

Planning Network of Sports Facilities in the Context of Montenegro Case Study: Herceg-Novi, Podgorica and Danilovgrad

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ABSTRACT

Sports facilities of a city through the a long history of development of the city, starting with ancient Greece and Rome, had been evermore recognized as important areas of the city, the place of communication and interaction between people, places of unwinding everyday social life, so-called point of the urban gatherings. In addition to the social aspect, facilities for sport are often involved in the formation of the visual identity of a city. The land intended for sport and recreation are areas which are in the planning document designed to develop sports and recreational facilities, outdoors or indoors. Globalisation and the transition effects in Montenegro contributed faster transformation of society. This paper explores the urban parameters for the planning of sports and recreational zones in the city. During the transition period, the last 25 years, the system of planning and land management has experienced a major transformation in terms improper planning development of sports facilities, not supporting sports and recreation needs of the residents. For central and coastal region of Montenegro, it is characteristic rapid urbanization with significant migration and dominant construction of residential blocks and tourist facilities on the coast. The planning area for residential, has not been accompanied by adequate network of sports facilities. The purpose of this paper is to determine whether the existing network of sports facilities in Herceg-Novi, Danilovgrad and Podgorica can meet the needs of the residents, as well as to provide recommendations for the further development of the network of sports facilities.

Key words: urban parameters, town planning, sports and recreational zone, the network of sports facilities

Introduction

This paper presents analytical study of areas for sport and recreation for city zones of Herceg-Novi, Podgorica and Danilovgrad. The research is based on mapping of existing sports facilities in these cities, and on comparison of realized and needed areas for sport. The aim is to identify the condition of the existing network of sports facilities, its potential deficiencies and possibilities for its improvement.

Methods

The paper predominantly applies analytical approach in research (collecting archive materials, graphic and photographic documentation, measurement in the field, etc.). Starting point is data collection for each of the sports facilities that are located within the limits of the city zones of Herceg-Novi, Podgorica and Danilovgrad. Data analysis was performed using the following scientific methods: method of analysis, comparison method, inductive-deductive method and the method of synthesis. Descriptive and normative methods were also used.

The network of sports facilities, whether existing or planned defines the schedule of sports facilities in the municipalities, their typology, number and capacity of facilities. Planning of the network of facilities is based on an analysis of the needs of the population of areas for sport and recreation, the analysis of the existing network, as well as on the implementation of spatial planning norms.

The norm for calculating the surface area required for outdoor sports is 3 m²/res, while the norm for indoor sports surface is 0.5 m²/res (Ilić, 1998).

Herceg-Novi

Herceg-Novi is a city with a specific urban structure, which has been developing over a longer period of time, starting with the founding of the city in the year 1382. Period under the Turkish rule, is characterized by the formation of the first public baths - a precursor of indoor pools. During the Austro-Hungarian era (from 1797 to 1918), the city began to develop linearly outside of the city walls, and it is a period of intensive development of sports activities. In that period, first sports clubs were registered (in 1926 Jadran Swimming Club). The period after the Second World War is characterized by intensive construction of objects of different typologies, among which is a significant number of new sports facilities and areas. Post-war documentation recognizes the needs of the population for sport and recreation and defines standards for the planning of these areas. In accordance with the dominant affinity towards water sports (swimming and water polo), outdoor swimming pools were built along the seashore (starting with the first one built on Škver, in 1952). There is also the construction of playgrounds (football, basketball, tennis). With the opening of the Institute Igalo in 1949, the city received a significant increase in the capacity of space for sports activities (Indoor swimming pool, multipurpose hall for volleyball, basketball and indoor sports - football, outdoor facilities...).

The first sports center, in the municipality of Herceg-Novi,

wasn't built until 2007, with the surface of 6.000 m² and the capacity of 3.000 seats (depending on the occasion, the number of seats varies between 2.250 and 3.625 seats). The center includes sports halls for the following sports: basketball, handball, volleyball and boxing, multipurpose courts for basketball and handball with stands and three tennis courts with stands and locker rooms, auxiliary tennis court and a bocce court. The position of the sports center is, on one hand, is logical due to the commitment of Igalo as a preparatory center for athletes, however, on the other hand, the position of the centre in the network of sports facilities in Herceg Novi is not adequate, because of the disbalance it creates as it is the only sports center of its size in the municipality. Distance from one end point of the municipality to the sports center is about 20 km.

