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HEALTH TOURISM POTENTIALS IN THE NORTHWEST REGION OF IRAN EMPHASIZING LAKE URMIA

Fatemeh Aghapour Maleki [1], *Siavash Imeni Gheshlagh* [2], *Ali Safari Ajab Shir*[3]
[1] graduate student of Science and Culture University of Tehran, Faculty of Humanities, Department of Tourism. Email: r.agh_maleki@yahoo.com
[2] Supervisor, Assistant Professor of Tourism Planning Department, Faculty of Tourism, University of Science and Culture, Tehran, Email: s_imeni@yahoo.de
[3] Consultant Professor (Professor of Tabriz University) Email: ali.safari.ajabshir@gmail.com

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ABSTRACT

Lake Urmia is quite possibly the main secured worldwide park, which has been exceptionally respected because of its restorative properties as hydrotherapy and sludge therapy from the removed past up to this point and draws in vacationers consistently. Nonetheless, because of the absence of a legitimate tourism foundation, offices, and administrations, just as the absence of appropriate data on social, monetary, and actual improvements around here, it has not been considered notwithstanding the presence of numerous potential and real limits corresponding to health tourism. Consequently, this study was directed to explore the advancement possibilities of health tourism in the lake. This exploration depends on a blend of particular analyses, narrative, and field techniques, which have been utilized because of the applied idea of the examination. The statistical population of this examination incorporates the tourism activists and the tourism specialists. To break down the interior and external parts of the climate utilizing the Delphi method (as an open questionnaire), a semi-structured interview was directed with 16 specialists dealing with lake undertakings, and afterward, the Swat matrix was finished by gauging the cases thinking about the suppositions and answers of the significant specialists. The results show that the sludge of Lake Urmia is free from contamination and has useful components for the body.

Likewise, the consequences of analyzing interviews, perceptions, assessments, and regard for the appropriate infrastructure facilities demonstrate that the massive and economical possibility and the field of making plans and ventures for therapeutic-coastal tourism exist in the northwest district of Iran. Focusing on the sludge therapy project will help extend health tourism objectives in the northwest area of Iran. The results likewise showed that because of the presence of all three components of water, salt, and sludge as a rich source of treatment in Lake Urmia, the foundation of a center of the hydrotherapy, halotherapy, and sludge therapy, and the improvement of health tourism in Lake Urmia are conceivable and lastly it leads to the advancement of health tourism and thus to the financial and social advancement of this locale.

INTRODUCTION

The industry and science of tourism have different sorts like recreational tourism, business tourism, cultural tourism, health tourism, religious tourism, scientific tourism, sports tourism, and so forth. Health tourism is one of the tourism subsets and is one of the fields that have the potential for venture and cash making to develop constantly. Health tourism and its subsets have gotten twofold consideration because of their abilities and competitive advantages and show fast development among different types of tourism. One of the objectives that can inspire travelers to venture out is to head out to acquire health, which is deciphered as health tourism (Salehi Tala Tappeh and Kazemi, 2018). In Iran, the improvement of this field of tourism has not been considered by the capable foundations as it ought to and may be and subsequently, dynamic and effective private gatherings have not been set up at the business level. Likewise, the few addressing this issue have not enjoyed economic prosperity and business continuity (Haghighi Kaffash et al., 2009).

Given the significance of the tourism industry, notwithstanding cultural, social, and political components, ecological factors additionally assume a significant part in the tourism advancement just as a tourist attraction. Climate change can enormously affect how tourists pick their location. Lake Urmia is one of the uncommon worldwide phenomena and has numerous capacities to give an effective model of stable tourism (Moradi, 2003). Early types of health tourism included travel to hot water and mineral springs. The history of this sort of tourism traces back to the Neolithic and Bronze Times of Europe. The utilization of hot and mineral springs in medieval times was because of the faith in the mending force of hot water (Jalalian, 2005).

After the Dead Sea, Lake Urmia as the saltiest lake on the planet with 102 islands and peninsulas, has huge tourism, geological, organic, and biological significance, yet because of the dry season, decreased precipitation, human factors, for example, Shahid Kalantari Scaffold which has separated Lake Urmia into northern and southern parts, and, has upset its characteristic water status, including bed water streams and salt centralization of the lake, extreme utilization of groundwater and nonuse of current farming development techniques in the bowl, the lake has been evaporating since 1997 and today this wetland is in the most critical environmental conditions. As of now, the drying of Lake Urmia, notwithstanding natural dangers and the elimination of significant and uncommon types of the nation, including Iranian yellow deer, decrease of Artemia holds, and so forth, will likewise bring unsocial ramifications for the tourism of this basin, just as for the social and financial climate of the district. So that, as of late, with the continuation of the upward pattern of lake water consumption, we are seeing the annihilation of homes, sporting and private edifices, obliteration of coastal infrastructure, joblessness of occupants, and their movement from towns along the lake, diminished vacationer appearances, decreased earnings of the locale of the tourism, and finally the demand pressure on neighboring purposes (Asghari Sar Eskanrood, 2013).

