Journal of Tourism & Hospitality Research
Islamic Azad University, Garmsar Branch
Vol.8 , No 1,Autumn 2020, Pp. 109-127

Safety and environmental risk assessment of the mountain sport and resorts of Tehran with an emphasis on the sustainable tourism carrying capacity and the provision of management approaches

Baranoosh nikbin
Doctor of Behavioral Management. Kharazmi University. Advisor to the Minister and Director General of the Ministry of Sports and Youth
Bahram ghadimi*
Associate Professor, Department of Sports Management, Islamic Azad University, Science and Research Branch

Abstract
Sustainable tourism is based on the concept of sustainable development. The area attracts a significant number of users for sports and tourism activities, especially on holidays and weekends. Most users (especially amateurs) move at approximately 2182 meters. The movement of athletes and various uses of environmental facilities such as cafes, restaurants, etc. lead to an increase in the sound level in the mountaineering route and the surrounding areas. The results show that with the change of time from early morning (6 am) to noon (12 pm), the sound level increases due to the increase in the number of users in the area. The average noise level along the mountaineering route is 77, 3 dB, which does not comply with the EPA standard as well as the UK and WHO standards and indicates the amount of noise. Therefore, environmental and safety priorities must also be considered. Failure to pay attention to the bearing capacity in determining the number of authorized users to enter the area and the entry of more people into the area, will cause damage to the environment, reduce the quality of services and welfare and other natural and human issues. Thus; Area management must plan in such a way as to ensure sustainable performance in addition to using existing land uses.

Key words: environmental risk, mountain sport, sustainable tourism .

**Corresponding author: dr.b.ghadimi@gmail.com*
Received: 01 /07/2020 Accepted: 17/09/2020

Introdaction:

According to the recent definition of the World Tourism Organization 2 and the United Nations Development And the United Nations, the following definition For international tourism has provided: "A person who travels between or several countries, as Permanent residence for more than one day and less than one year for leisure, business or other purposes Far away (World Tourism Organization, 2004)."

Sustainable development in the environment means meeting the needs of the present generation without compromising the ability of future generations to meet their own needs" (Brandtland, 1987).The beginning of sustainable development is the idea that long-term protection of the environment, habitats, biodiversity, natural resources and the environment will only be possible when it is simultaneously with economic, social and political development, especially for the benefit of the most disadvantaged. Join the community. The idea of sustainable development is reflected in a coherent understanding of the environment and development.Sustainable tourism is a type that "does not jeopardize the cultural, social, economic or environmental integrity of the tourist destination in the long run (Wickramaratne, V.C., & Kumari, J.A.P. ,2016,pp.33-38).

Review of literature:

Today, the idea of sustainable tourism is being considered by the world community in order to protect natural ecosystems as much as possible. also; This type of tourism, while meeting social and economic needs, is also considered as a tool for environmental quality control.Tourism can also be classified according to the environment in which tourism activities take place, such as mountain and sea tourism(Giorgio، Spinelli,2018,pp.1-18**)**. On the other hand ,Mountain tourism Today, mountains are one of the most sought after leisure centers. Mountain ecosystems do not have a uniform appearance at all. The dramatic diversity of landscapes and natural phenomena such as caves, springs, mountain lakes, perennial and seasonal waters, waterfalls and gorges are the main factors leading people to the mountains (Parkes A, Kearns A,2002,pp. 2413-2438). It is also a potential source of employment for mountain dwellers (Mountain Environmental Protection Association, 2006). Mountain tourism is the basis of a branch of tourism called geotourism. Geotourism is one of

the newest types of nature-based tourism that after the introduction of the geopark, 2000 has been considered by UNESCO since 2000 (Wickramaratne, V.C., & Kumari, J.A.P. ,2016,pp.33-38). Indicators in sports and tourism tolerance capacity:

Indicators provide important opportunities for defining and applying the "Tourism and Sports Tolerance Capacity" (STCC). In order to achieve the logical and practical tolerance capacity (acceptance) of each region, evaluation and integration of all capacities and related indicators is absolutely necessary and basically sustainable and dynamic management of tourism resources by considering all these factors, can be used as a measure of tolerance capacity. Be considered (James et al, 2015,pp1-14).The application of index estimation requires their use in the direction of the set goals and the sensitivity of the study areas. In this regard, three types of indicators have been proposed in the STCC composition, which according to the type of place and goals of tourism and sports, the priority and importance of each indicator is different:

1. Physical-ecological indicators
2. Socio-demographic indicators
3. Economic-political indicators (Cococis and Maxa, 2004).In fact, these indicators provide the conditions for the protection and improvement of the system in order to be sustainable in tourist and sports places. Figure 3 shows the relationship between sustainable development indicators, sustainable sports indicators and tourism and sports endurance capacity indicators. As can be deduced from the figure, all three types of indicators are interrelated and closely related to each other, and while the relationship between them should be considered, continuously evaluated and reviewed at each stage in order to achieve sustainable planning and development (Zannin PHT, Calixto A, Diniz FB, Ferreira JACA,2003,pp.245-255).Population growth and urban development in recent years has increased the demand for tourism and sports use of natural spaces. The lack of open and natural spaces in cities on the one hand, and the need and interest of people in tourism and sports activities on the other hand, has caused the few natural spots left in urban ecosystems to receive a large number of users (especially on weekends). To be. Ecologically; The expansion of tourism activities can threaten natural ecosystems at the

cost of short-term economic and social benefits. Therefore, due to the relatively high vulnerability and sensitivity of natural areas, which are a direct product of nature and its functions as God-given gifts, and due to the scenery and aesthetic values, are in greater demand for leisure; The study and determination of tourism tolerance capacity is of particular importance. Such areas can not be considered as a commodity that can be considered a specific period of time for its useful use. These valuable resources will not be rebuildable in the event of widespread destruction(Arslan C, Gürel E, Yıldırım E, Orhan,2002,pp.281-288.)According to the World Health Organization (WHO) reports, exposure to sound pressure level of 80 dB can cause aggressive behaviors. Noise pollution in higher sound pressure levels (more than 85 dB) causes direct effects on hearing organs, including Temporary Threshold Shift (TTS) and long term contacts cause Permanent Threshold Shift (PTS). According to medical surveys, signs of hearing power reduction were seen in those who have been exposed to a sound with the intensity of 80 dB (Hansell AL et al, 2013,pp.337-347). Disorders of the digestive system and increase in cholesterol and triglycerides and diabetes are the consequences of exposure to sound (18). Exposure to noise in the long term can cause hearing harms which individuals might not be aware of it (Vogel I, Brug J, Vander Ploeg ,2007,pp.124-133). In recent years, noise pollution and its consequences has become an important issue in scientific researches and numerous studies have been conducted to reduce the noise pollution problems in different cities and human settlements (Abbaspoor M, 2016,p.628). It is more than two decades that water, soil and air pollution have been considered in Iran but still needs much efforts in noise pollution (WG-AEN,2007, pp.46-55). While the increase of different urban activities has led to reveal the sound pollution as a social problem, but the importance of noise pollution in the country is not clear.Noise pollution is monitored in three different fields: (Agrawal Y, Niparko JK, Dobie RA,2010,pp.234-237) Traffic and transportation, (Vogiatzis K,2012,pp.162-173) Industrial activities, and Sport, business and recreational areas. It has been clearly defined that noise pollution is a potential problem for health, communication and social life enjoyment (Ghanbarit,2016,pp.375-384). Numerous studies have been shown that

exposure to recreational intense sounds increases the damages of hearing system (Sukrud et al,2006,pp.63-72). New studies show that living in areas with high noise reduces the possibility of residents' exercising (Dalton DS et al,2001,pp.1-9). Noise also affects sleep quality which has a direct impact on one's tendency towards exercising. Lack of physical activity and exercising is one of the problems of modern society and researches are seeking for a way to overcome it. Reducing noise pollution in cities and terrific volume can be helpful in overcoming this problem. One of new approaches in sport management is sustainable sport management which benefits all the groups such as the public, athletes, and environmental activists. Sport can be universal, fruitful, and environmentally and socially sound (Bahmanpour H,2011,pp.97-106). Sport activities can be called sustainable and healthy if guarantee psychological and physical health of the users (IOC,2000). One of the environmental principals of Olympic Coordination Authority (OCA) is commitment to minimize the sound impacts on the environment and neighboring residential areas (Bahmanpour H,2011,pp.99-106).Most of the studies conducted in the field of tolerance capacity are related to tourism. Among them, the following can be mentioned: Study of tourism tolerance capacity based on various tourism activities as well as the type of tourism and its relative capabilities (Nahrli and Rezaei, 2002,pp. 445-454), Estimation of tourism tolerance capacity of Anahita Temple in Kangavar (Farhoudi and Shorcheh, 2004,pp.19-43) , Optimal tourism management program, a tool to apply the concept of tolerance capacity in sustainable management of tourist areas (Shayesteh et al., 2011,pp.53-66), Evaluation of tolerance capacity in determining the uses of tourism complexes Determining the coastal tourism tolerance capacity of Kish Island (Fuchs, A., Reichel, A., 2011,pp.226-276).Estimation of tourism tolerance capacity of Therson National Park in southern Turkey according to its special natural and cultural resources (Sayan and Attik, 2011, pp. 66- 74.) Based on the standards of Iranian Department of the Environment, the limits of equivalent sound pressure level for the residential area from 7 a.m. to 10 p.m. and is 10 p.m. to 7 a.m. is 55 and 45 dB, respectively (OEL assessment guideline for Noise and Vibration. 2017). The standard of US Environment Protection Agency (EPA) for sound volume in open

spaces (game grounds) is between 55 and 70 dB. The standards of England for parks and recreational areas (A) are 55 dB. According to some international standards and studies, sound pressure levels in sport areas should not be mort ham 55 dB and the sound higher than 85 dB has the ability to hurt the hearing system (EPA. 2014)The sound level for open and public spaces should not be more than 85 dB based on WHO (Sorensen M,2007,pp. pages807–812).This research aims to measure the sound level in Darakeh mountain recreational area which attracts many professional and armatures climbers, especially in the weekends. Considering number and variety of present users, it seems that the level of sound is higher in the area which will increase the probability of damages.

