

An Assessment of Environmental Impact on Bhimashankar and Lonavala with the Help of Likert Scale

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Abstract

Tourism is considered as one of the world's largest industry. India is a developing nation. The Government and their agencies as well as private sector units and individuals are taking various measures to promote tourism. Promotion of tourism can contribute immensely to our economy. For Many years tourism was neglected at various levels but now a day's concentrated efforts are being made to improve the position and standard of tourism and also for the social benefit of the people.

Lonavala and Bhimashankar tourist centers are situated in Pune district. The study is based on primary and secondary data. With the help of questionnaire a stratified random sample survey was undertaken, 450 tourists were interviewed. For this study the factor wise Likert scale is calculated. Tourism satisfaction is a psychological outcome and it is concerned with the attribute of behaviors itself. Likert scale is a technique for the measurement of attitude a scale giving values for an individual's reactive attitude. The test is required to choose from a possible answer per item and thus to show a degree of agreement or disagreement with the attitude represented. The response to each question was rated on seven points 'Likert Scale' ranging from 1 to 7.

Introduction

It has been very difficult to survey entire Pune district as a tourist resources potential in it's entirety for reasons of relief barriers. Therefore, it has been possible to pinpoint study at various focal points of tourist attractions for a closer look. On the basis of the above mentioned criteria Lonavala a hill station and Bhimashankar a natural sanctuary and religious centers were selected for the study. Therefore, number of people come to the destination, enjoy the majority of the services related to tourism, people get employment economical changes takes place. But other facilities in

majority centers are not developed. Because number of tourists are less so, if tourists increase they are doing social, economical and environmental impact on the region. These impacts are a tool for measuring the level of development. If there is a strong impact means, there is a lot of development of tourism in the tourist's centers. Tourism is a cause for environmental, economic and demographic changes and these changes always catch the attention of tourists. Tourism is a commercial activity and therefore an aspect of economic geography. Tourism creates employment in the region because tourism needs an accommodation

catering transport entertainment and other service industries and the souvenir trade so; this is an aspect of economic geography.

Study Area

The Lonavala and Bhimashankar, tourist centers are situated in Pune district of Maharashtra (Fig. 1). Lonavala is situated in Maval tahasil and 60 km away from Pune. Lonavala is located at the intersection of 18° 43' 40'' N latitude and 73° 29' 14'' E longitude. The height of Lonavala is 596 m above ASL which covers 38 sq. km. area. The area can be ads characterized by rainy, winter and summer seasons which falls in June to October, November to February and March to May respectively. The thick evergreen forest cover is the unique feature of this area.

Bhimashankar is situated in Ambegaon tahasil and 128 km away from Pune. Bhimashankar is located at the intersection of 19° 03' 56'' N latitude and 73° 30' 48'' E longitude. The height of Bhimashankar is 1004 m above ASL. The Bhimashankar forest is a major attraction. The giant squirrel 'Shekru' is found in the Bhimashankar Sanctuary. Only thousands of Pilgrims all over the India come to Bhimashankar every year. Bhimashankar offers more prospects with its combination of cool pleasant summer climate along with its enchanting natural settings. The Bhimashankar has a natural cover of thick vegetation. The Bhima River originates at the Bhimashankar. Close to the source of the river is an ancient temple complex that is visited by thousands of devout worshippers every Mahashivratri and Tripuri Purnima. It has the beautiful Shiva temple. It is one of the 5 Jyotirlingas in Maharashtra. Annual fair attended by about more than 100000 pilgrims from the all parts

of the Deccan and Konkan region is held on Mahashivaratra in February – March and lasts adds for 2 to 3 days (Fig. 2).

Objectives

The broad objectives of the proposed study are:

1. To collect the information about tourism facilities available in the study region.
2. To study the environmental impact on study area.
3. An assessment of tourist impact on study area with the help of Likert scale.