The shores of Lake Urmia have a high potential for health tourism and can become one of the tourist center points at the public and global levels (Aminian, 2006). Lamentably, less consideration has been so far paid to it and the specialists have not made a suitable and huge move to appreciate this power and to foster Lake Urmia. Saying that the sludge of Lake Urmia with its bountiful mineral salts, particularly chlorine, sulfate, sulfur, radioactive materials, iodine, iron, and the different natural matter is quite possibly the highest.

According to the proposed programs and actions taken to improve the water status of the lake, it will require quite a while for the sea to get back to its typical state, and the tourism industry from which the coastal people made ends meet has deteriorated and get baffled; by the development of a halotherapy center with reasonable materials and approaches while making monetary thriving and advancement, the circumstance of the area can improve in attracting medical tourism to the global level and we can exploit this rich potential that is a blessing from God to individuals of the region (Salehi and Feizi, 2014). In any case, because of the absence of a suitable framework and the absence of legitimate data, social, financial, and actual improvements of this district have not been considered despite the presence of numerous potential and genuine limits according to clinical tourism (Abizadeh, 2010). Subsequently, this examination was directed to present the attractions and ideal utilization of the remedial possibilities of Lake Urmia to make advancement in the improvement of health tourism around there.

THEORETICAL BASES OF THE RESEARCH

Health tourism

There is certifiably not an extraordinary definition of health tourism and various definitions and ideas have been given to health tourism. Utilizing the ideas stressed about the meanings of health tourism and considering the strength points of everyone, it may clarify the most precise meaning of health tourism as the accompanying: Health tourism is a kind of tourism that is taken to keep up, improve, and reproduce one's physical and emotional wellness for over 24 hours and short of what one year.

Health tourism is an extended idea including different cases and subsets. There have been given various characterizations over health tourism. Muler and Kaufman (2000) divide health tourism into two sorts of clinical tourism and inhibitor tourism which itself is divided into two kinds of health and preventive. As indicated by Jalad (2000), health tourism is divided into three kinds of wellness, therapy, and medical. Garraud (2003) and Caballero-Danel and Mugomba (2006) additionally gave comparable arrangements of health tourism including wellness, therapy, and medical tourism. Witt et al. (2010) likewise divide health tourism into two sorts of wellness tourism (counting travel to improve the way of life, travel for excellence, and travel for otherworldly separation) and medical tourism (counting crisis treatment and assenting treatment).

According to the World Tourism Organization, health tourism is divided into three sections which are: wellness tourism, medical tourism, and nature therapy tourism.

A) **Medical tourism**: This type of tourism is done for an average of two weeks to treat a disease or perform surgery in medical centers or hospitals, and after this period, the patient may need to rest and use mineral springs to spend recovery.

B) **Nature therapy tourism**: This type of tourism is done to improve the disease or to spend recovery, under medical supervision, using natural resources such as hot springs, salt lakes, medical sludge, radioactive sands, or treatment in natural climates.

C) **Health and fitness, or prevention tourism**: This type of tourism is performed to create peace and avoid the stress and worries of daily life and energy refresh without Medical supervision (in some cases, the tourist does not have a specific physical illness) by traveling to health villages and areas with mineral and hot water springs (SPAs). The concept of health and fitness here is to help a healthy person prevent physical and mental problems.

Hydrotherapy

Hydrotherapy is a term for utilizing water to treat a physical or mental issue. Hydrotherapy enormously affects the improvement of treatment and restoration programs. The utilization of hydrotherapy in antiquated Greece started with the utilization of hot mineral springs. Today, a huge number of physiotherapists utilize the mending properties of water to treat an assortment of infections. Hydrotherapy includes the utilization of water to treat different conditions like osteoarthritis, rheumatic infections, and different illnesses. Although hydrotherapy is the same as swimming, it is distinctive because hydrotherapy requires various activities in the pool. The water temperature in the pool is around 33-36 ° C and hotter than typical pool water. Hydrotherapy is generally acted in an emergency clinic physiotherapy ward by a prepared physiotherapist (Johnson, Filip, 2011).

Benefits of hydrotherapy

The main uses of hydrotherapy are in patients with disabilities and cases of fractures. During his life, the man enacts every one of his joints for every one of his exercises, and the progression of time causes these joints to experience the ill effects of specific scraped areas and wounds. One approach to help all individuals of any age have the option to fortify their joints is to practice in the water. In water, you can fortify your muscles without squeezing your joints. Doubtlessly hydrotherapy can help us a great deal. All in all, the upsides of hydrotherapy are newness and health, decrease and improvement of muscles and joints, and so forth. Regarding clinical standards in aggregation, it is feasible to keep up and increase the scope of movement of limbs, strengthen the muscles, improve the movements to walk, increase blood circulation and improve the quality of fuel injection to cells, remove or prevent movement limitations, prevent osteoporosis, prevent intestinal diversion and prevent constipation, strengthen muscles, create morale of self-confidence and strong morale to do daily tasks, especially in spinal ones in particular (Fathi, 2007).

