

Lukmanova I.G.
Sudakova A.A.



Lukmanova Inessa Galeevna,
Professor of the Department of Economics and Management in Construction; Moscow State University of Civil Engineering (National Research University) (MGSU); 26 Yaroslavskoe shosse, Moscow, 129337, Russian Federation; ID RISC: 655039, Scopus: 57190412717, ResearcherID: B-4128-2016, ORCID: 0000-0002-2835-8181; lukmanova@mgsu.ru



Sudakova Anna Aleksandrovna,
Lecturer of the Department of Economics and Management in Construction; Moscow State University of Civil Engineering (National Research University) (MGSU); 26 Yaroslavskoe shosse, Moscow, 129337, Russian Federation; ID RISC: 1101710, Scopus: 57221745186, ORCID: 0000-0002-2274-636X; sudakovaaa@mgsu.ru

Efficiency of construction and modernization of hotel and accommodation facilities in tourist clusters

The article proposes a comprehensive solution to the current problem of the tourism industry, the shortage of accommodation facilities in regional tourist clusters, based on the intensification of construction and modernization of hotel and accommodation facilities (HAF). Based on the existing set of types of accommodation facilities, the authors proposed a classification of collective accommodation facilities currently used in regional tourist clusters. A comprehensive list of types and forms of development of accommodation facilities in two main directions: construction of new and modernization of existing facilities is developed. The article proposes a methodical approach of three-stage formation of complex efficiency of construction and modernization of HAF, as well as a methodology for calculating the expected economic effect based on the income-cost method.

Keywords: *tourism cluster, development of regional tourism clusters, collective accommodation facilities (CAF), construction and modernization of hotel and accommodation facilities (HAF), economic and social efficiency*

The market of collective accommodation is a basic element of tourism development. As analysis has shown, the Russian Federation has a high potential for the development of the tourism industry, however, the domestic tourism infrastructure is not sufficiently developed to realize this potential¹ [1]. Russia's tourism industry currently lacks quality hotel and accommodation facilities (HAF), as well as there is a serious problem with roads and transport [2]. It is known that tourism clusters are a multi-faceted industry, in which the problem of infrastructure development deficit is closely related to the quantity and quality of services provided and the levels of availability and training of specialists.

It is established that the main priority direction determining the effective long-term sustainable development of tourist clusters is the factor of construction and modernization of HAF².

Based on the Decree of the Government of the Russian Federation of November 18, 2020 No. 1860 On Approval of the Regulation on classification of hotels, as amended on December 26, 2022, the author proposes the following interpretation of the classification of collective accommodation facilities (Fig. 1)³.

Collective accommodation facilities (CAF) are hospitality facilities designed for the temporary accommodation of tourists and travelers, which are provided on a shared-accommodation basis. They

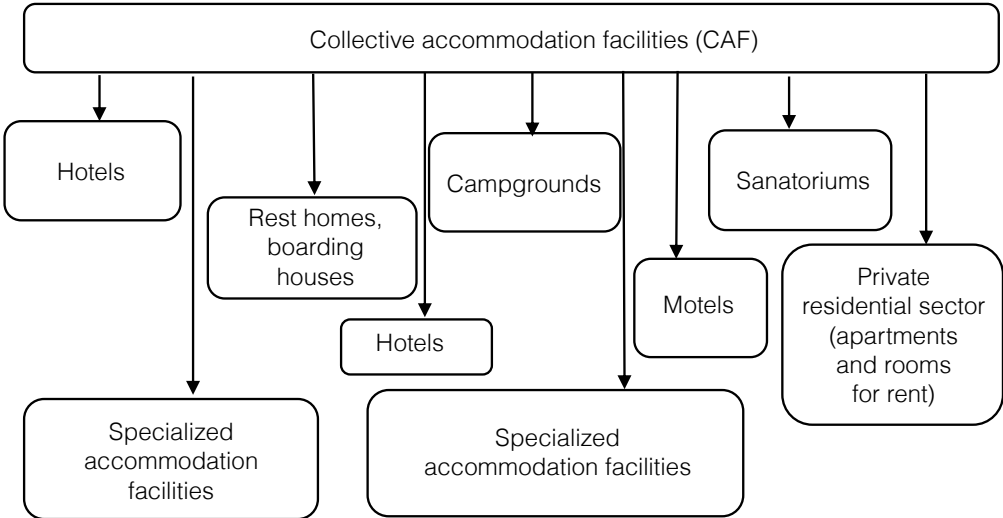


Fig. 1. Classification of accommodation facilities

1 On the Strategy for the development of tourism in the Russian Federation for the period up to 2035 : Order of the Government of the Russian Federation from September 20, 2019 No. 2129-r.

