CHAPTER 3

RESEARCH

DESIGN
CHAPTER 3
RESEARCH DESIGN

About the Chapter:
This chapter tries to explain the complete of the research process. It explains the research need, objectives, scope, limitations, methodology, and sources of primary and secondary data. This chapter also discusses the various statistical techniques used to analyze the primary and secondary data. This chapter gives a direction to the research process. The present study presents the results of a study of local community, tourists and other stakeholders of three districts of Himachal Pradesh namely – Kullu, Lahaul-Spiti and Una districts about tourism impacts and related issues that had the aim of exploring the perceived impacts of tourism on communities and associated stakeholders’ attitudes toward tourism development. The three districts have been chosen as they lie in three different geographical zones of Himachal Pradesh. In this chapter the need of study, scope of the study, objectives, hypothesis, research methodology, significance of the study, limitation of the study have been presented systematically.

3.1 STATEMENT OF THE PROBLEM

After the detailed review of literature on tourism impacts and finding out the research gap the present study tries to investigate the case specific tourism impacts in Himachal Pradesh. This present study tries to investigate the general tourism impacts in Himachal Pradesh and in particular the case studies of three districts of Himachal Pradesh namely – Kullu, Lahaul-Spiti and Una Districts. The study also investigates the tourist’s satisfaction from the destination products and services in the selected three districts. It also tries to study the various issues of sustainability of tourism and tourism impacts perception of various stakeholders. The study also focuses upon the most important stakeholder that is local community and its perception about tourism impacts. So the statement of the problem selected is “Tourism Potential and Its Impacts in Himachal Pradesh: A Case Study Lahaul-Spiti, Kullu and Una Districts”.
FIGURE 3.1
CONCEPTUAL FRAMEWORK OF THE STUDY

Conceptual Framework

Research Design

Coordination Scheme

Selection of Study Area

Sampling Method
- Purposive Sampling
- Stratified Sampling
- Simple Random Sampling

Data Collection and Sources

Primary Data
- Reconnaissance Survey
- Interview
- Field Observation
- Questionnaire Survey
- Focus Group Discussion for Control Variable

Secondary Data
- Official Documents
- Reports
- Books
- Development Plan
- Statistical Report
- Official Websites

Data Entry and Processing

Data Interpretation and Findings

Analysis and Recommendations for Policy implementations and Future plans and Prospects
In particular, the study tries to assess the influence of various variables residence, reliance on tourism, age, gender, education, and income on residents’ attitudes and attempted to identify the underlying factors explaining their perceptions. Based on the findings, the study tries to discuss the implications of the research and indicates future research priorities. This chapter is the blueprint of the whole study and deals with the need of study, scope of the study, objectives, hypothesis, research methodology, significance of the study, limitation of the study have been presented systematically. It also studies the perception of various stakeholders for sustainable tourism impacts in the three districts Lahaul-Spiti, Kullu and Una district of Himachal Pradesh Tourism. Tourism is an industry that is an important source of income for many groups, but posing a potentially serious environmental problem for others. Many of the potential impacts of tourism are well known to people involved in the industry. The concept of ‘sustainable tourism’ followed, with its many derivatives such as eco-tourism, alternative tourism, green tourism and responsible tourism. As a force, sustainable tourism was understood to be pulling away from mass tourism, which served as a point of repulsion. The negative social and environmental impacts experienced at destinations were usually attributed solely to mass tourism. Sustainable tourism was held up as some sort of solution but, being small-scale, it could provide few solutions to a growing demand for leisure travel and neither manages the number of arrivals nor replaces the economic benefits accrued through mass tourism.

3.2 NEED AND SIGNIFICANCE OF THE STUDY

1. Tourism is a rapidly growing industry in Himachal Pradesh and its impact are extremely varied. On one hand, it playing an important and certainly positive role in the socio-economic and political development in state and on the other hand offering new employment opportunities.

2. It is also contributing to a broader cultural understanding by creating awareness, respecting the diversity of cultures and ways of life. At the same time, complaints from tourist destinations concerning massive negative impacts upon environment, culture and residents’ ways of life have given rise to a demand for a more sustainable development in tourism.
3. Tourism has been seen as a positive agent of change for many destinations in Himachal Pradesh because of its potential for job creation, income generation, and enhanced community infrastructure. However, while tourism development is usually justified on the basis of these positive benefits, it is often challenged on the grounds of socio-cultural and environmental devastation. Thus the residents' perceptions of, and attitudes towards, the interaction of tourism with community life must be continually assessed to ensure that action is taken in good time, so that, through such action, the residents may become willing partners in the development process.