Promenade Pet Danica is one of the unique forms of space, designed, among other things, for sports and recreation. Its surface was not considered a part of open spaces for sport. The average width of the walkways is 4.50 m. The total length of the coastline from Kamenari to Njivice is 24.8 km, of which 2/3 are active walkways.

Podgorica

Through planning zone/units (Nova Varos, Novi Grad, Stara Varos Podgorica, Konik, Masline, Zagorič, Rogami-South Tološi, Donja Gorica, Dajbabe- Ćemovsko field), the paper emphasizes the disproportion in the development of sports and recreational areas.

After World War II, in July 1946 through planning documents, sports and recreational areas attains separate locations, among them stand out: City Stadium (1947), an outdoor sports courts (basketball court in Njegošev park, 1955), Football stadium "Crvena stijena" (1964), the sport airport in Ćemovsko polje (1980), Shooting center "Ljubović" (1981), and also one of the points is still the referential mark of the city-Sports center "Morača" (1983) with surrounding sports fields.

This way, through planning documents there were designed unique systems: the northern part of the sitz- the sports and recreational area Stara Zlatica-Krnjevinina, the eastern part of the city- sports and recreational areas in Konik (between the village Ribnica, Vrela Ribnička and Konika), on the south part of the city- sports stadium "Zabjelo" (south of Ljubovića) and the west part of the city- park forest Kruševac-Tološi, with smaller facilities for sports and recreation. Length of three most important rivers in the urban center (Moraca, Zeta and Rayon) is up to 9.000 km, while arranged paths are less than one kilometer.

Within the a study (Živković, 1975), as a response to the question "In your opinion, what important things are missing in Titograd for normal and comfortable life of its inhabitants", the majority of respondents (25%) answered "sports facilities".

Danilovgrad

In the area of Danilovgrad municipality that counts 18.472 people, according to the last census, in 2011, was built more sports facilities which are to serve the citizens of this city and beyond, due to the favorable geographical position of the municipality and good road connections to other Montenegrin towns. All sports facilities and spaces adapted to different generations, especially children and youth, such as: city Danilovgrad sports hall, sports hall "Kalezic" stadium "Braća Velašević" Danilovgrad ("Iskra" stadium), the stadium "Zora" in Spuž, small stadium sports in Danilovgrad, the stadium for football "San Siro" in Spuž, tennis courts at Lazine and sports facilities within barracks "Milovan Šaranović" and a sports center with a shooting range at the Police Academy.

In the area of the Municipality there are the following sports: football, handball, basketball, volleyball, karate, judo, chess, athletics, mountaineering and fishing. It is organized into 14 teams (4 football clubs, 2 handball, chess, boxing, karate, judo, taekwondo, athletics club, mountaineering association and fishing section) competing in various ranks of competition, with more than 2.200 members. Sports events are numerous, software designed and maintained permanently, and are financed by the donor principle.

Guided by the norms for land which are necessary for the sport, based on number of population, leads to numerical indicators for indoor and outdoor areas for the sport needed at the level of the entire municipality of Danilovgrad. The sum of the available outdoor and indoor areas and the difference between the required and available surfaces for sport numerically are also shown in Table 3. Summing up the results of Table 3, it can be concluded that the municipality Danilovgrad necessary 19.617 m² outdoor and 6.800 m² indoor spaces for sport and recreation.

Results

The municipality of *Herceg-Novi* covers about 23.500 ha, of which the urban area, which is the subject of this research is 1.600 ha (Part of Sutorina, Igalo, Herceg-Novi, Podi, Meljine, Zelenika, Baošići, Ćenovići, Kumbor, Bijela and Kamenari).

