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Selection of a Tourist Attractions Using AHP Method: The Case of Bangladesh

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Tourism has a vital influence on economic development of a country in modern business world. Despite having attractive natural beauty and rich cultural heritage, Bangladesh couldn't attract tourists due to lack of decisive information and thus promotional activities. This paper provides information through identifying and ranking the attractive tourism site and corresponding spot among a group of available alternatives reliant on several decision making criteria that are obtained through studying and processing one hundred and three samples. This study utilizes AHP Method (an MCDM Technique) due to its suitability of use in the cases when there is not enough information on the reviewed alternatives in decision making.

Field of Research: Management

1. Introduction

Tourism, in ancient societies, developed due to curiosity of individuals to know new things, places and people. Tourism is essential for many countries due to its capacity to generate earnings through the consumption of goods and services by visitors and tourists. This is a technical and multidimensional industry which encompasses many disciplines like information and publication, package tours, travel agency, hotel operation and catering services etc. In south Asian countries, tourism is a catalyst of change in household economies, leading to new opportunities for employment, new sources of cash income, and new information about technologies (Barkin 1996, Eadington & Smith 1992, Levy & Lerch 1991, Liu 2003). Bangladesh is one of the few countries in South Asia that definitely is not on the tourists hunting list like Nepal, India, Maldives or Sri Lanka; but it has a delicate and distinctive attraction of its own to offer. Due to scarcity of adequate and proper information structure, Bangladesh could not attract sufficient amount of tourists. Nazi and Zaman et. al. (2014) state in their research paper that among 40 respondents, only 40% agree that there is sufficient information available for the tourists of Bangladesh, but 33.3% disagree and 13.3% completely disagree about the availability of the information. On behalf of this scenario this case study provides rank of tourist attraction sites and corresponding spots of Bangladesh to overcome the limitations of the unavailability of information's. In this purpose, this study has identified the factors, that is, the decision criteria such as architectural and natural beauty, safety, distance, cost, transportation system, accommodation facilities etc., that affect on tourists' attraction or motivation to select a tourism site and to visit corresponding tourism spot. The objective of this study is to identify and evaluate those criteria of the tourism sites and tourism spots

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and rank them accordingly. This study is providing a decision support system that ensures the availability of the viable and structured information about the rank of the tourism site and corresponding spot that will help to expedite the rate of visit to the tourist spots that may elevate the tourism business as a strong aid for the promotional activities.

This paper arranged as follows- Section 2 presents the literature review to identify the research scope on tourism sector. Section 3 explains the methodology and the solution procedure. In this section, the AHP method is explained in detail which is utilized to solve the selection problem of tourist attractions site of Bangladesh elaborated as a case study. Section 4 presents summarized results and Section 5 presents the conclusions of the study.

2. Literature Review

The term tourism could be viewed from different angles like economic, managerial, marketing, social, environmental and so on (Rashidul,1988). Tourism is an activity done by an individual or a group of individuals, which leads to a motion from a place to another Tourism can be classified into several distinct categories. They would include holiday travel, visiting friends and relatives (VFR), business travel, health treatment, shopping, conference, incentive travel, official mission, education, sport and others travel (Malaysia Tourism Promotion Board, 2004). The World Tourism Organization defines tourists as people who travel to and stay in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited. According to International Association of Scientific Experts in Tourism, tourism is the sum of the phenomena and relationships arising from the travel and study of non-residents in so far as they do not lead to permanent resident and are not connected with any earning activity. Tourism is the temporary, short-term movement of people to destination outside the places where they normally live and work and their activities during the stay at each destination. It includes movements for all purposes (Tourism Society of England, 1976).

Potential tourists must be made aware of the interesting and historical place, scenic beauties, adventurism, health reports, rich, and ramified culture etc. (Rashidul, 1988). Jahangir (1998) argued that Bangladesh's share in the total arrivals in the south Asian region is too small. Almost all the countries of South Asia, backed by organized efforts, are far ahead of Bangladesh in respect of development of tourism. But Ali (2004) found that from the ancient period this area is famous for scenic beauty. Foreign tourists praised this country for its wonderful natural beauty, rich cultural heritage and hospitality of the people. Tourism means the business of providing information, transportation, accommodation and other services to travelers (Ghosh, 2001). But according to Nazi and Zaman (2014), Among 30 respondents, 40% respondents agree that there is sufficient information available for tourists of Bangladesh. Again, shown in table, 33.3% disagree and 13.3% strongly disagree with the availability of information. So, there is still lack of sufficient information about tourism sector in Bangladesh.

