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Sustainable Design Of The Mountainous Tourist Recreational Spaces (Case Study: Abidar Park In Sanandaj City)

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ABSTRACT: *Oneof the main goals of sustainable development is nature conservation and the improved look toward it. Recognition of sustainable architecture is affective in attracting tourism, anticipating the requirements and eliminating the deficiencies of eachregion. Nowadays, it has been proved that the proposed solutions to environmental problems in sustainable architecture seem to be inefficient and incomplete since they still have a discrete viewpoint toward nature. Nevertheless,using the strategies appropriate to sustainable designing and considering the particular climate of the area under study (Sanandaj), it has been tried to pay special attention to sustainable architecture of environmental issues; ultimately, following the basic principles of sustainable design, tourist complexes develop.The present paper is an applied research in the field of architecture that aims at creating a space with tourist and recreational function inAbidar Mountain in Sanandaj. During the process of planning,designing the form and appropriate construction of the project, consistency with sustainability goals of the space has been highly considered.According to the researches done, which areavailable in the documents of the upstream project in the field of tourism, designing and construction of tourist complexes (Tourist facilities) is of the necessities in this area. The method is library-research and field studies that provided the basis based on which the final design is proposed.*

KEYWORDS:*Sustainable development, sustainable architecture,ecotourism,touristrecreationaldesigning*

I. INTRODUCTION

Todaywe havebeen placedon the verge ofa majortransformationinourway of treatingthe technology and environmentalissues. In 20th centurythehuman populationhas grownat an intensitythat is unprecedentedin history. Rapid population growthand increaseof the cities andtownshave caused the loss ofvaluablenaturalresources, therefore, in order to tackle with ecologicalcrisesandtheendingoffossil energies,turning torecyclable energiesisan inevitableissue thatwill have asignificant impact on allaspects of humanlife. The objective of thisstudy is to investigatethe theoreticalaspects ofsustainable architecturewith an emphasis ondesignaspects in the attraction and optimization of thetouristspacesintheprovinceof Kurdistan(Sanandaj City). Inrecent decades, a newconceptentitled sustainable developmenthas beenintroduced andasthe resultof the function oftheconstructed environment in sustainable development, sustainablearchitecture has been highly considered by experts. Since theUNConferenceonEnvironment andDevelopmentheldin Rioin 1992, development has becomeoneofthe mostsensitiveand importantwordsinenvironmental management,[1].Someconcepts have been locatedbehindthis titlewhich have examined the efforts tosolveenvironmental problems, natural sciences of ecology, and natureconservationconcernson the one hand, andtheworld's problemsofpoverty and destitution, on the other hand[1].In addition to identifyingsustainable architecture in anticipationof the needs,deficiencies andtourism development,thispaperestimatesthe recreationalvalue of AbidarMountain as a designingelement insustainableecotourism,witha particularapproachtothe casestudy (SanandajCity).Ecotourism is a newtrendintourism industry, thusconservationofnatureto achievesustainable development isessential.Theoretical principlesand keywordsused inthisstudyarepresented below.

II. SUSTAINABLE DEVELOPMENT

Sustainabilityhas been defined indictionary interms ofdurability andmaintenance of theresources. According toYurigGroater, in order to understand the relationbetween thebuildingand theenvironment one must first regard human'sviewtoward theenvironment or generally to thenature(the basisof construction isencroachingthe nature, thetypeof such encroachment is closely related to human's thinkingaboutnature[2].

The concept ofsustainable development is as the result of thegrowingawareness ofglobal linksbetweengrowingenvironmental problems,andsocial and economic issues, povertyandinequalityand concerns aboutahealthy futurefor mankind. The concept ofsustainable developmentis amajorchangeinunderstanding thehuman's relationship, nature and the relation ofhuman beingswith each other. Thisissuecontradicts the

approach of the lasttwo centuries which was formedbythe separation oftheenvironmental, social and economicissues. This view isassociated with thedevelopment ofcapitalism andthe industrial revolutionandmodernscience.As Bacon,one ofthefoundersof modern science,suggests, "The world has been madeforman, not manfor theworld," therefore, sustainable developmentis a kind ofattempt to integrate the growingconcepts ofthe fields withsocial andeconomic subjects.Sustainable Developmentwas credited in the Commission ofWorld Conservation Strategy(WSC) which was convenedby theInternational UnionforNature Conservationin 1980;thisissuehas also beenraised by theWorld Commission onDevelopment andEnvironment(WSC)with the titles "OurShared Future", in 1987and"Preserving the Earth",in1991. Theimportance of this issue issuchthat theSustainable Development Committeesin the summer of1987 offereddifferentindicatorsto assessenvironmental capacities. As anexample one can mention suchindicators as: populationin mountainous areas, sustainable use ofnaturalresources inthehighlandsandthe population welfarein mountainous areas [3].

