

CHAPTER-IX

PHYSICAL IMPACT OF TOURISM

The physical impacts of tourism whether positive or negative are casual because of the development of the infrastructural facilities in the state. To promote tourism in the state, it is important to develop these basic infrastructural facilities. These facilities include sufficient water supply, regular power supply, roads, rail and air links, accommodation and maintenance of natural resources etc. to boost tourism in the state and to reap the benefits of this fast growing industry. It is important to provide a sufficient network of these facilities on the one hand and to face the consequences in terms of negative physical impacts on the other. To study the physical impacts of the tourism this chapter deals first, the conceptual framework of the physical impacts and then the actual physical impacts of tourism throughout the state. Some cases are given at the end. Thus, through this study, an attempt has been made to examine these physical impacts of tourism in details.

9.1 Tourism and Environmental Degradation

Every hill station in Himachal Pradesh is facing a severe thread of pollution by non-degradable substances like polythene bags, mineral water bottles and other polythene wrappers and empties. Due to lack of tourism amenities like temporary toilets and garbage bins at maximum of the important tourist spots are responsible for pollution by ever-accumulation layers of non-degradable material. It also lead to land erosion destruction of forests, besides acting as a catalyst in causing flash floods during the monsoon. In addition, flood cans, plastic bags and other environmentally hazardous materials left behind by the trekkers and climbers have formed a waste dump yard in the highest mountain peaks like Rohtang Pass, Triund etc.

During the last four decades, there has been a rapid retrogressive change in the environment of H.P. This has a direct bearing on the lives and well being of the people of the state.

Forest Fires

Forest fires are commonly in the tropical, sub-tropical and sub-temperate parts of the state in summer. They cause severe damage to the forest eco-system. Forests

fires may be due to intentional and unintentional fires. Intentional fires may be due to miscreants for damaging the forest wealth and local people to induce a good growth of grass. Picnickers may cause accidental or unintentional fires, trekkers and travelers who may leave unextinguished cigarette butts, matches, campfires etc. in the forest during the dry season. Every year, thousands of hectares of forests are affected by fires in H.P. particularly in the chir pine belt, which destroy vegetable growth, plantation and cause-accelerated erosion.

Quarrying

Quarrying or surface mining involves the removal of minerals (including stokes) from the earth's crust stones for the construction of hostels. Slate, sandstone, quartzite and still widely used for constructing walls, flooring and roofing. Underground mining was carried out to extract limestone, dolomite and marble in Sirmaur, Mandi, Kangra, Solan and Bilaspur districts, rock salt in Mandi district and other minerals like magnesite in other parts of the state.

Due to quarrying or surface mining in H.P. the following environmental problems caused

- It involves the diversion of valuable land that would have been put to use such as agricultural forestry or as a pasture. Reclamation techniques are yet to be adopted in the state.
- It involves the removal of valuable vegetation. This is an immense loss in terms of tangible and non-tangible costs, which may never be recovered.
- It causes loss of valuable topsoil which is base for survival of all plants and animal life.
- It affects the drinking water, as the water containing a large quantity of dissolved chemical seeps in to the rocks and find its way to the reservoirs of underground water. The underground water is contaminated.
- A vast quantity of dust released at the time of quarry has an adverse impact on the health of local people.

Water Pollution

Many rivers, streams and lakes have become polluted due to human interface with the wetland eco-system.

The Renuka lake in Sirmaur, Rewalsar lake in Mandi, Khajjar lake in Chamba and many other rivers of the state like Banganga river in Kangra valley, Beas river at Shamshi, Satluj river at Bilaspur, Gri river at Dadhau, Yamuna at Paunta are passing under various steps of degradation due to:-

- Sewage outwash the tourist complexes, human dwellings, shops and other buildings on the banks of the rivers.
- Heavy rush of tourists and cattle including horses meant for joy-riding.
- Inflow of vast quality of sediments from the surrounding slopes whose vegetative cover has gradually become denuded.