The researcher seeks to answer these questions:

Q1: What are the attractions of sports tourism in the study area ??

Q2: What is the ecological potential of the region for the development of sustainable sports tourism?

Q3:What is the tourism range capacity for the study area?

Methodology:

Evin–Darakeh mountainous area is in the west north of Tehran and in longitude of 51° 26□ and latitude of 35° 48□ to 35° 54□. As a part of central Alborz, the area is restricted from east to Aliabaad e Velenjak, Hesarak heights from west, Shahneshin and Tochal heights from north and Evin and Saadatabad from south. The study height varies between 1680-2200 metres (Tin L, Lim O,2000). The narrow pathway of the mountains continues along the river to the highlands which is used as the main climbing routes (Fig 2).

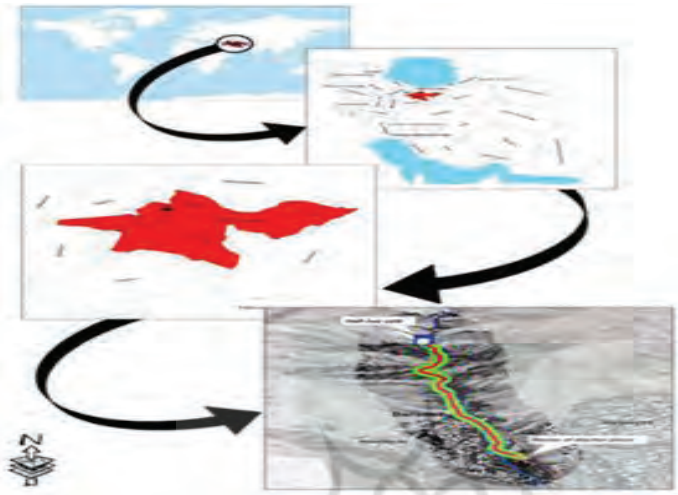

Fig 2. Location of Darakeh climbing routes

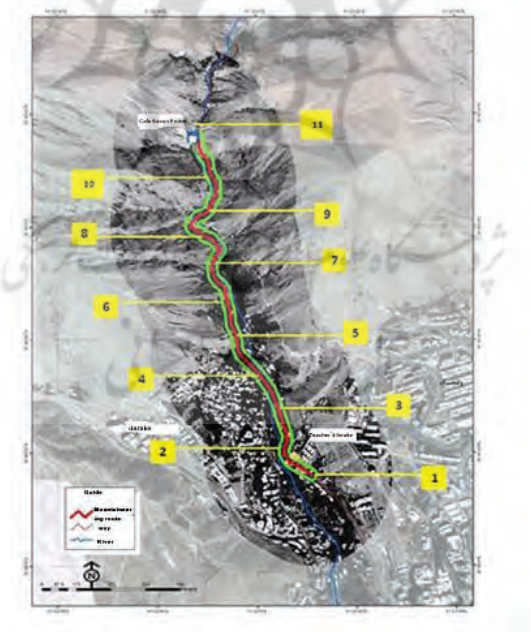

Fig 3. Position and the number of measurement stations of sound level in athletes' climbing route

The sound level on athletes' route in one metre distance, in A level and as an equivalent level was measured by a portable device and Decibel X software (Version 2019) and compared with the standard sound (OSHA-90 dBA). In evaluating the sound process, the sound level metre microphone was at least 3 metres away from reflective surfaces (such as walls) and 1.5 metres away from the ground. Also a distance equals to the length of an arm from the operator's body was considered. It should be noted that the error of up to 6 dB is negligible while evaluating.Measurement was carried out on days without precipitation and minimum wind. The measurement time at each station was 30 minutes (based on standards of Open Air by Iranian DOE), each was repeated three times. The first, second, and third measurement was carried out on 6-6:30 AM, 9-9:30 AM and 12-12:30 PM, respectively.

Table 1. The characteristics of eleven measurement stations of climbing route

Station No	Station Name	Station coordinates at Longitude- Latitude
1	End of Darakeh Street- Khaneh Moallem	35,80485 - 51,38599
2	The beginning of the climbing route- Mousavi alley	35,80745 - 51,38471
3	Saraye Mahalleh Darakeh	35,80990 - 51,38401
4	Café Chenaran	35,8128810 - 51,3822380
5	Baghe Gilas Restaurant	35,8150088 - 51,3811664
6	Kolbeh Koohsar Restaurant	35,8151276 - 51,3810996
7	The margin of Darakeh River	35,8159443 - 51,3808955
8	Pakoopa Restaurant	35,8164435 - 51,3799480
9	Roadside tation (1)	35,8197684 - 51,3806510
10	Roadside station (2)	35,8202556 - 51,3803057
11	Hafthoz Café Restaurant station	35,8207691 - 51,3799349

In this research, sound pressure level parameters (LP or SPL), average sound level ($\overline{LP}$), equivalent continuous sound level (Leq) and personal daily dosage LAEp,d were calculated. First, at each station the sound pressure level (dBA) was measured by a portable device based on the following relation and was recorded in the table (41).

