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THE TIPOLOGY OF PHYSICAL STRUCTURES OF PROGRAM FACILITIES FOR GAMES AND SPORT

Introduction

This paper presents the analytical research of spatial facilities for playing/games and sport in Montenegro with comparative indicators of solutions for these in the area of Europe.

The categories of the following activities have been included through the typology – classification: children's games, games and sport in schools, free activities of extracurricular youths and adults, top sports and activities and exercises for medical therapeutic purposes.

Methods

In this example (the covered area of the coastal region of Montenegro) the typology of physical structures will be analysed through program starting points, by observing the total population in Montenegro, which according to the census from 2011 was 620,029 inhabitants, of which 293,509 in the Central Region, in the Southern Region 148,683 and in the Northern region 177,837 persons.^{1,)}

The method used is based on the methods of observation, research and analysis that are based on Remplajn's division into life stages (children from three to fourteen years, youths from fifteen to eighteen, the age form nineteen to forty five and over forty five years).

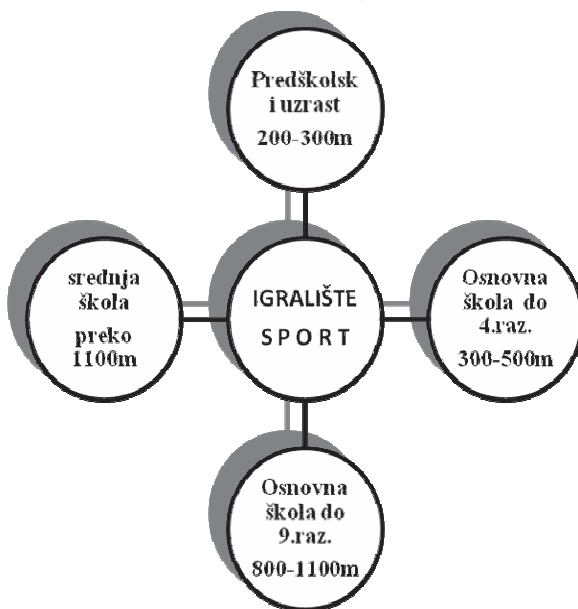
In this division the classification of age categories by period of human life can also be displayed, namely: childhood (0 -1.3 years is the first and second stage of early childhood; from 1.3 - 3.6 years is the third stage of early childhood and from 3.6 - 6 0 years is the first stage of middle to late childhood), education time (6 -10 years is the second stage of middle to late childhood; from 10 -12.5 years is the third phase of the middle to late childhood; from 12.5 - 14.5 years is the age of maturing; from 14.5-17 years is puberty and from 17-20 years is adolescence), the period of maturity-active life and the period of decline of overall human activities – the period of ageing.^{2,)}

Typologies of physical structures are in close connection with forms of activities of certain age categories, so these activities are related to *children's play* in the period up to the age of fourteen; *games and sport in schools* from elementary school to high schools up to the age of twenty four; *free and programmed activities of extracurricular youths and adults* from the age of fifteen to forty five years and over forty five years; *sport* (top sport for school and employed youths as well as for the rest of the population in sport) and *activities and exercises for medical therapeutic purposes* (preventive, therapeutic and rehabilitation). Such a typology presented as a program indicator determines the development of planned spatial distribution of facilities which includes the

building plan and plan of equipping facilities on the basis of which spatial organization-grouping is carried out, their function and gravitation zone within certain settlement and region zones.

According to European standards, for example Germany^{3.)} (Buddatsch, 2001) the maximum distance from the area for physical activity for children is 300 meters, and for adults taking a straight way is 400 meters or 15 minutes or a maximum of 800 meters or 30 minutes, if we are talking about larger open spaces or recreational areas for the entire city. The norm is for children up to the age of six a minimum of 150m² and for children and youth a minimum of 2000m². According to the law of Germany for building playgrounds the minimum is 4 m², compared to the 30's of the 20th century when this surface was 1.6m².

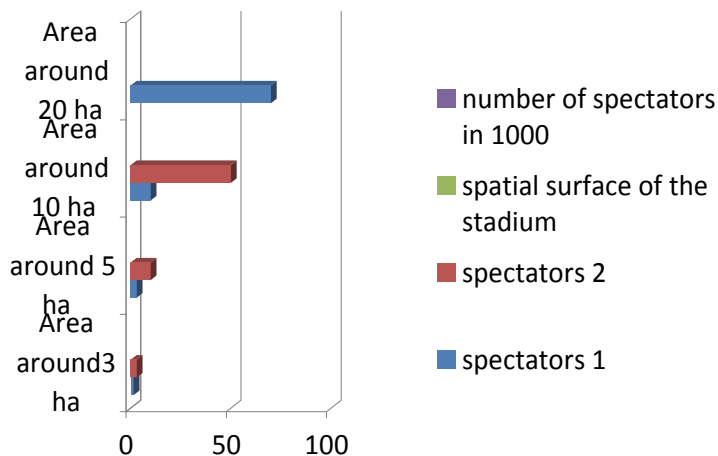
In our country the given base is as shown schematically in Picture 1 or described with the destination time data as follows: as the distance a child covers on foot for 1 minute is about 70 meters, it can practically be taken that the time that a child walks from home to school amounts the most to as many minutes as is the age of the child.



Picture 1. Schematic display of the distance from home to the space for outdoor recreation
Preschool 200-300m; Elementary school to the 4th grade 300-500m; Elementary school to the 9th grade 800-1100m; High school over 1100m

Normative equipping of recreation areas for *Facilities intended for outdoor sports* is 3m²/inhabitant of which usable area is 1.3m²/inhabitant, while supporting area is 1.7m²/inhabitant. For *Facilities intended for indoor sports* the standards of 0.50m²/inhabitant are applicable.

