

Assessment of geomorphic tourist places in village in Chabahar by using prolong method

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Abstract: Geomorphological and forms have high ability to attract tourists in rural areas. Analyzing geomorphologic relationship with tourism issues including interdisciplinary researcher main tourism concern in recent years. By establishing such communication with geomorphologic tourist places human will understanding the factors affecting and the benefits of geological, geomorphologic, social and historical places, the aesthetic, scientific, cultural-historical and socio-economic are achieved. On the basis of this assumption we introduced Tis area of Chabahar as a geomorphological site for tourists which offers rural tourism and is the main aim of this research using Prolong method. The results showed that the proposed premises as a place of tourist geomorphologic feature and can be considered nothing but natural resources and tourism area. On these basis the value of these places mainly depends on their beauty and historic importance thus are of equal values of importance as tourism site. Village of Tis on the basis of public welfare has a low ranking which can be raised to higher levels as there is very high potential sites for tourism.

Keywords: Geomorphologic location, Rural tourism, Prolong method, Chabahar, Tis village.

1- INTRODUCTION

Today the phenomena of tourism are considered to a valuable source of revenue for many countries and hence more investment must be done in this sector for its improvement (Tremblay, 2006, 34). Tourism can be an alternative source of income especially when other sectors a falling short in term of revenue generation (Papoli Yazdiand Saghaei, 2007, 82).

Tourism have different types and forms depending on different environmental conditions (Cater, 2002, 43). Geomorphologic attractions, climate, mineral springs, vegetation and animal species associated with underground corridors with water flow or no flow of water in economic planning studies and tourism, are the most important factors.

Geomorphologic attractions, climate, hot mineral springs, vegetation, different animal and bird species, rivers and underground water reservoirs are all major factors effecting tourism and plays a vital role in tourist attraction (Fennel, 1998, 315).

Over the past decade Geomorphologic and climatic sites have been studied in fields of evaluation, promotion and are considered key landscape areas to be protected. Geomorphologic climatic sites are defined as landforms which on the basis of human understanding comprise of geological, geomorphologic, social, historical, aesthetic, scientific, cultural and socio-economic factors (Yamani et al. 2013, 77).

Special geographical location and various natural phenomenon suitable for tourism has made Iran fifth country in the world from the perspective of natural diversity (Rakhshani Nasab and Zarabi, 2010, 11).

Another attractive aspect of Iran is its beautiful villages which has a wide variety of natural habitat.

Tis village of Chabahar situated in Sistan and Baluchestan province located in proximity to the Sea and having beautiful beach, relaxing environment, landforms geomorphologic sites, local customs and different ethnic groups are the potentials that make it crucial to have a full-fledged rural tourism plan in this region. Therefore proper investments in the region can cause growth and development of rural and costal tourism.

This study attempts to identify geomorphologic features and tourism potentials of Tis village. In Iran and many other countries research regarding rural tourism, geo tourism and eco-tourism has been conducted on the basis of available potentials at geomorphic sites.

(Maghsoudi, 2004) examined the role of tourism in coastal landforms and the result showed that each landform have special features which are vital and without considering their importance it will cause negative impact on environment and tourism industry. (Shayan et al. 2012) assessed the capabilities of geomorphologic tourism potentials of Darab landform by using Prolong model. Result of this study shows that Darabgard's Salt Domein Darab city is of crucial geomorphological importance.(Mokhtari, 2011) in a study evaluate the ability of ecotourism geomorphologic sites of Asiyab Kharabeh region as a geomorphical landform, by using non eco-tourism methods and seek to define watersheds and geomorphological units in the framework and concepts of ecotourism(Yamani et al, 2013).

Yamaniet al (2013), used the functionality of geomorphosite geo-tourismic Samireh region by using Prolong method and discussed. The result showed that this regions landforms has special features like natural beauty, historical and archaeological attraction, cultural, sports potentials in the field of tourism. Lack of infrastructures and proper advertising are the main cause of tourism expansion in this region.