Relation (1)

$$SPL(dB) = LP = 10\log\left(\frac{P^2}{P_0^2}\right) = 20\log\left(\frac{P}{P_0}\right)$$

$$SPL = 20\log P + 94$$

In the above relation, P is the absolute sound pressure in the measurement point and P0 is the basic pressure which equals to 2×10-5 Pascal (PA).

Due to the logarithmic nature of the sound pressure levels, it is not possible to directly apply math operations such as addition, subtraction, or averaging. Therefore, the average sound level in the studied route is estimated from the following equation: (35)

Relation (2)
$$\overline{\mathrm{LP}}\,(\mathrm{dB}) = 10\log\left[\frac{1}{\mathrm{n}} \times \sum_{\mathrm{i}=1}^{\mathrm{n}} 10^{\frac{\mathrm{LPi}}{10}}\right]$$

In this relation, N is the number of measurement points and LPi: sound pressure level on each point

Since the athlete is exposed to various levels of sound pressure during climbing, an equivalent level of sound exposure (dBA) Leq is used for accurate assessment. The following relation shows the calculation method (42):

Relation (3)
$$\mathrm{L_{eq}}(\mathrm{dB}) = 10\log\left[\frac{1}{\mathrm{T}}\sum_{\mathrm{i}=1}^{\mathrm{n}} \mathrm{t_i}\, 10^{\mathrm{LP_i}/_{10}}\right]$$

In this relation, LPi is the sound pressure level in time ti with equal units (in hours, minutes, or seconds) and T is the reference time.

Also; personal daily dosage of an athlete was calculated from the following relation (43):

Relation (4)
$$\mathrm{LEp,d} = \mathrm{Leq} + 10\log\frac{\mathrm{t}}{\mathrm{m}}$$

In the above relation, Leq is the equivalent sound exposure level, t: the duration of athlete presence in the region, and m: the maximum time of exposure to noise pollution in according to International Labour Organization standards and is equal to 8 hours. According to the interview with the athletes, the average time spent on one day climbing in Darakeh Mountains is 6 hours. Using the standard published by the Health and Safety Executive on sound reductions in workplaces (South, 2016), the maximum exposure time limit was calculated for athletes in the mountains.

Various research centres have shown that the provision of noise pollution maps is one of the important tools for the study, detection and control of environmental pollution (44 and 45). To conduct an analysis in GIS, a digital map of the study area from the National

Cartographic Centre of Iran (NCC) with a scale of 1: 10,000 in Shape file format was prepared and a GIS Ready map provided to create a spatial database and the relevant analyses. Then the sound data for unknown points was acquired via Spline method from Interpolation. In this case, the following equation was used to determine the level of sound pressure in the intervals between the stations:

Relation (5) $$LP_2 = LP_1 - 20\log {}^{r_2}/_{r_1}$$

LP1: pressure level in distance r1 | LP2: pressure level in distance r2 | r1, r2: distance from point source (m)

Finding:

Sound pressure level (dBA) was measured and recorded in every station at different times. Also, the average sound level in each station and every time was calculated (table 2). The lowest measured sound pressure level in the study area is in the station 10 and it has been 65.5 dB at the first time. Also, the highest measured sound level belongs to the station 4 and in the third time was 88.7 dB. The measured sound pressure indicates that the average sound pressure level increases by time changing from early morning (6 AM) to noon (12 PM). In other words, there is a direct relation between the sound pressure level and increase in an athlete's presence in the area (Fig 4).

Table 2. The average 30-minutes sound pressure level in weighted network Leq (30 min) db (A) in three times intervals in Darakeh climbing routes

Station No	First time 6-6:30	Second Time 9-9:30	Third time 12-12:30	The average sound level in each station
1	69.3	73.4	84.8	75.83
2	69.8	70.5	76.7	72.33
3	67.3	68.6	73.7	69.86
4	70.5	84.8	88.7	81.33
5	70.5	78.2	81.3	76.66
6	77	83.8	84.4	81.73
7	77.1	77.4	84.1	79.53
8	70.5	76.4	78.8	75.23
9	66.3	66.8	71.2	68.1
10	65.5	68.5	78.2	70.73
11	76.5	77.1	77.4	77.4
average	70.93	75.04	70.93	

