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Efficiency Estimation of Implementation of Megaprojects for Tourism Clusters Creation

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Abstract— **Creating tourism clusters is one of the most important instruments for development of domestic and international tourism in the Russian Federation. The main directions of tourism in the Russian Federation are stated in the paper. Important problematic field is indicated – travel infrastructure development. Cluster approach to infrastructure development in travel industry is proposed. It is reasonable to develop tourism clusters in form of megaprojects. The purpose of the article is to form a mechanist of efficiency estimation of megaprojects for creation of tourism clusters; also taking into account accumulated domestic and international experience.**

Methodological basis of the paper is a concept of property life-cycle cost with regard to megaprojects and taking into account instruments of sustainable con-struction. While implementing megaprojects, besides providing economic effi-ciency for investor, issues of environment safety, budgetary and social efficiency, achievement of target indicators stated on federal, regional or municipal control level are also should be taken into account.

The article specifies and presents details of the mechanism of megaprojects im-plementation efficiency estimation taking into account interests of the main par-ticipants of investment process on different control levels. Separate aspects of methodological approach are used for justification of measures for increase of energy efficiency of properties in ski resorts of North Caucasus.

Keywords— tourism cluster, megaproject, sustainable construction, energy efficiency, life cycle.

1. INTRODUCTION

Development of domestic and international tourism is a top priority task for modern Russia. The Russian Federation is one of the leading countries having high travel potential, but at the same time, this potential is not completely unlocked now [1-3].

The Strategy of tourism development until 2020 is approved legislatively now; in its turn, it is logical extension of the Concept of long-term social and economic development of the Russian Federation for the period until 2020 confirmed by the Directive of the Russian Federation Government.

Increased competition between the countries at the international market of travel services justify importance of elaboration of new approaches to the development of tourism sector in Russia [4, 5].

Currently, tourism share in GDP is about 1.5% (according to Rosturizm as of the end of 2015). At the same time, average tourism share in the countries with high travel attractiveness is 10% of GDP and more. Thus, there is great potential for development of tourism sector in the Russian Federation.

Nowadays, extensive model of tourism development is mainly being implemented in the Russian Federation. It is based on gradual improvement of services quality and infrastructure development for already existing travel itineraries. At the same time, implementation of tourism development strategy is impossible without efforts intensification in this field [6, 7]. The main directions and measures of tourism development in the Russian Federation include:

1. Domestic travel products quality improvement;
2. Diversification of offers for the tourists;
3. Increase of transparency of travel services market;
4. Creating favorable travel image both for Russia as the whole and for separate travel directions;
5. Travel industry infrastructure development in the Russian Federation.

Infrastructure is a basis for travel industry development in the country and, besides facilities for temporary accommodation, it also includes such facilities as road network, railway stations, airports, social and communal infrastructure facilities as well as other properties allowing to create comfortable environment for domestic and international tourists.

Intensive travel industry development provides implementation of large-scale infrastructure projects in this field, so called megaprojects [8-10].

Currently, mechanisms of public and private partnership (PPP) [11, 12], special economic areas of travel and recreational type [13, 14], Priority Social and Economic Development Areas [15, 16] can be used for implementation of megaprojects in travel industry.

It is reasonable to use cluster approach [14, 17, 18] while planning infrastructure projects in travel industry based on sustainable construction concept.

Tourism cluster is a group of geographically adjacent interacting companies, properties for various purposes (hotels, public real estate, social and transport infrastructure facilities, etc.), non-governmental organizations and state administration bodies forming and serving tourist flows and using recreational potential of the territory.

The following important features of tourism clusters can be indicated:

- while developing in certain region, cluster is supported by its recreational and resource potential;
- creation and development of tourism cluster supposes availability of numerous participants of investment process, combining efforts and taking into accounts interests of public and private capital;
- special attention should be paid to environment issues while implementing projects of creation and development of tourism clusters with elaboration of measures to minimize harm to environment;
- within investment development of clusters, it is important to provide innovative solutions allowing to improve infrastructure comfortability and to solve issues of safety, energy efficiency and economic efficiency of implemented projects.

Within this paper, a vital issue of estimation of efficiency of megaprojects implementation for creation and development of tourism clusters is considered.

2. Materials and methods: Methodological basis of estimation of megaprojects implementation efficiency

Proposed methodological approach to estimation of efficiency is based on sustainable construction concept. Sustainable construction concept [14, 19], while estimating efficiency of projects implementation, takes into account the following groups of factors: social, environmental, economic.