4. Future awareness of residents' perceptions of tourism development and its impacts can help planners and developers to identify real concerns and issues in order for appropriate policies and action to take place, optimizing the benefits and minimizing the problems. The reason for measuring attitudes of residents and other stakeholders of tourism development was the premise that their perceptions can be a useful input in tourism development and the planning process.

5. Stakeholder is any group or individual who can affect or is affected by the achievement of the organization’s objectives. Stakeholder the group or individual must have a legitimate interest in the organization. Stakeholder involvement in policy development is associated with the early ideas of community participation and public involvement that are central to basic democratic beliefs, business management concepts. Current tourism concepts about stakeholders and their role in tourism development are built on the business management and public administration literatures. There is need of the research investigating the complex relationships between stakeholders and tourism and focusing on the perceptions and attitudes of individual stakeholder groups.

6. The differences in perceptions of tourism and tourism development can result in conflict between the stakeholder groups. To effectively reduce conflict, it is necessary that the attitudes and perceptions of the stakeholders are identified and understood. There is need for tourism planners consider the interests of all stakeholders before proceeding with development efforts and the incorporation of stakeholder views and interests that can reduce conflicts in the long term by drawing on the knowledge and insights of stakeholders.

7. Tourist's perspective about destinations products and services is necessary as tourist's perceptions, images and motivations toward a destination is essential to
comprehend and predict tourism demand and its impact on the tourism location. In fact, this understanding of destination image and visitors’ perceptions is critical to a destination and provides the basis for more effective and efficient future strategic planning of the destination.

3.3 SCOPE OF THE STUDY

Tourism researchers have conducted a tremendous amount of research in the area of tourism impacts. Recently, academics and practitioners have come to a general agreement that these impacts should be addressed by applying a balanced planning approach to development: planning that incorporates public participation and issues of sustainability.

Unfortunately, balanced planning in the developing world is rarely, and the literature is still replete with developing world case studies chronicling failures in tourism development. The fundamental reason for these failures is that key sectors still embrace a messianic faith in economic growth that supersedes the consideration of tourism’s known adverse effects. Furthermore, developing countries often lack a participatory governance structure, strong regulations, enforcement capabilities, technical and managerial expertise, and the political will required to pursue a balanced planning approach. In the context of an increasingly competitive marketplace, business promotion tends to displace the thoughtful anticipation of how to avoid tourism’s negative externalities. However, as countries gain experience with tourism, there is a growing recognition that anticipatory control of development impacts will lead to a better “quality of life,” the underlying goal of development.

This study focuses upon the tourism impacts in Himachal Pradesh in specific and Lahaul-Spiti, Kullu and Una districts in particular. There is need of assessing the community perception and other stakeholders perceptions and opinions for sustainability goals under an array of existing planning and policy regimes, because, at least as a concept, it is familiar to many involved with tourism development (e.g., developers, funding organizations, professional planners, local governments, NGOs, community groups). This study focuses upon the various sustainability issues of tourism as well as the opinions of the stakeholders of the tourism for sustainable tourism developments.
3.3.1 Study Area

In geographical terms, Himachal Pradesh is divided into three distinct regions, namely the Shivalik or Outer Himalayas, Middle Himalayas or Inner Himalayas and Greater Himalayas or the Alpine Zone. The Outer Himalayas cover the altitude ranging from 350 to 1,500 meters.

FIGURE 3.2
STUDY AREA MAP OF LAHAUL-SPITI, KULLU AND UNA DISTRICTS

They comprise of the districts of Hamirpur, Kangra, Una, Bilaspur, and the lower parts of Solan, Sirmaur and Mandi. Talking about the Middle Himalayas, one has to mention that they cover the altitudes ranging from 1,500 to 4,500 meters. The districts Sirmaur, Mandi, and the upper parts of Kangra, Shimla and Chamba make up this region of Himalayas. Finally, we come to the Greater Himalayas that comprises of all those areas.
which exceed 4,500 meters in altitude. To be more precise, this region includes Sutlej River, apart from the Kinnaur and Pangí tehsil of Chamba and some parts of Lahaul-Spiti, within its precincts. The study was focused on three districts namely Lahaul-Spiti, Kullu and Una districts of Himachal Pradesh which lie in three different geographical zones of Himachal Pradesh.