Lab utilization of salt impact is in the recovery of respiratory illnesses and, therefore, in the improvement of sicknesses brought about by respiratory issues. The mechanism of this process is the formation of

conditions in rock salt mines and rock salt caverns by salt generators and salinizers. The air produced by these generators is spotless, dry, liberated from germs, and liberated from any synthetics. The air created by these generators is spotless, dry, liberated from germs, and free from any synthetic compounds. Saline baths are utilized to treat skin illnesses and quiet the spirit and psyche, and so forth. Halotherapy is the utilization of little particles of salt pressurized canned products and minerals to treat respiratory illnesses and skin issues, which has been utilized in salt mines of European nations since the nineteenth century. This treatment, which is a physical, non-obtrusive, drug-free, and safe treatment, can be recommended as another option, or utilized as a one-of-a-kind treatment strategy. This technique positively affects improvement and diminishing the utilization of medications.

Halotherapy

Types of halotherapy

Spileotherapy

Spileotherapy (Spileon means cave in Greek) is one of the branches of climate therapy. In this method, specialists use the conditions inside caves and salt mines to treat diseases, especially respiratory diseases and skin disorders (Lazarescu, H., al 2014).

Halotherapy

Halotherapy (Halo means salt in Greek) is derived from spileotherapy, in which the treatment is performed in a simulated space like a salt mine. This place is idiomatically called the salt room. Artificial chambers, first built in the late 1980s in St. Petersburg, Russia (Chervinskaya, A., & Zilber, N. 1995) are equipped with a salt particle generator that allows salt particles to be produced in specific dimensions and certain quantities.

Sludge therapy

Sludge therapy is an old term that refers to a unique way of treating diseases using mud and sludge rich in minerals and herbal materials. Rubbing sludge on the skin or taking a Sludge bath is one of the most common methods of sludge treatment. Recently, the companies producing shampoos and beauty products have introduced new products to use this treatment method. However, in countries such as Austria, Colombia, and Iran, people still use sludge therapy and sludge baths to reduce joint pain, sciatica, chronic pains, rheumatism, and skin disorders. Sludge therapy is a method of treatment using natural medicine that is performed using various forms of sludge. Sludge bath is a type of sludge treatment used to manage various disorders. Sludge therapy such as sludge bath or sludge pack is useful for treating conditions such as fever, diarrhea, dysentery, constipation, anxiety, inflammation, headache, allergies, and refractive errors of the eye. It is also useful for the treatment of cardiovascular, musculoskeletal, gynecological, skin, and autoimmune diseases. Sludge bath is used all over the world for relaxation and luxury purposes. (Chadzopulu et al., 2011)

Types of sludge therapy

Sludge in different parts of the world has different properties. The composition of sludges varies according to their origin. First, the mineral composition of the sludge depends on the type of rocks in the area and the process of soil formation. Second, the properties of mud and sludge are influenced by various types of mines and soils, plants, and animals in the region; therefore, specialized tests should be performed before using it and the benefits and properties of sludge in each area should be determined. Any type of sludge should be dried and pulverized before use, and cleaned of any impurities such as stone and grass, and passed through technical and professional filters. Some of the most important types of natural sludge mentioned by various sources are:

Black mud

Dark flax soil, which contains some oils, is suitable for sludge therapy because it is rich in minerals and also retains water for a long time. This sludge must always be free of any contamination.

Dead Sea sludge

Cleopatra and Queen Sheiba used this type of sludge for beauty. Dead Sea black sludge has beautifying and healing properties. This sludge contains more than twenty types of salts and minerals, including magnesium, calcium, potassium bromide, silicate, natural fiber, and organic elements. While these minerals are useful for treating a variety of skin disorders, the presence of silicate in the masks makes them very useful for softening and cleansing the skin. Sludge increases blood circulation and brightens the skin.

Moorish sludge

It is a sludge that is produced from the organic remains of flowers and plants over thousands of years. These residues take several years to turn into a soft paste containing folic acid, vitamins, amino acids, plant hormones, and humic acids that can be easily absorbed by the human body. This type of mud has properties in which its upper layer should be filtered of impurities (contaminants) to maintain the purity of the sludge. This sludge has healing properties and is useful for detoxification, healing, beauty, and nourishment of the human skin. Moorish sludge has anti-inflammatory and anti-aging effects. It is also useful for the treatment of osteoarthritis and healing injuries in exercise (Abizadeh, 2010).

RESEARCH BACKGROUND

There has not been much research on the development of health tourism with emphasis on sludge and sludge therapy. In this regard, we can refer to the article "Feasibility study of medical tourism infrastructure, the case study of Islami Island, Lake Urmia" written by Abizadeh, who has dealt with a spatial study of medical tourism in Lake Urmia to create functional changes and expand accommodation and hospitality facilities to start positives economic, social, and physical changes in this region (Abizadeh, 2010).

In the field of water treatment and optimization of water consumption, there have been written articles including "hydrotherapy, a strategic model in monitoring the needs of today society " written in the first national conference on water, man, earth in Isfahan by Mofidi who

has mentioned the structure and therapeutic properties of hydrotherapy complexes. In the meantime, the connection with the issue of health and economy of urban society, along with the compromise patterns of the development path and optimal and practical use of natural resources, especially water, has been mentioned(Mofidi, 2014).