Table 1: Availability of Information

	Frequency	percent	valid percent	cumulative percent
Strongly Disagree	4	13.3	13.3	13.3
Disagree	10	33.3	33.3	46.7
Neutral	4	13.3	13.3	60.0
Agree	12	40.0	40.0	100.0
Total	30	100.0	100.0	

Hossain and Nazmin (2005) depicted that according to the foreign tourists of Bangladesh ,scenic beauty ranked first, cost of services second ,attitude of people third ,and so on down to facilities ranking the tenth. Md. Alauddin et. al. (2014) stated that the limitations and weaknesses of the tourism sector in Bangladesh is accommodation problem, transportation problem, lack of security, unstable political situation and poor image of Bangladesh.

Islam and Islam (2006) argued that Bangladesh is a country of Asian region holding high potentiality of tourism. Since long past, Bangladesh was an attractive destination to the tourists. But at present her position is not significant in terms of international tourism. And Nath (2007) observed that level of satisfaction with the overall tourism facilities and services is at a level of 51%. The tourists judged by very poorly the level of night entertainment, tour information, advertisement, and traveling agency services.

For many developing countries, tourism is considered to be the one of the fundamental pillars of their economic development (Alauddin et. al. 2014). But Hossain and Firozzaman (2003) mentioned that Bangladesh tourism industry failed to grow properly not merely because it lacks in enough attractions but suffering mostly due to inadequate and effective promotional activities.

AHP provides a proven, effective means to deal with complex decision making and can assist in identifying and weighing criteria, analysing the data collected and expediting the decision-making process (Saaty 1980). AHP provides a useful mechanism for checking the consistency of the evaluations thus reducing bias in decision making (Alessio & Markus 2002).

Application of AHP in various fields including: integrated manufacturing (Putrus 1990), in the evaluation of technology investment decisions (Boucher and McStravic 1991), in flexible manufacturing systems (Wabalickis, 1988), layout design (Cambron and Evans 1991), and also in other engineering problems (Wang and Raz 1991).

But AHP suffers a significant limitation in assuming independence among various decision-making criteria (Hsu & Kuo 2011). In contrast to AHP, ANP provides a more generalized model for decision-making that is free of assumptions about the independence of higher-level elements from lower-level elements and permits more systematic analysis (Hsu & Kuo 2011). Another limitation of AHP is that it cannot handle the impreciseness of the human judgement. This limitation can be overcome by using AHP with fuzzy set theory.

The uncertainty and vagueness of the experts' opinion is the prominent characteristic of the selection problem, this impreciseness of human's judgments can be handled through the fuzzy sets theory (Ayhan 2013). Fuzzy AHP method systematically solves the selection problem that uses the concepts of fuzzy set theory and hierarchical structure analysis (Cheng, et.al.1999).

TOPSIS, which is a widely accepted multi attribute decision making tool can be used for selection problem (Hwang & Yoon, 1981). The concept of TOPSIS is that the most preferred alternative should not only have the shortest distance from the positive ideal solution, but should also be farthest from the negative ideal solution (Wang, et.al. 2009).

Though there are sufficient amount of literatures highlighting the limitations and weaknesses of the tourism sector in Bangladesh; but there is no significant work to identify relative weight of tourist attractions criterion and equivalent ranking of tourism sites or spots. It is evident that lack of consciousness and information are the basic problems of the visitors of Bangladesh. Lots of places are very outstanding in compare with international tourist places but unfortunately it has never been focused through proper channels towards local and international tourists to attract to visit here. This paper tries to contribute in selecting important tourist places in respect of expected criterions of the tourists. In previous researches it is discussed about different criteria and the need for ranking and advertising or advertisement support system but didn't provide any structured decision support system. In this work, the relative weight of every criterion is calculated and the tourist attraction site and corresponding tourist attraction spots are ranked accordingly. From the literature review and tourist's opinion it has been observed that following variables are very important to enhance tourism sector of the country: architectural and natural beauty, safety, accommodation, entertainment, political stability, cost of services, transportation, distance, tour operator and tour information, and advertisements. This study utilizes AHP Method due to its suitability of use in the cases when there is not enough information on the reviewed alternatives in complex decision making situation. From literatures it can also depict that the relative importance or ranking of the tourist attractions may help to improvise adequate and effective promotional activities for the improvement of our tourism sector and would be very helpful for the tourists and tourism business of Bangladesh. And AHP provides an effective means that can assist in identifying and weighing criteria, so that in this work AHP technique is utilized to expedite the decision-making process.

