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Site-Selection of Optimal Sites for Bird watching to Ecotourism and Hospitality Development in International Qurigol Wetland

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Abstract: *The aim of this study is site-selection optimal sites for bird watching to ecotourism and hospitality development in The International Qurigol wetland. The International Qurigol wetland which is located in East Azerbaijan province, (Tabriz) Iran, as an international wetland has been recorded in the RAMSAR Convention on 1975. About 132 bird species, live, breed and overwinter in this wetland. Wetlands are the best and most important places of living and breeding birds. By using multi-criteria decision making (MCDM) methods, GIS analysis by consideration of environmental conditions and different criteria, four optimal sites as the best and most appropriate place for construction Bird-sites in Qurigol wetland were selected. The spots is located in (N:37°55'17.44"- E: 46°41'34.57"), (N: 37°55'0.2" –E: 46°41'42.96"), (N: 37°54'32.13"- E: 46°41'52.63"), (N:37°54'39"- E: 46°42'13.08"),(N: 37°54'57.13-E: "46°42'18.65"). Planning and developing of Qurigol wetland ecotourism and hospitality with emphasis on bird watching, is a win – win cooperation and interaction between local community, Ecotourists and wetland ecosystems. The value of this research is that first time the done in this area and for international Qurigol wetland. The value of this research is for first time is done in this area and for international Qurigol wetland. There is no Brid watching site in wetland. This research can be a start for ecotourism and hospitality development studying before Implementation Phase.*
Keywords: *Bird watching, Ecotourism, Hospitality, International Qurigol wetland, MCDM, Rural development*
Article Classification: *Research paper*

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I. Introduction

According to World Tourism Organization, United Nations (UNWTO) tourism industry as one of the largest and most extensive oil industry after the country's economy. Tourism is a global phenomenon that has been in close interaction with other industries, which has strengthened bilateral (Wells, 1997). One of the main sectors of tourism is ecotourism with the least destructive of the environment (Jamshidi, 2003). Ecotourism is responsible travel to natural areas, along with environmental protection and increasing income for local people (The International Ecotuorism Society, 2008). Another definition of ecotourism, as an economic development strategy that emphasis often in poor rural areas (Bo, 2000). In other studies, the researchers point ecotourism drawn about empowerment, economic benefit, equality and cultural change that is caused by a foreign culture, to rise (Julie Merie, 2008).

Development directly related to the sustainable development of ecotourism is widely known. Sustainable development of the widely known that a mobile society with environmental issues in recent decades have been. Ecotourism was introduced as part of the rapidly growing tourism and its status in relation to the concept of sustainable development to maintain. Another hand the tourism and hospitality industries are among the fast expanding industries in the world (D. Olsen, 2004). There is very close relationship between the Tourism and hospitality (Oh et al. 2004). The hospitality industry is a broad category of fields within the service industry that includes lodging, restaurants, event planning, theme parks, transportation, cruise line, and additional fields within the tourism industry(Weilbaker, 2002). The hospitality industry is a several billion dollar industry that mostly depends on the availability of leisure time and disposable income (Harrison, 2003).

Hospitality is the act of kindness in welcoming and looking after the basic needs of guests or strangers, mainly in relation to food, drink and accommodation (Verma et al, 2002). A contemporary explanation of Hospitality refers to the relationship process between a guest and a host. When we talk about the "Hospitality Industry", we are referring to the companies or organizations which provide food and/or drink and/or accommodation to people who are away from home (Chathoth, Olsen, 2003). One important point in hospitality

industry and its development is tourism and tourist attraction. Return on investment and benefit of this industry is dependent directly to tourist coming and staying in hotel (Rostami, 2012).