2 On approval of the Concept of the federal target program "Development of domestic and incoming tourism in the Russian Federation (2019–2025 years) : Order of the Government of the Russian Federation of 05.05.2018 No. 872-r (ed. of 07.11.2019).

3 On approval of the Regulations on the classification of hotels : Resolution of the Government of the Russian Federation of 11.18.2020 No. 1860 (ed. of 12.26.2022).

include different types of facilities and can offer different levels of comfort and services, from simple rooms with a minimal set of amenities to premium rooms with a full range of services [3]. Collective accommodation facilities are one of the paramount elements of the infrastructure of the tourism industry and play an important role in attracting tourists to various regions [4].

The development of the hotel and accommodation stock of regional tourist clusters is divided into two groups: new construction of facilities, the second group - the modernization and conversion of facilities (Fig. 2) [5, 6].

New construction of facilities is the creation of new hotels, related structures, utilities and communications in new areas or in place of demolished old buildings, or as part of the existing tourist clusters. New construction includes all stages of the life cycle of the object: design, contracting, construction of the object, commissioning.

Completion of commenced construction is the process of bringing the construction facility to the completion of all work, including interior and exterior decoration and equipment work, as well as technical equipment and preparation for operation. Completion of construction in progress may occur for a variety of reasons, such as changes in design, delays in the execution of work, technical problems, financial difficulties, etc. The purpose of the completion of the started construction is the actual complete delivery of the object to the customer, obtaining operational documentation and permits to use the building or facility [7].

Creating places of temporary seasonal accommodation is the process of creating temporary tourist accommodation facilities for the tourist season. Such facilities may range from tents and campsites, to guarded cottages and turnkey hotels that are erected as part of clusters or on a specific plot of land, often in picturesque locations, and are used to accommodate tourists for the duration of the vacation [8].

The repurposing of existing buildings into accommodation facilities is the process of changing the functional purpose of a building for its use as an accommodation facility. Such conversion can be carried out for a variety of purposes, including increasing

the profitability of the building, meeting new market needs, reducing temporary downtime, and reducing the costs of building new facilities. When repurposing a building, technical, structural, and legal constraints must be considered, as well as the economic impact of the change. As a rule, repurposing requires the reconstruction of the facility.

Reconstruction of facilities is the process of restoring and modernizing existing facilities and buildings. Reconstruction may include changes in the structure, functional purpose, appearance, as well as updating of technical systems (heating, electricity, water, etc.). The purpose of reconstruction can be improvement of living conditions, optimization of production processes, saving energy and resources, increasing the commercial attractiveness of the object, etc.

Capital repair of constructions and engineering networks is a vast complex of measures that includes replacement of outdated or damaged elements, installation of new constructions, reconstruction of objects, strengthening and reconstruction of bearing elements as well as replacement of communications and networks. Usually, major repairs are carried out taking into account the moral and physical deterioration of fixed assets to improve the functional properties of objects of the hotel and housing stock, as well as to increase their operating life.

Improving the comfort and techno-equipment of facilities are modern measures aimed at improving the living and working conditions of people in the accommodation facilities. Improving comfort can be achieved by installing new systems of heating, water supply and water disposal, air conditioning, updating and improving the furniture and interior, creating favorable conditions for recreation. Technological re-equipment includes automation and introduction of new technologies in the organization of tourist facilities, such as online reservation systems, electronic tours, etc. This helps to ensure a higher efficiency of operation, increase revenues and reduce the cost of operation of the facility, which is important in the tourism industry [9].