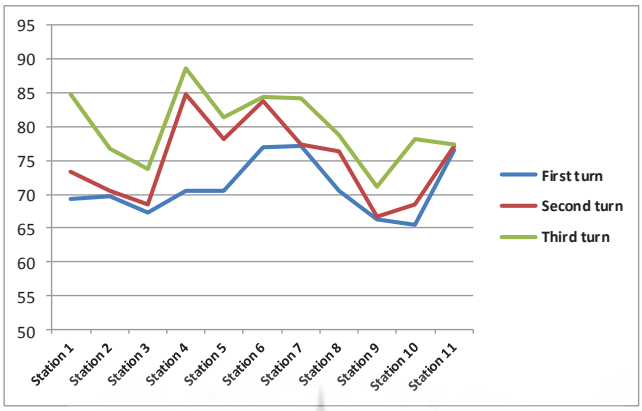

Fig 4. Calculated sound pressure level Leq (30min) dB (A) in Darakeh climbing routes

In general, the lowest and highest average sound level belongs to the station 9 (side road) and station 6 (Kolbeh Koohsar restaurant) with 68.1 dB and 81.73 dB, respectively. Fig 5 shows the relatively high distance of sound level in most stations (excluding two stations) comparing with EPA standards for recreational areas and outdoors sport (Min: 55 and Max: 70 dB). Also, there is a significant difference in comparison with sport and recreational and parks (England) which is 55 dB. Since there is no standard for sound pressure level in outdoor spaces in Iran, there are no possibilities to compare it with national standards. However, regarding the permitted limitation in residential araes of DOE (7 AM- 10 PM, 55dB; 10 PM-7 aM, 45 dB), it can be found out that regarding the position of station 1,2 and 3 which are in residential and urban areas, sound level in this area is higher than the standars and causes annoyment and disturbance for the residents.

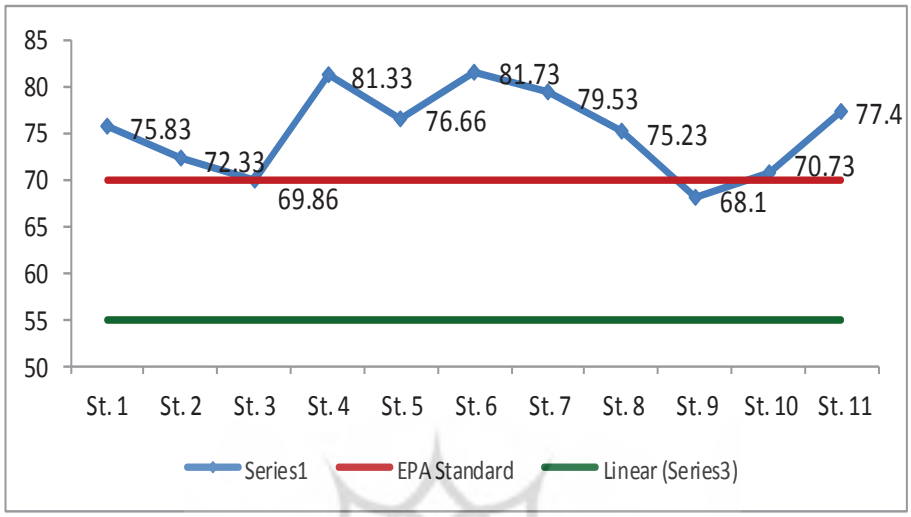

Fig 5. Comparative diagram of average sound level dB (A) measured in the station with international standards

Considering the diagrams (Fig 6) it can be concluded that the sound field is free type and since it has not been interrupted over time, it is continuous noise (sound) and fluctuating noise (sound) due to the fact that the pressure level changes is between 5 to15.

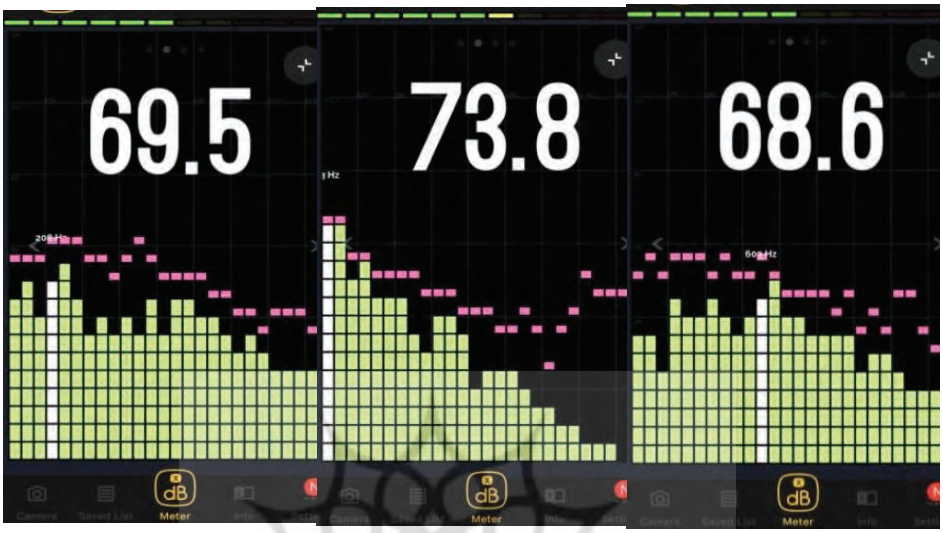

Fig 6. A few samples of sound level (dBA) SPL in the study areas

In the following and using relation (2), the average sound level along the climbing route was calculated which is equal to 77.3 dB.