3. Methodology

Various Government and non-government organization are studied those are related with the tourism sector in Bangladesh. The study is based on both primary and secondary data sources. Secondary data has been collected from research reports, journals, newspapers, websites and statistical report of Bangladesh Parjatan Corporation etc. Primary data are collected from tourists through questionnaire. In this case study, Distance and Transportation system is calculated from the zero point of Dhaka, Bangladesh. Total cost included accommodation cost and transportation cost. The sample comprised of 103 samples from different regions of Bangladesh. A survey report is generated as follows-

Table 2: Survey Report (From February'2014 to June'2014)

Alternatives	Factors affecting tourists							
	Beauty	**Safety**	**Accommodation**	**Transportation**	**Cost**	**Distance**	**Total tourists**	**Percent of tourists**
Beaches	9	3	5	4	0	1	22	21.36%
Hills & Island	7	1	4	2	0	1	15	14.56%
Forest and Jungle	11	3	3	1	0	0	18	17.78%
Religious places	2	2	1	0	4	0	9	8.74%
Historical places	7	4	2	0	1	0	14	13.59%
Museum	2	6	0	2	2	1	13	12.62%
Archaeological site	5	2	3	1	1	0	12	11.65%
Total tourists	**43**	21	18	10	8	3	**103**	
Percentage of tourists	**41.75%**	20.39 %	17.48%	9.71%	7.77 %	2.91%		

Following phases are included in this study-

1) Identifying problem and Problem structuring,
2) Data collection,
3) Relative weight evaluation,
4) Problem solution establishment.

Analytical Hierarchical Method (AHP) technique is used to identify and rank tourism sites and tourism spots.

3.1 AHP

AHP is a multi-criteria decision making process. In AHP, consistency is followed very accurately by using a scale of absolute judgments. The fundamental scale for different ranking of decision maker is given in the following table.

Table 3: The Fundamental Scale of Absolute Numbers

Scale	Ranking	Explanation
1	Equally important	Both criteria or alternatives contribute to the objective equally
3	Moderately important	Based on experience and estimation, moderate preference is given to one criteria or alternative over the other
5	Strictly more important	Based on experience and estimation, strict preference is given to one criteria or alternative over the other
7	Very strict, proven importance	One criteria or alternative is strictly preferred over the other; its dominance has been proven in practice
9	Extreme importance	The evidence based on which one criteria or alternative is preferred over the other has been confirmed to the highest confidence
2;4;6;8	Mid-values	

The AHP method belongs to the group of popular methods for its possibility of identification and analysis of the consistency of decision maker in the process of comparison of elements in the hierarchy. Considering that the alternatives' comparison is based on a subjective estimation by the decision maker, it is necessary to constantly monitored in order to secure the required accuracy. The AHP method ensures that the evaluation consistency is monitored constantly in the alternative pairwise comparison. The consistency index, CI = (1/(n-1))*(λ_{max}-n) calculates the consistency ratio CR = CI/RI , where R.I. is the random consistency index that shows in table 4, λ_{max} is the matrix Eigen value and n is the matrix size.

Table 4: Random Consistency Index Values R.I. (Saaty, 1980)