Routine cosmetic repair is a type of repair that is done to improve the appearance of a room or structure. It may include

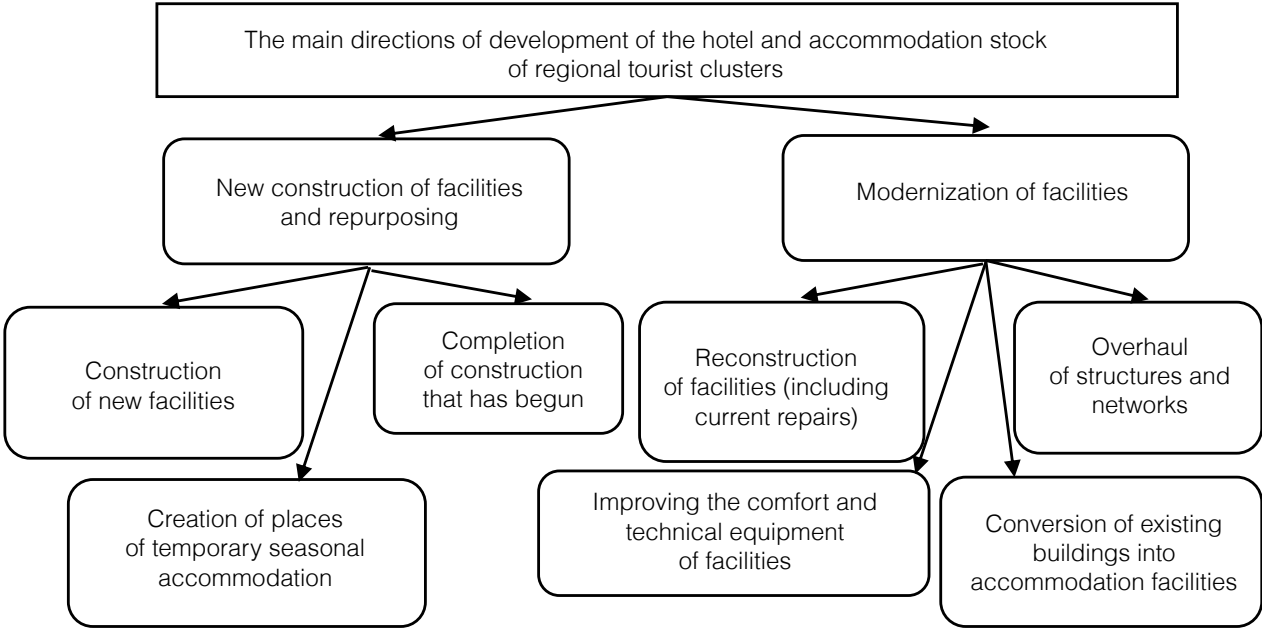


Fig. 2. Types and forms of development of tourist cluster accommodation fund

► painting or wallpapering, replacing flooring, installing new fixtures, etc. The purpose of current cosmetic repairs is to maintain the aesthetic condition of the room.

As the results of the quantitative assessment of the factors of influence and their weighting have shown, the priority area for the effective development of tourist clusters is the construction and modernization of HAF [10].

Improvement of this factor to the greatest extent is determined by the increase in tourist flows and, accordingly, the growth of sales of tourist services.

In addition, the construction of new accommodation facilities allows to equip them with the latest technologies and communications, which increases the quality and level of service, as well as improving the environmental and energy efficiency of HAF. As a result, the main goal of building new accommodation facilities in the process of creating a competitive tourist infrastructure that can attract more tourists and meet their needs for comfortable living conditions is achieved.

During the analysis, the author found that the development of tourist clusters in the aspect of new construction and modernization of accommodation facilities provides a dual effect: economic and

social. Fig. 3 presents the scheme of the process of formation of comprehensive efficiency in enhancing the reproduction of hotel and accommodation facilities (HAF).

The first stage of the scheme outlines the purpose of the process of forming the effects, the second stage sets the target performance indicators of enhanced reproduction of accommodation facilities, the third stage provides evaluation criteria in the form of economic and social indicators.