Williams (1975), consider rural areas as quality tourist destinations places which lacks in urban lifestyle. According to Katz and Krakby (1991), rural tourism has major influence on the development of rural communities. Brouder et al (2013), conducted a research in relation to tourism development in the northern region of Sweden and concludes that similar results can naturally generalized to other small surrounding communities that has ecotourism. It also states that tourism is developing in almost all regions of the world considerably in Europe.

Finally he came to conclusion that geographical economic assessment such as: ecological, cultural, economic and local factors are important to understand evolution of tourism in rural peripheral areas (Lanza, et al, 2005). Dann, (1996) emphasizes that sustainable development of rural tourism requires strategic plans that includes major steps such as facilitation, involvement and effective participation, development and deployment, cohesion and stability, as well as functional rehabilitation are necessary.

2- AREA UNDER STUDY

Tis village from the aspects of centralized city of Chabahar is situated in 60 degree 37 minute east longitude and 25 degree 22 minutes north latitude and 9 km north of the gulf embouchure of Chabahar in the province of Sistan and Baluchestan. Tis village is 10 meters above sea level and is located on the east side of Chabahar free trade zone (Sistan and Baluchestan Statistical Yearbook, 2012).

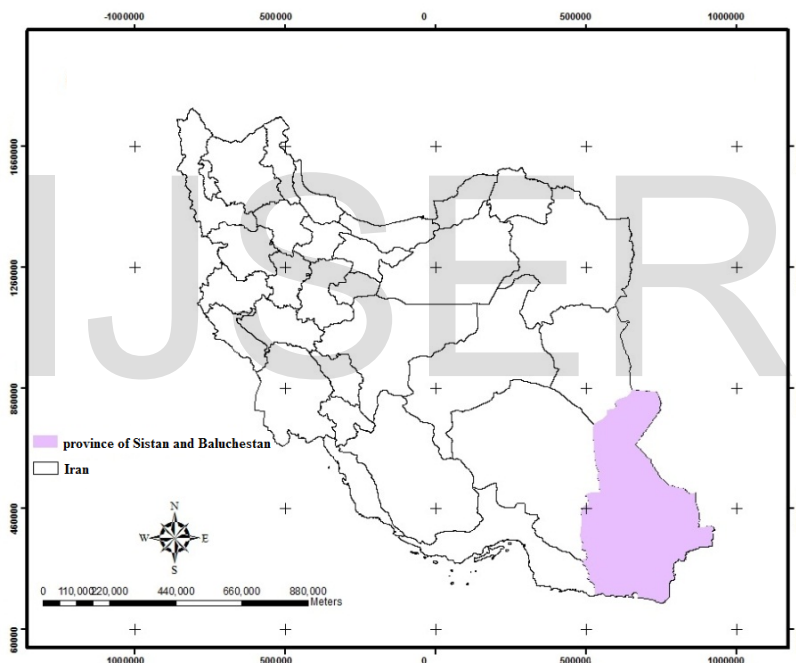


Figure (1): Location of the province of Sistan and Baluchestan in Iran: Source: research results