According to the General Urban Plan GUP from 1988, Herceg-Novi was fourth in the Republic of Montenegro by the number of sports facilities at the municipal level (4 closed and 11 open, the total area of 15.265 m²) behind Nikšić, Podgorica and Pljevlja, while the surface of sports facilities per capita, occupied the first place in the Republic (1.9 times more land per capita than the national average). According to the Spatial Plan of the Municipality PPOHN, in the municipality of Herceg-Novi, in 2007, there were 8 closed and 14 open sports facilities, which amounts to 1.758 inhabitants per 1 building. Spatial Plan of the municipality envisages the construction of new facilities, which would, by 2020, achieve norms of 2.5 m² per capita and 1000 inhabitants per 1 sports facility (open or closed).

Plans that have been made over the last 15 years in Herceg-Novi did not focus enough on the network of space facilities. They are predominantly oriented towards the development of tourism and recreational facilities which are complementary to tourism. According to PPOHN, 150 ha golf courses are going to be built in the area of Sutorina, paragliding is being developed in the area of Zelenika, which has exceptional natural conditions, while there are also plans for the development of the sport of diving in Bijela. A major recreational center in Baosici is also being considered, which would cover the coast from Kumbor to Kamenari.

Currently, in the municipality of Herceg Novi, there are 11 closed sports facilities and 31 open areas for sports activities (Table 2). The current situation is such that the municipality of Herceg Novi lacks 36.768 m² of open space for sport and 7.825 m² of closed areas intended for sports activities (Table 1).

Area of the task, placed under the borders of GUR-a *Podgorica*, is 49.323 ha. In 1972 there has been a deficit in terms of capacity intended for sports and recreation. According to the former condition, the sport occupies 0.45 square meters per person. Special emphasis is placed on water sports and therefore capacities that are supposed to be achieved by 1991 (50.000 people per one swimming pool, 50 seats per 1.000 people, 0.8 m² of courts per citizen, 1 employee per 100 users, 10 m² per seat).

Table 1. Overview and the Sum of indoor and outdoor surfaces for sport in the urban area of Herceg-Novi, according to the typology of sports facilities

TYPE OF SPORTS FACILITIES	NUMBER OF OBJECTS	CLOSED SPACES FOR SPORT		OPEN SPACES FOR SPORT	
		Indoor	Outdoor	Indoor	Outdoor
Sports Center	1	1780 m2		3940 m2	
Sports Hall	1	460 m2		/	
Sportshall Near The High School	1	450 m2		*800 m ²	
Sports Hall Near The Primary School	4	1641 m2		*4620 m ²	
Closed Pools	1	825 m2		/	
Open Pools	7	/		5775 m2	
Tennis Courts	9	/		4100 m2	
Open Courts (Basketball, Volleyball, Football)	9	/		8020m2	
Football Courts 110*75m	4	/		33000m2	
Balloon-Closedcourt	3	2400 m2		/	
Boccia	2	/		686 m2	
TOTAL:	11 + 31	7556 m2		55 521 m2	
MUNICIPALITY	POPULATION	REQUIRED AREAS FOR SPORT			
		9.236m ²		55.416m ²	
		AVAILABLE AREAS FOR SPORT			
		2.436m ²		35.799m ²	
HERCEG-NOVI	30763	DIFFERENCE IN SPACE COVERED			
		7.825 m2		36.768 m2	
		50,9%		39,9%	

Legend: * areas included in category of open courts

According to the existing situation from 2012, areas for sport and recreation in the territory of Podgorica are around 50 ha. This research showed that the same capacity reached an area larger than 100 ha (area of sports airport on Čemovsko polje is approximately 65 ha). The reason for not including the contents of the existing capacity is inadequate utilization of its full potential. A similar example is the Equestrian center in Donja Gorica, which area is around 7 ha. According to the norms provided for of sports and recreational areas for 2025, it

should amount around 316 ha in the subject area.

The lack of basic elements in capital city are indoor courts capacities (with which Podgorica disposal partially or unsuccessfully) as well as the Olympic Stadium, which due to their size do not disturb other urban functions, but it improves them.

There is an evident lack of the indoor and outdoor sports facilities in Rogami and Dajbabe Čemovsko polje, while in other eight planned units, there is necessary to provide indoor facilities (Table 2).