Mountaineering and Trekking

Mountaineering and trekking in the state have become popular sports in different parts of the state. Each year, a large number of climbers and trekkers go to many parts of the state which had brought an unprecedented pressure on the environment, than resulting in its deterioration. Garbage including empty tins and wrappers are left behind by the climbers and trekkers. They leave behind unextinguished campfires and cigarette butts in the forest. Moreover, the forests through which they passes, are brought under immense strain due to removal of fuelwood and grazing / browsing by their pack animals.

Heavy Construction

Rapid urbanization, heavy and unplanned construction and slum like areas cropped up in and around the main towns have led to many environmental problems. The roads have got congested as the roads in the hills cannot be widened beyond a certain limit. The worsening water problem and poor drainage system creating slush and unhygienic conditions. During blasting operations, more area has been actually planned may be weakened by the explosion. Blasting may lead to reactivation of geological faults, which in turn may cause landslides and rockslides, thus endangering human life and property. It causes damage to agricultural field and human settlements.

Sewage Disposal

Sewage disposal has become a major problem in almost all the urban and semi – urban centres of the state. The ever-increasing human activity along the banks of river generates tones of waste everyday, which is conveniently dumped in the rivers. It has virtually been turned into a big garbage disposal drain. Many of the major towns of the state including Dharamshala, Palampur, Nurpur and Jawalajihave a sewerage disposal for a limited population. The septic tanks are inadequate to take the heavy load of many odd hotels during the tourist season. Moreover, these tanks are drained into the river during the rains. It all causes solid pollution, water pollution and air pollution.

Natural Processes

Besides manmade problems, natural processes such as earthquakes, glaciers, avalanches and mountain stream are also responsible for degradation of environment. The entire state is a seismically very active belt. Kangra earthquake (1905),Kinnaur earthquake (1975) and thousands of other earthquakes have affected various parts of the state.

Glaciers are the predominant geological agency in the snowbound areas of the Dhauladhar, Pir Panjal, main Himalaya and Trans Himalaya ranges. Receding glaciers leave behind unconsolidated debries, which may become the source material for landslides. The vast areas vacated by glaciers remain barren for a considerable period of time.

Each year hundreds of avalanches occur in the upper tracks of the Dhauladhar, Pir Panjal, Main Himalya and trans-Himachalya ranges involving masses between ten to ten thousand tons and vertical displacements of upto 155 mtrs. Avalanches are responsible for charges in landform condition. It carries a vast quantity of debris with them. Mass involvement of avalanches is a constraint thread to forest. Young trees and saplings are more prone to damage. The famous Pin Valley in Spiti in 1978 and many other parts of the state remained cut off by avalanches many times. Air force helicopters had to be pressed into service to being relief to the calamity sticken people.

River and Stream Erosion

Erosion is the most prominent geological action of running water. The sediments eroded for the earth's surface are transported as solution, suspension, or siltation to be deposited in the downstream areas. Changes have been reported in the rivers of the dun type valleys, thereby lying waste a vast tract of land. Unsorted sediments are deposited over agricultural fields, settlements, roads and canals, particularly during the occurrence of flash floods.

Physical Impact of Tourism on Physical Environment–Analysis and Interpretation

9.2 Maintenance of Tourists spot in Kangra

The physical constituents of tourism, which includes natural, as well as other basic infrastructural facilities discussed above, have very significant impacts on the hilly environment of the district. Keeping in view the importance of these physical impacts of tourism in both terms positive as well as negative impacts, an attempt has been made through this study to know the real position. Thus, many questions incorporated in the schedule regarding the physical impacts of tourism have asked from the respondents (tourists and local residents) who analysed here by using some statistical tools and techniques. The results of the primary as well as secondary data are interpreted here in this chapter. The opinion regarding the physical impacts like maintenance of natural beauty, creation of entertainment in different tourist places, creation of more parks and picnic sports etc. are asked from the tourists whereas the other questions such as problem of traffic, pollution, sewage disposal, deforestation, overcrowding , erosion of land due to heavy construction of hotels, land slides, parking problems, garbage dumps, problem for animal because of conversion of grazing land into parks etc, failure of water and electricity supply due to heavy tourist inflow, and opinions about roads health roads health facilities, communication and telephone facilities and other modes of traveling like rail and air links are asked from the local residents and then analysed and interpreted in details in this chapter.