In an article on sludge therapy "A species of Chikitsa Panchbhautic Ayurveda" by Agarwal and Prajapati, the types of sludges and their benefits have been explained. The results of the study show the use of sludge therapy in promoting health, prevention, and management of many diseases (Agarval and Prajapati 2019). In the study of the importance of halotherapy in the treatment of diseases associated with COVID-19, Uysal, and Ulusinan have dealt with the effect of Halotherapy or salt therapy on the treatment of chronic respiratory diseases in people with COVID-19 (Uysal and Ulusinan, 2020).

In a study entitled "the effect of sludge therapy on patients with Knee osteoarthritis, a randomized controlled trial", researchers concluded that sludge therapy could be used as an alternative treatment to reduce pain and improve the ability of patients with knee osteoarthritis by reducing medication (Espejo et al., 2013).

A study entitled "the use of sludge therapy in natural therapies" by Rastogi (2012) describes the therapeutic uses of sludge and its importance and its possible and beneficial role in modern times.

METHODOLOGY

This research is an applied one in terms of purpose and is descriptive-analytical in terms of method. In this research, a combination of specialized experiments, documentary and library methods, and survey and observation methods have been used. In the first method, because the main and distinct goal of this plan is sludge treatment, to ensure the quality of the appropriate sludge, the samples have been taken from the intended site, and specialized tests have been performed by sending those samples to a reputable laboratory (Zar Azma) and the results of the same experiments are used. In the second method, to collect the required information and data, documentary and library studies and field studies were used, and through the obtained information, the attractions, facilities, services, and general situation of tourism in Lake Urmia were investigated. In the third method, semi-structured interviews and observations with groups of managers and tourism experts were used to collect information and data. The statistical population includes tourism activists, tourism experts, and thinkers. Using the snowball method, 16 people were selected and interviewed as the sample. The criterion for this number of samples was to achieve saturation or, in other words, repetition of the answers by continuing to interview new people.

Sludge therapy, hydrotherapy, and halotherapy therapy are the distinctive features of this project, and thus, the first sampling attempt was made from the southeastern area of the lake and the extensive coastal marsh of this project. According to the sampling carried out on 30/7/2020, 20 by 20 cm square areas with a depth of 20 to 40 cm were taken out in seven areas with a distance of 70 to 100 meters between every two areas,

and after examining and observing the sludges, it was concluded that the area contains two different types of sludge. Based on personal naming, samples were taken out of sludge A (black sludge) and sludge B (gray sludge) with the required abundances and were sent to the Zar Azma laboratory in Zanjan for analysis.

SWOT analytical method has been used to analyze information and present tourism development strategy. For this purpose, the internal environment (strengths and weaknesses) and external environment (opportunities and threats) of the region have been studied. That's at first, a survey was conducted of 16 experts related to lake affairs to weigh the internal and external environment factors using the Delfi technique (in the form of an open questionnaire), and then the Swat matrix was completed by weighing the intended items according to the opinions and answers of the relevant experts. Graphic software such as Autocad was also used to prepare and draw proposals.

Study region

The study region in this research includes Lake Urmia in the range between the two provinces of East and West Azerbaijan located in the northwest of Iran. The area of this region is 951, 106 square kilometers, which covers about 6.48% of the total area of the country. In terms of its natural location, this region is located at the confluence of the Alborz and the Zagros Mountains, in other words, in the Alborz and Azerbaijan zones and the northwest corner of the Iranian plateau. In terms of watershed divisions of the country, Aras, Sefidrood, Ghezelozen, Bolgarchay watersheds, Baranduzchai, Zolachai, Nazluchai, Shahrchai, Zab and Godar, Zarrinehrood (Jighati), Siminehrood (Tatāhū), Mahabadrood, Saruqo rivers, and Lake Urmia cover the zone (Sobhani and Asyabi, 2013).

Lake Urmia is located in the western part of the Iran plateau, between latitude 37◦ and 9', and 38° and 12', north, and longitude 45◦, 6' to 45°, 54' east. And its height above sea level is 1274 meters. The lake resembles an almost rectangular pit that stretches from north to south, dividing Azerbaijan into western and eastern parts. The area of this lake is about 4600 square kilometers, the largest inland lake of Iran in this respect, which is limited to the Aras Basin from the north to the mountains of Kurdistan from the south, to the border-mountains of Iran and Turkey from the west, and the mountains of Sahand and Sabalan from the east. (Alipour and Mohammadi, 2016).

The climate of this region is generally cold and dry. The mountainous location and latitude of the region are among the factors of the cold in most parts of this region. The northwestern region of the country has many important tourist attractions and its geological structure is so that it has been the site of many hot springs and mineral springs and Lake Urmia as one of the largest salt lakes in the world. Lake Urmia salt is one of the rare dead lake salts in the world, which due to having a species of crustaceans (one of the rarest crustaceans in the world called Artemia) and compounds and salts formed from the shell of this living organism, it

has large amounts of minerals such as chlorine, Sodium, potassium, calcium, iron, magnesium, phosphorus and sulfates and other salts.