Table 2. Overview of existing indoor and outdoor areas for the sport in the urban territory of Podgorica

Planning Unit	Area (ha)	Number of inhabitants in 2013., (m ²)	The planned number of inhabitants in 2025. (m ²)	Required areas for the outdoor courts (2025.) (m ²)	Required areas for the indoor courts (2025.) (m ²)	Available areas for outdoor courts (m ²)	Available areas for indoor courts (m ²)	DISTINCTION Outdoor courts (m ²)	DISTINCTION indoor courts (m ²)	DISTINCTION Total (m ²)
01 Nova Varoš	177,96	11625	13491	6746	40473	25506	7970	-18761	32503	13743
02 Novi Grad	503,13	26413	34962	17481	104886	41340	32477	-23859	72409	48550
03 Stara Varoš-Zabjelo	624,81	35664	39493	19747	118479	21500	11980	-1754	106499	104746
04 Konik	673,98	29939	30066	15033	90198	711450	3200	-696417	86998	-609419
05 Masline	372,52	7776	8201	4101	24603	9000	0	-4900	24603	19704
06 Zagorič	473,74	16816	18142	9071	54426	35593	1700	-26522	52726	26204
07 Rogami	/	176	2076	1038	6228	0	800	1038	5428	6466
08 Tološi	556,65	15079	18661	9331	55983	11338	2050	-2008	53933	51926
09 Donja Gorica	493	5244	7409	3705	22227	76150	5480	-72446	16747	-55699
10 Dajbabe-Čemovsko polje	1056,42	2286	2631	1316	7893	1260	1900	56	5993	6049
SUM	49.323.21	151018	175132	87566	525396	933137	67557	-845571	457839	-387732

Leading the table presentation of available outdoor and indoor areas, as well as displaying the required area for sports activities in indoor and outdoor, according to the standards, we con-

clude that the urban area of Danilovgrad, that counts 6.852 inhabitants, according to the last census in 2011, it is necessary 1.006 m² indoor and 10.906 m² outdoor areas for sports (Table 3).

Table 3. Overview and the Sum of indoor and outdoor surfaces for sport in the *urban area* of Danilovgrad, according to the typology of sports facilities and Overview of collecting the required, available and difference between indoor and outdoor areas for the sport in the area of Danilovgrad *municipality*

URBAN AREA TYPE OF SPORTS FACILITIES	NUMBER OF OBJECTS	CLOSED SPACES FOR SPORT		OPEN SPACES FOR SPORT	
		Indoor	Outdoor	Indoor	Outdoor
City football stadium "Braća Velašević"-stadium "Iskra"	1	/	/	7.400m ²	
City sport hall Danilovgrad	1	900m ²	/	/	
Sports center with a shooting range at the Police Academy	1	1.300m ²	/	/	
Small stadium sports Danilovgrad	1	/	/	950m ²	
Sports hall of elementary school "Vuko Jovović"	1	220m ²	/	/	
Outdoor sports facilities (basketball, handball, volleyball, soccer)	3	/	/	1.300m ²	
Total (available areas for sport)		2.420m ²		9.650m ²	
Total (required areas for sport)		3.426m ²		20.556m ²	
Difference required/available areas for sport		1.006m ²		10.906m ²	
MUNICIPALITY	Population	REQUIRED AREAS FOR SPORT			
		9.236m ²		55.416m ²	
		AVAILABLE AREAS FOR SPORT			
DANILOVGRAD	18.472	2.436m ²		35.799m ²	
		DIFFERENCE IN SPACE COVERED			
		6.800m ²		19.617m ²	

Description of the networks

The network of sports facilities in *Herceg Novi* has developed linearly along the main road, or along the coast. There is an apparent unevenness in the distribution of sports facilities in the municipality. The highest concentration of sports facilities is in the area of Igalo, which has been recognized as a suitable area for sports, while the network isn't as developed from Kumbor to Kamenari, in said area there is only one sports hall of note located next to the elementary school "Orjenski Bataljon" in Bijela. As Igalo is the end point of a linearly developed city, an imbalance is created in the network of sports facilities.