$$\overline{LP}\ (dB) = 10\log\left[\frac{1}{n}\times\sum_{i=1}^{n}10^{\frac{LPi}{10}}\right] =$$
$$10\log\left[\frac{10^{7.58}+10^{7.23}+10^{6.98}+10^{8.13}+10^{7.66}+10^{8.17}+10^{7.95}+10^{7.52}+10^{6.81}+10^{7.07}+10^{7.74}}{11}\right] =$$
$$77.3\ dB$$

Then by the relation (3), the equivalent sound level Leq (dBA) was estimated. As said before, according to the interview with the athletes, the average time in one day climbing in Darakeh Mountain is 6 hours. Based on this, the equivalent level is estimated 87.69.

$$L_{eq}(dB) = 10\,log\left[\frac{1}{T}\sum_{i=1}^{n}t_i\,10^{LP_i/10}\right] = 87.69\ (dB)$$

In the following and using relation (4), personal daily dosage $L_{Ep,\,d}$ of an athlete in the study area was calculated which is equivalent to 86.44.

$$L_{Ep,d} = Leq\ + 10\log\left(\frac{t}{m}\right)$$

$$L_{Ep,d} = 87.69\ + 10\log\left(\frac{6}{8}\right) = 86.44(dB)$$

It is obvious that an athlete is exposed to a high noise pollution in Darakeh. HSE nomogram was used for determining the permitted level of exposure to sound in the study area. Due to the equivalent level which is 87, 69 dB and personal daily dosage (86, 44 dB), we can calculate the duration of sound facing in Darakeh for athletes which is 5 hours (Fig 7).

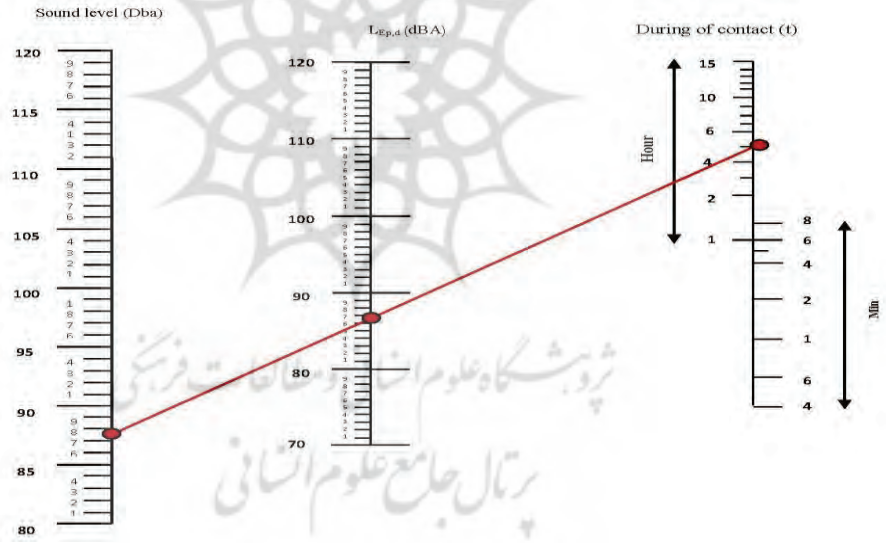

Fig 7. Nomogram of allowed duration of exposure to the sound for athletes in Darakeh

Using the sound level and data interpolation method, sound pollution map of the study area including Darakeh mountainous climbing route was created (Fig 8).

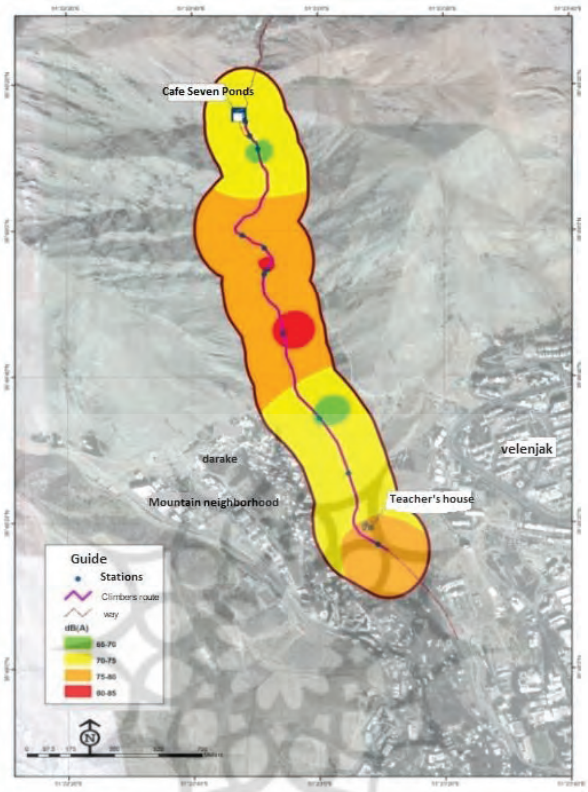

Fig 8. Noise pollution map in athletes' climbing route in Darakeh

Discussion and conclusion:

Human use as a major factor in harming natural and tourist areas must be controlled and monitored. In this regard, estimating the bearing capacity can be considered as an effective measure. Thus; Tolerance capacity as one of the components of any management plan in tourism and sports venues can be a reliable tool for managers.Considering that the mountainous and tourist area of Darband, Tehran, has long been considered as a meeting place for athletes and enthusiasts and receives a significant number of users on all days of the year, especially on holidays, in this article, we tried to determine three types of capacity Physical, real and effective endurance for Darband tourist and mountainous region located in the north of Tehran, a reliable basis for decision-making and planning for sustainable development, should be

provided to planners and designers of such spaces. It is important to note that in this study, a wider area of the current hiking and mountaineering route has been selected as the study site, because this area has a high potential for tourism and sports uses. Management goals and conservation priorities have been emphasized in calculating the bearing capacity of this area. For this reason, ecological sensitivities are reflected in the relevant coefficients.As shown in Fig 8, Darakeh region attracts a significant number of users for sport and tourism activities, especially on holidays and weekends. Most users (especially amateur ones) move in approximately 2182 metres. Concentration and movement of athletes and various uses such as cafes, restaurants, etc. leads to increase the sound level in the climbing route and surrounding areas. The survey results indicate that by changing the time from early morning (6 AM) to noon (12 PM), the sound level is increased (from 70, 93 to 79, 93 dB) due to the increase of number of users in the region. On the other hand, activities of services in the region will increase with the presence of athletes which also leads to an increase in sound level. The average sound level measured along the climbing route is 77, 3 dB which is not compliant with EPA standard as well as the standards of UK and WHO and shows a hig .Generally,Darband mountainous and tourism area of Tehran has the ability to accept a significant number of users for tourism and sports activities. On the other hand, this region has pristine and suitable spaces for designing and establishing sports and tourism uses. However, environmental and safety priorities must also be considered. Notes that not paying attention to the bearing capacity in determining the number of authorized users entering the area and the entry of more people than the area can, will lead to environmental damage, reduced quality of services and welfare and other issues for natural and man-made resources and attractions. Had. Thus; The area management must plan in such a way as to ensure the sustainable operation in addition to the use of existing land uses**.**Considering that the daily dosage of a person in the region is 86, 44 dB, and 6 hours presence of people in the region (on average), athletes are exposed to annoying sounds one hour longer than the standard, according to HSE guidelines. This means they need to decrease their presence hours to 5 hours (on average) to protect their health. Given the equal level 87, 69

dB in Darakeh which athletes are exposed, aggressive behaviours, physiological complications, as well as temporary changes in hearing thresholds can be expected, if it repeated in the long term. Also, the region's noise pollution map shows that the highest sound level can be seen between station 4 to 9 due to narrowing of the route and the population concentration as well as the number of services. Therefore, it has been suggested that athletes do not stop at these areas and pass it immediately. Also, the region's management is supposed to remind the restaurants to decrease their noise pollution.Population growth and urban development in recent years has increased the demand for recreational and sports use of natural spaces. Lack of open and natural spaces in cities on the one hand, and the need and interest of people in recreational and sports activities on the other hand, has caused the few natural spots left in urban ecosystems to receive a large number of users (especially on weekends). To be. Ecologically; The expansion of leisure tourism activities can threaten natural ecosystems at the cost of short-term economic and social benefits. Therefore, due to the relatively high vulnerability and sensitivity of natural areas, which are a direct product of nature and its functions as God-given gifts, and due to their scenery and aesthetic values, they are in greater demand for leisure; Assessing and determining the recreational board capacity is of particular importance. Such areas can not be considered as a commodity that can be considered a specific period of time for its useful use. These valuable resources will not be rebuildable in the event of widespread destruction.Human uses as a major factor in harming natural and recreational areas must be controlled and monitored. In this regard, estimating the capacity of the board can be considered as an effective measure. Thus; Winning capacity as a component of any management plan in recreational and sports venues can be a reliable tool for managers.