Table 9.1
Maintenance of Tourists spot in Kangra
(Responses of Tourists)

S.N.	Statement / Response	Highly satisfied	Satisfied	Not satisfied	Total
1	Maintenance of natural beauty is proper	210 (52.5)	166 (41.5)	24 (6)	400 (100)
2	Creation of entertainment in different tourist locations	24 (6)	138 (34.5)	238 (59.5)	400 (100)
3	Creation of more parks / picnic spots etc	46 (11.5)	120 (30)	234 (58.5)	400 (100)

Source: Data collected through questionnaires.

Note: Figures in Parenthesis are in percentage.

The analysis of table 9.1 witnessed regarding the maintenance of tourist spots. While asking about the maintenance of tourist interest spots is proper, 52.5% tourists are “highly satisfied” followed by 41.5% who are “satisfied” whereas 6% tourists are not satisfied with the statement. Regarding the creation of entertainment in different tourist’s places 59.5% tourists are not satisfied. They said that neither the state as well as central government nor the tourism department has created anything for the entertainment and replied that only God gifted natural beauty is there which attracts tourists. Only 6% tourists are “highly satisfied” & 34.5% “satisfied” with the facilities at different locations. Almost same thing happened while asking about the creation of more parks / picnic spots etc. The 58.5% are not satisfied whereas 30% are satisfied and 11.5% are highly satisfied.

Table 9.2
Chi – square values

S.N.	Statement / Response	Chi – square
1	Maintenance of natural beauty is proper	141.740
2	Creation of entertainment in different tourist locations	171.980
3	Creation of more parks / picnic spots etc	134.540

Table value of Chi-square for $v = 2$, $x^2_{0.05} = 5.99$

The responses of the tourists are also analysed and discussed in table 9.2 by applying chi-square test to find out whether the tourists opinion are equally distributed among three options i.e. “highly satisfied”, “satisfied” and “not satisfied” against each variable. Statistically it is found that the calculated χ^2 values are 141.74, 171.98 and 134.54 respectively for these variables, which are greater than the table value and are significant at 0.01% level. Hence the hypothesis is rejected and concluded that the responses of tourists over the maintenance of tourists sports are not equally distributed but differ significantly.

Table 9.3
Weighted Arithmetic Mean

Weighted Scores			Total	Weighted Arithmetic Mean
630	332	24	986	2.465
72	276	238	586	1.465
138	240	234	612	1.53

The weighted arithmetic means of these variables are revealed in the analysis table 9.3 The opinion of the tourists over the first variable i.e. maintenance of natural beauty falls between satisfied and highly satisfied according to the weighted mean of 2.465. Whereas the responses regarding second and third variables falls nearly not satisfied as per their mean values.

Table 9.4
Zero order correlation matrix

	Vari -1	Vari – 2	Vari – 3
Vari – 1	1		
Vari – 2	0.675 ⁺	1	
Vari – 3	0.675 ⁺	0.936 ⁺	1

⁺Correlation is significant at the 0.01 level (2-tailed)

So far as the zero – order correlation matrix is concerned responses of the tourists regarding variable 2 is positively correlated (high degree) with variables 3(.936⁺) and variable1 is positively correlated with variable 2 (.675⁺) and variable 3(.675⁺) at moderate degree and is significant at 0.01% level. This reveals that the tourists replied in the same way towards second and third variables.