Database and Methodology

The attitudinal survey has been the common method of addressing a range of environmental and economic issues. In this approach, respondents are asked to indicate their attitude and feeling towards the impact of tourism, with a set of closed questions or statements. Such survey can yield useful information about the types of impacts but it must be remembered that what is being recorded is the respondent's perception of those impacts and these may and may not accord with reality (Perce D. 1989, pp. 223). The impact of the study is an attempt to examine empirically the impact of tourism on local population.

It is not easy to analyze the attitude of the tourists. Therefore, to assess the environmental impacts of tourists in the study region survey was conducted during the year 2008 and 2009 respectively. In the first visit of Lonavala and Bhimashankar the general information of the tourists i.e. number of tourists in the year, visiting period, major fairs and festivals of the tourist places, halting period, purpose of the visit, religion and male-female ratio etc. was observed. In the second visit questionnaire

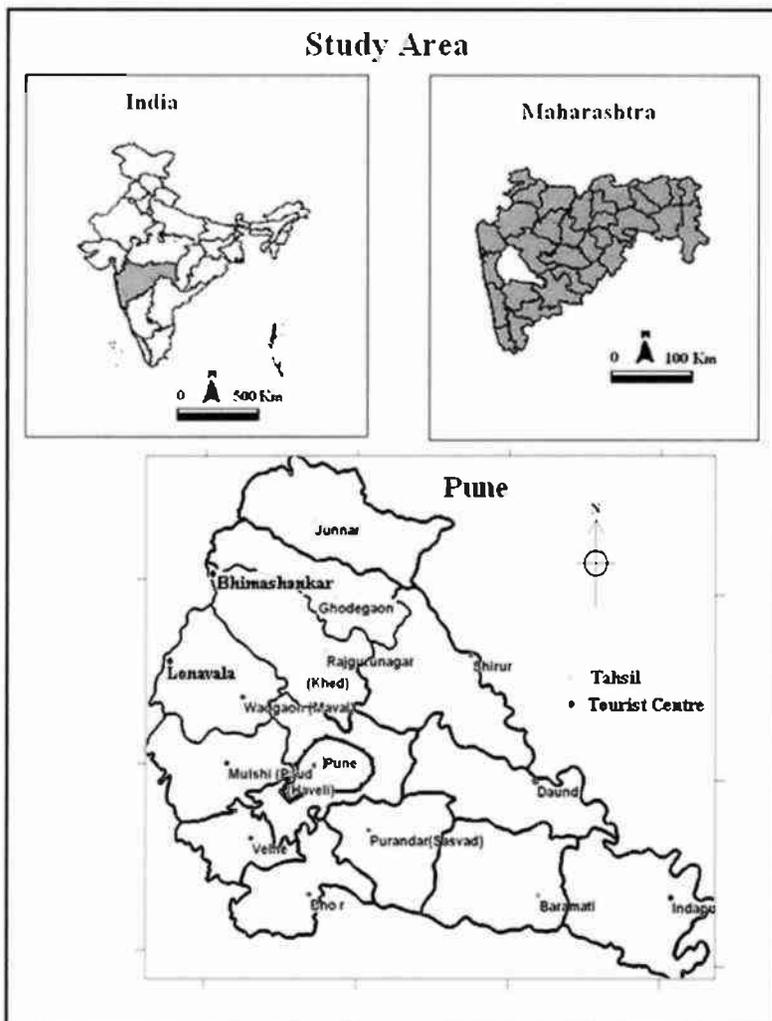


Fig. 1

were distributed personally to the tourists at tourist sites, railway station, bus stand, hotels, motels, lodges, Bhakta niwas, private and government rest houses. These surveys have been conducted on different occasions such as fairs, rainy season, Mahashivratri, Shravan Somwar, Diwali, Christmas, in summer season etc.