III. SUSTAINABLEARCHITECTURE

Sustainablearchitectureisa subsetofSustainabledesigning thatcanbeconsideredas one of the processes in 20th century.Thisconcept isa logicalreactionagainstcontemporaryissues.Figure oneshows themost importantsub-branches ofsucharchitecture.

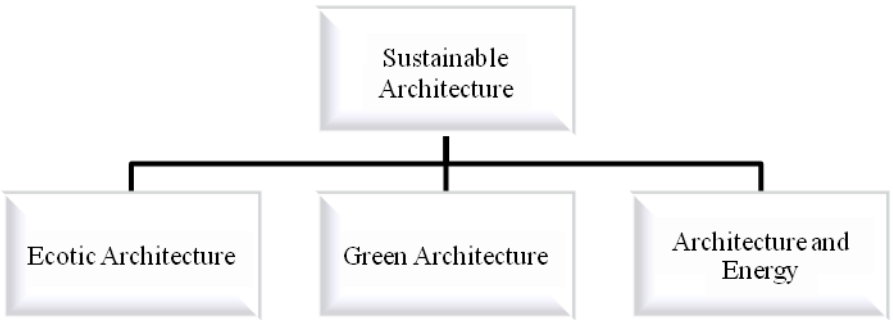

Figure 1: Important Sub Branches of Sustainable Architecture

The mainobjectivesof sustainable architecture are cited in the following [4].
• Giving importancetohuman life
•Maintainingand preservinghuman life in the present time and future
•Using materials which are homogeneousto and sustainable in environment,inmanufacturingutilizationorevendestruction levels
•Minimizing theuse of fuelenergies andmaximizing theuse ofnaturalenergies
•Minimizingenvironmental degradation
•Improvingmentaland physical lives of human beings and the wholeliving creatures
•Being harmonious to natural environment.
One of the mostimportant points inSustainablearchitectureis thecalmand comfortofthe inhabitants. The roleofarchitecturein makingthe nature significantis an issuethathas stillbeenignored.Inmanywaysthat architectureoffers,climatic view is assumed and in most of the approaches of sustainablearchitecture it seems that the modern look ofBaconstillexists. This view insists that themanagementandexploitation ofnaturebe operated in the way thatitis notdestroyedandstillremainusablefor human beings.

IV. ECOTOURISM

Broadenedscope ofthe functions anddevelopedthoughts of humanshave caused the analysis of human behaviorandthe natural discovered relationshipsina large numberand a variety of sciences, each inits own framework. Inthe meantime, there are fewhuman activitiesthatsimultaneouslyand academically have attracted the attention ofeconomists, geographers, environmentalscientists, psychologistsandresearchersof political scienceandmanagement. Tourismisone of thesephenomena. Up to 1990s,littlehad been writtenabout therole of tourism inthe economy andculture of citiesin thebooksaboutthe citiesthat attractedmillions ofvisitors, and therole of tourism hasrarely been referred to,Shworthnotedthat about60years,tourismhas beenneglectedinmodels ofurban space. United Nations Organizationdefinestouristasatemporaryvisitorfromacountry or a region, with the aimofbusiness or pleasure. Perhapsall the issues thatanalyze such a behavior inhumansareshown inthis form oftourism. Touristis principallyatemporaryvisitor;in other words, touristis someone whodecides toreturntohis homecountryor regionafter a certain period of time.