Water sports are the prevalent ones (sailing, diving, swimming, water polo). Their maintenance in the open depends on the outside temperature and the temperature of the sea, and is confined to a limited period during the year. Indoor and outdoor pools are distributed evenly and are 2 km away from each other, which meets the needs of the population in the summer months, while in the winter months all activities related to water sports are transferred to the indoor pool of the Institute Igalo.

Football courts are arranged at approximately equal distance from one another (6 km), and cover the mentioned area.

Outdoor sports facilities are evenly distributed, but there aren't enough of them to fulfill the norms. There is a lack of indoor sports surfaces from Zelenika to Kamenari, and the whole area gravitates towards the sports hall in Bijela.

In the local community of Zelenika, which covers 87.50 ha and has enough capacity to remedy the lack of closed areas, a suitable location for a new sports center could be found, which would make sports activities gravitate less towards Igalo and Bijela (Figure 1).

The division of the urban core of *Podgorica* on planning units eases the further division of the city into separate smaller sports centers. Given that the city develops spontaneously and simultaneously in the radial direction, the peripheral parts of the city core are neglected by insufficient elaboration of urban functions through the planning documentation, which further enhances the illegal construction and unplanned development (Figure 2).

Novi Grad, Nova Varoš and Stara Varoš-Zabjelo have the highest concentration of sports facilities. By this analysis it is noticed that the least developed parts are rural parts of the city: Rogami and Dajbabe-Ćemovsko polje.

The lack of the plan is reflected in the deterioration of objects whose lifetime is exceeded the current needs of modern society, so in a near future is planned a reconstruction (reconstruction of open water polo pool with bleachers in SC "Morača", and its transformation into a closed and reconstruction halls in which there is an indoor pool in multifunctional hall for indoor sportive). Thus, there is a risk of overcrowding and losing importance of location, such as the construction of the central tennis court in complex SC "Morača" with 2.000 seats, 6 extra courts, 3 badminton courts and 3 courts for pad-

ing, recreational section for children to high standards of ITT, medical center, fitness, spa center and other supporting facilities for further popularization of tennis in Montenegro. This ap-

proach widely suppresses already built New Town sports infrastructure, so these facilities should be provided to the new city center.

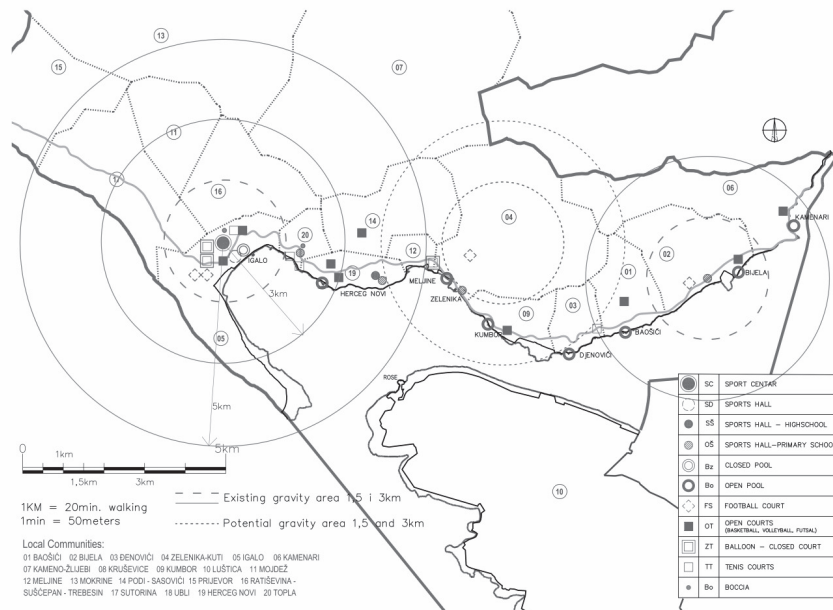


Figure 1. Overview of the network of sports facilities in the urban part of Herceg-Novi

PUP Podgorica creates a network outside the top three most important urban ensembles, and provides a new direction of development of the city, by planning on the construction of the City stadium in Stari Aerodrom-Konik, and by relocating an existing one, the capacity and the location is not adequate for major international matches. The surface of foreseen facility

would equate 2.435 m².