To date conventional tourism has dominated the tourism sector in the region. Ecotourism was originally driven by the need to sustain biodiversity, reduce poverty and generate income for communities and has emerged in very rural and remote areas throughout the world (Manson, 2008). Ecotourism, in theory, was conceptualized as a resolution of tourism and environmentalism with sustainability being at its very core. The movement of people, capital, goods and services into many rural and remote areas of the world has caused different types of ecosystem changes amid the growing global climate of ecotourism (Letsoela, 2010).

Developing countries a large part of their hopes to achieve sustainable development of Ecotourism without environmental degradation have focused (Jiang, 2008). A means for achieving the goals of sustainable ecotourism development because similar solutions to current problems to be. Ecotourism development with regard to environmental standards can be done this standard not only in natural areas should be applied. But in all activities and programs of management planning and development should be considered. With regard of this, ecotourism and hospitality development with together can play an effective role in regional development.

Geography of Iran and also to assess the investment potential of ecotourism attractions is the fact that ecotourism represents a significant source of economic value and is disposed with a coherent plan, system approach to the issue of management and staff can help regions to develop. One attractive aspect of ecotourism is Bird watching (www.birdwatching.co.uk, 2011). Correspondence to see birds flying in the definition and nature of the urban environment with a camera or naked eye are called. Flying birds are a journalist in various stages of life. The bird watching might well be remembered as Bridtour (Rostami, 2012). Wetland is one of the best and most important places of living and breeding for birds. Qurigol Wetlands is on of International Wetlands, that is registrated in Ramsar Convention at 1975. The international Qurigol wetland, in terms of environmental, migration and the lives of over 132 species of migratory birds, rare and protected areas and the location and breeding rare and endangered species of duck and the white matter is an important place(Behrouzirad, 2009). This study is intended that to determine the best bird watching sites in the international Qurygl wetlands. With regard to investment in research and proper planning of ecotourism and hospitality development for International Qurygl Wetland be.

With rapid increase in population and continuing expectations of growth in the standard of living, pressures on natural resource use have become intense. For the resource manager, the task of effective resource allocation has thus become especially difficult. Clear choices are few and the increasing use of more marginal lands puts one face-to-face with a broad range of uncertainties. Add to this very dynamic environment subject to substantial and complex impacts from human intervention, and one has the ingredients for a decision making process that is dominated by uncertainty and consequent risk for the decision maker. In recent years, considerable interest has been focused on the use of GIS as a decision support system. For some, this role consists of simply informing the decision making process. However, it is more likely in the realm of resource allocation that the greatest contribution can be made (Eastman, 1993).

In the context of policy decisions, GIS is most commonly used to inform the decision maker. However, it also has potential as a process modeling tool. In which the spatial effects of predicted decision behavior might be simulated. Simulation modeling, particularly of the spatial nature of socio-economic issues and their relation to nature, is still in its infancy. However, it is to be expected that GIS will play an increasingly sophisticated role in this area in the future (Eastman, 2006).

A particular living matter refers to the debate concerning how to face the complexity challenge in the field of sustainability assessments of environmental and ecological projects which, together with spatial plans, are subject to evaluation and whose consequences must be considered and managed. In this context, different and conflicting objectives have to be taken into account, referring to environmental, cultural and geomorphological that can be addressed through quality assessment, use values and imprecise temporal horizons (Roscelli, 2005). This leads to consider environmental and ecological transformation processes as "weak" or unstructured problems since they are characterized by multiple actors, many and often conflicting values and views, a wealth of possible outcomes and high uncertainty (Prigogine, 1997; Simon, 1960).

In recent decades, different methods and algorithms have been presented to support decision- making. In this respect, one of the most widely used orientations for measuring the sustainability of a system is the "criteria and indicators approach" (Pasqualini et al., 2011). In order to analyze decision problems in Ecotourism field and to cope with the above mentioned complexity, the need to integrate spatial data with algorithmic techniques has been recognized and gave rise to a research stream in the context of decision Support Systems (DSS) related to the so-called Spatial Decision Support Systems (SDSS). As mentioned by Maniezzo et al.