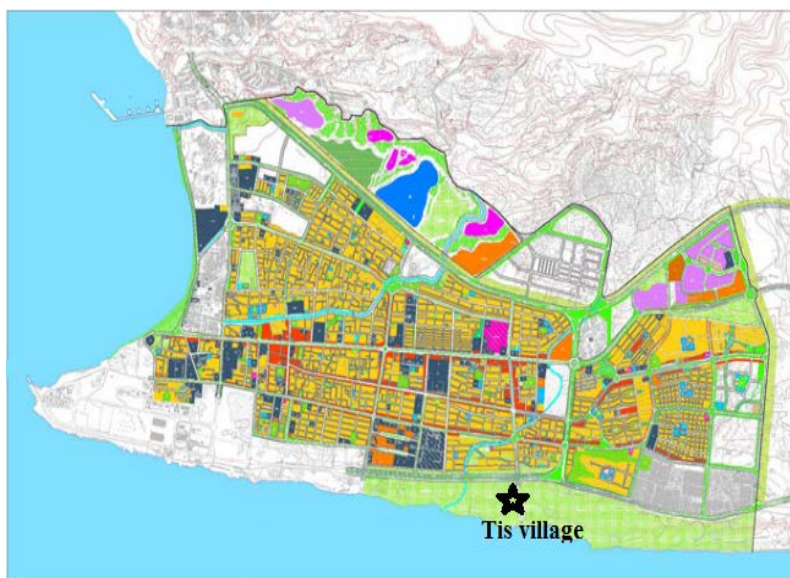


Figure (2): Location of Chabahar city and Tis village: Source: research results

The area under study (Tis village) has a dry and hot climate, the weather in autumn and spring are delightful and pleasant, summers are warm and winters are cool. These conditions are considered secondary attractive conditions and plays a vital role in tourism activities in the region (Regional feasibility of Tourism, 2010, 25-114). According to the latest census of population and housing held in November 2012 in Tis village shows a population of 5451 of which 2720 males and 2731 were female, and the number of households in this village is equal to 1240.

3- MATERIALS AND METHODS

This research is conducted in the field of geographical science, its type is application and method used is cross-sectional. In the present research, Prolong method is used to assess the levels of tourism in geomorphic locations of the region. Specific scales and measures were taken to determine the value of each geomorphical aspects such as beautiful appearance, scientific, cultural –historical and socio–economically. According to these aspects tourism

features of a place can be calculated according to equation 1:

Equation (1)

$$\text{Tourism value} = \frac{\text{Apparent Aesthetic value} + \text{Scientific value} + \text{Cultural-historical value} + \text{Socio-economic values}}{4}$$

In this formula, weight is perfect for any tourism aspect and is neither high nor low as compared to other factors. Therefore there is no reason for their low or height values in determining location of geomorphic tourism sites (Yamani et al, 2013, 73).

4- PROLONG MODEL PROCESS:

4-1- Calculation appearance values:

Each location value is assessed according to its own characteristics and beauty and the value is calculated via equation (2) and Table (1) as:

Equation (2)

$$\text{The total value of appearance} = \frac{\text{value of section 1} + \text{value of section 2} + \text{value of section 3} + \text{value of section 4} + \text{value of section 5}}{5}$$

Table (1): Benchmark and Scoring geomorphologic location values.

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: Number of landmarks	-	One	Two or three	Four, five and six	More than six
Section2: Average distance to location in meters	-	Less than 55	Between 55 and 255	Between 255 and 555	More than 555
Section3: Area in square kilometers	-	Small	Medium	Big	Huge
Section4: Height	Zero	Less	Medium	Tall	Very tall
Section5: colors contrasting with surroundings	Similar colors	-	Different colors	-	Opposite colors

Source: research results

4-2- Calculation of Scientific values:

Scientific values of attractive sites can be obtained via equation (3) and Table (2) as:

Equation (3)

$$\text{Total scientific value} = (\text{value of section1} + \text{value of section2}) + (\text{value of section3} \times 0.5) + (\text{value of section4} \times 0.5) + (\text{value of section5} + \text{value of section6}) / 6$$

Table (2): scientific values and rating of the geomorphologic location

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: Ancient geography attraction	-	Low	Medium	High	Very high
Section2: Visual characteristics	Zero	Low	Medium	High	Very high
Section3: Area (relative to the total area)	-	Less than 25	Between 25-50	Between 50-90	More than 90
Section4: Scarcity	More than 7	Between 5-7	Between 3-4	Between 1-2	Unbeatable
Section5: Location status	Destroyed	Severely destroyed	Moderate destroyed	Slightly destroyed	Without any manipulation
Section6: Environmental attraction	Zero	Low	Medium	High	Very high

Source: research results

4-3- Calculation of cultural and historical value:

In this evaluating, it's basically emphasized on historical-cultural, ancient and religious aspects and artistic-cultural events. Final values are based on equation (4) and Table (3) as:

Equation (4)

$$\text{Total historical-cultural value} = (\text{value of section 1} + (\text{value of section 2} \times 2) + \text{value of section 3} + \text{value of section 4} + \text{value of section 5}) / 5$$

Table (3): Value and criteria of cultural places with historical geomorphologic importance

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: Historical and Cultural Aspects	Without fixation	Week	Medium	severe	Intense
Section2: Landscapes iconography	Zero	1 to 5	6 to 25	21 to 55	More than 55
Section3: Historical and archaeological aspects	Without any trace	Week	Medium	High	Very high
Section4: The religious and spiritual aspects	Zero	Week	Medium	High	Very high
Section5: artistic and cultural events	Never	-	Occasionally	-	At least once a year

Source: research results

4-4- Calculation of Socio-economic value:

To assess the ability of social-economic values of geomorphological sites the results are obtained via equation (5) and Table (4) as:

Equation (5)

$$\text{Total social-economic value} = (\text{value of section1} + \text{value of section2} + \text{value of section 3} + \text{value of section4} + \text{value of section5}) / 5$$

Table (4): Criteria and socio-economic value of geomorphologic sites

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: Accessibility	One kilometer distance to available track	Less than one kilometer distance to available track	Accessible via local roads	Accessible by road with regional importance	Accessible through a road of national importance
Section2: Natural Hazards	Uncontrollable	Not being controlled	Limited controlled	Optional controls	Without danger
Section3: The number of visitors per year	Less than 15000 people	Between 15 to 155 thousand people	Between 155 to 555 thousand people	Between 555 up to 1 million people	More than 1 million people
Section4: Level of protection	Complete	Limited	-	Unlimited	Without

schemes					protection
Section5: attraction	-	Local	Regional	National	International

Source: research results

4-5- Calculating Productivity Value:

Efficiency evaluation of geomorphological locations are comprised of two main parts and as we assess tourism scale different values are defined to determine value of these sections. Thus, the scale efficiency (Equation 6) according to (coordinates X) and quality (attributes Y) is expressed as productivity.

Productivity represents the amount of space and its quality along with efficiency of the four elements such as beautiful appearance, scientific, cultural and economic values of the property.

Equation (6)

$$Product\ efficiency = (value\ of\ productivity + quality\ value) / 2$$

Relations between these two grades shows the degree of productivity (low, medium, high) in the designated location.

4-5-1- Calculating Productivity Value:

Values are based on calculating equation (7) and Table (5) as:

Equation (7)

$$Value\ of\ Efficiency = (value\ of\ section\ 1 + value\ of\ section\ 2 + value\ of\ section\ 3 + value\ of\ section\ 4) / 4$$

Table (5): Measure the value and rate of productivity in geomorphologic location

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: Area of use(acres)	Zero	Less than 1	Between 1-5	Between 5-10	More than 10
Section2: The number of infrastructure	Zero	1	Between 2-5	Between 6-10	More than 10
Section3: Seasonal accommodation(days)	-	1 to 90 day (one season)	91 to 180days (2 seasons)	181 to 270 days (3 seasons)	271 to 360 days (4 seasons)
Section4: daily accommodation(hours)	Zero	Less than 3 hours	Between 3-6 hours	Between 6-9 hours	More than 9 hours

Source: research results

4-5-2- Calculating Quality of Productivity Value:

It's calculated according to equation (8) and Table (6):

Equation (8)

$$Efficiency\ quality\ value = (value\ of\ section\ 1 + value\ of\ section\ 2 + value\ of\ section\ 3 + value\ of\ section\ 4) / 4$$

Table (6): Criteria and Scoring in quality efficiency of geomorphologic location

Rating	Zero	0.25	0.5	0.75	1
Criteria					
Section1: The use of beautiful appearance	Without any advertisement	A supportive measures and introduce of a product	Support and introduce of multiple product	Several protective measures and the introduce of a product	Several protective measures and introduce of multiple products
Section2: Application of scientific value	Without any training facilities	A supportive measures and the introduce of a product	Support and introduce of multiple product	Several protective measures and the introduce of a product	Several protective measures and introduce of multiple products
Section3: Using Cultural Values	Without any training facilities	A supportive measures and the introduce of a product	Support and introduce of multiple product	Several protective measures and the introduce of a product	Several protective measures and introduce of multiple products
Section4: Using the economic value(people)	No visitor	Less than 5000	Between 5000 - 20000	Between 20000- 100000	More than 100000

Source: research results

In this research we have studied and assessed five attractive geomorphological case exist in the region by using Prolong model.