3.4 OBJECTIVES OF THE STUDY

The main objectives of the study were:

1. To study the tourism impacts in Himachal Pradesh with special reference to Lahaul-Spiti, Kullu and Una districts.
2. To analyse the community perception for tourism impacts in the study area of Himachal Pradesh.
3. To compare the opinion of various tourism stakeholders about tourism impacts for community development in the study area.
4. To analyse tourists' perception and satisfaction about tourism products and services in Lahaul-Spiti, Kullu and Una districts of Himachal Pradesh.
5. To conclude and suggest thereof for the sustainable tourism development.

3.5 RESEARCH METHODOLOGY

Research methodology is a plan according to which observations are made and data is collected. It provides the empirical and logical basis for drawing conclusion and gaining knowledge. The application of correct method and adoption of the scientific form of mind are the essential requirements of a scientific study. Keeping the said assumption in view, methodology of data collection and analysis of data framed.

Sources of Data

The objectives as stated previously have been accomplished by making use of primary data to a large extent along with some secondary data. The present study has been for the most part a primary probe based on the sample survey of local community, tourists and other stakeholders with the help of questionnaire/schedule. The details of each of these have been as follows:

A. Secondary data
B. Primary Data

3.5.1 Secondary Data

To find out the tourism potential, basic infrastructure required, statistics, figures, schemes and policy documents, secondary data was obtained from the following sources:

- Annual plans and economics review of Himachal.
- Five year plan of the govt. of India and of the State.
- Annual reports and accounts of Himachal Pradesh Financial Corporation.
- Annual reports of state Tourism Department.
- State Tourism Policy
- Incentive policy of H.P. Govt. and Govt. of India for Tourism sector.
- Eco-Tourism policy of the state.
- Role of hotel industry and travel agency in the state.
- Policy of the state government to encourage private sector for investment in the state.
- Journals (International journal of Management and Tourism, Tourism Management Annuals of Tourism Research, Tourism recreation and research). Magazines (Outlook Traveller, Desh, Discover India, Safari India), Newsletters (Travel talk, Travel trends, Tourism Express) and Travel guides, Newspapers and various Websites.

3.5.2 Primary data

Primary data has been used to study the perception of local community, tourists and other stakeholders towards tourism impacts and other issues of sustainable community development and benefits. The data has been collected with the help of questionnaire, filled in by various tourism stakeholders. Pilot study has been conducted to observe the need to make the changes in the questionnaire/schedule. Informal discussions have been carried out with various tourism stakeholders to comprehend closely about their inner feelings and problems. Personal observations made during the course of the study have been included in the primary data. The details of these are as follows

1. Questionnaire

The most important primary data has been collected with the assistance of questionnaire to be filled up by local community, tourists and other stakeholders. Data has been collected to study the local community perception about tourism impacts. stakeholders'
opinion about sustainable tourism impacts and tourists' perception and satisfaction about destinations various products and services. The primary data for the study was collected from local people, hoteliers, travel agents and tourists of Lahaul-Spiti, Kullu and Una districts. Three different schedules were designed for local community, tourists and tourism intermediaries.

Three sets of questionnaires were prepared so as to get comprehensive information.

1. Questionnaire for local people as per Annexure – 1.
2. Questionnaire for tourism intermediaries as per Annexure – 2.
3. Questionnaire for tourists visiting the selected destinations as per Annexure-3

2. Pilot Survey

The tourist destinations of Lahul-Spiti, Kullu and Una districts have been selected for conducting the preliminary survey. Pilot study has been undertaken so as to pre test the questionnaire/schedule and to refine it for the use in the final study. This helped in making certain changes in the questionnaire/schedule so as to make it easier for the respondents to provide their responses. The study also gave an indication as to the kind of responses that would be forthcoming with a few deletion and addition in the final questionnaire/schedule.