9.3 Physical impact of tourist inflows

Table 9.5

Physical impact of tourist inflows according to the preferences of local residents

S.N.	Statement / Purpose	Too much	To some extent	Not at all	No response	Total
1	Tourist inflows changes the species composition due to collection of flowers and plants.	30 (7.5)	56 (14)	254 (63.5)	60 (15)	400 (100)
2	Conflagrations in the forested regions due to careless use of fire in the parks and forests.	26 (6.5)	92 (23)	230 (57.5)	52 (13)	400 (100)
3	Chopping of trees for tents, poles and firewood.	80 (20)	148 (37)	172 (43)	00	400 (100)
4	Tourist inflows impact on vegetation due to overcrowded pedestrians and vehicular traffic	26 (6.5)	344 (86)	30 (7.5)	00	400 (100)
5	Tourists responsible for litter around camping sites and garbage dumps.	158 (39.5)	162 (40.5)	42 (10.5)	38 (9.5)	400 (100)
6	Animal face hardship for water and grazing of land due to increasing tourists inflow and use of land for parks, construction of hotels and for other tourist entertainment.	120 (30)	250 (62.5)	30 (7.5)	00	400 (100)
7	It increases the problem of inadequate sewage disposal.	122 (30.5)	252 (63)	26 (6.5)	00	400 (100)
8	Due to heavy inflow of tourists, the important places are facing the parking problem	290 (72.5)	110 (27.5)	00	00	400 (100)
9	The tourist vehicle creates congestion on the roads and sites	290 (72.5)	94 (23.5)	16 (4)	00	400 (100)
10	The noise of vehicles disturb the residents	130 (32.5)	164 (41)	74 (18.5)	32 (8)	400 (100)
11	Increasing problem of landslide and rock fall and due to heavy construction of hotels for tourists	122 (30.5)	278 (69.5)	00	00	400 (100)
12	Tourists inflow results erosion	144	206	24	26	400

	landslides and deforestation due to heavy construction of tourism hotels.	(36)	(51.5)	(06)	(6.5)	(100)
13	Does invigorating this hill station and its beauty have suffered due to deforestation, poor sanitation and overcrowding of tourists?	265 (66)	106 (26.5)	30 (7.5)	00	400 (100)
14	Inadequate infrastructure facility in the resort areas causes overloading which further causes supply failure, pollution and health hazard.	66 (16.5)	292 (73)	42 (10.5)	00	400 (100)
15	The govt. provides special attention for the development of infrastructural facilities i.e. a). Well metalled road b). Other modes of traveling like rail and airlines. c). Communication facilities like telephones. d). Better health conditions etc.	8 (2)	252 (63)	128 (32)	12 (3)	400 (100)

Source: Data collected through questionnaires.

Note: Figures in Parenthesis are in percentage.

The responses of local residents regarding the physical impacts of the tourists inflows are analysed in the table 9.5. The statement that tourist inflows changes the species composition due to the collection of flowers and plants 7.5% said “too much”, 14% said “to some extent”, 63.5% said “not at all” and 15% have no response. While replying the question that conflagrations in the forested regions due to careless use of fire in the parks and forests 65% said “too much”, 23% said “to some extent”, 57.5% said not at all and 13% gave no response. The opinions of respondents regarding chopping of trees for tents, poles and firewood that 20% said “too much”, 37% “to some extent” and 43% said “not at all”. Whether the tourist inflows effects on vegetation due to overcrowded pedestrian and vehicular traffic, 92.5% are agreed while 7.5% are disagreed. Thus 39.5% respondents said “too much”, 40.5% said “to some extent”, 10.5% said “not at all” and 9.5% have not given any response regarding the statement that tourists responsible for litter around camping sites and garbage dumps. 92.5% (30 + 62.5%) respondents are in favour 7.5% are against the animals

