CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

3.2. Types of research

3.3. Research methodology

3.3.1. Proposed model of research methodology to be followed

3.3.2. Review of literature

3.3.3. Pilot study/survey

3.3.4. Defining of objectives

3.3.5. Formulation of hypothesis

3.3.6. Sampling

3.3.6.1. Sample method

3.3.6.2. Sample size

3.3.7. Finalization of questionnaires

3.3.7.1. Questionnaire design

3.3.8. Data collection

3.3.9. Reliability Testing

3.3.10. Data analysis and testing of hypotheses

3.3.11. Significance of the research

3.3.12. Limitations

3.1. INTRODUCTION

Research can be described as a quest for knowledge, for finding out specific information about a particular subject. Kumar (2011) stated that research is to work within a framework of a set of philosophies, use methods that have been tested for validity and reliability and attempt to be unbiased and objective.
Redman & Mory (1923) define research as a systematized effort to gain new knowledge. Kothari (2004) states that research refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solution (s) towards the concerned problem or in certain generalizations for some theoretical formulation.

Adams, Khan & Raeside (2007, 2014) defined research as a diligent search, studious inquiry or investigation or experimentation aimed at the discovery of new facts and findings; or broadly, it may relate to any subject of inquiry with regard to collection of information, interpretation of facts, revision of existing theories or laws in the light of new facts or practical ideas.

Srivastava & Rego (2012) define research as organized systematic data-based scientific inquiry, or investigation into a specific problem undertaken with the purpose of finding answers or solutions to it.

There are questions that one might be curious about, specific problems for which we may have to seek solutions. This can be done through research.

Research strives to uncover solutions using scientifically applied methods.

3.2. TYPES OF RESEARCH

There are several types of research such as Descriptive, Analytical, Applied, Fundamental, Quantitative, Qualitative, Conceptual, Empirical etc.

i. Descriptive Research

To describe the current situation/scenario is the main goal of descriptive research. This includes various types of surveys. The variables cannot be manipulated by the Researcher; he can only record the occurrences. It has to be for measurable variables. For.eg. frequency of business travel of a corporate executive.

ii. Analytical Research

In this type of research, one has to utilize data that is available and evaluate it to reach certain conclusions.
iii. Applied Research

This seeks answers to specific practical issues affecting a particular organization. It includes market research as well as identification of trends.

iv. Fundamental Research

This is basic research which is concerned with theory formulation. It does not seek answers to particular problems; it has a broader outlook and endeavors to discover information which can be used by a broad spectrum of applications.

v. Quantitative Research

Srivastava & Rego (2012) stated that if the data involves quantitative aspects like measurement and counting, the research is termed as quantitative. Quantitative techniques generate data in quantities or quantitative format that can be studies and analyzed as per certain parameters.

vi. Qualitative Research

If the research involves study of behavior, attitude etc., it is qualitative. Qualitative techniques emphasize on the analysis of the opinions, preferences, behavior and approaches of the people being studied/surveyed. Here, the impressions gleaned by the Researcher are important.

vii. Conceptual Research

This type of research is done to cultivate new theories or to present different interpretations of those that are already in existence. Kothari (2004) says that it is generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones.

viii. Empirical Research

This research is based on data which is capable of being analyzed and corroborated with the help of investigation. It is used to prove or disprove a particular hypothesis put forward by the Researcher.
3.3. RESEARCH METHODOLOGY

Kumar (2011) states that research design is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically. This particular research is proposed to be carried out with generation of a lot of primary data. So, it will be done by direct observation and study. Moreover, it is research that is based on data which will be used to check if the hypothesis put forth is proved or disproved. So this research will be Empirical in nature as preferences and opinions of the people undergoing the survey will be considered.

In order to give a clear framework of the entire research project, a model of the Research Methodology is mentioned below.
3.3.1. PROPOSED MODEL OF RESEARCH METHODOLOGY TO BE FOLLOWED

Fig-3-1 Diagram of proposed model of research methodology

- Review of Literature → Pilot Study → Defining of Objectives
- Formulation of Hypothesis → Sampling → Finalization of Questionnaires
- Data Collection → Reliability Testing → Data Analysis & Testing of Hypothesis
- Significance of Research
This framework was finalized after going through previous research that has been carried out on similar topics in the past, as well as after carrying out discussions with a few hotels in Pune.

Pilot questionnaires were designed as a point of commencement for this research.