Also, more than 120 hot and mineral springs with therapeutic properties in this area are part of the capacity and attraction of health tourism. The muddy areas of the lake in order of importance (Gatmiri et al., 1998) are:

- The shores of Sharafkhaneh port in the eastern part of the lake,
- Golmankhaneh beaches in the western part of the lake and the east of Urmia city,
- The area between Sheikh Vali village and the estuary of Zolachai in the north of the lake,
- The area between Sharafkhaneh Port and the north of the Islami Island in the northeast of the lake,
- The area between the south of the Islami Island and Shiramin station of Ajab Shir,
- The area between Rahmanlu Port and Hyderabad port, which covers from east to the south of the lake.

FINDINGS

In this section, first, the analysis of the results of the experiments is explained. In the next step, the data analysis has been dealt with in the form of SWOT analysis. Finally, strengths and weaknesses, opportunities and threats in the region were examined according to the SWOT method.

1. Properties of sludge samples of Lake Urmia

Table 1: Physical properties of both types of the lake sludge

sludge	color	odor	viscosity
Sludge A	black	hydrogen sulfide	relatively high
Sludge B	gray	hydrogen sulfide	high

To determine the type and samples of sludge and lake water, an ICP test was used to determine the type of elements in sludge and lake water and to measure the elements with detection limits of ppm (mg/liter). This experiment includes the analysis of useful elements and minerals such as magnesium, calcium, potassium, iodine, chromium, zinc, copper, iron, sodium, sulfate, and phosphorus to examine organic substances useful for health in the water and sludge of Lake Urmia. Defined analyzes include the study of elements in natural sludge (55 elements).

Table 2: Useful mineral elements of the lake sludge (Mg per liter)

Element	Aluminum (Al)	Sulfate (S)	Sodium (Na)	Phosphorus (P)	Potassium (K)	Magnesium (Mg)	Iron (Fe)	Calcium (Ca)
DL	100	50	100	10	100	100	100	100
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	Ppm

Table 3: Useful mineral elements of both types of sampled sludge

Element	Aluminum (Al)	Sulfate (S)	Sodium (Na)	Phosphorus (P)	Potassium (K)	Magnesium (Mg)	Iron (Fe)	Calcium (Ca)
Sludge A	37524	15478	%10	411	9654	%2	22235	42371
Sludge B	48777	10230	50755	533	13089	%2	29846	78102

Table 4: Harmful elements of the lake sludge (Mg per liter)

Element	Arsenic (As)	Cadmium (Cd)	Lead (Pb)
DL	0.1	0.1	1
Unit	ppm	ppm	Ppm

Table 5: Useful mineral elements of the lake water

Element	Aluminum (Al)	Sulfate (S)	Sodium (Na)	Phosphorus (P)	Potassium (K)	Magnesium (Mg)	Iron (Fe)	Calcium (Ca)
DL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Unit	Mg/L	Mg/L	Mg/L	Mg/L	Mg/L	Mg/L	Mg/L	Mg/L

Table 6: Harmful elements of the lake water

Element	(As) Arsenic	(Cd) Cadmium	(Pb) Lead
DL	1	0.01	0.01
Unit	Ug/L	Ug/L	Ug/L

Analysis of findings

Tables 1, 2, and 3 show quantitative analysis (ICP) of sludge and water samples of Lake Urmia. Preliminary studies have shown that harmful elements such as cadmium (Cd), a very heavy and toxic element whose excessive absorption and concentration in the body of animals and humans cause disorders such as bone fatigue, bronchitis, kidney damage, high blood pressure, and arteriosclerosis, and arsenic (As), one of the most important heavy and very toxic elements that have caused many health problems for humans and the environment so far (Shabani et al., 1398) is 0.1in the lake sludge, ie approximately equal to zero. But the amount of useful elements such as iron, calcium, potassium, magnesium, and sodium is equal to 100 ppm. Most elements in the sludge are calcium (Ca) with a volume of 100 ppm, ie 100 mg per liter, iron (Fe) 100 ppm, potassium (K) 100 ppm, magnesium (Mg)100 ppm, sodium (Na) 100 ppm, sulfate (S) 50

ppm, titanium (Ti) 10 ppm, phosphorus (P) 10 ppm, and manganese (Mn) 5 ppm, which have made the lake mud a source of therapeutic and useful elements for skin, bone, and joint diseases. In addition, there are other elements such as the elements zinc (Zn), selenium (Se), copper (Cu) in the lake sludge that although their volume is not as much as the useful elements mentioned, are also found in the lake sludge as much they affect the health of the body. Also, the analysis of the elements of the lake saline shows that the same useful minerals for the health of the body in the lake sludge exist in the lake water but with a smaller volume. The elements with high volumes have been calculated in milligrams per liter, but the elements with lower volumes have been calculated in micrograms per liter, which shows that the volume of beneficial minerals is more than the volume of harmful elements in the water.