This formoftourism enables the leisure activities of human beings primarilyinnature, and is based onthe targetedtraveling with gaining cultural and spiritualperceptions, visitingandstudyingthe naturalattractions andenjoying and taking advantageof theirvariousphenomena. Ecotourism is composed of awide rangeof specificoptions from scientificvisitingtorandomvisitinginanatural areaasa weekendactivityora peripheralpartofanoverall, long-term travel[5].The environmental impact of Ecotourism is not limited to the participationof eco-tourists in leisure and recreational activities, but for the time they choose to inhabit an area and play their recreationalrole they require installations and equipment in the natural environment. The underlyingagents and ways of access, parking, transportation vehicles, facilities and equipment, accommodation and catering services, water industry, sanitation facilities, waste disposal, etc. are examples of this kind [6]. A very important pointinthis regardis thatnatural attractionsareneverthe same, sincetravelingwith the intentionof visiting natureismainly parallel withpurposes whose most notable isclimate change, recreation,relaxation, refreshment, mental and intellectual recreationand revitalization in order to restart working. Remember that workandleisurearealways combined with one anotherandtheir function isrelated toeach other.Sowe can firmly saythatthis specificfeaturewhichisrelated toecotourismindicates the advantage ofthis form oftourismcomparing theother forms. Nonetheless, thishas causedincrease in the number of the visitors of natural attractions, national parksand otherprotected areas[7].

V. METHODOLOGY

The researchachievementsprovidethe theoreticalprinciplesofsustainable design based on recognition and evaluationoftheenvironmental capacity of theareaunder study.These studiesprovide preliminarydata to complete the researchand alsothe contextthatthe final designwillbe basedupon. Broad anddeeprecognition and understanding ofthethoughts, works and books' informationandpublished statisticshelps the researcherto broadenher/hishorizons ofknowledgeandthought,andgo beyondthe boundaries ofthe old and time-boundinterpretations. Such knowledgenot onlybroadensthecircle of the researcher'sinformation,butalso nurtures thetalent ofcritical viewpoint in her him.So,it is natural andnecessaryto startwithstudies with similarissues carried out byother researchers, and become aware of the similaror differentaspectsofone's workwith others.Thedata collection inthis studyisfield- librarysince the widespread useof thelibraryandthorough reviewof the related literatureis an essential issue in makingtheproject seminarreportsand research on specific issuesasthesesand dissertations[8]

Methods of data collection

V (a): Library (documentation): This method consists of the study of the books, papers, documents, and existing reports and using the basic information of the related organizations, such as the Mapping of the Parks Organization, Green Space, Office of the Road and Urbanism of Kurdistan, Environment, and Municipalityto collect data, information, maps of the region, as well as Internet searchas other ways of data collection.
V (b): Field: This method is used asthe more perfect way of recognizing the area and application of the collected data including presence in the region, interpretation of environmental information and providing photographs.

VI. INTRODUCTION OFTHE STUDY AREA

Kurdistan provincewith an areaofabout28,235square kilometersis locatedin theWest of Iran. Thisprovinceincludes 1.5percentof the whole country. Itisplaced between34degreesand 44 minutesto 36 degreesand 30 minutes of thenorth latitudeand45degreesand 31minutes to48degrees and 16minutes of the eastern length fromGreenwichmeridian(Figure 2 andFigure 3).
In its northernpart, Kurdistan is neighbored to West Azerbaijan and a part of Zanjan, in south toKermanshah, in theeast toHamadanandin the westto Iraq. Sanandajis at35degreesand17minutes of the north latitudeand47 degrees and18minutes of the east length fromGreenwich meridian,at an altitude of1570meters above sea level. From the naturalviewpoint, Sanandaj is enclosedbetween thehillslocatedinaspacecupso that themountainsandhillswhich arecontinuations ofZagros Mountainshave beendrawninthesuburb and havelimited theexpansion ofthe city in the southwesternandnortheasternparts.Thiscity is generallyaffected bytwo main streamsof hot and coldweather whichproduceavariety ofclimates. Atmosphericprecipitationis500 mmper year. The city of Sanandajhas a warmtemperate in spring and summer,andJanuaryisits coldestmonth ofthe year(InclusiveStudies ofSanandaj).

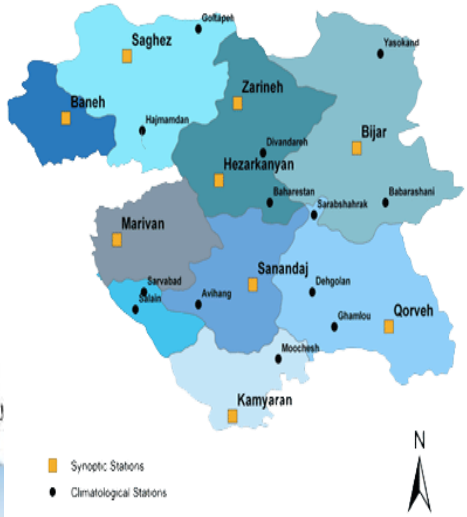

Figure 2: Location of Kurdistan Province in Iran Figure 3: Location of Sanandaj City in Kurdistan Province