faces hardship for water and grazing of land due to increase in tourist inflow and use of land for parks, construction of hotels and for other tourist entertainment. 30.5% respondents said “too much”, 63% said “to some extent” and 6.5 % said “not at all” while replying to the question of tourist inflow increase the problem of inadequate sewage disposal. Practically it has been noticed that the major tourist places are facing the problem of sewage disposal. Regarding the question that due to heavy tourist inflows, the important places are facing the parking problems, 100% of the respondents agreed. During the peak seasons, parking is a major problem faced in different tourist places for the region. About the statement that tourist vehicles, creates congestion on roads and sites 96% (72.5 + 23.5) respondents said in favour and only 4% said against. While asking the question that the noise of vehicles disturb the residents 32.5% said “too much”, 41% said “to some extent”, 18.5% “not at all” and 8% not given any response. The very important parameters of the physical impacts are that increasing problem of landslides and rock falls is due to heavy construction of hotels for tourists, all the respondents are agreed. Another statement that tourist inflow results erosion, landslide and deforestation due to the heavy construction of tourist hotels 87.5% (36 + 51.5) respondents agreed and 6% are not agreed while 6.5% gave no response. Regarding the statement whether invigorating thus hilly station and its beauty have suffered due to deforestation, poor sanitation and overcrowding of tourists 66% said “too much”, 26.5% said “to some extent” and 7.5% said “not at all”. The statement that with the infrastructural facilities 89.5% respondents are in favour whereas only 10.5% disagreed. The statement about the government’s special attention for the development of infrastructural facilities, the responses of 2% respondents “too much”, 63% “to some extent”, 32% “not at all” and 3% has not given any response. Thus, so far as the role of government for the promotion of infrastructural facilities is concerned, it is observed that metalling of roads and network of telecommunication facilities are still improving up to some extent, but there are no other development like rail and airlines which will boost the tourism in the region.

Table 9.6
Chi – square values

S.N.	Statement / Purpose	Chi – square
1	Tourist inflows change the species composition due to collection of flowers and plants.	160.760
2	Conflagrations in the forested regions due to careless use of fire in the parks and forests.	123.720
3	Chopping of trees for tents, poles and firewood.	17.080
4	Tourist inflows impact on vegetation due to over controlled pedestrians and vehicular traffic	249.670
5	Tourists responsible for litter around camping sites and garbage dumps.	72.080
6	Animal face hardship for water and grazing of land due to increasing tourists' inflow and use of land for parks, construction of hotels and for other tourist entertainment.	91.750
7	It increases the problem of inadequate sewage disposal.	96.490
8	Due to heavy inflow of tourists, the important places are facing the parking problem	40.500
9	The tourist vehicle creates congestion on the roads and sites	149.470
10	The noise of vehicles disturb the residents	51.480
11	Increasing problem of landslide and rock fall and due to heavy construction of hotels for tourists	30.420
12	Tourists inflow results erosion landslides and deforestation due to heavy construction of tourism hotels.	122.120
13	Does invigorating this hill station and its beauty have suffered due to deforestation, poor sanitation and overcrowding of tourists?	106.870
14	Inadequate infrastructure facility in the resort areas causes overloading which further causes supply failure, pollution and health hazard.	142.690
15	The govt. provides special attention for the development of infrastructural facilities i.e. a). Well metalled road b). Other modes of traveling like rail and airlines. c). Communication facilities like telephones. d). Better health conditions etc.	200.480

Table value of Chi-square for $v = 3, x^2_{0.05} = 7.815$

The analysis of table 9.6 depicts the responses of local residents over the physical impacts of the tourism. To find out the physical impacts, fifteen statements with four options each are prepared and produced before these respondents in the shape of schedules. Thus, the responses so collected are tabulated here and the statistical tool chi – square is used. According to the values of chi – square, it is revealed that the calculated chi – square values for all variables 1 to 15 are greater than the table values and are significant at 0.05% level of significance. Thus the hypothesis rejected and concluded that the replies of the respondents over the physical impact of tourism differ significantly. Hence the selected respondents do not respond equally among all the four options of these fifteen variables.