Taking into account active participation of government in megaprojects implementation, factor of efficiency for budgets of different levels (budgetary efficiency) should also be taken into account.

There are two main components of efficiency within a megaproject: megaproject efficiency from the point of view of government and society (hereinafter government interests also include interests on regional municipal level of control), as well as efficiency for private capital. Based on the proposed model, efficiency from the point of view of government will be formed on strategic and tactical levels, but economic efficiency for a certain investor will be determined on operative level [9, 14].

Efficiency of megaproject implementation on governmental and social level (G1 and G2, for social and environmental components correspondingly) is multivariate function as well as efficiency for private capital (I). At the same time, both government and private investors strive to maximize this efficiency (1).

$$\left.\begin{aligned} G_1 &= f(a_1, a_2, a_3 ... a_n) \to \max \\ G_2 &= f(b_1, b_2, b_3 ... b_m) \to \max \\ I &= f(c_1, c_2, c_3 ... c_l) \to \max \end{aligned}\right\} \quad (1)$$

where a1…an – numerous factors determining social efficiency;

b1…bm – numerous factors determining environmental efficiency;

c1…cl - numerous factors determining economic efficiency for investor.

The following components of different types of efficiency can be proposed in general terms within creation of tourism cluster (Table 1):

Table 1. Components of efficiency / impact of megaprojects implementation.

Types of efficiency / impact	Intended for	Possible indicators
Budgetary efficiency	*Budgets of different levels (federal, regional, municipal)*	Amount of paid taxes for the whole period of project implementation (in terms of each tax and budget level)
Social efficiency	*For different control levels ((federal, regional, municipal)*	New job formation; Change of population income level; Change of the level of availability of social infrastructure facilities; Indicators of population satisfaction (as a result of population surveys)
Environmental impact	*Impact of megaproject implementation and its separate components to environment condition*	Change (decrease/increase) of hazardous substances emissions as a result of megaproject implementation
Economic efficiency	*For investors, government (on different control levels)*	Indicators of investment efficiency (IRR, NPV, PI, PP); Indicator of object life-cycle cost (LCC)

LCC [20, 21] indicator can be used, first of all, for non-profit infrastructure facilities being financed at the account of budgetary funds and using mechanism of public and private partnership (PPP). From several variants of investment project, there should be selected the one providing maximum LCC.

Life-cycle analysis (LCA) is the most important instrument for implementation of sustainable construction concept and can also be used to justify implementation of innovative ("green" energy efficient) technologies in construction [22].

3. Results: Analysis of energy efficient solutions within tourism cluster of the North Caucasus in the Russian Federation

Within the present research paper, separate instruments of abovementioned approach to the estimation of efficiency were used to justify implementation of energy efficient technologies

within creation of tourism cluster of the North Caucasus in Russia.

Tourism cluster in the North Caucasus has been developing since 2010. One of the most important tasks within cluster development is implementation of up-to-date energy efficient technologies. Economic efficiency of solar energy usage within tourism cluster is analyzed in the present paper. Economic calculations are made for low-rise (cottage) development of ski resorts.

While calculation life-cycle cost, investment and maintenance costs per 1 sq. m of a building per year were taken into account. Two variants were compared: with traditional power supply system and solar system (solar power usage). Calculations were made without taking into account discounting. Results are provided in the Table 2.

The calculations showed that, taking into account climate conditions where ski resort of North Caucasus are located, implementation of solar systems is economically reasonable as reduction of LCC indicators is achieved at the account significant fall of costs for power purchase during operating. Total calculated rate of LCC reduction is about 16% as compared to the variant with traditional power sources.

Table 2. Comparative LCA for traditional and solar systems.

Indicators	Traditional system	Solar system
Total investment costs per 1 sq.m of object total area (roub./sq. m)	55,000	62,000
Duration of calculation period (years) prior to the first capital repair	20	20
Specific investment costs per 1 year of operating (roub./sq.m per year)	2,750	3,100
Maintenance costs (including minor repairs and maintenance of systems; as well as expenses for electric power), roub./sq.m per year	1,300	300
Total life-cycle cost (LCC), roub./sq.m per year	*4,050*	3,400

4. CONCLUSIONS

The approach to estimation of efficiency proposed in this article can be used both for tourism clusters and for other investment construction megaprojects, subject to correction of necessary efficiency elements.

In the present paper, practical implementation of methodological approach was carried out on local level, with respect to particular solution on energy efficiency.

For comprehensive megaproject efficiency analysis as the whole or its separate components, cash flow financial modelling should be made. It is reasonable to carry out comparative analysis of different variants on a concept phase taking into account all megaproject participants' interests.