The intended site for designing is a part of Abidar mountain (the name of a mountain overlooking the city of Sanandaj in Iran's Western part; this mountain with an altitude of about 2550 meters is one of the main resorts of people). What has caused the popularity of the mountain is its propinquity to the city of Sanandaj, its higher altitude comparing its surrounding hills and, above all,the existence of many underground springs [9]. The mountain's nearness to the town is to the point that in its hillside housing construction has so far been carried out and is already underway. Many people (especially on vacation) go to thisresort and visit the City'sperspective. There is a very beautifully constructed forest park in the mountain that annually attracts a large number of tourists, and there are some places for camping there. Because the project site is located in the lush plain surrounded by mountains, itsSustainable Design with nature is a very significant issue so that in addition to placing facilities in that location, the form of the Mountain andthe natural landscape won't bedamaged (Fig 4 and Fig 5).

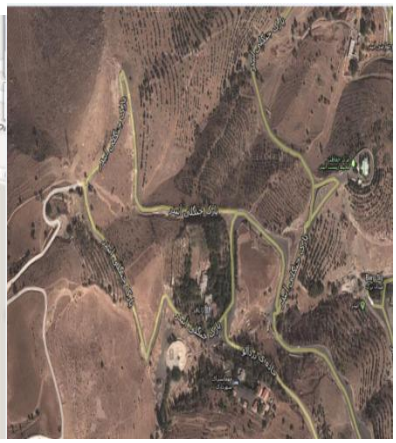

Figure 4 Figure 5

In order to achieve a harmonious design with the design matrix of the tourist-recreational resort ofSanandajvarious functions are distinguished and a good communication is established between them. The design includes severalseparate buildings that are scattered across the site. This feature makes the users of the complex stronglyassociate with nature and feel the presence of the mountains more. Figure 6 indicates the design targets.

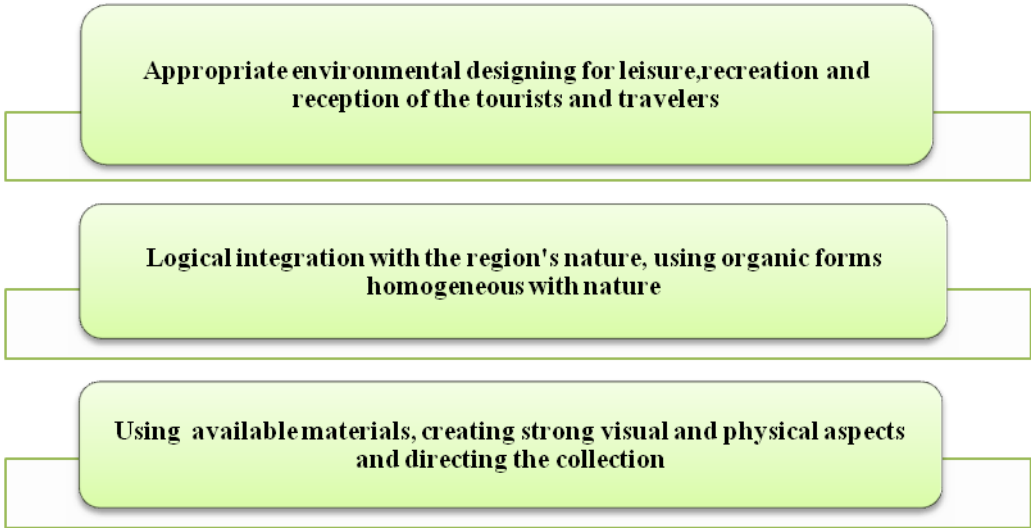

Figure 6: Design Target of the Research

The total areaintended for designing the entertainment setis 11,485 square meters;the occupied space in the sitewas considered an area of 2906 square meters, and the landscape on the site is 5012 square meters. Figures number 7,as well as the view, perspective and accessibility of the site .

