Architectural planning solutions of recreational facilities in mountainous areas

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Abstract. This article analyzes the requirements for recreational areas and the developments and projects for the establishment of resort recreation areas. Based on the technical-economic comparison and analysis of the landscape features of mountainous areas, recommendations for the classification of resort complexes for construction in the mountainous regions of Uzbekistan are presented. Different types of recommendations on seasonal availability of places in mountain resorts of the republic have been projected. The effectiveness of recreation, the ease of use of the resort area and facilities largely depends on the level of transportation services to health complexes, and recommendations for their rational solution are given. The construction of resort structures in mountainous areas, characterized by the high artistic qualities of the resort climate and landscape, the effectiveness of organizing summer and winter vacations, and the aspects aimed at increasing the labor efficiency of the population are described. Differentiation of the areas allocated for the organization of recreational facilities in the mountainous regions of Uzbekistan according to the size and greenness, the size of the complex and whether it is included in the resort or not, and the analysis of the functional use and natural conditions of the recreation area and improvement recommendations are given.

1 Introduction

Nowadays, along with the rapid growth of society, recreational needs are also increasing. The relevance of this article is determined by the imbalance between the demographic capacity of the population and recreational areas. According to the selection of the capacity of recreational areas, according to the choice of seasonality and assortment, the terrain with complex relief, the need to provide recreation for different categories of the population is the reason for the establishment of resorts from groups of recreation centers of different profiles. This serves to make the area more appropriate, expand functional zones, cooperate with service enterprises, reduce the length of all types of communications, and use industrial construction methods.

Small resort facilities are generally estimated as useless. On the other hand, overpopulation leads to the loss of the main resort -clean natural environment. Therefore, it
2 Materials and methods
Sites suitable for construction have slopes of up to 20%, standard soil pressure of at least \(1.5 \text{ kg/cm}^2\), and groundwater levels deeper than 2 meters. Placement of buildings on sites with slopes of 20-30% causes significant costs for engineering preparation of the area.

In terms of seismic conditions and self-destructive processes, slopes with gradients greater than 17% and especially dangerous with gradients of 25-45% are prone to landslides. Flood-prone areas include: avalanche-flood fans, floodplains, and low river terraces covered by flood deposits. Favorable sites for construction are row water basins, gentle slopes complicated with edges, wide bottoms of valleys with a seismicity of no more than 7-8 points. Seismic areas of magnitude 9-10 can be built with light pavilions of tourist huts, summer camps and others. Based on the analysis of these requirements and the practice of building spas, the following methods of placing spa complexes in different structural relief forms are proposed:

- When deciding on a resort in a valley with two opposite slopes, the development of the main resort should be located in the illuminated plain part of the valley, on gentle slopes and adjacent mountainous areas with a minimum relief slope (11°). It is advisable to concentrate the sports and skiing zone on the northern slopes, transport arteries and the economic zone on the lowlands.

In the upper reaches of the gorges, there are mountain bases and tourist huts for short and long-term vacations on the main tourist routes and in interesting areas for mountaineering and tourism (“Chimyon”, “Shahimardon” in Ferghana, “Chamonı”, “Basha Bulu” in France). Limited and isolated plots suitable for construction lead to the emergence of complexes in several points (“Elbrus region”, “High Tatras”, in Poland and the Czech Republic, Belleville Valley in France); when placing resorts on a slope, residential buildings and service buildings are located in the middle of the slope – in the most illuminated and favorable microclimate zones, along the relief (“Chimbuloq”, resort, “Snowy” in Switzerland) or along horizontal lines (in France Courchevel) should be collected (Fig. 1). In the first case, the development is carried out on terraces or leveled areas, and in the second – in two groups, between which elevators and skis are passed down the mountain slopes. In resorts with limited flat land, accommodation and service buildings should be placed in the middle or lower line of the slope (“Avarioz” in France, “Megeve” in Lebanon, “Sidars” in Lebanon) is recommended to summarize. Development is carried out in groups, between which skis are passed down the mountain slopes. In resorts with limited flat land, accommodation and service buildings should be placed on the slopes adjacent to the amphitheater, and the latter should be left for pedestrians (Bakuriani in Georgia, Dombay in Karachevo and Arxyz in Cherkessk ASSR);
service buildings are installed. The main skiing area is under or above the buildings, roads and warehouses are created on the northern slopes or on the thalweg (a line that connects the lowest points of a river bed, river valley, or ravine).