(1998), these systems are concerned with how to integrate spatially referenced information in a decision-making environment in order to positively affect the performance of Decision Makers, showing how spatially integrated DSS can be used to bridge the gap between policy makers and complex computerized models. Within these tools, a fundamental role is played by the so called Multicriteria- Spatial Decision Support

Systems (MC-SDSS; Malczewski, 1999), which combines Geographic Information Systems (GIS) and Multicriteria Analysis (MCA) in order to provide a collection of methods and tools for transforming and integrating geographic data (map criteria) and Decision Maker's preferences and uncertainties (value judgments) to obtain information for decision-making and an overall assessment of the decision alternatives.

MC-SDSS thus integrate the sustainability dimensions while offering a systematic approach able to prove the importance of "where" in addition to "what" and "how much".

The main rationale for integrating GIS and MCA is that they have unique capabilities that complement one another. On the one hand, GIS has great abilities for storing, managing, analyzing and visualizing geospatial data required for the decision-making process. On the other hand, MCA offers a rich collection of procedures, techniques and algorithms for structuring decision problems, and designing, evaluating and prioritizing decision alternatives (Malczewski, 2006) by combining factual information (e.g., geology, slope, aspect and…) with value-based information (e.g., expert's opinion, quality standards, participatory surveys) (Geneletti, 2010).
Location of Figure .1: Spatial multicriteria analysis framework (Malczewski, 1999, 2010 and Simon, 1960)

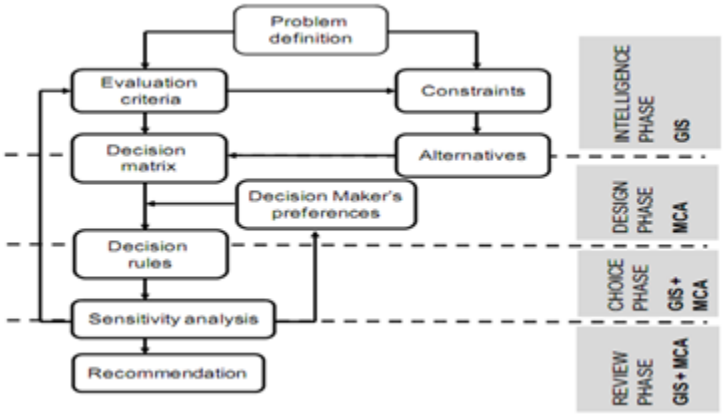


Figure .1: Spatial multicriteria analysis framework (Malczewski, 1999, 2010 and Simon, 1960)

II. Materials and method

The study area covers the International Qurigol Wetland. It is located on the northwest of Iran and covering a total of 152 ha. The area is bounded by 37°54'24" and 37°55'17" northern latitude and 46°41'35" and 46°43'05" eastern longitude. Location of the area is given in the Figure 2. According to the aim of this study (Site selection to Birdwatching) the data set for this study is comprised base maps like Topography, aspect, slope, geology and ecologic data such as: wetland border and its distance and also Density of bird in wetland that is shown in Figure 3.