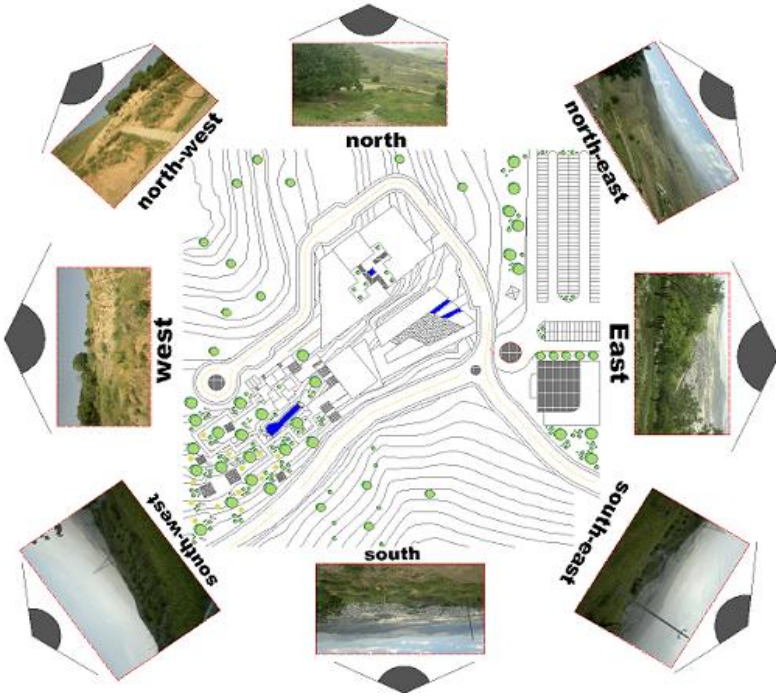

Figure 7:View and Perspective of the Site

The design of this setconsistsofseveralbuildings,service, accommodations, entertainment, sports, administrative andmedical buildingsrelated to each otherby pavements ornaturalrockswhich show the directions.Another part is thespacesinthesiteincludingresidentialsuitemodelingafterOrmanat(Stone Architecture), an artificial lake,a healthroad, alcoveanda roadster track (Figure 11).

Figure 11: Final Design of The Site

At the beginning ofthe designprocess,due tothelimitations ofthenaturalstructure of thesitelocationandnature of thesite, ithadbeentryingto establishaset planin harmony with nature, so that in the first sight the complex seem not to be extraneous orabnormal. In order to harmonize the plan,available forcesof thesite and its capacity were reviewed. Theseforcesincludethe location of thenaturalslope(topography) in different parts ofthe site, anda goodview and perspective of themountainsandthesky-line created by the mountains.Theresults obtained by theanalysis ofthese factors show that the site operatedin line withthe natural environmentand had a firm movementlike amountain. Also, the setdesign has takeninto account the topographic lines,andnatural forces for each level of the work. Then in the process of theplandesigning of the set,sustainable architecture(using green roofs, minimizing thedamage to the environment, using materialsharmonious totheregional climate, using thetreeswithin thesiteasadelimiterfor thebuildingson the site) was applied. Utilization of themountainouswildernessin proportion tosustainablearchitecturegoals alsoaffected the planand the set, so that with their advent to the complex,the tourists experience memorable moment.

V II. CONCLUSION

Indesigning thissetnatural and climatic factors,reductionof negative impacts caused bynaturalfactorsin thetouristandrecreational complex, betteruseof thepositivecharacteristics ofthe climateinthe building design, andthe users'welfarehave beenconsidered.Sanandajis a citywithcold and drywintersand prettyhot summers.In designing thisprojectit was tried to observe thefunctional aspects,sustainable architectureandhomogeneity withnature, all together. A kindofconvergence withnature, clarityand being a partialstructure ofthe nature canbefelt in thefunction of this complex.The form of thiscomplexisresponsive tothe needs ofthe touristsandvisitors. Intermsofview and perspective,in that it is in the buildingform,madethetouristsfeel themselves inthemountainousnature. Providing naturalenvironmentin this project anduse of somespacesto have a betterperspective orviewofnature,usingrock and stone materials in thebottom toavoidhighhumidityandusingabufferof theexisting treeson the siteas a delimiter, are of theadvantagesof designingthis set so that those who have escapedfrom thesmoke of the carsinto nature feeldeep tranquility and calm. Thisstudy was proposed to promotethe organization of tourist spacesin Kurdistanprovince and its main objective is not a sustainabledesignofaformalstyle but itcontainswithin itself deepconcepts whichlink human,nature andarchitecture.

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