<table>
<thead>
<tr>
<th>TABLE 3.1</th>
<th>PILOT SURVEY</th>
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<tbody>
<tr>
<td>S. No.</td>
<td>Respondents</td>
</tr>
<tr>
<td>1.</td>
<td>Local Community</td>
</tr>
<tr>
<td>2.</td>
<td>Tourists</td>
</tr>
<tr>
<td>3.</td>
<td>Hoteliers</td>
</tr>
<tr>
<td>4.</td>
<td>Travel Agents</td>
</tr>
</tbody>
</table>

3. Informal Discussions:

With the intention of being acquainted with the ground reality in a better way, personal visits to the destinations have been made. Interviews with the local people and
other stakeholders have been made. To obtain first hand information and to comprehend closely the inner feelings and problems, informal discussions have been made with various stakeholders. This helped in cross examining the responses given by respondents in the questionnaire/schedule and getting hold of some additional and relevant information related to the present study.

4. Personal Observations:

Certain information’s cannot be obtained through questionnaire/schedule and personal interviews. The same has been obtained by means of direct personal observations made during the course of visits to the destinations. Sometimes the respondents do not disclose the answer to many questions honestly. In such cases observations from a close angle to the ground realities help to solve problems logically and scientifically.

3.5.3 Hypothesis

1. Hypothesis Ho: The variables are uncorrelated in the population of local community.

2. Hypothesis Ho: A direct positive relationship exists between the perceived benefits of tourism and local residents’ support for tourism development.

3. Hypothesis Ho: The residents living in Lahaul-Spiti, Kullu and Una districts have a negative attitude towards tourism.

4. Hypothesis Ho: Residents perception of tourism impacts are not influenced by residents’ demographics such as age, income level, occupation and level of education.

5. Hypothesis Ho: Stakeholders perception about tourism impacts is not uniformly distributed.

6. Hypothesis Ho: Domestic and foreign tourists are uniformly satisfied with the various products and services in Lahaul-Spiti, Kullu and Una districts.

3.6 SAMPLING DESIGN

Sample is a finite part of a statistical population whose properties are studied to gain information about the whole. When dealing with people, it can be defined as a set of respondents selected from a larger population for the purpose of a survey. Method of data collection largely depends upon the nature of research work. Before collection of the data one has to work over the sample technique and its accessories. Qualitative approaches to research, which the researcher has opted demand different types of sampling techniques.
from those commonly used in quantitative study. Method of data collection largely depends on the nature of research work.

Before collection of data one has to work over the sample technique and its accessories qualitative approaches to research, which the researcher has opted for, demand different types of sampling techniques from those commonly used in quantitative study. Before choosing the sampling technique it is necessary to justify why sampling is required in this particular case study research method. In general term sampling enabled the researcher to study a relatively small number of units in place of the total population and to obtain data that are representative of the whole target population. This provides substantial advantage. Firstly, because in many cases complete coverage of the population is not possible, by covering through a smaller section the purpose may be served. Secondly, sampling, besides being economical also saves a lot of time and energy.

On the basis of representative quality, sampling can be divided in two groups, the probability sampling and the non-probability sampling. Among the probability group the main typologies are:-

i. Sample random sampling.
ii. Systematic sampling.;
iii. Stratified random sampling;
iv. Cluster sampling;
v. Multi-stage sampling, etc. whereas non- probability sampling techniques covers- i) accidental sampling; ii) purposive sampling; iii) quota sampling and iv) snowball sampling. The probability sampling techniques are used in those situations where accurate representation, high reliability is reburied, because the purpose of the study is generalization. The non-probability sampling techniques are lying in the opposite pole. They are commonly used for exploration and qualitative analysis.

Since the researchers’ main focus is in providing insights about the tourism impacts in Himachal Pradesh, the choice of non-probability and probability sampling technique is justified. The number of respondents has been chosen as per following detail. In the present study local community, tourists and other stakeholders were contacted in three districts as Lahaul-Spiti, Kullu and Una. These Districts are chosen because they lie in three different
geographical zones of Himachal Pradesh. Further multi stage sampling was used in the study for selecting sample.

**Population/ Universe for the sample selection**

The total number of tourists, local community and other stakeholders of Lahaul-Spiti and Kullu districts constitute the population. Present study has been undertaken in three districts of Himachal Pradesh and for sample selection multistage sampling has been used in the study.