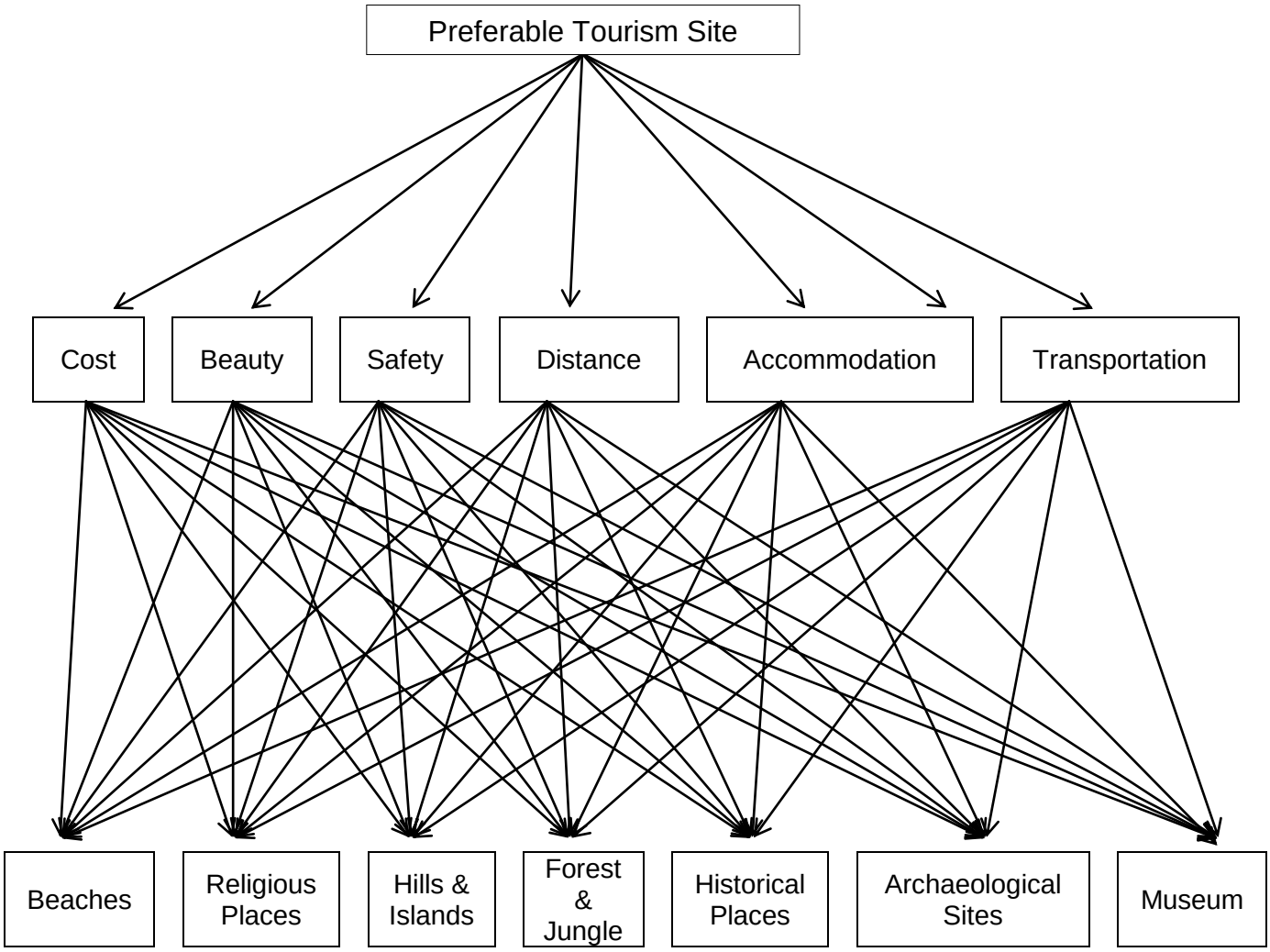
N	1	2	3	4	5	6	7	8	9	10
R.I.	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

Therefore, it is true that $\lambda \geq n$, and the difference of (λ_{max} – n) is used to measure the evaluation consistency. In case of consistency, if λ_{max} is closer to n, the evaluation is considered more consistent. If C.R. ≤ 0.10, the relative importance given to the criterions (that is, the relative priority) is considered being acceptable. In the opposite case, the decision maker has to analyse the reasons of unacceptably due to high evaluation inconsistency.

3.2 Problem Structure & Solution

The problem of selection of the tourism site in Bangladesh is shown in the following hierarchy-

Figure 1: Structured Problem of Selection of the Tourism Site in Bangladesh



The second level attributes (decision criteria) are marked as following-

A_1 – Architectural & Natural beauty
A_2 – Safety
A_3 – Accommodation facilities
A_4 – Transportation System
A_5 – Cost
A_6 - Distance

Relative importance within attributes that are presented in table 5, table 6, table 8 and table 9 are built with the transitivity rule ($a_{ij} = a_{ik} \times a_{kj}$) and reciprocity rule ($a_{ij}=1/a_{ji}$). For example in table 5, the first row second column i.e. in a_{12} position, we compute value 2 (according to saaty scale), because A_1 is slightly preferable than A_2. In a_{15} position, we compute value 5 because A_1 is strongly preferable than A_5.The rest of the value of the first

row is computed according to saaty scale. The first column values are calculated by applying reciprocity rule ($a_{21}=1/a_{12}=1/2=0.5$). And then the rest of the values are calculated by applying the transitivity rule ($a_{25}= a_{21}\times a_{15}=0.5\times6=3$). The priority vector of table 5 is obtained by dividing the summation of row elements of the matrix by the summation of all elements of the matrix. For example, the priority vector of architectural and natural beauty (A_1) with respect to the criterion in table 5 is calculated in the following way-

$\frac{1+2+4+5+6+9}{69.84} = 0.3865$

Now, the importance of attributes could be assigned as presented in the table 5 and the priority vector is indicated in last column.