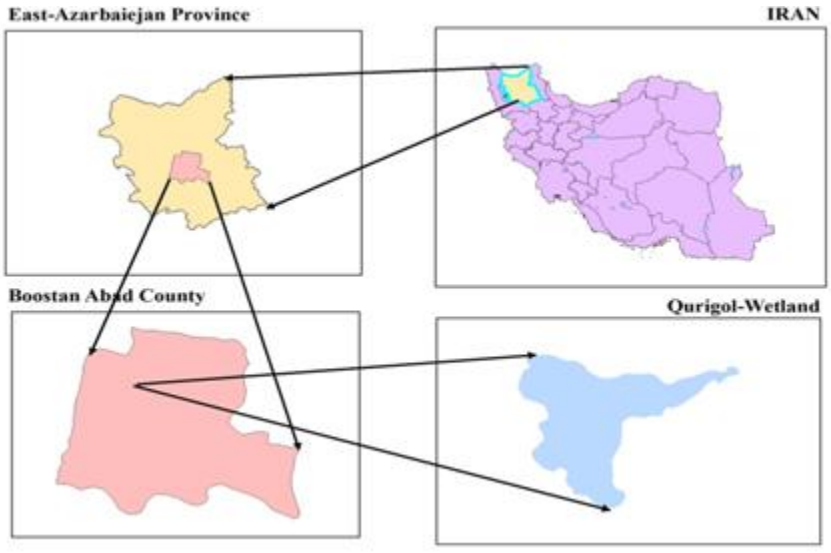


Figure2: location of study area

The evaluation criteria are in a raster GIS format with a 2m resolution and UTM_38n projection. In the context of criterion weights, a wide variety of techniques exist for the development of weights. The technique used here and implemented in Idrisi32software (Eastman, 2001) is that of pairwise comparisons developed by Saaty (1977) in the context of a decision making process known as the Analytical Hierarchy Process (AHP). In the procedure for Multi-Criteria Evaluation using a weighted linear combination (WLC), it is necessary that the weights sum to one.

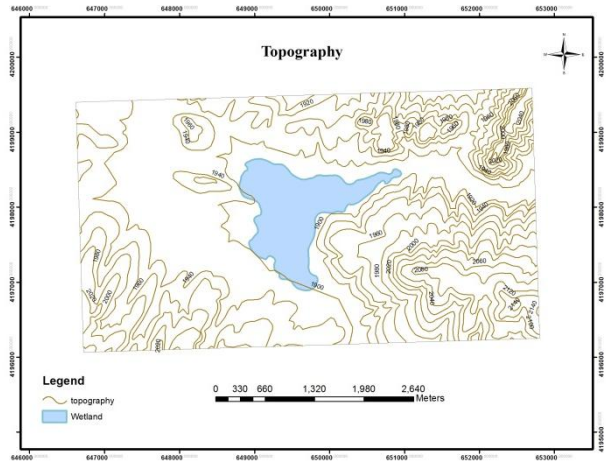
In Saaty's technique, weights of this nature can be derived by taking the principal eigenvector of a square reciprocal matrix of pairwise comparisons between the criteria. The comparisons concern the relative importance of the two criteria involved in determining suitability for the stated objective. Ratings are provided on a 9-point continuous scale in three parts: less important, equally (1) and more important. Since the matrix is symmetrical, only the lower triangular half actually needs to be filled. The procedure then requires that the principal eigenvector of the pairwise comparison matrix be computed to produce a best fit set of weights. These weights will sum to one, as is required by the weighted linear combination procedure. Since the complete pairwise comparison matrix contains multiple paths by which the relative importance of criteria can be assessed, it is also possible to determine the degree of consistency that has been used in developing the ratings. Saaty (1977) indicates the procedure by which an index of consistency, known as a consistency ratio. The consistency ratio (CR) indicates the probability that the matrix ratings were randomly generated. Saaty indicates that matrices wit CR ratings greater than 0.10 should be re-evaluated (Table 1).

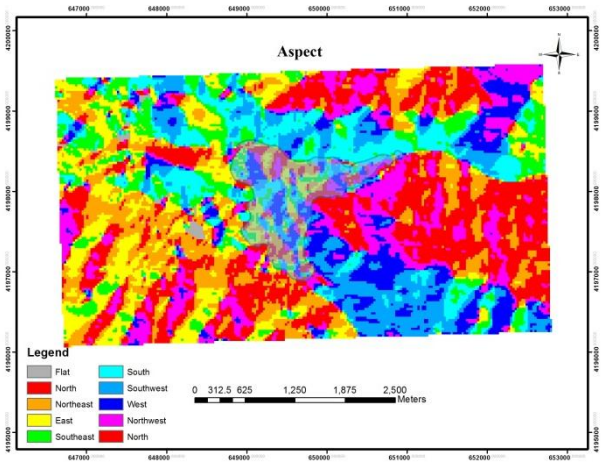
Table 1: AHP weight derivation of evaluation criteria