The economic and social effect of the construction and modernization of HAF as part of tourist clusters is manifested at three levels of the economy:

Micro- meso- and macro-level, i.e.: cluster, region and country. Table shows the three-level structural scheme of the expected types of economic and social effects from the implementation of the cluster development potential, developed by the author.

As can be seen from Table, the formation of economic and social effects begins at the micro level from the activities of tourism cluster enterprises, then the process continues at the city, oblast, regional level and ends at the federal level, taking into account the functioning of not only accommodation facilities, but also all

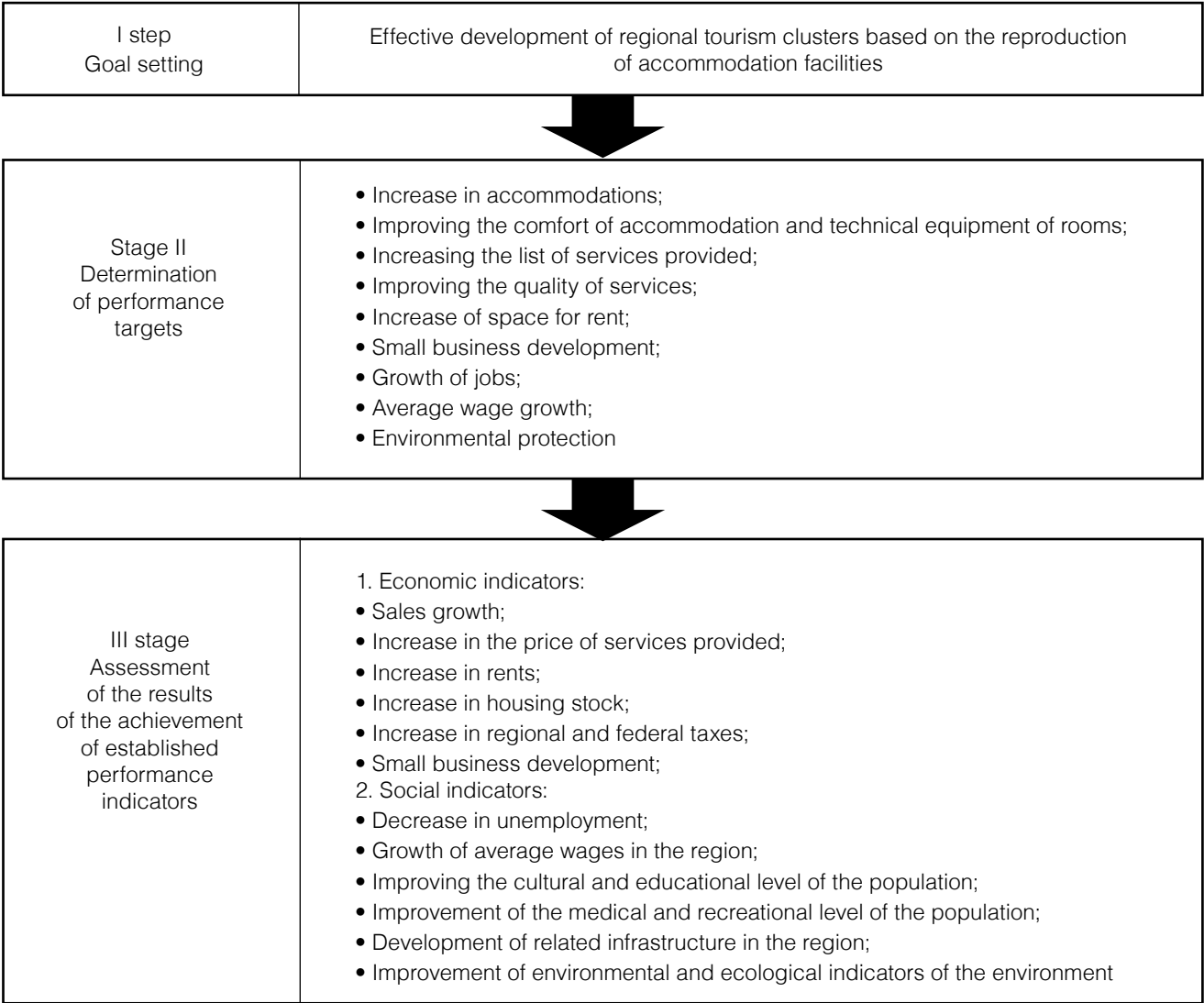


Fig. 3. The process of forming a comprehensive efficiency in improving the factor of construction and modernization of HAF