5- RESEARCH FINDINGS:

The geomorphological attractive sites understudy are the village of Tis, its seashore, waterfall, triple caves and Maabadiyan Masseti, badlands, Tafoni holes and double caves over waterfall.

Table (7): Tis village identification.

Identification	Index	
Location	Relative location: city of Chabahar, Tis village, five kilometers Tis road to Konarak, on the left hand side. Geographical coordinates: 60degrees36minutes31.8secondseast longitude and 25 degrees21minutes54.5secondsnorth latitude Height above sea level: 7meters Area attractions: 10 to50 acres	
Main source of attraction	Natural attraction	
Tourism	Allure of attraction	Value at the international level
	Motivation to attract tourists	Visual and natural areas Daily and nightly promenade
	How to access	Easy road, air, sea passage, no railway
	Hazards	Hurricanes, other
	Tourism services	With appropriate services

Source: research results



Figure (3): Tis village beach view: Source: research results

Table (8): Tis waterfalls identification

Identification	Index	
Location	Relative location: city of Chabahar, Village of Tis on the sets of Tis Cemetery Geographical coordinates: 60 degrees 37 minutes 40.2 seconds east 25 degrees 21 minutes 49.1 seconds north latitude Height above sea level: 25 meters Area attractions: 10 acres or less	
Main source of attraction	Natural attraction	
Tourism	Degree of attraction	Local level
	Motivation to attract tourists	Special natural sites

		Daily and nightly promenade
	How to access	Easy road, air, sea passage, no railway
	Hazards	Other(other than hurricanes, floods, earthquakes and landslides)
	Tourism services	Acceptable services

Source: research results

Table (9) Identification of triple caves of Maabadiyan Masseti

Identification	Index	
Location	Relative location: city of Chabahar, Tis village, south side of the Shahbaz mountain next to School Zainabiyeh Geographical coordinates: 60 degree37minuteeast longitudeminutes5seconds 25degrees21minutes40secondsnorth latitude Height above sea level: 15meters Area attractions: 10acresor less	
Main source of attraction	Cultural and historical attraction	
Tourism	Degree of attraction	National level
	Motivation to attract tourists	Scenic and historic sites Daily and nightly resort
	How to access	Easy road, air, sea passable, no railway
	Hazards	Other(other than hurricanes, floods, earthquakes and landslides)
	Tourist services	Acceptable service

Source: research results



Figure (4): Triple caves and Maabadiyan Masseti: Source: research results

Table (10): Badland and holes of Tafoni

Identification	Index	
Location	Relative location: city of Chabahar, Tis Village Geographical coordinates: 60 degrees 36 minutes 7.5 seconds east 25 degrees 21 minutes 11.6 seconds north latitude Height above sea level: 15 meters Area attractions: 10 to 50 acres	
Main source of attraction	Natural attraction	
Tourism	Degree of Attraction	National level
	Motivation to attract tourists	Scenic and natural areas Daily and nightly promenade
	How to access	Easy road, air, sea passable, no railway
	Hazards	Hurricanes

	Tourist services	Acceptable
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Source: research results



Figure (5): Badlands and holes of Tafoni: Source: research results

Table (11): Double caves above the waterfall

Identification	Index	
Location	Relative location: city of Chababar, Village Tis on the sets of Tis Cemetery Geographical coordinates: 60 degrees 37 minutes 40.2 seconds east 25 degrees 21 minutes 49.1 seconds north latitude Height above sea level: 25 meters Area attractions: 10 acres or less	
Main source of attraction	Natural attraction	
Tourism	Allure of Attraction	National level
	Motivation attract tourists	Scenic and natural areas Daily and nightly promenade
	How to access	Easy road, air, sea passable, no railway
	Hazards	None
	Tourist service	Acceptable services

Source: research results

Statistical evaluation grade of attraction in morphological areas were calculated by using Prolong Method.