The questionnaire for assessment of environmental impact consists of 15 questions. These questions helped us to understand the environmental impact of

the tourists on the region. A total 450 questionnaire were filled up. The response to each question was rated on the seven point 'Likert Scale' ranging from 1 to 7. In this research paper attempt is made to analyse the tourists impacts according to their overcrowding and congestion, noise and air pollution, water pollution, sewage disposal, increasing number of hotels, acute problem of dirtiness at religious spot, development of slum, road condition, strain on public utility services and recreational facilities,

Important Tourist Centers in and around Bhimashankar and Lonavala

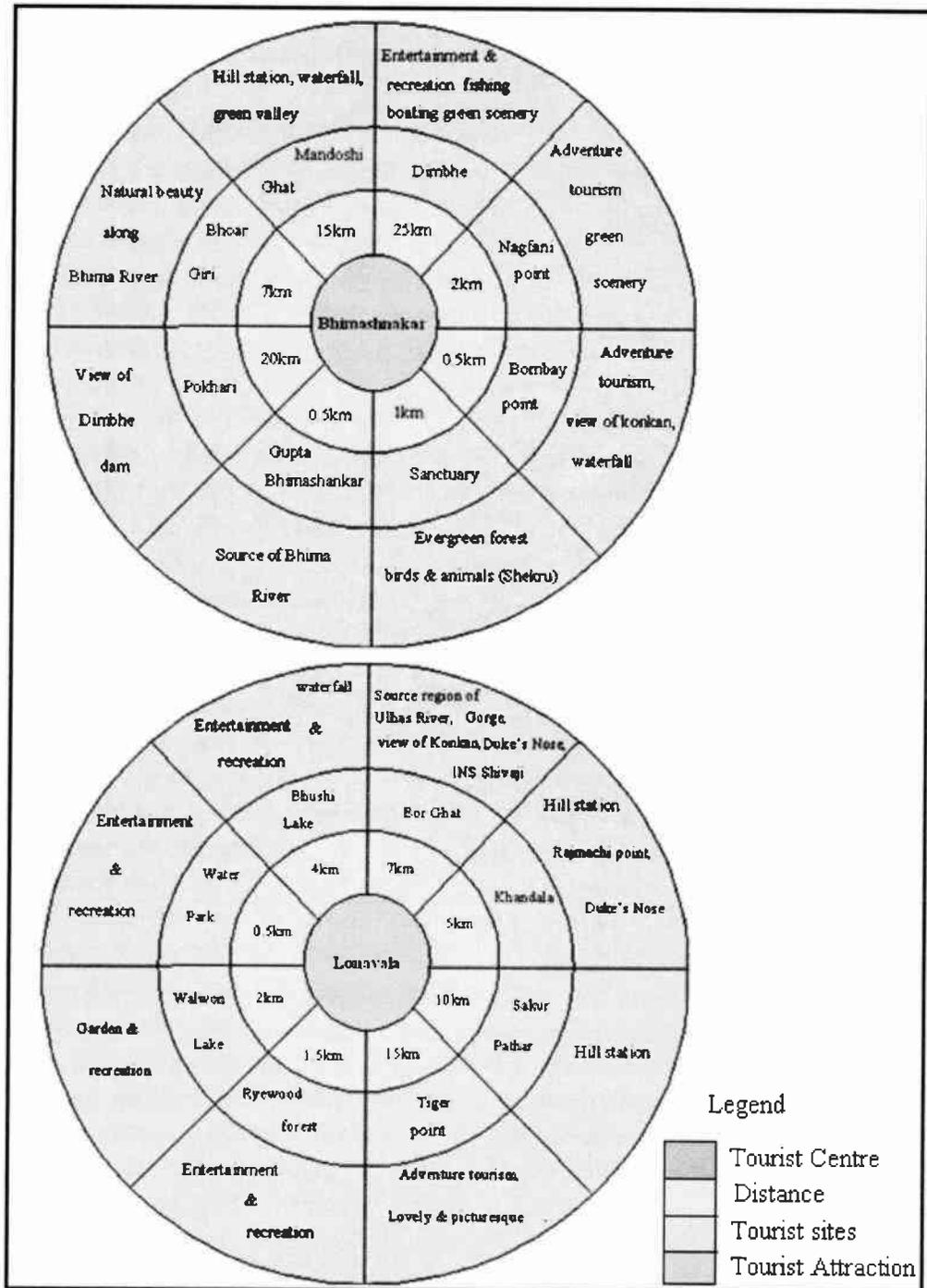


Fig. 2

dirking water etc. The questionnaire was given to the tourists to know their responses and reactions in respect to above mentioned various issues. The random sampling method has been used for the selection of the respondents i.e. tourists at different locations.