Table 9.7
Weighted Arithmetic Mean

Weighted Scores				Total	Arithmetic Mean
120	168	508	60	856	2.14
104	276	460	52	892	2.23
320	444	344	00	1108	2.77
104	1032	60	00	1196	2.99
632	486	84	38	1240	3.10
480	750	60	00	1290	3.225
488	756	52	00	1296	3.24
1160	330	00	00	1490	3.725
1160	282	32	00	1474	3.685
520	492	148	32	1192	2.98
488	834	00	00	1322	3.305
576	618	48	26	1268	3.17
1056	318	60	00	1434	3.585
264	876	84	00	1224	3.06
32	756	256	12	1056	2.64

The weighted arithmetic means show in the table 9.7 also depicts the similar type results as are evidenced in the χ^2 table. According to mean values of variable -5, 6, 7, 8, 9, 11, 12, 13 and 14. It is found that the responses of the majority of the respondents ranges between “to some extent” and “too much” alternatives while replying about physical impacts of the tourism. Whereas rest of the mean values of all the remaining variables exhibits that the responses of the majority of the respondents falls between “not at all” and “to some extent” alternatives.

Table 9.8
Zero order correlation matrix

	Var-1	Var-2	Var-3	Var-4	Var-5	Var-6	Var-7	Var-8	Var-9	Var-10	Var-11	Var-12	Var-13	Var-14	Var-15
Var-1	1.000														
Var-2	0.910 ⁺	1.000													
Var-3	0.797 ⁺	0.783 ⁺	1.000												
Var-4	0.731 ⁺	0.736 ⁺	0.485 ⁺	1.000											
Var-5	0.740 ⁺	0.800 ⁺	0.731 ⁺	0.619 ⁺	1.000										
Var-6	0.775 ⁺	0.894 ⁺	0.755 ⁺	0.668 ⁺	0.805 ⁺	1.000									
Var-7	0.761 ⁺	0.879 ⁺	0.754 ⁺	0.633 ⁺	0.788 ⁺	0.977 ⁺	1.000								
Var-8	0.559 ⁺	0.575 ⁺	0.624 ⁺	0.433 ⁺	0.774 ⁺	0.538 ⁺	0.525 ⁺	1.000							
Var-9	0.570 ⁺	0.592 ⁺	0.587 ⁺	0.550 ⁺	0.801 ⁺	0.600 ⁺	0.594 ⁺	0.940 ⁺	1.000						
Var-10	0.760 ⁺	0.838 ⁺	0.781 ⁺	0.631 ⁺	0.920 ⁺	0.876 ⁺	0.864 ⁺	0.835 ⁺	0.845 ⁺	1.000					
Var-11	0.711 ⁺	0.836 ⁺	0.772 ⁺	0.395 ⁺	0.639 ⁺	0.882 ⁺	0.901 ⁺	0.408 ⁺	0.384 ⁺	0.742 ⁺	1.000				
Var-12	0.749 ⁺	0.841 ⁺	0.700 ⁺	0.685 ⁺	0.921 ⁺	0.874 ⁺	0.874 ⁺	0.657 ⁺	0.737 ⁺	0.903 ⁺	0.681 ⁺	1.000			
Var-13	0.598 ⁺	0.637 ⁺	0.671 ⁺	0.622 ⁺	0.832 ⁺	0.682 ⁺	0.655 ⁺	0.843 ⁺	0.878 ⁺	0.853 ⁺	0.439 ⁺	0.792 ⁺	1.000		
Var-14	0.863 ⁺	0.826 ⁺	0.724 ⁺	0.728 ⁺	0.746 ⁺	0.771 ⁺	0.747 ⁺	0.527 ⁺	0.584 ⁺	0.747 ⁺	0.617 ⁺	0.780 ⁺	0.633 ⁺	1.000	
Var-15	0.623 ⁺	0.653 ⁺	0.726 ⁺	0.565 ⁺	0.767 ⁺	0.629 ⁺	0.627 ⁺	0.803 ⁺	0.837 ⁺	0.798 ⁺	0.490 ⁺	0.714 ⁺	0.904 ⁺	0.595 ⁺	1.000

⁺Correlation is significant at 0.01 level (2-tailed).