When organizing the functional and architectural structure of resort complexes, it is necessary to study the area norm, the role of transport, the level of greening of the territory and water supply. Proper organization of services to vacationers, rational use of the valuable resort territory requires dividing the territory into zones, taking into account the functional goals of individual institutions or structures.

In a complex of resorts of one profile, it is recommended to allocate the following:
- the territory of dormitory buildings (high-rise comfortable buildings and low-rise pavilions sectors and with seasonal activities throughout the year);
- territory for public buildings and structures (with cultural and public service networks, sports and administrative and commercial buildings);
- the area of economic structures (farm center, parking lot);
- living area of service personnel.

In complexes consisting of various recreation facilities in a residential area, according to the nature of the organization of recreation, sectors of dormitory buildings of sports and tourist type, institutions with a source of noise (such as motels, camping sites) and buildings intended for recreation and families with children should be distinguished. Progressive methods of planning resort complexes in mountainous areas include sufficient isolation of networks with convenient interconnections, compact placement of the main resort development (especially capital structures), high level of landscaping to combine with maximum preservation of the natural landscape. Provides development of resort areas according to the principle.

Fig. 2. Scheme of the main streams to the recreation areas

Based on this, in addition to the traditional form of zoning the area according to the main types of recreation, it is proposed to divide the area according to the level of intensity of use expressed by the total number of overnight stays as follows:
- according to the limit of the high concentration of vacationers in the complex itself (in the area 5-8 minutes from the center of the community) 120 people/ha and less than 10 people/ha outside it.
Areas of high concentration should have a high level of greenery, and in areas of low density, it is recommended to preserve the natural look of recreation areas for vacationers. This principle of economic construction provides comfortable conditions for recreation.

### Results section

In the mountainous regions of Uzbekistan, health resorts should be distinguished depending on the size and greenness of the areas allocated for construction, the size of the complex and whether it is part of the resort or not. The analysis of the resort in terms of functional use and natural conditions showed that for free placement of all buildings and devices, $150 - 200 \text{ m}^2$ of space is required for 1 place in complexes with 1.0 - 3.0 thousand beds and $100 - 150 \text{ m}^2$ in complexes with 3.0 - 5.0 thousand beds. The first value in these indicators is recommended for areas that do not have green areas or have difficult conditions for greening (subject to high improvement). The second value is green spaces or places with favorable opportunities for their development. If the resort complex is established separately, the area norm should be equal to $250 - 300 \text{ m}^2$ due to the establishment of the village of service employees and the economic zone.

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<th>№</th>
<th>Types of recreational facilities</th>
<th>Capacity of vacationers (person)</th>
<th>Area for 1 seat ($\text{m}^2$)</th>
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The system of cultural and household services for vacationers is of particular importance in recreational facilities, which are divided into open and closed access networks according to different types of recreational facilities and the second, so a closed access network is used in health care institutions with a defined rest regime.

Dining outlets

Restaurants in a resort, like any other establishment, must serve the various needs of vacationers while maintaining a profitable operation. The first condition requires the expansion of catering facilities, the centralization of auxiliary processes in specialized facilities (with preparation, pre-cooking, sales areas, buffets and stalls), it improves the sanitary condition of the resort area and obtains an economic benefit of 15 - 18% compared to a decentralized system. The second condition requires that public catering facilities have as many indoor and outdoor types as possible (restaurants or kitchens with waiter service, self-service kitchens, cafes, bars, kitchens for individual meals and others).