3.3.2. REVIEW OF LITERATURE

In order to carry out research properly, it is essential to carry out a review of the existing literature on the topic being researched. Adams, Khan & Raeside (2007, 2014) stated that to get information on the kind of work that has already been done in the field, to get to know the subject experts, any problems in researching the topic, if there are any controversies related to the topic etc. the Researcher should refer to all material directly and indirectly connected to the research topic.

According to Sachdeva (2008, 2009, 2011), by reading the research on subjects researchers can get the idea how other researchers have dealt with such problems. So, one understands the background of the problem that is to be studied.

The Literature review for this study was done by reading research articles from international journals, magazines, online newspapers and books. Membership of the British Library, Pune (Online facility) was purchased for a period of two years. Through this facility, digital resource sources like the online journals with a good impact factor, available in the British Library Online Resources were accessed for retrieval of data from the website http://www.library.britishcouncil.org.in.

3.3.3. PILOT STUDY/SURVEY

Adams, J, Khan, H & Raeside, R (2007, 2014) say that it is important that all surveys be tested before the actual survey is conducted to ensure that the questionnaire is clear to respondents. After deciding the model of research methodology to be used for this research study, a Pilot study was conducted.

This study at the beginning of the research aids in spelling out the Research Objectives. The Pilot study was done by interviewing 40 guests, 5 Hotels and 3
Travel Agencies, to get an idea as to the type of responses generated. Each category of Respondents had a separate structured Questionnaire, with sub-parts, which was used to interview them. There were questions on whether they were aware of green practices in the hospitality industry, what kind of specific practices did they observe or practice and if they felt it was important for the environment, as well as for business (in case of hotels and travel agencies).

As mentioned above, the data collected through this Pilot survey gives direction to the research. Also, it was at this point that the Researcher came to the conclusion that a few of the questions in the Pilot questionnaires were not eliciting relevant answers; irrelevant information was collected and vital information was not obtained. So, the questionnaires were improvised by converting a few of the open-ended questions into closed questions to get relevant responses. The pilot study gave insight for further research.

### 3.3.4. DEFINING OF OBJECTIVES

This study focuses on the following objectives & seeks to find out-

1. The extent of implementation of green practices in the hotel industry today.
2. The management involvement in implementation of these practices in two to five star hotel and resorts in Pune Region.
3. The various types of green /eco-friendly practices carried out in all operating departments of the hotel such as Front Office, Housekeeping, Kitchen and Food & Beverage Service, as well as the allied areas.
4. Whether any special kind of training is given to the hotel staff to carry out these initiatives.
5. The degree of costs involved in implementing these practices initially.
6. Whether this investment in implementing these practices is justified, in terms of CSR initiatives, turnover & popularity of the hotels.
7. If in the long run, these initiatives end up being cost effective for the hotel operations, on the whole.
8. Whether the implementation of such practices is a deciding factor for customers to stay at such properties.
9. If there is government support for such kinds of environment-friendly initiatives carried out.

10. The various certifications existing for such practices globally as well as within the country and the number of hotels in this study that are aware of these and have applied for such certifications.

11. The effect of conducting such practices on the overall performance of the hotels.

3.3.5. FORMULATION OF HYPOTHESIS

Hypothesis is the main tool in any research activity. In a layman’s context, hypothesis is an assumption that has to be proved correct or incorrect. However, in case of a research project, a hypothesis is a proper question to which solutions have to be found out. It specifies what the Researcher is seeking answers to, and is a statement that can be tested to check if it is valid.

Kumar (2011) put forth that the importance of hypotheses lies in their ability to bring direction, specificity and focus to a research study. They tell a researcher what specific information to collect, and thereby provide greater focus.

Kothari (2004) defines hypothesis as a proposition or a set of proposition set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts.

1. H₁. “Two star to Five Star category hotels and resorts in Pune region have started implementing green or environment-friendly practices in their daily operations.”

2. H₂. “The overall performance of the hotels has been positively affected after implementing these practices.”

3. H₃. “Implementing such practices in hotels involves substantial costs”.

78
4. $H_4$. “Customers/Guests staying in properties following green/eco-friendly practices are willing participants in these initiatives.”

5. $H_5$. “Customers/Guests are willing to pay extra money to be able to stay in hotels following green practices.”

3.3.6. SAMPLING

Sampling means choosing a sub-category of respondents from amongst a population, to assess the features of the entire population.

Kothari (2004) defines sampling as the selection of some part of an aggregate or totality on the basis of which a judgment or inference about the aggregate or totality is made. To get information about the preferences of the population, one can choose a part of it and seek its opinions and apply these to the larger population. It is assumed that the data generated through this sample can be correlated with the data that would have been generated from the entire population.

