complex of methods, acceptances, methods of accomplishment of sales processes of investment into the real estate and the sequence of actions for project management in construction with attraction of the resources, limited by the volumes of public financing.

The lifecycle of the investment projects with state participation consists of certain stages: pre-investment, investment and operational. Table 2 presents the stages of implementation of the investment project of creation of the real estate with state participation in the framework of the facility lifecycle. The implementation of these stages supposes attraction and the use of various resources. According to the previously mentioned definition, we allocate "pre-investment" and "investment" stages, which meet the objective of the studied investment projects with state participation, which is obtaining the completed real estate.

The analysis proves, that the investment projects implementation is followed by risks of the irrational use of resources, connected with untimely completion of construction of the facilities. These risks exist practically at each stage, but most of these risks are concentrated at the pre-investment stage which is provided in details in Table 2. The factors of risks, connected with the existence of the outdated methods, acceptances, methods of accomplishment of processes in the technologies of the implementation of the investment projects with state participation often result in impossibility of timely completion of works, emergence of construction in progress and, as a result, to the inefficient use of budgetary funds.

## 6. Findings

Within this research, the authors revealed that the sustainable real estate development could be considered as natural decomposition of the technologies of the implementation of the investment projects with state participation on "pre-investment" and "investment" stages. These stages are aimed at obtaining the completed real estate. The need for the state (including federal, regional authorities) to provide the conditions, aimed at the minimization of the risk of the inefficient use of resources at the corresponding stages is the important consequence. In our opinion, the current lack of progress in methods, acceptances, methods of accomplishment of processes during the implementation of the investment projects with state participation results in the situation "stagnation".

The state recognizes the problem of construction in progress within the implementation of target programmes, at the same time it is important not only to perform updating of the used technologies during creation of real estate, but also to consider already available facilities for refraction of the situation. In this regard we can note that public authorities are always focused on ensuring the accomplishment of indicators of the application of funds of the current year, financing is allocated for. At in the end there is the whole complex of matters of ensuring sustainable development, which legislative and scientific and methodical providing is not solved. Some considerable shortcomings of the system of public administration concerning construction in progress is revealed. The existing legal regulation does not provide any complete solution of the problem of reduction of construction in progress and demands improvement of the Russian legislation (Analysis of the effectiveness of the measures taken by the authorities of the Russian Federation, aimed at the reduction of volumes and quantity of construction in progress in 2017–2018 and for the expired period of 2019). There is a matter, concerning the directions of carrying out the research and development, which will allow to reduce the quantity of investment projects with state participation, which irrational use of resources leads to the construction in progress during the implementation of both interstate and federal target programmes as well as to the decrease to the rates of the country's sustainable development.

**Table 2.** Stages of the real estate construction investment project with state participation

Stages	Methods, acceptances, methods of the processes accomplishment	Main risks of the inefficient use of resources
Pre-investment stage	Initiation	
	Preparation and collecting of the proving materials	Forming of the technical-and-economic indicators of the project, inappropriate to the target indicators, and the inadequate assessment of resource providing of the project lead to the risks of the lack of the demand for the final facility, as well as to the further risks of the rise in the cost of the project
	Carrying out the public technology and price audit, the 1st stage (for the projects of more than 1.5 billion roubles)	
	Inclusion of the project in the federal target programmes	Long terms of providing the investment resources lead to the risks of the increase in the total term of the project implementation



Investment stage	Collecting and registration of the documents of title	Predetermination of the potential mistakes, when developing PD by the means of a defectively created set of initial permissive documentation and incorrectly developed DA
	Collecting and registration of specifications Design Assignment (DA)	
	Competitive procedure for the project organization selection	Insufficient elaboration of the procurement documentation leads to the risks associated with attracting unqualified design organizations.
	Carrying out the engineering research and the project documentation (PD) development	
	Examination of the project documentation	Low qualification of the design organizations leads to the poor-quality engineering research and development of design documentation, to the selection of a poor-quality architectural concept of the project, and to not passing the examination in the economic parameters of the project
	Carrying out the public technology and price audit, the 2nd stage (for the projects of more than 1.5 billion roubles)	
	Approval of the project documentation by the customer	Inflated bureaucratization of processes leads to the risks, related with the increase in the total term of the project implementation
	Obtaining the construction license	
	Competitive procedure for the contract organization selection	Insufficient elaboration of the procurement documentation leads to the risks related with
	<b>Stages of the processes accomplishment</b>	<b>Main risks of the inefficient use of resources</b>
Construction / reconstruction / modernization	Attracting unqualified contractors, unreliable determination of the potential scope of work. Unreasonable combination of the stages of the facility design and construction, low qualification of the contract organizations leads to the risks, related with low-quality accomplishment of installation-and-construction works, non-compliance with construction decisions, not safety of construction and the delay of the facility commissioning.	
Commissioning of the facility		

The authors studied and generalized the practice of irrational and unbalanced use of the resources, leading to the emergence of construction in progress and its preserving throughout a certain time frame from the positions of the possibility of further involvement of such projects in the sustainable development processes.