**TABLE 3.2**

<table>
<thead>
<tr>
<th>POPULATION SIZE OF STUDY AREA</th>
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<tbody>
<tr>
<td>Respondents</td>
</tr>
<tr>
<td>Local people</td>
</tr>
<tr>
<td>Tourists</td>
</tr>
<tr>
<td>Hotels/Guest houses</td>
</tr>
<tr>
<td>Travel Agents</td>
</tr>
<tr>
<td>Photographers</td>
</tr>
<tr>
<td>Guides</td>
</tr>
<tr>
<td>Dhabawalas</td>
</tr>
</tbody>
</table>

**Stage 1**

Three districts have been selected in the three different geographical zones of Himachal Pradesh. These three districts Lahaul-Spiti, Kullu and Una lie in high, mid and low levels of Himalayas.

**Stage 2 Selection of the Study Area**

Three places within each district (Table 3.3) were selected using a process that took into account the different sizes of districts within. In Lahaul-Spiti district Keylong, Udaipur and Kaza were chosen. In Kullu district Kullu, Manali and Bhunter were chosen while in Una district Una, Amb and Chintpurni were selected. These destinations also receive maximum number of tourists and also have maximum number of tourism stakeholders.
Stage 3:
Stage three: Selection of Local Community, tourists, hotels and other stakeholders (Cluster Sampling)

In this stage local community, tourists and other stakeholders have been selected on cluster basis from each district with respect to local population, tourist arrival and relative number of stakeholders in the respective districts.

3.6.1. Local Community

To select a sample frame the following process was followed. While selecting the respondents the respective proportion of population of each district is also concerned. The total population of the three districts (Table 3.2) is 851056 and 0.5% of the total i.e. 400 has been selected on the basis of convenient cum judgment basis. The ratio of local population in Lahaul-Spiti, Kullu and Una is 1:11:13.

<table>
<thead>
<tr>
<th>TABLE 3.3</th>
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<tbody>
<tr>
<td>DESCRIPTION OF PLACES TAKEN FOR STUDY</td>
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<table>
<thead>
<tr>
<th>District</th>
<th>Lahaul-Spiti</th>
<th>Kullu</th>
<th>Una</th>
</tr>
</thead>
<tbody>
<tr>
<td>Places</td>
<td>Keylong</td>
<td>Kullu</td>
<td>Una</td>
</tr>
<tr>
<td></td>
<td>Udaipur</td>
<td>Manali</td>
<td>Amb</td>
</tr>
<tr>
<td></td>
<td>Kaza</td>
<td>Bhunter</td>
<td>Chintpurni</td>
</tr>
</tbody>
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<table>
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<th>TABLE 3.4</th>
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<tr>
<td>SAMPLING LOCAL COMMUNITY</td>
</tr>
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<table>
<thead>
<tr>
<th>S. No.</th>
<th>District</th>
<th>Local Community Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lahaul-Spiti</td>
<td>17</td>
</tr>
<tr>
<td>2.</td>
<td>Kullu</td>
<td>175</td>
</tr>
<tr>
<td>3.</td>
<td>Una</td>
<td>208</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>400</td>
</tr>
</tbody>
</table>

The data collection instrument was prepared following a review of existing literature and included questions adopted by a number of previously administered questionnaires dealing with residents’ attitudes and opinions of tourism development. The questionnaire
Research Design consisted of seven socio-demographic questions, dealing with city of residence, length of residence, reliance on tourism, age, gender, education, and income. 25 Likert scale questions assessing residents’ perceptions of the social, economic, environmental, and overall impacts of tourism. For various statements were situated on a five-point scale with 1 representing a response of ‘‘strongly agree’’ and 5 representing ‘‘strongly disagree.’’

3.6.2 Tourists:

To select a sample frame for tourists, three districts namely Lahaul-Spiti, Kullu and Una were selected as primary sampling units. While selecting tourists in the selected districts the number of tourist arrival in the selected districts was considered. The total tourist arrival in three districts is 3771211 (Table 3.2) and the ratio of tourists in respective districts is 1:2:6. The 1.25% of total i.e. 300 (Table 3.5) is taken as sample in the respective proportion on convenience cum judgment basis.

<table>
<thead>
<tr>
<th>TABLE 3.5</th>
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<tbody>
<tr>
<td>SAMPLING TOURISTS</td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Lahaul-Spiti</td>
</tr>
<tr>
<td>Una</td>
</tr>
<tr>
<td>Kullu</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The questionnaire for tourists (domestic as well as foreign tourists) was meant for enquiring their perception and satisfaction about various products and services provided in the selected districts. For various parameters different statements were situated on a five-point scale with 1 representing a response of ‘‘strongly disagree’’ and 5 representing ‘‘strongly agree.’’