Criteria	*1*	*2*	*3*	*4*	*5*	*6*	*weight*
1	*1*	*1*	*3*	*1*	*2*	*9*	*0.176*
2		*1*	*2*	*2*	*1*	*6*	*0.211*
3			*1*	*1*	*1*	*8*	*0.190*
4				*1*	*2*	*9*	*0.177*
5					*1*	*7*	*0.223*
6						*1*	*0.024*

The numbers at the decision criteria are: (1) Slope, (2) Aspect, (3) Distance from wetland, (4) Topography, (5) Density of bird, (6) geology.

a) b)





c) d)

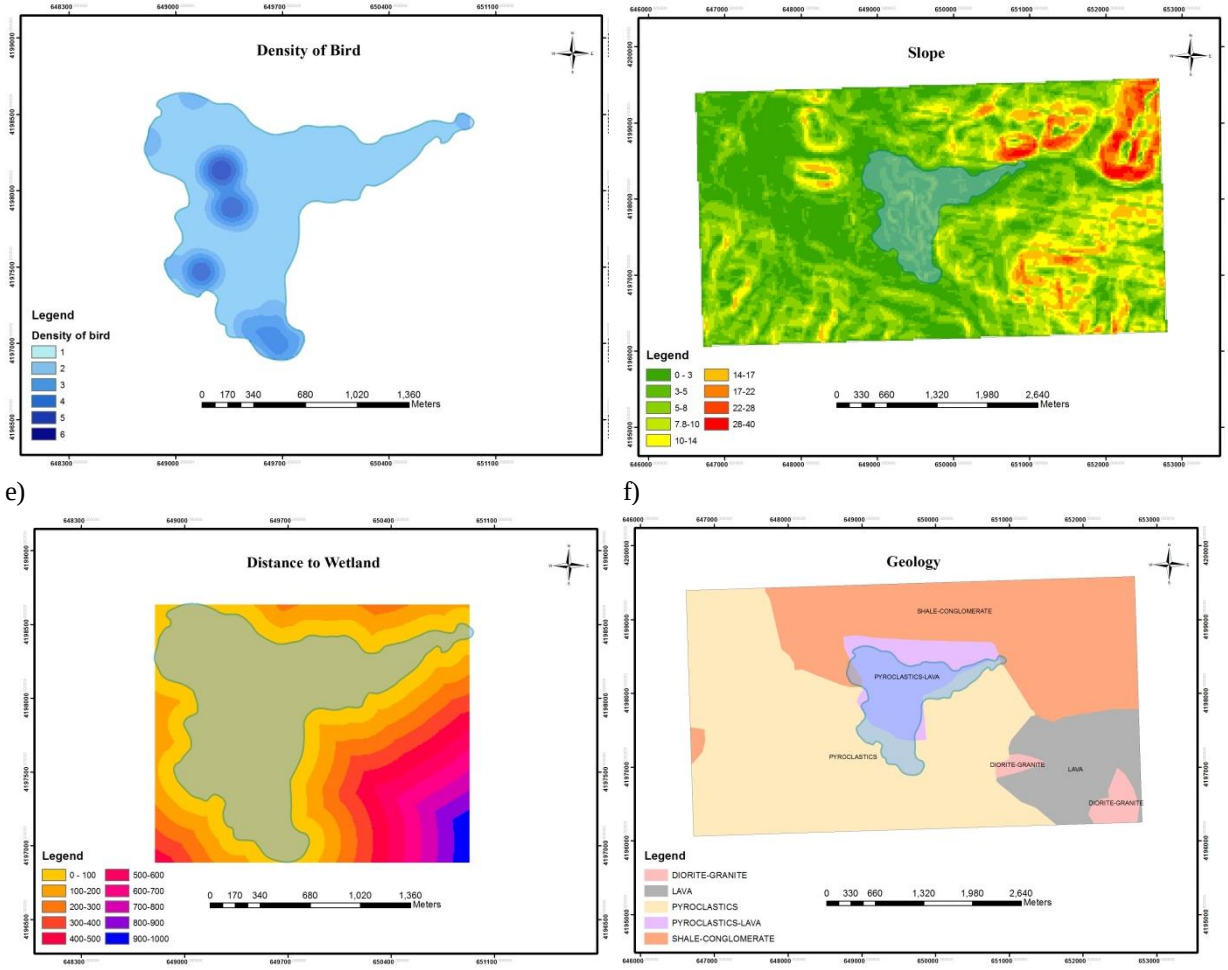


Figure 3: Maps of data[a) Topography b) Aspect c) Density of bird d) Slope e)Distance of Wetland f) Geology]

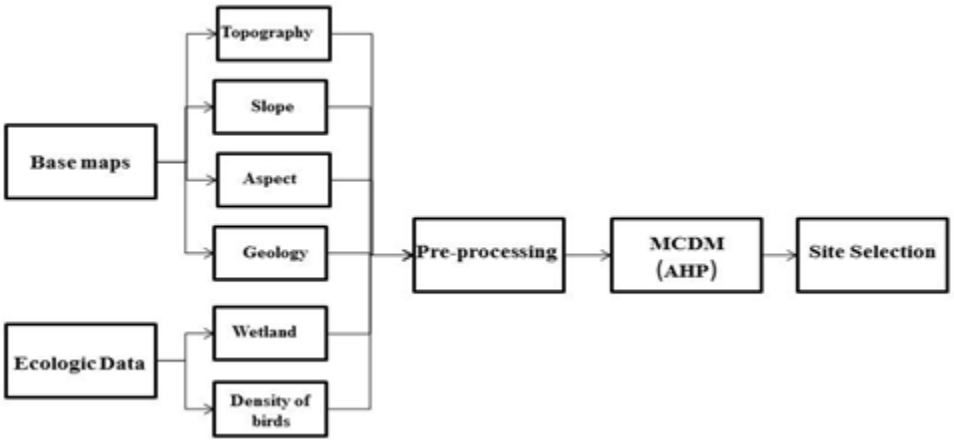
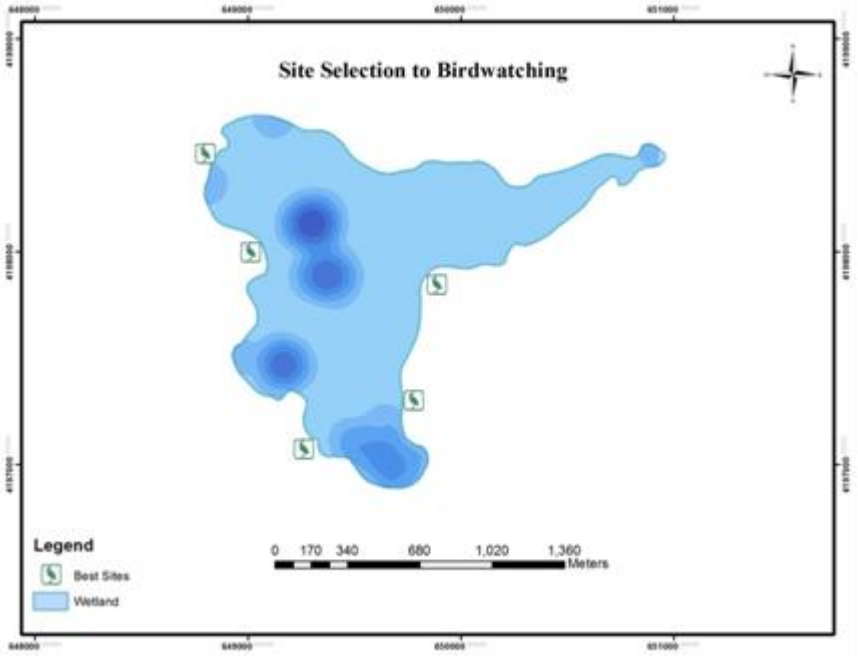