According to these values the beautiful appearance, scientific, cultural-historical and socio-economic value are obtained by equation (1). Table 12 shows the result:

Table (12): Tourism attraction area studied using Prolong Method.

Region	Tis village beach	Tis waterfall	Triple cave and Maabadiyan Masseti	Badlands and holes of Tafoni	Double cave over waterfall
Tourist Attractions values					
Beautiful appearance values	0.55	0.45	0.55	0.55	0.5
Scientific values	0.47	0.81	0.47	0.66	0.54
Historical and cultural values	0.2	0.15	0.7	0.1	0.3
Socio-economic values	0.55	0.4	0.4	0.6	0.5
Tourism values	0.44	0.45	0.53	0.47	0.46

Source: research results

Based on the data obtained via above table the most anticipated tourist sites are almost located close to each other. Triple caves of Maabadiyan Masseti has got the highest value as the most favorite attraction site as most of the cultural and historical attractive are located at this

site. These sites has high beautiful appearance values as well although by applying lightening to this environment, badlands and Tafoni holes have second position according to importance. Waterfall and double caves and beach of Tis village are in the next position.

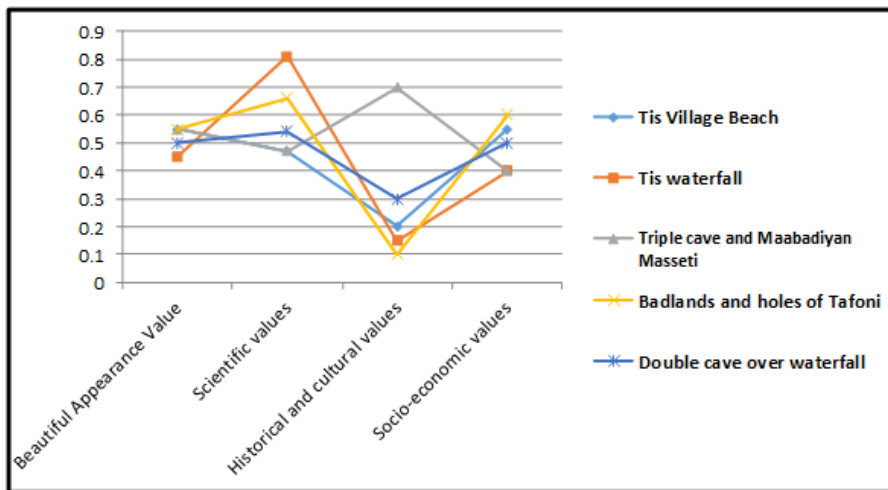


Figure (6): Comparing the value of tourism attractions of the region under study: Source: research results

Assesses efficiency and statistical values.

Productivity of average value of the efficiency and quality of productivity are calculated together. Table (13) and Figure (7) shows these values of efficiency.

Table (13): Efficiency value of regional attractions of the region under study

Region	Tis village beach	Tis waterfall	Triple cave and Maabadiyan Masseti	Badlands and holes of Tafoni	Double cave over waterfall
Value of Productivity	0.81	0.621	0.56	0.62	0.56
Value of efficiency quality	0.37	0.18	0.43	0.25	0.31
Productivity values	0.59	0.35	0.49	0.43	0.43