3.6.3 Tourism Intermediaries (Including Minor Stakeholders)

The tourism intermediaries consist of various stakeholders such as local community, tourists, hoteliers and other stakeholders (travel agents, guides and photographers etc) who have various stakes associated in the tourism industry. Third schedule was primarily meant to investigate and compare the stakeholders’ perception upon sustainable tourism impacts. The total no. of hotels/ guest houses is 880 (Table 3.2) and the relative proportion of hotels
in Lahaul-Spiti, Una and Kullu is 1:1.5:3 and 3% of total hotels is taken as sample on convenience cum judgment basis in their relative proportion. To select a sample frame for tourism intermediaries hoteliers, local community and tourists and other stakeholders (including travel agents, photographers, guides dhabawalas), in three districts were selected as primary sampling units. In case of other stakeholders (travel agents, photographers, dhabawalas) the ratio between Lahaul-Spiti, Una and Kullu is 1:1:5 and correspondingly the sampling is done. The total number of minor stakeholders in the three districts is 1258 and its 1.25% is taken as sample on judgment cum convenience basis.

TABLE 3.6
SAMPLING INTERMEDIARIES

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Tourism Intermediaries</th>
<th>Lahaul-Spiti</th>
<th>Kullu</th>
<th>Una</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local People</td>
<td>17</td>
<td>175</td>
<td>208</td>
<td>400</td>
</tr>
<tr>
<td>2</td>
<td>Tourists</td>
<td>34</td>
<td>68</td>
<td>198</td>
<td>300</td>
</tr>
<tr>
<td>3</td>
<td>Hoteliers</td>
<td>24</td>
<td>72</td>
<td>34</td>
<td>130</td>
</tr>
<tr>
<td>4</td>
<td>Minor Stakeholders (Travel Agents, Photographers, Dhabawalas etc)</td>
<td>14</td>
<td>73</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>89</strong></td>
<td><strong>350</strong></td>
<td><strong>491</strong></td>
<td><strong>930</strong></td>
</tr>
</tbody>
</table>

The questionnaire for stakeholders various Likert-style items inquiring about attitudes and perceptions of tourism impacts and sustainable development as well as for community development and benefits. Each statement was situated on a five-point scale with 1 representing a response of “strongly disagree” and 5 representing “strongly agree.”

3.7 DATA ANALYSIS AND INTERPRETATION

For the analysis of data the Statistical Package for the Social Sciences (SPSS, version 11.5) was used. Specifically, the data analysis plan was divided into three parts – univariate, bivariate, and multivariate – based on the numbers of variables used in the analysis. The main univariate statistics used in the analysis included: frequency distributions, means, and standard deviations. Keeping in view of the study, the data collected have been analyzed and interpreted with the help of the

1. Mathematical methods
2. Statistical methods
3. Graphical methods

1. Mathematical Methods

In the present study, the data collected was analyzed with the help of the mathematical method as follows:

a. Arithmetic Mean

A mathematical representation of the typical value of a series of numbers, computed as the sum of all the numbers in the series divided by the count of all numbers in the series. Arithmetic mean is commonly referred to as "average" or simply as "mean". The arithmetic mean is the "standard" average, often simply called the "mean".

\[
\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i
\]

b. Standard deviation

Standard deviation is a widely used measurement of variability or diversity used in statistics and probability theory. It shows how much variation or "dispersion" there is from the average (mean, or expected value. In the case where \(X\) takes random values from a finite data set \(x_1, x_2, ..., x_N\), with each value having the same probability, the standard deviation is

\[
\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (x_i - \mu)^2}, \quad \text{where } \mu = \frac{1}{N} \sum_{i=1}^{N} x_i.
\]

c. Coefficient of Variation

In probability theory and statistics, the coefficient of variation (CV) is a normalized measure of dispersion of a probability distribution. It is also known as unitized risk or the variation coefficient. The coefficient of variation (CV) is defined as the ratio of the standard deviation \(\sigma\) to the mean which is the inverse of the signal-to-noise ratio. The CV is defined only for non-zero mean and the absolute value is taken for the mean to ensure it is always positive. The coefficient of variation (CV) is defined as the ratio of the standard deviation \(\sigma\) to the mean \(\mu\):

\[
c_v = \frac{\sigma}{\mu}
\]
which is the inverse of the signal-to-noise ratio.