Types of economic and social effects from the construction and modernization of HAF

Levels	Economic effect	Social effect
I. Micro-level (tourist cluster)	1. Income from the operation of an accommodation facility 2. Rent for non-residential premises 3. Synergistic effect of cluster operation	1. Job growth 2. Increase in wages and salaries 3. Small business development 4. Environmental and ecological effect
II. Meso-level (region, territory, city)	1. Taxes from the operation of the OGVF 2. Taxes from small business operations 3. Rents from the regional share of the OGVF 4. Related cumulative income from the operation of regional infrastructure	1. Reduction of unemployment. 2. Growth of average wages in the region 3. Growing number of tourists 4. Increase in cultural and recreational opportunities for the population 5. Environmental protection
III. Macro-level (country)	1. Tax revenues to the federal budget 2. Increase in hotel rooms 3. Taxes to the federal budget from small and medium-sized businesses 4. Taxes from the use of federal infrastructure	1. Reduction of unemployment 2. Increase in average wages 3. Growth in the tourism industry 4. Increase in the coverage of the population by cultural, educational, therapeutic, sports and other services

small businesses, renting premises, as well as other infrastructure facilities included in the tourism cluster [11].

If the economic effect from the construction and modernization of HAF in the presence of initial data can be estimated quantitatively, the determination of the social effect in most cases is based on the expert assessment and comparison of statistical indicators for the region [12].

The paper proposes a methodology for assessing the economic effect and a methodical approach to determining the social effect.

In developing the methodology for assessing the economic effect the income-cost method was used.

The algorithm of calculations within the method is as follows:

- calculation of income from the construction and modernization of HAF as part of tourist clusters (D_o);
- classification and determination of costs (Z_o);
- accounting for the synergistic effect of cluster functioning (k_{xin});
- distribution of income among the participants in the investment process, depending on the share of participation;
- calculation of the economic effect of the cluster (E_o).

Calculation of income from the construction and commissioning of new hotels in the cluster:

$$D_{tc} = [N \cdot Z_n \cdot \rho_n \cdot k_z + Q_a \cdot Z_a \cdot \rho_n \cdot k_a] \cdot k_{xin} \quad (1)$$

where D_{tc} — total income from construction.rub.;

N — number of rooms commissioned, pcs.;

Z_n — average price per room.rub. pcs.;

ρ_n — rate of return (average for the cluster);

k_z — room occupancy rate (annual average);

Q_a — area to be rented out, m²;

Z_a — average rental price.rub/m²;

ρ_a — average rental profitability (annual average for the cluster);

k_a — coefficient of leased space (from the total number of Q);

k_{xin} — coefficient that takes into account the synergistic effect of cluster functioning (determined on the basis of expert evaluation).

Calculation of income from modernization of reconstruction and overhaul of existing HAF.

In this case, the income is provided by increasing the number of rooms, the price of rooms and rent for rented space. The increase in prices is explained by an increase in the level of comfort, technical upgrading of rooms, implementation of cosmetic repairs, improvement of the surrounding area, etc.

Income calculation D_m is made according to the formula:

$$D_m = [N_m \cdot Z_m \cdot \rho_m \cdot k_{z,m} + Q_{a,m} \cdot Z_{a,m} \cdot \rho_{a,m} \cdot k_{a,m}] \cdot k_{xin}, \quad (2)$$

where N_m — number of rooms after modernization, pcs.;

Z_m — average price for the room, taking into account the increase.rub/room;

ρ_m — average rate of return;

$k_{z,m}$ — room occupancy rate after modernization;

$Q_{a,m}$ — area to be rented after the modernization, m²;

$Z_{a,m}$ — average rent.rub/m²;

$\rho_{a,m}$ — rate of return on the lease of the premises after the modernization;

$k_{a,m}$ — coefficient of the volume of leased space (in relation to the total);

k_{xin} — coefficient of synergistical effect.