References :

1. Agrawal Y, Niparko JK, Dobie RA. Estimating the effect of occupational noise exposure on hearing thresholds: the importance of adjusting for confounding variables. Ear and hearing. 2010; 31: 234-237. [DOI:10.1097/AUD.0b013e3181c6b9fd]
2. Arslan C, Gürel E, Yıldırım E, Orhan S. Noise Pollution in Sports Areas and Researching Health Risks Result from Noise Pollution, 2002; 16, 281-288 [DOI: 10.1089/ars.2017.7118]
3. Abbaspoor M. Environmental engineering, second edition, Islamic Azad University, 2016; 628 p. [In Persian].
4. Bahmanpour H, Salajegheh B, Mafi A. Investigating the Environmental Situation of Darband Mountains, Environmental Report, Environmental and Energy Research Center, 2011; 247 pp. [In Persian].
5. Coccossis, H., Mexa, A., (2004). Tourism carrying capacity: a theoretical overview. In H. Coccossis, & A. Mexa (Eds.), the challenge of tourism carrying capacity assessment: Theory and practice. England: Ashgate.
6. Dalton DS, Cruickshanks KJ, Wiley TL, Klein BE, Klein R, Tweed TS. Association of leisure-time noise exposure and hearing loss. International Journal of Audiology, 2001; 40, 1–9.
7. EPA. 2014. Information on levels of environmental noise requisite to protect public health welfare with an adequate margin of safety, U. S. Environmental Protection Agency, EPA technical document.
8. Farhoudi, Rahmataholl and Shorcheh, Mahmoud., 2004) Estimating the tourism range capacity of Anahita Temple in Kangavar, Quarterly Journal of Tourism Management Studies, No. 7, pp. 43-19
9. Fuchs, A., Reichel, A., 2011. An exploratory inquiry into destination risk perceptions and risk reduction strategies of first time vs. repeat visitors to a highly volatile destination, tourism management 32, 266-276.
10. Fuchs, A., Reichel, A., 2011. An exploratory inquiry into destination risk perceptions and risk reduction strategies of first time vs. repeat visitors to a highly volatile destination, tourism management 32, 266-276.
11. Ghanbari M, Nadafi K, Mosaferi M, Yoonesian M, Aslani H. Study of noise pollution in the city of Tabriz in commercial and residential districts of Iran, Journal of Health and Environment, Iranian Society of Environmental Health, Fourth Edition, 2011; No.3, 375-384 pp. [In Persian]. [DOI:10.3923/jeasci.2016.1085.109]
12. Giorgio, A., & Spinelli, G. (n.d).(2018). Sports Tourism Role in IRT Theory. A Conceptua Framework. New Trends in Tourism.
13. Hansell AL, Blangiardo M, Fortunato L, Floud S, Hoogh K, Fecht D. Aircraft noise and cardiovascular disease near London Heathrow Airport. Br. Med. J. 2013; 8, 347:f5432. [DOI: 10.1136/bmj.f5432]
14. IOC. International Olympic Committee, Agenda21 for Sport. Lausanne: Author. 2000.

15. Parkes A, Kearns A, Atkinson R. What Makes People Dissatisfied with their Neighbourhoods? Urban Studies. 2002; 39: 2413–38. [https://doi.org/10.1080%2F0042098022000027031]
16. panelPaulo.H.T.ZanninAlfredoCalixtoFabiano.B.DinizJosé.A.C.Ferreira.(2003). A survey of urban noise annoyance in a large Brazilian city: the importance of a subjective analysis in conjunction with an objective analysis. Environmental Impact Assessment Review. Volume 23, Issue 2, March 2003, Pages 245-255.
17. Sayan, M.S., and Atik, M., (2011), Recreation carrying capacity estimates for protected areas: A study of Termesson National Park. Ekoloji, 20(78), pp. 66-74.
18. Sorensen M, Andersen ZJ, Nordsborg RB, Jensen SS, Lillelund KG, Beelen R. Road traffic noise and incident myocardial infarction: a prospective cohort study. PLoS One, 2007; 7 (6), e39283. [DOI:10.1371/journal.pone.0039283]
19. Sukru D, Celalettin O, Hakan K, Sain K. Noise pollution and map of Konja city in Turkey. Journal of International Environmental Application and Science. 2006; 1(1–2):63–72.
20. South T, Managing noise and vibration at work, Oxford, Elsevier, 2004.
21. OEL assessment guideline for Noise and Vibration. 2017, Islamic Republic of IRAN Ministry of Health and Medical Education Environmental and Occupational Health Center (EOHC)
22. Vogiatzis K. Airport environmental noise mapping and land use management as an environmental protection action policy tool. The case of the Larnaka International Airport (Cyprus). Sci Total Environ 2012; 424:162–73. [DOI:10.1016/j.scitotenv.2012.02.036]
23. Vogel I, Brug J, Vander Ploeg C, Raat H. Young people's exposure to loud music: A summary of the literature. American Journal of Preventive Medicine, 2007; 33, 124–133. [DOI:10.1016/j.amepre.2007.03.016]
24. Wickramaratne, V.C., & Kumari, J.A.P. (2016). The Impact of Sports Tourism on Small Scale Business Development in Sri Lanka: International Cricket Match. *International Journal of Research in Humanities and Social Sciences, 3(10),* 33-38. Retrieved October 18, 2018 from http://www.ijrhss.org/papers/v3-i10/6.pdf
25. WG-AEN. Good practice guide for strategic noise mapping and the production of associated data on noise exposure. Position paper. European Commission Working Group Assessment of Exposure to Noise (WG-AEN): Version 2; August 2007