Table 5: Second Level Attributes Comparison (Decision Criteria)

	A_1	A_2	A_3	A_4	A_5	A_6	Weight
A_1	1	2	4	5	6	9	0.3865
A_2	0.5	1	2	3	3	7	0.2362
A_3	0.25	0.5	1	3	2	6	0.1825
A_4	0.2	0.33	0.33	1	2	3	0.0982
A_5	0.16	0.33	0.5	0.5	1	2	0.0642
A_6	0.11	0.14	0.16	0.33	0.5	1	0.0320

λ_{max} = 6.481, CI = $\frac{1}{n-1}(\lambda_{max}-n) = \frac{6.418-6}{6-1}$ = 0.0836 and CR = $\frac{CI}{RI} = \frac{0.0836}{1.25}$ = 0.0669 < 0.10 which is less than 0.10 (i.e. Acceptable).

The value of λ_{max} is calculated as follows-

$$\lambda_{max} = 0.03865\begin{bmatrix}1\\0.5\\0.25\\0.2\\0.16\\0.11\end{bmatrix} + 0.2362\begin{bmatrix}2\\1\\0.5\\0.33\\0.33\\0.14\end{bmatrix} + 0.1825\begin{bmatrix}4\\2\\1\\0.33\\0.5\\0.16\end{bmatrix} + 0.0982\begin{bmatrix}5\\3\\3\\1\\0.5\\0.33\end{bmatrix} + 0.0642\begin{bmatrix}6\\3\\2\\2\\1\\0.5\end{bmatrix} + 0.032\begin{bmatrix}9\\7\\6\\3\\2\\1\end{bmatrix}$$

λ_{max} = 0.858 + 1.016 + 1.458 +1.259 + 0.931 + 0.896

λ_{max} =6.418

Analogously, the third level attributes (alternatives) could be marked as following-

B_1 – Beaches
B_2 – Hills & Islands
B_3 – Forest & Jungles
B_4 – Religious Places
B_5 – Historical Places
B_6 – Museum
B_7 – Archaeological Sites

The corresponding third level alternative comparison matrices for each attribute along with their respective priorities that are identified from survey and saaty scale are tabulated to compute the corresponding Consistency Index (CI) and Consistency Ratio (CR) to

understand the consistency within third level of alternatives corresponding to each of the first level attributes. Table 6 shows the matrix of alternative relative importance for Natural Beauty (A_1) attribute.

Table 6: Matrix of Alternative Relative Importance for Third Level Attributes for Natural Beauty (A1) Decision Criterion (For Tourism Site Selection)

	B_1	B_2	B_3	B_4	B_5	B_6	B_7	Weight
B_1	1	1	1	3	4	6	7	0.2400
B_2	1	1	1	3	4	6	7	0.2400
B_3	1	1	1	3	4	6	7	0.2400
B_4	0.33	0.33	0.33	1	2	3	5	0.1251
B_5	0.25	0.25	0.25	0.5	1	3	3	0.0860
B_6	0.16	0.16	0.16	0.33	0.33	1	2	0.0432
B_7	0.14	0.14	0.14	0.2	0.33	0.5	1	0.0255

λ_{max} = 7.1787, CI = $\frac{1}{n-1}(\lambda_{max}-n) = \frac{7.1787-7}{7-1}$ = 0.0289 and CR = $\frac{CI}{RI} = \frac{0.0289}{1.35}$ = 0.0214 which is less than 0.10 (i.e. Acceptable).

Similar to the alternative relative importance comparison of first attribute (Natural Beauty, A_1), the corresponding Consistency Index (CI) and Consistency Ratio (CR) to understand the consistency within third level attributes (enlisted tourism sites) for other second level attributes that is Safety, Accommodation facilities, Transportation, System, Cost and Distance are shown in table 7.