In order to provide food to all vacationers in the summer season, it is necessary to organize food points that are collected at the camp and to expand the capacity of shopping areas throughout the year within the framework of the open network. The availability of various devices - meeting places, kiosks for selling drinks and sweets, shaded terraces, places for selling semi-finished products and cooking by the vacationers themselves depends on the variety of forms of recreation and its usefulness.

The network of cultural and public service institutions is divided into daily, periodical and episodic according to the frequency of use. Based on the differentiated development of the resort, the following system of placement of service facilities is recommended:

- The first
- The second
- The third

### Table 1

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in health facilities (such as hotels, boarding houses) located a short distance from the community center on foot (5-7 minutes distance), rooms can be allocated only for reading and board games; buildings for cultural and public purposes for domestic use should be placed in health resorts located outside the center, and periodic services should be carried out in the general spa center. In this case, the distance between the resorts should be limited to 15-20 minutes on foot or the possibility of using transport; in resorts with a separate mode of recreation, regardless of the distance from the public center, full buildings are required for daily and periodic service.

4 Discussion section

The composition of the resort depends on the capacity, nomenclature and functional connection of the buildings, and is mainly determined by the natural conditions and character of development. The integrity of the composition and the unity of architectural and artistic expression or in complex ensembles—the scale of various construction methods and achieving harmony with the surrounding nature are ensured. The second type of recreational facilities is often achieved by coordinating the placement of architectural volumes with the terrain, which grows upward where the terrain moves upward. Maximizing the opening of buildings by arranging galleries, loggias, shaded terraces helps to harmonize architecture with nature. The role of recreational facilities as an outdoor recreation area is also important, which allows not only to improve sanitary and hygienic conditions, but also to enrich the landscape of the resort area. Irrigation of the territory, creating reservoirs, cascades and waterfalls is of particular importance. In connection with the surrounding nature, an important architectural role is played by natural building materials, as well as landscaping elements (small forms, lighting, coverings, sidewalks, playgrounds and others).

Thus, the effectiveness of recreation, the rationality of using the resort territory and facilities largely depends on the level of transport service to health complexes. It is possible to increase the importance of recreation areas in mountainous regions by using new types of high-speed transport. As a rule, it is recommended to divide the traffic into internal and external connections of the resort, to limit the entry or passage of transit vehicles through the resort area, to build parking lots on the outer border, and to build roundabouts for transit, to use canopies for internal connections of the resort (5-10 times more than roads short and very economical to use).

5 Conclusions

1. Deficiencies in the study, design and construction of suburban recreation centers were identified in the republic, which led to self-location of small-capacity recreation centers in unfavorable conditions around the city. The construction of resort structures in mountainous regions (H = 900-2500 m above sea level) characterized by the resort climate and high artistic qualities of the landscape allows the use of labor resources for the organization of summer and winter vacations. It will stop the ongoing migration of the population of settlements in the mountainous regions to the more densely populated lowland regions of Uzbekistan.

2. It is desirable to build resorts with a capacity of 3,000, 5,000 and 10,000 places with complexes of recreation or treatment facilities in the mountainous regions of the republic, of which 60-70 percent should work throughout the year. It is much easier to choose a convenient area for a small complex (for 3.0 thousand places) in mountainous areas, for medium and large ones (for 5.0 and 10.0 thousand places) due to the completeness and variety of...
of services is achieved, the costs are reduced by 7
- 10% and the area per one vacationer is
reduced by 25
- 30%. A differentiated definition of the capacity of recreation centers allows
for the rational use of areas suitable for construction and the prevention of overcrowding of
recreation centers.

3. When planning resort complexes, it is necessary to ensure the placement of residential and
public buildings in the most favorable areas from the point of view of microclimate, rational
use of the territory and preservation of the natural landscape. It is necessary to observe the
functional zoning of the area, isolate the main resort area from utilities and warehouses and
exclude transit traffic through the resort area. Based on these requirements, the following methods of placing spas in different structural relief forms are recommended:
- when building a resort in a valley with two opposite slopes, direct the construction of
the main resort to the sunny part of the valley, gentle mountain slopes and neighboring
mountainous areas with an optimal slope of 11

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