Figure .4: Principal procedure employed for Site Selection

III. Result

The main goal of this study was site-selection for Bird watching sites for ecotourism and hospitality development by using Multicertia Decision making (MCDM) methods. At first various data were analyzed then, by using GIS software such as ArcGIS and Edrisi the best sites by consideration of different weights were determined. Figure 5 shows the best places and for better visualization, 3d visualization of spots is given in figure 6.



Location of Figure .5: Best Sites to Bird watching in International Qurigol Wetland

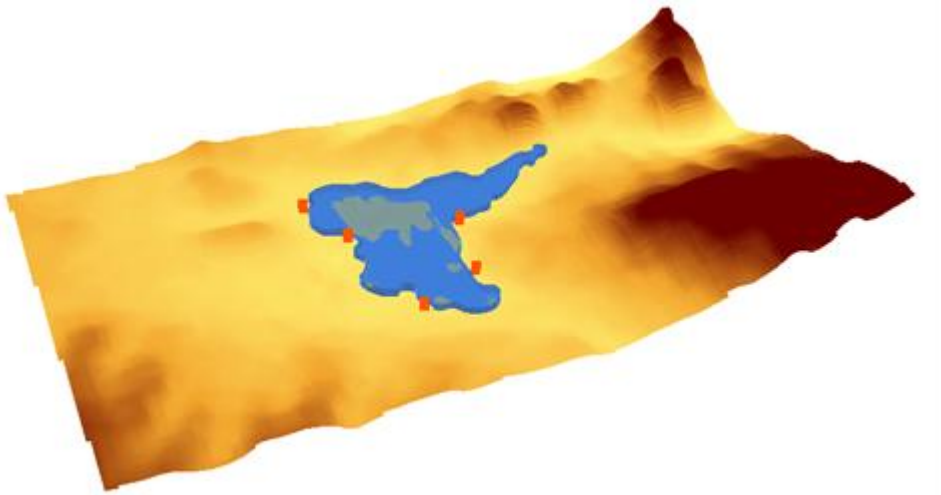


Figure .6: 3D Visualization of Best Sites to Bird watching in International Qurigol Wetland

IV. Conclusion

In this study, five spots were determined as the best site for bird watching in international Qurigol wetland. Geographic coordinates of the spots is shown in table 2. With selection of the suitable spots, creation the bird watching site is possible. Bird watching is one of the most attractive and low degradation risks to the environment activities. Planning and developing of Qurigol wetland ecotourism birds with emphasis on bird watching, have important and tangible impact on the economy of indigenous people around the wetland. Although hospitality development and this industry growing increase the Ecotourist attraction and jobs creation of rural area. Income generate and increasing of economic development impacts of wetlands ecotourism cause to protection of wetlands and wildlife. Local people have effective role in environmental preservation and wetland protection. If indigenous people benefit from the economic impact of wetland ecotourism development, prevent further destruction of wetlands and ecosystem and following the conservation importance. Planning and developing of Qurigol wetland ecotourism and hospitality with emphasis on bird watching, is a win – win cooperation and interaction between local community, Ecotourists and wetland ecosystems.

Table .2: Geographic coordinates of selected spots

No.	North	East
1	37°55'17.44"	46°41'34.57"
2	37°55'0.2"	46°41'42.96"
3	37°54'32.13"	46°41'52.63"
4	37°54'39"	46°42'13.08"
5	37°54'57.13"	46°42'18.65"

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