The objective information which allows to carry out in the initial version classification of real estate from the positions of further management decisions making has to be the core of the analysis of any studied subjects, including the real estate. Nowadays the following basic groups of facilities are used: "unfinished construction" or "long construction" and so called "left facilities". It is obvious, that such

groups are important but not sufficient for comprehensive assessment of each of the available situations of the construction in progress emergence within the implementation of the investment projects with state participation. More extensive information on the resources and their use, including information on volumes of completed work, on the estimated cost, terms of the beginning of construction, customers, contractors, on the bases for construction and on the allocation of budgetary funds for financing of a facility as well as the information on the reasons of termination of construction is important. The data on the measures have been already performed by the authorities for the involvement of the real estate in economic circulation and the information if these measures correspond to the principles of the sustainable development are also important. The inventory, according to the order by the President of the Russian Federation (On the increase in the efficiency of use of budgetary funds) had to become the first logical step in obtaining such information. However, it is still impossible to establish the fact of its end, and, respectively, to guarantee the complete objectivity of the decisions, concerning the determination of actions for the involvement of the real estate, which construction supposed the use of the budgetary funds, into the economic circulation.

At the same time, the obtaining the systematized data only by an inventory cannot be considered an exhaustive condition in the current situation. The available practice of the authorities reports in the Russian Federation will generate the deficiency of information for the management decisions making, as these reports are only financial and they are formed once a year. One more complexity is that the assessment of the resources, based on the costs incurred during the facility construction, cannot be performed for "construction in progress". However, when drawing up the budgetary and accounting records, the specified costs are included in the scope of information on investments to real estate, on construction in progress and that complicates the identification of construction in progress. It is obvious, that the regular reporting in the system of public administration of the country has to include some data containing uniform approach to the assessment of real estate, received during implementation of the investment projects with state participation, allowing to define the amount of funds, taking into account the duration of the period of involvement of the facilities in economic circulation in the conditions of the predicted price changes.

Special attention should be also paid to some other methodological issues of ensuring the sustainable development of the real estate under construction. Methodical recommendations on forming of the target function for construction in progress and preparation of departmental plans of the decrease in the construction in progress volume were developed (On the recommended form of the plan of the main manager of the means of the federal budget for the decrease in volumes and quantity of construction in progress and recommendations on its preparation).

Methodical recommendations provided the following methods of involvement in the economic circulation of the unfinished facilities under construction (implementation of the target function): completion of the construction (reconstruction, modernization), preservation of the facility, privatization (sale) of the facility, transfer of the facility to other subjects of business activities, transfer of the facility to the property of regions of the Russian Federation or to the municipal property, acceptance of the facility in the state treasury, transfer of the facility to concession or write-off and asset demolition of

construction in progress. The choice of the acceptance criteria of the decision on the method of involvement of the facilities in the economic circulation is a debatable question.

Relying on the successful solution of the debatable questions, the authors would like also to emphasize the perspective integrated to it in the sphere of public administration. The realization of any sort of changes always has to be connected with the management willingness to accept them. Therefore, in our opinion, it is also important to perform the development of educational programmes of additional education for the purpose of the improvement of core competencies of the government institutions staff, performing the construction projects support.

## 7. Conclusion

Nowadays the sustainable development of the country is interfered by the accumulation of considerable volumes construction in progress, though those facilities were supposed according to the state target programmes. At the same time any significant reduction of these volumes does not happen, despite the strengthening attention to this matter from the state.

The main attention is to be paid on the research, aimed at updating of the technologies of the implementation of the construction investment projects with state participation during their "pre-investment" and "investment" stages, which are directed to obtaining the real estate, completed by construction. Such research will provide the improvement of the outdated methods, acceptances, methods of accomplishment of management processes in the context of conceptual provisions of sustainable development.

Range of the matters of the sustainable development of the real estate created within the construction investment projects with state participation in the Russian Federation has to be expanded due to the consideration of the available construction in progress. At the same time the target function in the aspects of stable development and the allocation of financing for its ensuring have to be performed on the basis of the assessment of technical condition the facilities under construction.

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