2. The analysis of the strengths, weaknesses, opportunities, and threats of the region

Table 7: Internal Factors Evaluation Matrix (IFEM) affecting Lake Urmia health tourism

Strength points	**weight**	**Relative coefficient**	**Rank**	**Final weight**
1- Climate diversity and natural landscapes	9	0.030	4	0.121
2- Ethno-social diversity and the hospitality morale	8	0.027	3	0.181
3- Existence of diverse and protected islands	5	0.016	1	0.016
4- Existence of recreational sportive attractions (swimming)	5	0.016	1	0.016
5- Healing properties of lake water and its black sludge for joint pains and rheumatism	9	0.030	3	0.091
6- The possibility of developing the export of the lake sludge with therapeutic properties	8	0.027	2	0.054
7- The possibility of using the lake salt for halotherapy	9	0.030	3	0.091
8- Tourism experts' belief in job creation through tourism	9	0.030	4	0.121
9- Tourism potentials on the shores of the lake	8	0.027	3	0.081
10- Suitable location as a focus of attracting tourist people of Tabriz and Urmia	8	0.027	3	0.081

11- Elements with historical-cultural value such as Osman's fist, Kazem Dashi, and historical hot springs	6	0.020	3	0.060
12- Variety of number and degree of hotels and accommodations of tourists in the cities of Tabriz and Urmia	7	0.023	2	0.047
13- Various tours and agencies with health tourism licenses in the cities of Tabriz and Urmia	7	0.023	2	0.047
14- Airports in the centers of East and West Azerbaijan provinces	6	0.020	2	0.040
15- Proper access through the bandpass road	7	0.023	2	0.047
16- Transit path of tourists from the border countries of East and West Azerbaijan provinces	8	0.027	3	0.081
17- Urmia Lake as a national park and the second salt lake in the world	8	0.027	3	0.081
18- Numerous hot springs and mineral water in the region	8	0.027	3	0.081
19- Mountainous nature with very cool summers (Silvana region of Urmia with 100% pure oxygen)	7	0.023	3	0.070
20- Equipped hospitals with international IPD certification	8	0.027	2	0.054
Weaknesses	**weight**	**Relative coefficient**	**Rank**	**Final weight**
1- Decreased lake water	8	0.027	3	0.081
2- Restrictions due to cold weather conditions in autumn and winter	8	0.027	3	0081
3- Insufficient attention of the officials to the tourism economy of the lake	7	0.023	2	0.047
4- Not valuing the tourism industry in the area of Lake Urmia by the government	7	0.023	2	0.047
5- Weak public and private sector investment planning	8	0.027	3	0.081

6- Seasonality of tourism demand	7	0.027	3	0.081
7- Lack of creating and spreading tourism culture	6	0.020	2	0.040
8- Lack of specialized experts	8	0.027	3	0.081
9- Worn intracity and suburban transport fleet	7	0.023	2	0.047
10- Lack of rail communications	7	0.023	2	0.047
11- Low quality of tourism services and facilities	7	0.023	2	0.047
12- Lack of training of human resources working in the tourism sector	8	0.027	3	0.081
Not respecting cleanliness of the 13- environment around the lake by tourists	7	0.023	2	0.047
14- Lack of proper waste collection system	6	0.020	2	0.040
15- Legal deficiencies regarding how to use the tourist places of the lake	5	0.016	2	0033
16- Lack of active and permanent position in the public budget and development programs of the country	8	0.027	3	0.081
17- scarce of recreational and swimming facilities on the shores of Lake Urmia	8	0.027	3	0.081
18- Lack of signs and signposts for tourists	6	0.020	2	0.040
19- Lack of suitable bases in target countries to attract health tourists	9	0.030	4	0.121
Total	**288**	**1**		**1.243**

Table (7) (matrix of internal factors) shows that among these factors, components of climate diversity and natural landscapes, the healing properties of the lake water and its black sludge for joint pain and rheumatism, the possibility of using lake salt for halotherapy, and the belief of tourism experts in job creation through tourism with a final weight of 0.121 are the most important strengths and also the lack of

suitable bases in target countries to attract health tourists is the most important weakness.

Table 8: External Factors Evaluation Matrix (EFEM) affecting the health tourism of Lake Urmia

Opportunities	**weight**	**Relative coefficient**	**Rank**	**Final weight**
1- Registration of the lake in the Ramsar International Convention as a protected area in 1963	5	0.027	1	0.027
2- Strengthen the therapeutic value of the lake	8	0.043	2	0.087
3- Possibility of air, land, and rail traffic to the mentioned provinces	7	0.038	2	0.076
4- 7 border terminals in East and West Azerbaijan provinces for the tourists' traffic (Bazargan, Poldasht, Razi, Sarv, Tamerchin, Norduz, and Jolfa)	9	0.049	4	0.496
5- Increasing the attention of officials to the faster revitalization of the lake and attracting tourists	8	0.043	3	0.131
6- Proximity to neighboring countries	8	0.043	3	0.131
7- Diversity of ethnicities and religions in the region and cultural affinity with neighboring countries including Azerbaijan, Turkey, and Iraq	8	0.043	3	0.131
8- Tourist complexes near Lake Urmia (Bari and Chichek)	6	0.032	3	0.065
9- The motivation among the people of the region to attract tourists and develop tourism	6	0.032	2	0.065
10- Absolute security and peace in the region	7	0.038	2	0.076
11- Competent and specialized doctors in the region	7	0.038	2	0.076
12- Low prices for medical services to tourists compared to neighboring countries	9	0.049	4	0.196
13- Turning a threat into an opportunity (the rising value of the dollar can be used as an opportunity for tourists to visit)	8	0.043	3	0.131
Threats	**weight**	**Relative coefficient**	**Rank**	**Final weight**
1- Drying of Lake Urmia due to lack of rainfall and reduced inflow of surface water into the lake	8	0.043	3	0.131