Likert scale

A Likert scale is a psychometric scale commonly used in questionnaires, and is the most widely used scale in survey research, such that the term is often used interchangeably with rating scale even though the two are not synonymous. When responding to a Likert questionnaire item, respondents specify their level of agreement to a statement. The scale is named after its inventor, psychologist Rensis Likert. An important distinction must be made between a Likert scale and a Likert item. The Likert scale is the sum of responses on several Likert items. Because Likert items are often accompanied by a visual analog scale (e.g., a horizontal line, on which a subject indicates his or her response by circling or checking tick-marks), the items are sometimes called scales themselves. This is the source of much confusion; it is better, therefore, to reserve the term Likert scale to apply to the summated scale, and Likert item to refer to an individual item. A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria; generally the level of agreement or disagreement is measured. Often five ordered response levels are used, although many psychometricians advocate using seven or nine levels; a recent empirical study found that a 5 or 7 point scale may produce slightly higher mean scores relative to the highest possible attainable score,

compared to those produced from a 10 point scale, and this difference was statistically significant. The format of Seven level Likert item is, 1= strongly disagree, 2= moderately disagree, 3= disagree, 4 = undecided or neutral, 5= agree, 6= moderately agree and 7= strongly agree.

Environmental Impact

Tourism has a major impact on environmental conditions of the region. Assessment of the environmental impact of tourism is particularly important, for the various facts of the environment constitute the basis of much tourist development. The questionnaire for assessment of environmental impact consists of 15 questions. These questions will help to understand the environmental impact of the tourist on the region.

The mean and standard deviation of residents of the Bhimashankar and Lonavala responses to environmental impact on tourists are calculated in the table 1. In case of Bhimashankar, mean and standard deviation of overcrowding and congestion is respectively 75 and 63.37, noise and air pollution 90 and 67.42, road condition 90 and 51.70 etc. In case of Lonavala, the mean and standard deviation of sewage disposal is respectively 90 and 54.23, drinking water 64.29 and 66.44 and increasing number of hotels 64.29 and 67.68 etc.

The higher the number of respondent tourists larger the effect on host population of tourist centers. The frequency distribution of environmental impact means for Bhimashankar 14.29 and standard deviation 11.25 and for Lonavala is 14.29 and 12.28. So, it can be said that in Bhimashankar and

Table 1: Resident's response to environmental impact of tourists Lonavala and Bhimashankar