d. **Skewness**

In probability theory and statistics, skewness is a measure of the asymmetry of the probability distribution of a real-valued random variable. The skewness value can be positive or negative, or even undefined. Qualitatively, a negative skew indicates that the tail on the left side of the probability density function is longer than the right side and the bulk of the values (possibly including the median) lie to the right of the mean. Karl Pearson suggested simpler calculations as a measure of skewness, the Pearson mode or first skewness coefficient, defined by:

\[
\text{Skew} = \frac{\text{mean} - \text{mode}}{\text{standard deviation}}
\]

2. **Statistical Methods**

Following descriptive statistical technique have been employed in the present study. Statistical methods provide an indispensable tool for collecting, organizing, and analysing and interpretations data expressed in numerical terms.

a) Descriptive statistical measures

b) Non-Parametric tests.

**a) Descriptive Statistical Measures**

The statistical analysis based on the computation of descriptive statistical measures is mostly applied in action research, and provide valuable information about the nature of a particular group and that group only. Weighted Arithmetic mean method has been used in this study.

**b) Non-Parametric Tests**

Non-parametric test, which has been used in this research, is chi-square test. The chi-square test is used to test if a sample of data came from a population with a specific distribution. A chi-square test ($\chi^2$ test) is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-square distribution when the null hypothesis is true, or any in which this is asymptotically true, meaning that the sampling distribution (if
the null hypothesis is true) can be made to approximate a chi-square distribution as closely as desired by making the sample size large enough.

**Test of Significance**

**One-Way Analysis of Variance (ANOVA)**

To examine relationship patterns between two variables t-tests were performed for one dependent variable and one independent variable divided into two subgroups, and the One-Way Analysis of Variance (ANOVA) was applied in the case that the independent variable was divided into three or more subgroups. To run the t-tests and the ANOVAs, the normality of the distributions was assumed.

**Scheffe test**

While analyzing the stakeholder’s opinion and comparing tourists perception in the selected three districts an ANOVA test was conducted for each question, followed by a Scheffe test to determine which groups were different.

**T-test**

A t-test is any statistical hypothesis test in which the test statistic follows a Student's t distribution, if the null hypothesis is supported. It is most commonly applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known.

**Factor analysis**

Factor analysis is a statistical method used to describe variability among observed variables in terms of a potentially lower number of unobserved variables called factors. Factor analysis searches for such joint variations in response to unobserved latent variables. The observed variables are modeled as linear combinations of the potential factors, plus error terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset.

**3. Graphical Methods**

In the present study the data collected have been analyzed with the help of the graphs where needed in the following ways:

1. Bar Diagrams
2) Pie Diagram.
3.8 LIMITATIONS OF THE STUDY

The research study focused on the interviews that are conducted with the local areas such as villages, towns and cities of three districts namely Lahaul-Spiti, Una and Kullu districts of Himachal Pradesh and having involvement and understanding of the issue in consideration. Interviews with other relevant stakeholders such as tourist, hoteliers and tour operators were also conducted. The structured questionnaires were administered only to the literate persons and scribes assisted the illiterate persons, the communication losses may not have been reflected in the data. Here, much depends on individual perceptions, value system and interpretations, which obviously differs from person to person. While working on the present research problem, the researcher, besides the above constraints had many other limitations, some situational and few self imposed. The complex nature of study area in its large parts has particularly been a major hurdle in conducting the research. In the present study limitations are:

1) The study is limited to only three districts of the state.
2) Very limited study has been undertaken upon the people perception about tourism impacts in Himachal Pradesh.
3) The study was limited to the particular season as the Geographical and climatic hurdles restricted the researcher to conduct research.
4) The study was limited to only major stakeholders of selected districts and minor stakeholders couldn’t be investigated due to paucity of time.

Summary

The present study focuses upon various tourism impacts in Lahaul-Spiti, Kullu and Una districts of Himachal Pradesh. It investigates the perception of local community and various other tourism stakeholders about tourism impacts. The statement of the problem selected is “Tourism Potential and Its Impacts in Himachal Pradesh: A Case Study Lahaul-Spiti, Kullu and Una Districts”.

In particular, the study tries to assess the influence of various variables residence, reliance on tourism, age, gender, education, and income on residents’ attitudes and attempted to identify the underlying factors explaining their perceptions.