2- Activities of unlicensed and unauthorized people in the field of health tourism	7	0.038	2	0.076
3- Lack of clear and uniform rules for the reception of international health tourists in hospitals	7	0.038	2	0.076
4- of proper transportation paths in the area such as highways and freeways	8	0.043	3	0.131
5- Attracting tourists by other competing regions	8	0.043	3	0.131
6- Lack of sufficient and effective publicity about the attractions of Lake Urmia in the mass media	9	0.049	4	0.196
7- Competing for recreational and tourism areas around	8	0.043	3	0.131
8- Lack of foreign investment in the tourism sector in this region	8	0.043	3	0.131
9- Weak management and lack of proper management	9	0.049	4	0.196
10- Inability and lack of necessary authorities to raise the standards of tourism facilities and services	7	0.038	2	0.076
11- The inability of the tourism sector to obtain the necessary authorities to issue visas to foreign tourists to use the therapeutic potential of the lake	8	0.043	3	0.131
total	183	1		2.803

Table (8) (matrix of external factors) shows the components of the existence of 7 border terminals in the provinces of East and West Azerbaijan for tourist traffic (Bazargan, Poldasht, Razi, Sarv, Tamerchin, Norduz, and Jolfa) and the low price of medical services to tourists compared to neighboring countries with a final weight of 0.196 is the most important foreign opportunity to develop health tourism of Lake Urmia and the components of insufficient and ineffective publicity of the attractions of Lake Urmia in mass media and poor management and lack of proper management with a final weight of 0.196 are the most important threats to the development of health tourism of the lake.

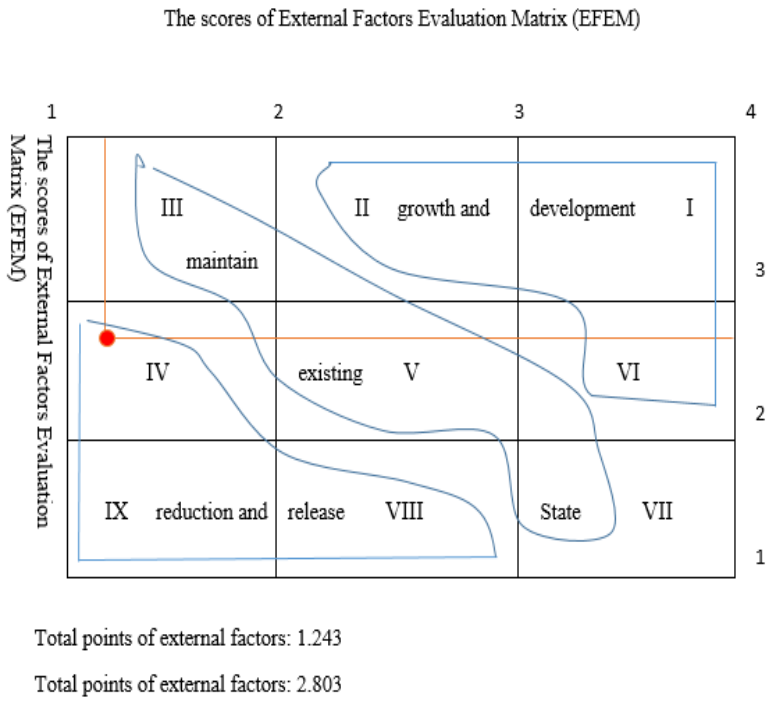

Figure 1: Strategic position of Urmia Lake health tourism management in the internal and external matrix (drawing: the author)

Establishing the strategic study status in the first area and the fourth house shows that the internal potentials for using foreign health tourism opportunities in Lake Urmia have been reduced and released due to the existence of major weaknesses and threats. Therefore, the selected strategies must lead to maintain and develop the status quo. Therefore, extracting defensive (WT) and competitive (SO) strategies are prioritized in setting strategies.

Health tourism development strategies based on SWOT analysis briefly include the following;

A. Competitive/Aggressive Strategies (SO)

In aggressive strategies that focus on internal strengths and external opportunities, the following strategies are presented to utilize existing advantages to develop the health tourism of Lake Urmia.

1- Investment in Lake Urmia to expand the tourism industry due to the relative advantages for the development of therapeutic, coastal, and health tourism in Lake Urmia

2- Encouraging domestic and foreign investment in the construction of tourist places and complexes and the construction of clinics and hospitals around the lake. Unlike hydrotherapy and halotherapy, sludge treatment is performed in only three regions of the world. In addition to Lake Urmia sludge, which has traditionally been used for medical and therapeutic purposes, the sludge of the Dead Sea in occupied Palestine and Salt Lake in the United States is used to treat skin diseases and rheumatism. Due to the capabilities of the lake, it can be used to treat diseases and increase tourism in the region.