Environmental impact of tourism on Bhimashankar											
No	Environmental impact	1	2	3	4	5	6	7	Σ	Mean	S.D.
1	Overcrowding and congestion	-	12	33	15	70	148	172	450	75	63.37
2	Noise and air pollution	-	-	28	23	67	132	200	450	90	67.42
3	Water pollution	-	-	-	18	105	129	198	450	112.5	64.36
4	Sewage disposal	-	45	39	17	92	178	79	450	75	52.40
5	Drinking water	-	23	17	33	111	145	121	450	75	51.87
6	Strain on public utility services and recreational facilities	-	-	61	33	145	112	99	450	90	39.19
7	Strain on entertainment facility	-	67	123	80	46	89	45	450	75	26.86
8	Road condition	-	-	53	10	103	145	139	450	90	51.70
9	Development of slums	-	145	101	14	34	67	89	450	75	43.28
10	Freely moving cattle	-	47	27	11	115	147	103	450	75	49.58
11	Acute problem of dirtiness at religious spot	-	-	-	28	145	123	154	450	112.5	50.07
12	Modernization of infrastructure	-	45	25	19	89	189	83	450	75	57.43
13	Increasing number of religious institution	-	-	45	23	60	145	177	450	90	60.01
14	Increasing number of hotels	-	13	17	33	156	108	123	450	75	56.16
15	Need of separate parking facility	-	-	-	22	115	154	159	450	112.5	54.96
Total				0	397	569	379	1453	2011	1941	6750
Environmental impact of tourism on Lonavala											
No	Environmental impact	1	2	3	4	5	6	7	Σ	Mean	S.D.
1	Overcrowding and congestion	13	17	45	23	114	106	132	450	64.29	47.42
2	Noise and air pollution	12	13	14	17	132	145	117	450	64.29	58.56
3	Water pollution	-	23	12	23	79	139	174	450	75	62.30
4	Sewage disposal	-	-	32	21	108	132	157	450	90	54.23
5	Drinking water	11	9	21	6	183	83	137	450	64.29	66.44
6	Strain on public utility services and recreational facilities	15	16	7	18	201	81	112	450	64.29	67.01
7	Strain on entertainment facility	32	-	12	15	65	119	207	450	75	69.38
8	Road condition	-	-	26	23	167	138	96	450	90	58.06
9	Development of slums	45	49	73	37	103	65	78	450	64.29	21.09
10	Freely moving cattle	-	15	10	9	198	115	103	450	75	70.35

11 Acute problem of dirtiness at religious spot	2	17	20	32	162	143	74	450	64.29	59.71
12 Modernization of infrastructure	23	16	12	7	121	108	163	450	64.29	59.67
13 Increasing number of religious institution	-	19	23	23	133	176	76	450	75	60.70
14 Increasing number of hotels	2	3	14	8	167	119	137	450	64.29	67.78
15 Need of separate parking facility	-	12	43	21	151	76	147	450	75	56.08
Total	155	209	364	283	2084	1745	1910	6750		

(Source: Field work 2008 & 2009)

Lonavala there is an overall positive effect of tourism (Fig 3 & 4 see page 135).

Now, is there any relation between tourist response and average score of Bhimashankar and Lonavala? This can be checked with second degree bivariate regression equation.

$$Y = a + b_1x^1 + b_2x^2$$

There is a correlation between tourist response and average score of Bhimashankar. The explained variance is 88% and unexplained variance is 12%. It indicated that tourist response is depending on score. The equation derived is significant

at 99% level. The calculated t value is 5.43 i.e. more than table t value on 99% level. Hence it is clearly indicating that tourist response depends on the score. So, it can be said that in Bhimashankar there is an environmental impact of tourism.

There is a correlation between tourist response (Y) and average score (X) of Lonavala. The explained variance is 76% and unexplained variance is 24%. It indicated that tourist response depends on the score. The equation derived is significant at 95% level. The calculated t value is 3.55 i.e. more than table t value on 95% level. Hence it clearly indicates that the tourist response depends on the score. So, it can be said that in Bhimashankar there is an environmental impact of tourism.

Table 2: Frequency distribution of environmental impact

Sr. No	Average Score	Percentage of Respondent	
		Bhimashankar	Lonavala
1	1	0	2.3
2	2	5.88	3.1
3	3	8.43	5.39
4	4	5.61	4.19
5	5	21.53	30.87
6	6	29.79	25.85
7	7	28.76	28.3
Total		100%	100%
Mean		14.29	14.29
Standard deviation		11.25	12.28

Conclusion

It can be summarized that environmental impact depends upon the factors like, overcrowding and congestion, noise and air pollution, water pollution, sewage disposal, supply and quality of fresh water, strain on public utility services and recreational facilities, strain on entertainment facility, road condition, development of slums, freely moving cattle and problems of congestion, hotels, parking facility etc.