If the overhaul and technical equipment were made in part of the rooms, then in (2) instead of N_m — consider ΔN_m , instead of Z_m — ΔZ_m , instead of $Q_{a,m}$ — $\Delta Q_{a,m}$ and $\Delta Z_{a,m}$ instead of $Z_{a,m}$.

3. After calculating income, it is necessary to make a classification of types of costs and propose formulas for their determination. Consider the following variants of produced costs:

- new hotel construction $Z_{o,n}$;

- modernization of facilities with redevelopment and reconstruction $Z_{o,m}$;

- overhaul of structures and engineering networks Z_{ocr} .

The total cost of new hotel construction is calculated by the formula:

$$Z_{o,n} = [Z_{ird} + Z_{pir} + Z_{smr} + Z_{ob} + Z_{ve} + Z_{blg}], \quad (3)$$

where Z_{ird} — cost of the initial permitting documentation;

Z_{pir} — cost of design and survey work;

Z_{smr} — cost of construction and assembly work;

Z_{ob} — costs of all types of equipment;

Z_{ve} — commissioning costs;

► Z_{blg} — cost of improving the surrounding area;
 $k_{n,k,z}$ — coefficient taking into account contingency costs, taking into account the construction of facilities in the cluster.

The costs of modernization and reconstruction of HAF are determined by the formula:

$$Z_{o,m} = [Z_{ir dm} + Z_{pirm} + (Z_{raz} + Z_{rsr} + Z_{obm} + Z_{vem}) \cdot k_{prm} + Z_{blm}] \cdot k_{nzm}, \quad (4)$$

where $Z_{ir dm}$ — cost of the initial permissive documentation for the right to work on the modernization of HAF;

Z_{pirm} — cost of design and survey work;

Z_{raz} — costs for the development of structures and engineering systems and waste removal;

Z_{obm} — cost of all types of engineering equipment;

Z_{vem} — cost of putting the facility into operation;

Z_{blm} — cost of improving the surrounding area;

k_{prm} — coefficient taking into account losses from room stock downtime for the period of repair and construction works.

Costs of capital repairs of premises and engineering systems Z_{okr} we calculate by the formula:

$$Z_{okr} = [Z_{pirkr} + Z_{bl,kr} + (Z_{rez,k,r} + Z_{rsrkr} + Z_{obkr}) \cdot k_{pr,kr}] \cdot k_{npkr}, \quad (5)$$

where Z_{pirkr} — cost of developing design and estimate documentation;

$Z_{bl,kr}$ — cost of improving the surrounding area;

$Z_{rez,k,r}$ — costs for the development of structures and utilities and waste removal;

Z_{rsrkr} — costs of repair and construction work;

Z_{obkr} — costs of repair and replacement of engineering and technical equipment;

$k_{pr,kr}$ — coefficient that takes into account the loss of income from the downtime of the room stock;

k_{npkr} — coefficient that takes into account contingencies.

The total cost is also necessary to know in order to plan the necessary amount of investment and determine the sources of their filling.

As a rule, the following main sources are used in the construction and modernization of HAF tourist clusters:

- owners' own funds;
- bank loans;
- budget funds (region, federation);
- co-investors.

During the development and signing of contracts, the distribution of the built areas in accordance with the investment shares of the participants is taken into account.

With the participation of regional and federal budgets, the relevant part of the room stock and rental space is transferred to co-investors.

4. After determining the size of the expected income D_o and the produced costs Z_o we proceed to the calculation of the economic effect:

$$E_{on} = D_{on} - Z_{on} \text{ or } E_{om} = D_{om} - Z_{om}, \quad (6)$$

where E_{on} — effect of new construction;

D_{on} — income from new construction;

Z_{on} — costs of new construction;

E_{om} — effect of modernization;

D_{om} — modernization revenues;

Z_{om} — modernization costs.

For all investors, a very important and sometimes decisive condition for investing in a new construction or modernization project is the expected payback period of the investment T_{ok} .