3- Overseas information and advertising to provide a clear picture of the tourist and medical attractions of the northwestern

region in the range of Lake Urmia to compete with other rival regions such as the Dead Sea

4- Establish more coordination between related organizations and departments to integrate the tourism capabilities of the lake

5- Designing sample travel packages regarding the tourist attractions of Lake Urmia and creating jobs through the current situation

6- Change in the attitude of planners and turning attention to the industrial nature of this issue

7- Implementing and setting up hydrotherapy, sludge therapy, and health tours both nationally and internationally with their incentives

8- Collaboration with physiotherapists, clinics, and hospitals active in this field

B. Diversity Strategies (ST)

With the help of these strategies, environmental threats can be avoided using internal strengths. The following solutions are provided to address some of the needs of the region to eliminate the threat. Some of these strategies include:

1- Adjusting prices in cold seasons to attract tourists. Using this strategy makes the seasonality of tourism activities repelled and leads to having tourists in this region in all seasons.

2- Providing infrastructure facilities and equipment by the government and encouraging the private sector to invest in these places. Due to the proximity of the northwestern region of the country to Turkey, Iraq, Armenia, and Azerbaijan, foreign tourists can easily access the area under study by land, rail, and air.

3- Holding national and international sports competitions in Lake Urmia will expand tourism in the region

4- Development of land and rail communication networks with neighboring countries and construction of highways to Turkey and Iraq so that foreign tourists can easily access the research area by land and rail and this will cause the development and prosperity of tourism in Lake Urmia.

5- Diversify appropriate and flexible laws and policies to further develop the lake Tourism

6- Preparing various propaganda programs to introduce the attractions and landscapes of the lake as well as the historical monuments and cultural customs of the people of the region

7- Defining a specific position in the country's budget programs to implement the development of the lake and prevent the destruction of tourist installations located on the coast

3. Review Strategies (WO)

This class of strategies tries to improve internal weaknesses using the opportunities available in the external environment. Some of these strategies include:

1- Reviewing the protection programs of sensitive areas and exercising proper supervision over the existing regulations regarding tourism in Lake Urmia
2- Utilizing specialized and task force meetings and facilities and experiences of international organizations for the rehabilitation and maintenance of arid areas of the lake
3- Using the idea of non-governmental organizations (NGOs) to clean the lake shores and also attract tourists
4- Beneficial use of the lake's privilege of joining the Ramsar Convention and its ecosystem being among the 59 international points of the world's natural resources to attract more tourists
5- Reviewing the integrated management system and selecting unique management to develop and advance tourism goals
6- Establish collaborative offices with companies active in the field of health tourism in other countries to access the markets of target countries

D. Defensive Strategies (WT)

This type of strategy is defensive and aims to further reduce internal weaknesses and avoid external threats. Some of these strategies include:

1- Creating banking facilities for investment in the tourism sector, which will lead to establishing infrastructure in the study area, and this will repel the lack of investors' risk to investment in the tourism sector and the lack of supporting investment in tourism projects that themselves are a threat for the tourism area.
2- Necessary training should be given to the elements and brigades of the Cultural Heritage and Tourism Organization in the tourism industry. This training can provide basic information about tourism and lead to the full and accurate implementation of tourism laws and regulations.
3- Allocation of a special budget for advertising and holding tourism exhibitions in the field of promoting the region's capabilities in the field of health and treatment
4- Attracting foreign and domestic investments to potentialize actual capabilities
5- Necessary measures to increase the durability of tourist attractions in the region
6- Selecting target markets and changing service packages accordingly

CONCLUSION

Urmia Lake has always been considered for its therapeutic properties throughout history and the healing property of Urmia Lake sludge is one of the most important of these therapeutic properties. Urmia Lake sludge with abundant mineral salts especially calcium, sulfate, potassium, iron, magnesium, radioactive materials, and other various organic materials is one of the best medical sludges and is effective in treating many diseases such as skin and rheumatic diseases, psychosomatic

diseases, gynecological diseases, especially pelvic inflammatory and menstrual disorders and many other diseases. In the past, the mud of Lake Urmia, in addition to several foreign countries, was transferred to the Soviet Hospital in Tehran, which now operates with the name of the Khordad 15th, for the treatment of patients, but in recent years, unfortunately, it has no other use except for the general public and tourists using this healing property. But today, using new treatment methods and building modern medical centers near Lake Urmia, effective steps can be taken in the development of the health tourism industry as well as helping patients in need. In the meantime, such centers can effectively help promote the teaching of new treatment methods in the health care system of the country that by itself can become a reference scientific environment for other countries, including neighboring countries.

According to the analysis made by the strategic model, the strength and opportunities of Lake Urmia due to inefficiency and weakness of tourism management, especially in the field of health and treatment, remain on but has great investment potential. The means obtained from the matrix of evaluations of internal and external factors of Lake Urmia, which is lower than 2, indicate the existence of weaknesses and threats more than strengths and opportunities. Urmia Lake, despite having 33 strengths or opportunities as existing advantages and 30 weaknesses or threats as limitations and bottlenecks ahead, has a high vulnerability threshold, so it can be said that the vulnerability threshold, therefore, the vulnerability threshold of the lake is high and needs to be reviewed and to provide appropriate policies to address weaknesses and threats using the strengths and opportunities of the region.

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