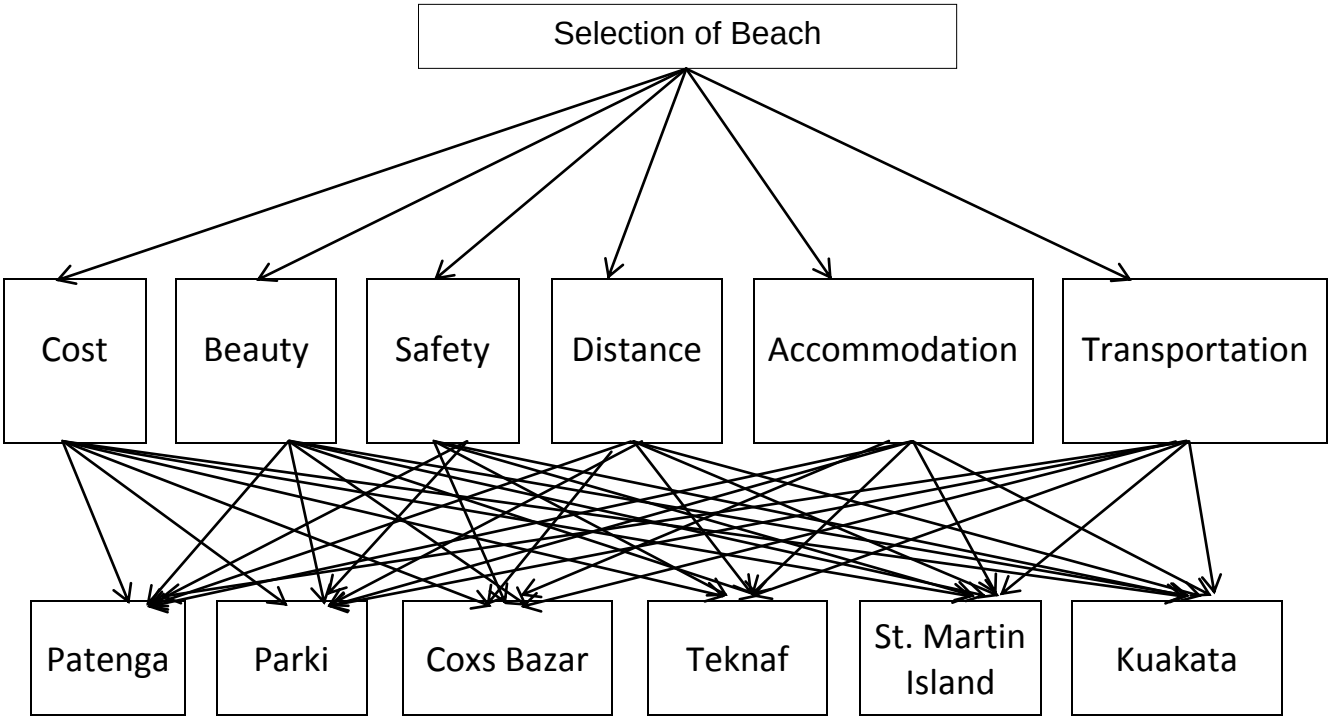
Table 7: Calculated Value of λ_{max}, CI and CR to Recognize Acceptability of Rest of the Attributes (For Tourism Site Selection)

Name of the Attributes	Matrix Eigen Value (λ_{max})	Consistency Index (CI)	Consistency Ratio (CR)	Whether Computed CR is <0.10	Decision
Safety	7.7766	0.1294	0.0958	yes	Acceptable
Accommodation facilities	7.4717	0.0786	0.0582	yes	Acceptable
Transportation System	7.3573	0.05955	0.0441	yes	Acceptable
Cost	7.0085	0.00145	0.00107	yes	Acceptable
Distance	7.0592	0.00986	0.0073	yes	Acceptable

At the end of the procedure, all alternatives are multiplied by the weight of the single decision criteria, and the obtained results are summarized. The alternative with the highest value is, in fact, the most acceptable or optimal alternative for the tourism site. This final tableau of this method (AHP) is presented in Appendix (table A1). In that case, Beaches are ranked in first position among preferred tourism sites apart from other alternatives like Hills & Islands, Forest & Jungles, Religious Places, Historical Places, Museum and Archaeological Sites. After that, this study is continued to the selection problem of identifying the tourism spot for each of the mentioned alternative of tourism site in

Bangladesh. Among them the detail problem structure and calculations are demonstrated for the first level selection, i.e. the Beaches, below-

Figure 2: **Structured Problem of Selection of Beach in Bangladesh**



The second level attributes (decision criteria) are marked as following-
A1 – Architectural & Natural beauty
A2 – Safety
A3 – Accommodation facilities
A4 – Transportation System
A5 – Cost
A6 - Distance
Now, the importance of attributes is assigned as presented in table 8.

Table 8: First Level Attributes Comparison (Decision Criteria)

	A_1	A_2	A_3	A_4	A_5	A_6	Weight
A_1	1	2	4	5	6	9	0.3865
A_2	0.5	1	2	3	3	7	0.2362
A_3	0.25	0.5	1	3	2	6	0.1825
A_4	0.2	0.33	0.33	1	2	3	0.0982
A_5	0.16	0.33	0.5	0.5	1	2	0.0642
A_6	0.11	0.14	0.16	0.33	0.5	1	0.0320

λ_{max} =6.418, CI = $\frac{1}{n-1}(\lambda_{max}-n) = \frac{6.418-6}{6-1}$ = 0.0836 and CR = $\frac{CI}{RI} = \frac{0.0836}{1.25}$ = 0.0669 < 0.10 which is less than 0.10 (i.e. Acceptable).