To this end, given the baseline value of the average profitability of the hotel stock in the region, you can determine the payback period, the invested funds or based on the results of the calculation Z_o or E_o :

$$T_{ok} = \frac{Z_o}{E_o}, \text{ years.} \quad (7)$$

In determining the social effect, the following functional relationships are proposed, at the regional level:

$$E_{soz,r} = f(Q_{ar}; N_{rk}; N_{m,b}; n_{r,m}; Y_{bz}; Y_{zp}; Y_{kp}; I_f; O_{os}), \quad (8)$$

where ΔQ_{ar} — space and room stock transferred to regional management, depending on the share of budget funding;

N_{rk} — taxes from the functioning of the tourist cluster in the regional budget;

$N_{m,b}$ — taxes of small businesses;

$\Delta n_{r,m}$ — growth in the number of jobs in the region;

ΔY_{bz} — reduction of the unemployment rate;

ΔY_{zp} — growth of average wages in the region;

Y_{kp} — increasing the cultural and educational level of the population in the region;

ΔI_f — regional infrastructure development;

O_{os} — environmental protection measures in the environment.

The implementation of investment and construction projects related to the construction and modernization of HAF should be considered appropriate at the regional level if the economic effect of their implementation at the level of the investor is accompanied by the social effect at the regional and local levels.

CONCLUSIONS

The proposals presented in this paper to assess the effectiveness of construction and modernization of hotel and accommodation facilities allow for a comprehensive assessment of investment and construction projects implemented within the framework of tourist clusters. The comprehensive approach includes different types of effects: social, economic for all participants of investment and construction activities at three levels of the economy. The availability of assessment tools allows the analysis to be carried out at the early stages of investment projects, which, in turn, ensures an increase in the quality of investment decisions made at the conceptual stage.

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Эффективность строительства и модернизации объектов гостинично-жилищного фонда в составе туристических кластеров

В статье предлагается комплексное решение актуальной проблемы туристической отрасли, дефицита мест размещения в региональных туристических кластерах на основе активизации строительства и модернизации объектов гостинично-жилищного фонда (ОГЖФ). На основе существующего множества видов объектов размещения авторами предложена классификация коллективных средств размещения, используемых в настоящее время в региональных туристических кластерах. Разработан комплексный перечень видов и форм развития объектов размещения по двум основным направлениям: строительство новых и модернизация существующих объектов. Предлагается методический подход трехэтапного формирования комплексной эффективности строительства и модернизации ОГЖФ, а также методика расчета ожидаемого экономического эффекта на основе доходно-затратного метода.

Ключевые слова: туристический кластер, развитие региональных туристических кластеров, коллективные средства размещения (КСР), строительство и модернизация объектов гостинично-жилищного фонда (ОГЖФ), экономическая и социальная эффективность

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Об авторах: **Лукманова Инесса Галеевна** — доктор экономических наук, профессор кафедры экономики и управления в строительстве; **Национальный исследовательский Московский государственный строительный университет (НИУ МГСУ)**; 129337, г. Москва, Ярославское шоссе, д. 26; РИНЦ ID: 655039, Scopus: 57190412717, ResearcherID: B-4128-2016, ORCID: 0000-0002-2835-8181; lukmanova@mgsu.ru;

Судакова Анна Александровна — преподаватель кафедры экономики и управления в строительстве; **Национальный исследовательский Московский государственный строительный университет (НИУ МГСУ)**; 129337, г. Москва, Ярославское шоссе, д. 26; РИНЦ ID: 1101710, Scopus: 57221745186, ORCID: 0000-0002-2274-636X; sudakovaaa@mgsu.ru.

For citation: Lukmanova I.G., Sudakova A.A. Efficiency of construction and modernization of hotel and accommodation facilities in tourist clusters. *Real Estate: Economics, Management*. 2023; 3:26-31.

Для цитирования: Лукманова И.Г., Судакова А.А. Efficiency of construction and modernization of hotel and accommodation facilities in tourist clusters // *Недвижимость: экономика, управление*. 2023. № 3. С. 26–31.