Mostly in the rainy season so many tourists go to enjoy the picturesque of

Table 3: Result table

Reg Eqms		
BHIMASHANKAR $Y = -2.39 + 2.37x_1 + 2.37x_2$		
LONAVALA $Y = -3.11 + 2.70x_1 + 0.33x_2$		
	BHIMASHANKAR	LONAVALA
R ²	0.88	0.76
R	0.94	0.87
EV	88%	76%
UEV	12%	24%
t	5.43	3.55
Level of		
significance		
table t	table t	
95%	2.78	2.78
99%	4.6	4.6
99.99%	8.61	8.61

Lonavala. The higher the number of tourists larger the effect on host population of tourist centers. The attitude index means for environmental impact Bhimashankar is 14.29 and standard deviation 11.25 and for Lonavala is 14.29 and 12.28. The second degree bivariate regression equation gives idea about tourist response and average score of Bhimashankar and Lonavala. There is a correlation between tourist response and average score of Bhimashankar and Lonavala. So, it can be said that in Bhimashankar and Lonavala there is a positive effect of tourism. Besides this, such study is useful to planners, administrators, layman and those who are interested in research in the field of economic and social planning, strategic study and social and economic development may get the benefit.

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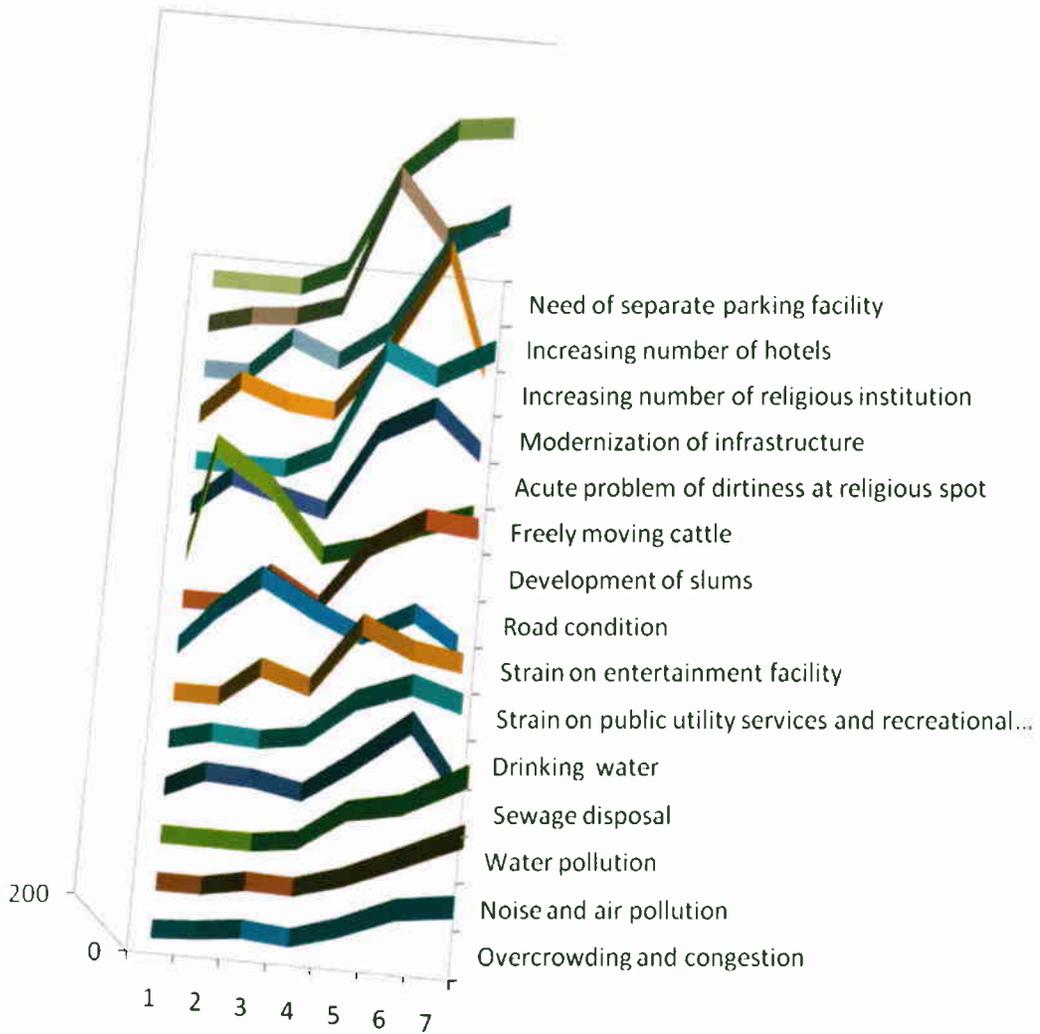