Analogously, the third level attributes (alternatives) are enlisted as follows-
C_1 –CoxsBazar
C_2 –St. Martin Island
C_3 –Teknaf
C_4 –Kuakata
C_5 –Patenga
C_6 –Inani
C_7 –Parki

Table 9 shows the matrix of third level alternative relative importance for Natural Beauty (A_1) attribute.

Table 9: Matrix of Alternative Relative Importance for Third Level Attributes for Natural Beauty (A1) Decision Criterion (For Tourism Spot Selection Corresponding to the Selected Site i.e. Beaches)

	C_1	C_2	C_3	C_4	C_5	C_6	C_7	Weight
C_1	1	1	2	1	2	2	2	0.2
C_2	1	1	2	1	2	2	2	0.2
C_3	0.5	0.5	1	0.5	1	1	1	0.1
C_4	1	1	2	1	2	2	2	0.2
C_5	0.5	0.5	1	0.5	1	1	1	0.1
C_6	0.5	0.5	1	0.5	1	1	1	0.1
C_7	0.5	0.5	1	0.5	1	1	1	0.1

λ_{max} = 7, CI = $\frac{1}{n-1}(\lambda_{max}-n) = \frac{7-7}{7-1}$ = 0 and CR = $\frac{CI}{RI} = \frac{0}{1.35}$ = 0 < 0.10 which is less than 0.10 (i.e. Acceptable).

Similar to the alternative relative importance comparison of first attribute (Natural Beauty, A_1), the corresponding Consistency Index (CI) and Consistency Ratio (CR) to understand the consistency within third level alternatives (enlisted Beaches) for other second level attributes that is Safety, Accommodation facilities, Transportation, System, Cost and Distance are shown in table 10.

Table 10: Calculated Value of λ_{max}, CI and CR to Recognize Acceptability of Rest of the Attributes (For Tourism Spot Selection Corresponding to the Selected Site i.e. Beaches)

Name of the Attributes	Matrix Eigen Value (λ_{max})	Consistency Index (CI)	Consistency Ratio (CR)	Whether Computed CR is <0.10	Decision
Safety	7.0202	0.00336	0.00249	yes	Acceptable
Accommodation facilities	7	0	0	yes	Acceptable
Transportation System	7.0743	0.0123	0.00917	yes	Acceptable
Cost	7.0426	0.0071	0.00526	yes	Acceptable
Distance	7.668	0.1113	0.0824	yes	Acceptable

At the end of the procedure, all alternatives are multiplied by the weight of the single decision criteria, and the obtained results are summarized in the Appendix (table A2). The alternative with the highest value obtained is CoxsBazar, thus, the most acceptable or optimal alternative for selection.

4. Analysis of Results

As there are no significant researches found as mentioned in literature review to rank the tourists attraction sites or spots, this paper attempts AHP technique to provide a decision support system for the preferable tourism site which is concluded with the Beaches and the decision for the tourist spot of the Beaches is concluded with CoxsBazar among the selected alternatives based on potential criteria. Relative weights are computed and tabulated in section 3 and appendix. In that case study, Beaches are found ranking in first position (According to table 5- table 7 and in Appendix table- A1) among preferred tourism sites. Other alternatives are ranked as follows- Forest & Jungles ranked second, Hills & Islands ranked third, Museum ranked forth, Historical Places ranked fifth, Archaeological Sites ranked sixth and Religious Places ranked seventh. Among the alternative of Beaches, the highest value is obtained for CoxsBazar (According to table 8- table 10 and in Appendix table- A2), the most acceptable or optimal alternative for selection. And the ranking for selection of tourism spot for beaches, which is highest rank of tourism site, is- CoxsBazar ranked first, Kuakata ranked second, St.Martin Island ranked third, Teknaf ranked forth, both Patenga and Parki ranked fifth and thus Inani ranked at sixth position. This study provides ranking for potential tourism sites and corresponding tourism spots, among them detail computations included in this paper are only for tourism site selection and tourism spot selection for the most preferable site, that is, Beaches. Tourism spots for corresponding tourism sites are also calculated in similar way with AHP technique and the concluded results are as follows-

Selection of Hill & Island: Moheshkhali
Selection of Religious Place: Mashjids
Selection of Historical Place: National Memorial
Selection of Museum: National Museum
Selection of Archaeological Site: Ahsan Manzil