In addition to outdoor areas, the standard for sports facilities in physical structures has also been given as shown in Picture 2 where the proportional ratio of the number of spectators is set in relation to the surface area of the sports complex in which green areas make about 30% of greenery^{4.)}.



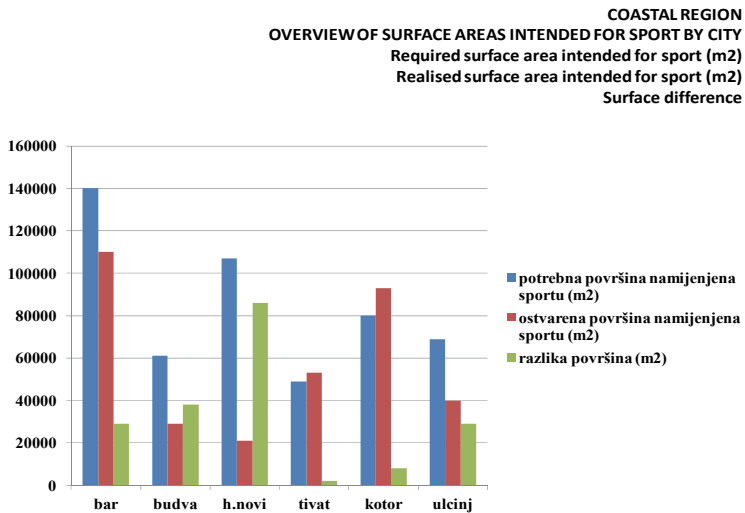
Picture 2. Schematic display of the stadium surface in relation to the number of spectators

Results

Based on the conducted research and analysis on the proposed sample of the coastal region of Montenegro, which are manifold and complex because they include the fields of public, social, medical, urban architectural and other research results are obtained that are based on the classification and the influence of age categories by main periods of human life, the activities, the typology of physical structures and division of facilities for games and sports. By the comparative method in relation to European standards the possibility of grading the analyzed sample of quality of typology of the facility is obtained.

Norms that are approaching European standards for free recreational areas are being applied for educational institutions. Around schools and children's institutions the size of the schoolyard outside the city centre should be 25-35 m² per student, taking into consideration only one shift. In the dense tissue of block construction the optimal area per student may be 10-15 m² and in no way less than 4 m². In that case, teaching of physical education is held at the nearest sports centre.

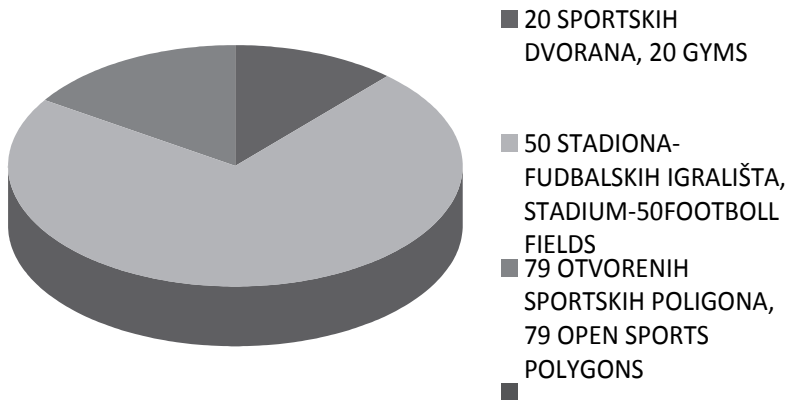
Large fields (sports fields, running tracks, courts for basketball, soccer, volleyball, etc.) for school children, from the age of 7 to 14 years are made within the standard of 6m² per child. School playgrounds are also available for other users, out of school activities.



Picture 3. Overview of surface areas intended for sport in the coastal region

In Pictures 3 and 4 sports facilities in the Coastal Region are presented, as well as facilities registered in Montenegro, where in the example of one coastal city – Tivat, one can see that it is best equipped with facilities of sports infrastructure.

SPORTSKI OBJEKTI U CRNOJ GORI
SPORTS FACILITIES IN MONTENEGRO



Picture 4. Sports facilities in Montenegro

In the area of the Municipality of Tivat there is a total of 41 sports facilities with developed space of nearly 30,000 m² as follows: 1 large hall with 3,200 m² and five smaller ones with 1,426 m²; 3 sports stadiums with 25,574 m²; 9 open fields for small sports with an area of 17.804m²; 7 tennis courts with an area of 3,644 m²; 5 basketball courts with a surface area of 300m²; 6 other indoor terrains with an area of 720m²; and 15 bowling areas with a surface of 1.300m². Compared to other sports facilities in Montenegro, Tivat sports facilities represent a significant sports construction fund.

In Montenegro there are: 20 sports halls, as independent facilities or within sports centres with a total surface of about 74,878 m² and 27.560 m² of spectator seats, 50 stadiums - football fields with the total surface of 464,539 m² with the capacity of 81,600 seats; 79 open sports polygons with the total area of 100,720 m²; 14 swimming pools, of which 5 indoor and 9 outdoor pools; 66 tennis courts and 7 running tracks with supporting athletic arenas. So, Montenegro has a fund of sports facilities, the density of which in space represents a significant potential and basis for further development of sport.

Discussion

Here we have an example of research of the coastal region that actually meets the need considering its economic and social status.

However, the question arises with regard to European standards in relation to facilities intended for physical activities whether the other regions in Montenegro can meet them.

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Keywords: *sport, research, grading, typology, structure*