Source: research results

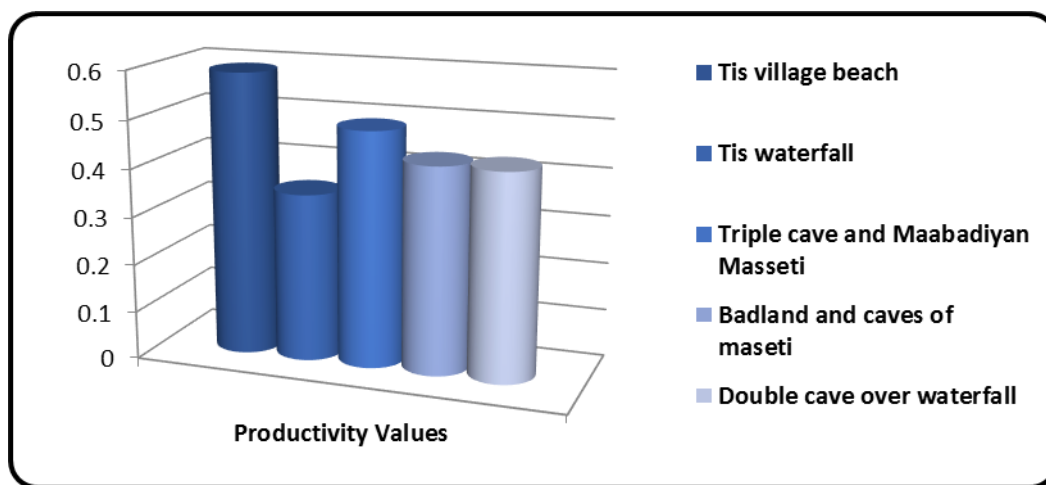


Figure (7): Comparing the productivity and attraction of the region under study: Source: research results

The values obtained in Table (13) suggests that the value of productivity Tis village beach is 0.59 points. Due to present facilities for tourism, beautiful beaches, yachts

and fishing boats which are available in all seasons increases the efficiency of tourism attraction. Similarly triple and double caves, badlands, Tafoni holes along

with Tis waterfall are next in line on the basis of their importance.

6-DISCUSSION AND CONCLUSIONS

Geomorphological sites are considered as attractive sites of a region and can serve as a product of tectonic, lithology and dynamic processes over time. Geomorphic climatic sites are beautiful appearance, having potentials for historical and archaeological studies and earth science education. A comprehensive plan is needed in order to identify geomorphic site which is the main step in tourism attraction. Taking in account of different aspects of geomorphic sites the Prolong method is considered as a well existing infrastructure in order to optimize the performance of these sites. Village of Tis, due to its natural attractions, historical, cultural sites, beautiful beaches, countryside and coastal are as tend to attract tourism in the country.

Based on the results obtained from Prolong model and the data in Table (12), the perfect tourism attractions are set close together. Triple caves of Maabadiyan Masseti has acquired 0.53 points due its cultural and historical attractions thus ranked topped in the list of most tourist attractive sites. Badland, holes of Tafoni got 0.47 point and hence come second as important tourist's site. Colorful lighting has made environment quite attractive for tourists in this area. Double caves near waterfall of Tis, its beach and waterfall have been next in line by acquiring 0.46, 0.45 and 0.44 points respectively.

On the basis of efficiency level values, safe and affordable passage, low risk of natural hazards, landforms, protections and regional beautiful appearance on local, national and international level the Tis village beach has been a highly valuable region as tourism is concerned. On the basis of effective quality value, based on advertisement. Caves of Maabadiyan Masseti and the beach of Tis village due to high quality advertisement has the highest value on both national and international level. According to average efficiency calculation the values: the Tis village beach with 0.59 point due to its public and tourist services and facilities, beautiful beach, sport yachts and fishing boats and all four season availability has been most significant tourism attraction region. Triple caves and badlands, Tafoni holes, double caves, and Tis waterfall has acquired 0.49, 0.43, 0.43, 0.35 point respectively.

Considering the morphological tourist attractions and the value of their productivity it is clear that Tis village is

quite capable of attracting rural tourism. And can become as a major area of coastal tourism in the south of the country.

Besides factors such as beautiful appearance, cultural and infrastructures facilities such as roads, hotels, parks and public relief structures are important for attracting tourism. Despite all positive tourism attraction factors, Tis village has a low level of public welfare infrastructures which must be improved in order to further improve tourism in the region.

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