References

[1] Frolova, E., Kabanova, E.: Tourist attraction development factors of Russia's municipalities. Public Administration Issues 3, 112-128 (2017).

[2] Frolova, E., Ryabova, T., Kabanova, E., Rogach, O., Vetrova, E.: Domestic tourism in Russian Federation: Population estimations, resources and development constraints. Journal of Environmental Management and Tourism 8 (2), 436-445 (2017)

[3] Kryukova, E., Makeeva, D., Konovalova E.: Tourism as preferred direction in the strategy of substitution of industry branches in mono-territories of Russian Federation. World Applied Sciences Journal 30 (30), 176-178 (2014).

[4] Andrades, L., Dimanche, F.: Destination competitiveness and tourism development in Russia: Issues and challenges, Tourism Management 62, October 2017, 360-376 (2017).

[5] Lepeshkin, V., Kulgachev, I., Blinova, E., Manteyfel, E., Romanyuk, A.: Business activity in the field of tour operator services in Russia and development of the national tourism, International Journal of Applied Business and Economic Research 15 (8), 53-70 (2017).

[6] Degtyaryova, T., Gusev, N., Nagay, N., Eliseeva, O.: Development of tourism and service sphere as a tool of crisis management in Russia and Europe, Contributions to Economics 9783319552569, 359-364 (2017).

[7] Morozova, I., Volkov, S., Avdeyuk, O.: Development trend of Russia's tourism and hospitality sector, Actual Problems of Economics Volume 159 (9), 127-132 (2014).

[8] Biesenthal, C., Clegg, S., Mahalingam, A., Sankaran, S.: Applying institutional theories to managing megaprojects, International Journal of Project Management Volume 36 (1), 43-54 (2018)

[9] Orlov, A.: Arrangement and planning of developer's activities in the course of construction megaprojects implementation, MATEC Web of Conferences 106, 08013 (2017).

[10] Flyvbjerg, B.: What you should know about megaprojects and why: An overview, Project Management Journal 45 (2), 6-19 (2014).

[11] Bing, L., Akintoye, A., Edwards, P., Hardcastle, C.: The allocation of risk in PPP/PFI construction projects in the UK, International Journal of Project Management 23 (1), 25-35 (2005).

[12] Demirel, H., Leendertse, W., Volker, L., Hertogh, M.: Flexibility in PPP contracts–Dealing with potential change in the pre-contract phase of a construction project, Construction Management and Economics Volume 35 (4), 196-206 (2017).

[13] Maslikhina, V.Y.Email Author Special economic zones in Russia: Results evaluation and development prospects, International Journal of Economics and Financial Issues Volume 6, Issue 1S, 2016, Pages 275-279.

[14] Orlov, A.: Implementation of megaprojects for the creation of tourist clusters in Russia based on the concept of energy efficiency and sustainable construction, IOP Conference Series: Earth and Environmental Science 90 (1), 012060 (2017).

[15] Beliakov, S., Kapustkina, A.: The intermediate performance of territories of priority socio-economic development in Russia in conditions of macroeconomic instability, MATEC Web of Conferences 106, 01028 (2017).

[16] Beliakov, S., Kapustkina, A.: Analysis of Performance Indicators of Functioning of Territories with Special Economic Status in the Russian Federation, Procedia Engineering 165 1424-1429 (2016).

[17] Kabanova, E., Vetrova, E.: Cluster approach as tourism development factor, Journal of Environmental Management and Tourism 8 (8), 1599-1606 (2017).

[18] Yerzhanova, S., Mambetova, S., Jazykbayeva, B., Romanko, Y, Kazbekov, T.: Perfection of the administrative mechanism of stimulation of tourist business, Journal of Environmental Management and Tourism 8 (8), 1494-1503 (2017).

[19] Robichaud, L., Anantatmula, V.: Greening project management practices for sustainable construction, Journal of Management in Engineering 27 (1), 48-57 (2011).

[20] Yan, Z. Green construction economy research based on LCC theory, Open Cybernetics and Systemics Journal 9, 2805-2810 (2015).

[21] Gluch, P., Baumann, H.: The life cycle costing (LCC) approach: A conceptual discussion of its usefulness for environmental decision-making, Building and Environment Volume 39 (5), 571-580 (2004).

[22] Orlov, A.: Introduction of innovative technical solutions in construction on the basis of the concept of engineering, IOP Conf. Series: Materials Science and Engineering 365, 062020 (2018).