Fig. 3 See page 133 for text

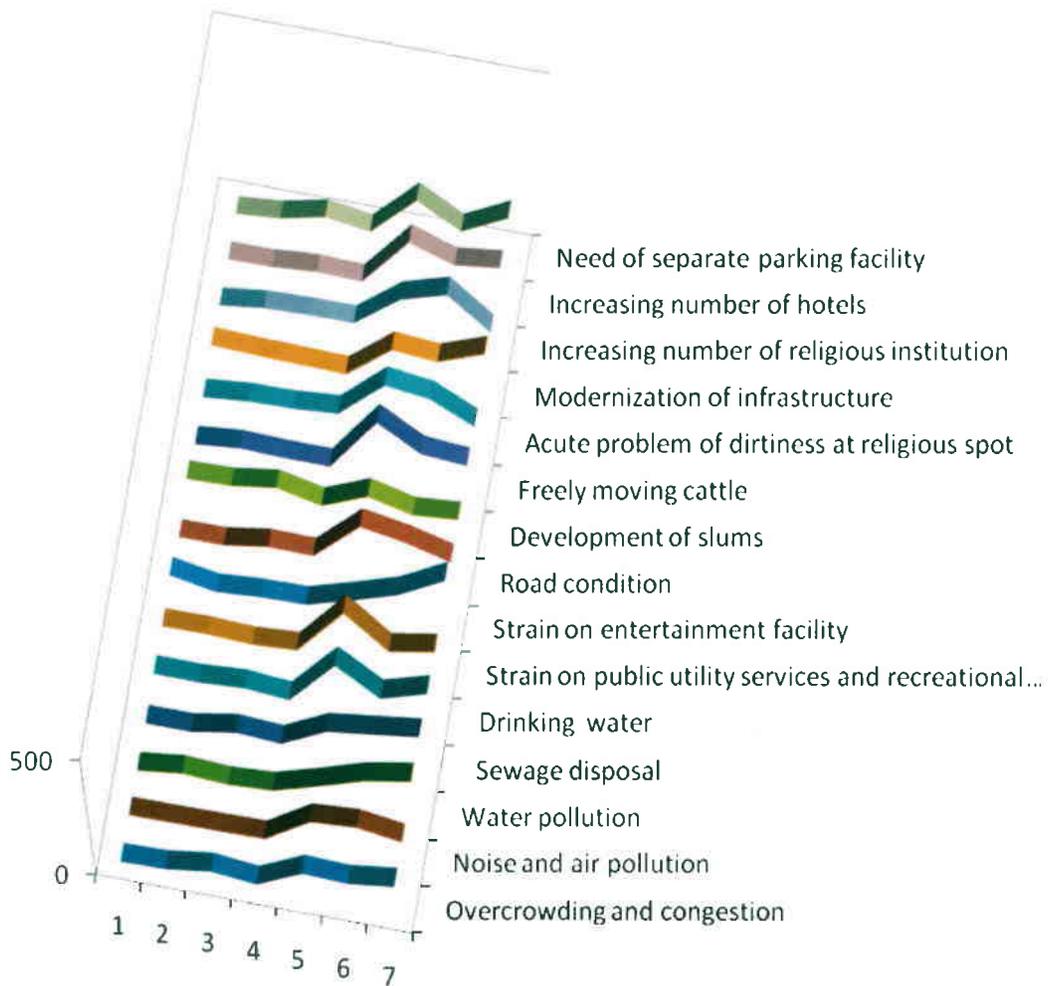


Fig. 4 See page 133 for text