The same plan provides direction of the city to the north, not so exploited potential of Maslina and Zlatice, by constructing two football fields in DUP "Zlatice B" (courts with artificial backed by established standards of FIFA, which will be built in the forest park Zlatice).

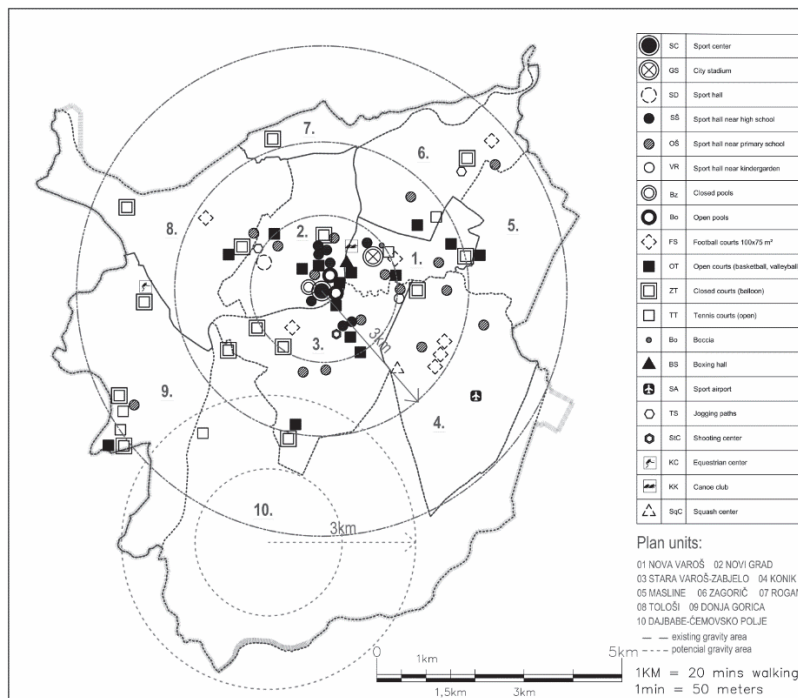


Figure 2. Schematic presentation of concentration of sports and recreational areas in the territory of the GUP-a Podgorica, according to the typology of sports facilities

Defects in previous plans and the inability of the maximum exploitation of the existing situation, compensates by completely collapsing them to create a supposedly better conditions. Therefore, it is planned a new outdoor sport complex with a variety of facilities at the site of the Shooting Center "Ljubović" or Tološka šuma.

Looking at the network of sports facilities of the city *Danilovgrad* we can see a certain unevenness in the spatial dis-

tribution. The highest concentration of sports facilities is about public educational institutions, preschools, elementary and secondary schools, where they represented outdoor sports facilities for various sports (basketball, volleyball), a gym within the primary school and sports town hall. It can be said that the school population networks of these objects quite well spatially adapted given the negligible distance of this area of educational institutions (Figure 3).