5. Conclusions

Bangladesh is one of the third world countries having scarcity of his finance but they can increase their GDP through by giving stress to the tourism sector. Tourism is an important segment for generating income, creating opportunity for employment and earning foreign currency. Practically, Bangladesh has a lot to attract tourists, by which the economy can be improved, but is still poor to play in this industry. As tourism has become one of the largest and fastest growing economic activities in recent years, this study may consider as a support, for tourists and tourism sectors in Bangladesh, in promotional activities (mentioned in literature rewiew section, section 2) which is a vital concern for tourism industry of Bangladesh to facilitate the sustainable development of the tourism business. Among a large number of spots full of natural and architectural beauties in Bangladesh this paper considers only the most common and prioritised tourist spots among all. For example the calculation of the selection of tourist spots is based on only six criteria such as cost, distance, accommodation facilities, transportation system, safety and architectural & natural beauty. But some other decision criteria such as weather, comfort, recreation etc. are also play an important role for attracting tourists, can also be considered in as

selection criteria. However, in this study, AHP technique is utilized for the multi criteria decision making problems, other decision making techniques like fuzzy AHP, weighted sum model (WSM), Technique for Order Preference by Similarly to Ideal Solution (TOPSIS) etc. can also be utilized and compared with obtained results.

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Appendix:

Table A1: Synthesized Table on the Optimal Alternative Selection

Criterion	A_1	A_2	A_3	A_4	A_5	A_6	Total
Criterion Weight	0.3865	0.2362	0.1825	0.0982	0.0642	0.0320	
B_1	0.2400	0.0926	0.3166	0.2413	0.0322	0.0760	
Weight × B_1	0.0927	0.02187	0.0578	0.0237	0.0021	0.0024	0.20063
B_2	0.2400	0.0543	0.1015	0.0910	0.0984	0.0760	
Weight × B_2	0.09276	0.01282	0.01852	0.0089	0.0063	0.0024	0.1417
B_3	0.2400	0.0552	0.3166	0.2413	0.0322	0.0760	
Weight × B_3	0.09276	0.01303	0.0578	0.0237	0.0021	0.0024	0.19179
B_4	0.1251	0.0286	0.0443	0.0563	0.1695	0.2319	
Weight × B_4	0.04835	0.00675	0.0081	0.0055	0.0109	0.0074	0.0870
B_5	0.0860	0.1833	0.0750	0.1126	0.1969	0.3142	
Weight × B_5	0.03323	0.04329	0.01368	0.0111	0.0126	0.0100	0.1239
B_6	0.0432	0.3346	0.0443	0.1287	0.2516	0.1496	
Weight × B_6	0.01669	0.07903	0.00808	0.0126	0.0162	0.0048	0.1374
B_7	0.0255	0.2510	0.1015	0.1287	0.2188	0.0760	
Weight × B_7	0.00985	0.05928	0.01852	0.0126	0.0140	0.0024	0.11665

Table A2: Synthesized Table on the Optimal Alternative Selection

Criterion	A_1	A_2	A_3	A_4	A_5	A_6	Total
Criterion Weight	0.3865	0.2362	0.1825	0.0982	0.0642	0.032	
C_1	0.2	0.2188	0.2	0.2708	0.2254	0.0751	
Weight × C_1	0.0773	0.0517	0.0365	0.0266	0.0145	0.0024	0.209
C_2	0.2	0.1328	0.1	0.1438	0.1254	0.0751	
Weight × C_2	0.0773	0.0314	0.0183	0.0141	0.0081	0.0024	0.1516
C_3	0.1	0.2188	0.2	0.0634	0.0634	0.1452	
Weight × C_3	0.0387	0.0517	0.0365	0.0062	0.0041	0.0046	0.1418
C_4	0.2	0.2188	0.2	0.0902	0.2254	0.1452	
Weight × C_4	0.0773	0.0517	0.0365	0.0089	0.0145	0.0046	0.1935
C_5	0.1	0.0701	0.1	0.1438	0.1214	0.242	
Weight × C_5	0.0387	0.0166	0.0183	0.0141	0.0078	0.0077	0.1032
C_6	0.1	0.0701	0.1	0.1438	0.1214	0.0751	
Weight × C_6	0.0387	0.0166	0.0183	0.0141	0.0078	0.0024	0.0979
C_7	0.1	0.0701	0.1	0.1438	0.1214	0.242	
Weight × C_7	0.0387	0.0166	0.0183	0.0141	0.0078	0.0077	0.1032