In table 9.8 the zero order correlation matrix is used. This analysis shows that variable 1 is positively correlated (high degree) with variables 2, 3, 6, 7, 10 and 14 with $.910^+$, $.797^+$, $.775^+$, $.761^+$, $.760^+$ and $.863^+$ respectively, whereas variable 1 is positively correlated with rest of the variables at moderate degree. Variable 2 is positively correlated (high degree) with variables 3, 5, 6, 7, 10, 11, 12 and 14 with $.783^+$, $.800^+$, $.894^+$, $.879^+$, $.838^+$, $.836^+$, $.841^+$ and $.826^+$ respectively, whereas it is positively correlated with rest of the variables at moderate degree. Variable 3 is positively correlated (high degree) with variables 6, 7, 10, and 11 with $.755^+$, $.754^+$, $.781^+$ and $.772^+$ respectively and it is positively correlated with rest of the variables at moderate degree. Variable 4 is positively correlated at moderate degree with variables 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 with calculated value of $.619^+$, $.668^+$, $.633^+$, $.433^+$, $.550^+$, $.631^+$, $.395^+$, $.685^+$, $.622^+$, $.728^+$ and $.565^+$ respectively. Variable 5 is positively correlated (high degree) with variables 6, 7, 8, 9, 10, 12, 13 and 15 with $.805^+$, $.788^+$, $.774^+$, $.801^+$, $.920^+$, $.921^+$, $.832^+$, and $.767^+$ respectively while with other variables it is positively correlated but at moderate degree. Variable 6 is positively correlated (high degree) with variables 7, 10, 11, 12 and 14 with $.977^+$, $.876^+$, $.882^+$, $.874^+$ and $.771^+$ whereas it is positively correlated with rest of the variables at moderate degree. Variable 7 positively correlated (high degree) with variables 10, 11 and 12 with $.864$, $.901$ and $.874$ respectively while with other variables it is positively correlated but at moderate degree. Variable 8 is positively correlated (high degree) with variables 9, 10, 13 and 15 with calculated values of $.940^+$, $.835^+$, $.843^+$ and $.803^+$ whereas it is positively correlated with rest of the variables at moderate degree. Variable 9 is positively correlated (high degree) with variables 10, 13 and 15 with $.845^+$, $.878^+$ and $.837^+$ respectively while with other variables it is positively correlated but at moderate degree. Variable 10 is positively correlated (high degree) with variables 12, 13 and 15 with values of $.903^+$, $.853^+$ and $.798^+$ respectively whereas it is positively correlated with rest of the variables at moderate degree. Variable 11 is positively correlated (moderate degree) with variables 12, 13, 14 and 15 with calculate value of $.681^+$, $.439^+$, $.617^+$ and $.490^+$ respectively. Variable 12 positively correlated (high degree) with variables 13 and 14 with $.792^+$ and $.780^+$ whereas it is positively correlated with variable 15 at moderate degree. Variable 13 positively correlated (high degree) with variable 15 with $.904^+$ and is positively correlated with variable 14 at moderate degree. Variable 14 positively correlated (moderate degree) with variable 15 with calculated value of $.595^+$. The above

interpreted correlation among different variables of physical impacts indicates that the responses of the respondents towards these variables are almost equally distributed i.e. Tourist inflows change the species composition due to collection of flowers and plants, conflagrations in the forested regions due to careless use of fire in the parks and forests, chopping of trees for tents, poles and firewood, impact on vegetation due to over controlled pedestrians and vehicular traffic, responsible for litter around camping sites and garbage dumps, animal face hardship for water and grazing of land due to increasing tourists' inflow and use of land for parks, construction of hotels and for other tourist entertainment, increases the problem of inadequate sewage disposal, vehicle creates congestion on the roads and sites, the noise of vehicles disturb the residents, increasing problem of landslide and rock fall and due to heavy construction of hotels for tourists, results erosion landslides and deforestation due to heavy construction of tourism hotels, invigorated this region and its beauty have suffered due to deforestation, poor sanitation and overcrowding of tourists, Inadequate infrastructure facility in the resort areas causes overloading which further causes supply failure, pollution and health hazard, The govt. provides special attention for the development of infrastructural facilities like well metalled road, communication facilities etc.