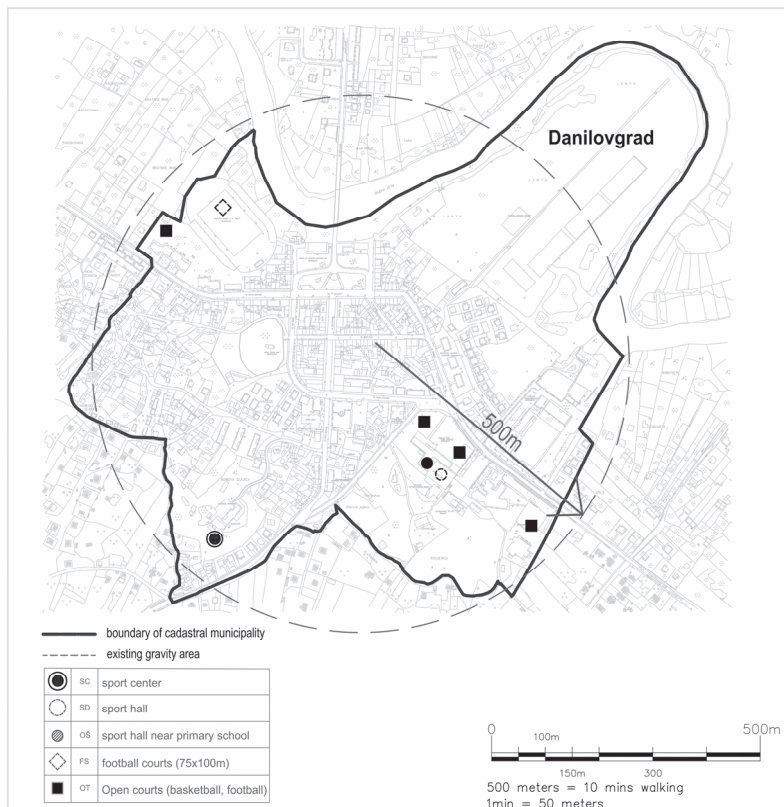


Figure 3. Overview of the network of sports facilities in the urban part of Danilovgrad

The main benchmark sports facility is the city's football stadium, "Iskra", intended for young people, and located at a distance of a kilometer of part of the group of sports space with educational units. Danilovgrad also includes a sports center with a shooting range in the Police Academy complex, also at a distance of about a kilometer from the city's football stadium, "Iskra", and from the sports town hall located next to educational institutions.

Distance of the same social activities, specifically indoor and outdoor sports area, in the urban area of Danilovgrad, easily outperforming thanks to excellent and well thought out urban pattern of the city, as well as the relatively good infrastructure connections between the blocks.

Discussion

The network of sports facilities in *Herceg Novi* is predominantly linear, with a significant number of sports facilities being located in the area of Igalo.

Planning of the network of sports facilities is a particularly sensitive issue. Taking into the account the needs of all residents, both those who are active in sports, and those who need to provide space for recreation, according to age categories. The current situation is such that the municipality of Herceg Novi

lacks 36.768 m² of open space for sport and 7.825 m² of closed areas intended for sports activities. Herceg-Novi did not develop enough facilities for sport and recreation, even though the municipality has a lot of potential. Spatial Plan of the municipality of Herceg Novi predicted that by the year of 2020, a lot of new facilities would have developed which would fulfill the norm of 2.5 m²/res.

Podgorica with its existing capacity relative fulfill the conditions specified by PUP Podgorica, at the level of the urban core of the city. However, disproportionally division of capacity and harsh segregation of specific planning unit is fatal for urban development of Podgorica. Thus, it is important that peripheral zone of GUR-a Podgorica, ie planning unit Čemovsko Fields Donja Gorica, Konik, Rogami, Masline and Tološi, to be activate in terms of sports and recreational facilities.

The synthesis of various urban functions, with respect to the morphology of the terrain and using the same for the purpose of activating sports and green areas, would greatly reduce the devastation of urban space and the invasion of illegal construction that characterizes today's modern city.

Sports facilities for each city are particularly important category and a healthy society is a basic requirement of any sustainable development in which sport and sports activities play an indispensable role. Based on available data for municipality of *Danilovgrad* on the number of individual sports asso-

ciations the information is obtained that every 18th resident of the municipality in sports, and it is in sports activities included every 8th resident.

Given the expressed interest of the young population for sports and the importance of sport for the health of the population, while keeping in mind the geo-strategic position of the municipality is necessary to these objects and surfaces provide a much better treatment in all respects. This means, above all, seriously planned investment in available sports facilities in the part of renovation and reconstruction in order to get an architectural comfortable areas, as well as increasing the capacity of indoor and outdoor areas for sport. Within blocks structure are needed outdoor spaces for sport and recreation, and it is neces-

sary to increase the capacity of the indoor area along the border of cadastral municipality, due to their relative density in the center.

It is evident that the city needed areas for sport and recreation elderly population. The city needs new promenade area outside the block structure. In this way, all age groups were ensured equal treatment in the area of sports and recreational activities.

It is important to note that through a variety of urban plans, detailed, general, space plans, areas for sports and recreational activities are not accented sufficiently. Thoughtful implementation in the planning documents these areas get a lot of importance and become a representative areas of the city.

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