Kumar (2011) states that sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group.

Israel (2008) puts forth that population is a set of all items being considered for measuring some characteristic. The sample indicates a subset of the population.

It is not possible to survey each and every two to five star hotel in Pune region as mentioned in this research. Also, the number of people visiting hotels in this area for meals, meetings and stays is stupendous. Hence sampling was the only viable option that could be utilized in order to obtain information about the topic being researched.
3.3.6.1. SAMPLE METHOD

In any kind of survey, it is not possible to meet the entire population to get their feedback. But, if a sample is correctly selected, then the results of the survey will match more or less with the opinions of the general population.

Sample design can be done on the basis of two main methods-

1. Probability Sampling
2. Non Probability Sampling

**Probability Sampling**

Random selection is the basis of Probability sampling. It is also known as chance sampling. Since it is random, every element which exists has the possibility of being a part of the sample. Sachdeva (2008, 2009, 2011) states that Probability or Random sampling gives all members of the population a known chance of being selected for inclusion in the sample.

As per Pannerselvan (2009), there are various methods of probability sampling mentioned below-

i. Simple random sampling
ii. Systematic sampling
iii. Stratified sampling
iv. Cluster sampling
v. Multi-stage sampling

**Non Probability Sampling**

This is also known as deliberate sampling. The participants are selected by the Researcher. It is thought that this small sample with participants will be representative of the whole universe. There is a chance of personal bias of the Researcher affecting results.
As per Pannerselvan (2009), there are various methods of non-probability sampling mentioned below-

i. Convenience sampling
ii. Judgment sampling
iii. Quota sampling
iv. Snowball sampling

The Researcher has used Probability Sampling Method, specifically Simple Random sampling and has focused on selected two, three, four & five star hotels & resorts in Pune Region which includes Pune city, Pimpri, Chinchwad, Mulshi, Lonavala, Khandala and Saswad.

Simple Random Sampling

This kind of sampling is done for a finite population, in this particular research- two star, three star, four star and five star hotels.

Kothari (2004) explains that random sampling of a finite population is that method of sample selection which gives each possible sample combination an equal probability of being picked up and each item in the entire population to have an equal chance of being included in the sample.

This research utilizes sampling without replacement i.e. once a particular sample has been selected; it is removed from the pool, so that the same sample is not selected again the next time.

3.3.6.2. SAMPLE SIZE

It was difficult to find the exact number of star category hotels in Pune region, the reasons for which are mentioned below-

i. Not all the hotels in this region that possess the facilities or have upgraded their facilities as per the Ministry of Tourism have actually gone in for the star category formal classification. Most of them simply state that they are of that particular star
category. Hence the list of approved hotels for the year 2012, which was obtained from the MTDC, consisted of just 26 hotels in the formal two star to five star categories.

ii. Another source of finding out the number of hotels in this region was through the Poona Hotelier’s Association that has members of star category hotels from Pune, Pimpri, Chinchwad, Saswad, Lonavala, Khandala etc. This too could show only about 50 members.

iii. The Federation of Hotel & Restaurant Association of India website www.fhrai.com only lists the hotels that have got star category rating as per Ministry of Tourism norms.

iv. So, as a via media, it was decided to approach the travel portal www.makemytrip.com for a comprehensive list of hotels that are listed with them as per the star category. This portal has affiliations from most of the hotels and resorts in different cities of India, and on that basis advertises hotels as star category & general ones. At the time of their enrolment with the portal, the hotels have to fill up a registration form where they have to list their star category (if any). As per these statistics compiled from the website till the year 2012, the total number of two to five star hotels in Pune region was 193. The break-up is mentioned below-

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Area</th>
<th>Five Star</th>
<th>Four Star</th>
<th>Three Star</th>
<th>Two Star</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pune including Pimpri Chinchwad</td>
<td>21</td>
<td>27</td>
<td>61</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>Saswad</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>Lonavala, Khandala and Mulshi</td>
<td>4</td>
<td>2</td>
<td>30</td>
<td>11</td>
</tr>
</tbody>
</table>

So, the sampling population in the area of study i.e. total number of two star, three star, four star and five star hotels was 193.
Sample size-51

**Sample Size Calculation**

Sample size formula

\[ n = \frac{z^2 p(1-p)}{d^2} \]

Source- Daniel (1999)

Sample size formula for the finite population is-

\[ \text{New } n = \frac{n}{1 + \left( \frac{n-1}{N} \right)} \]

Explanation of formula-

Where,

- \( n \) = Sample size
- \( Z \) = Z statistic for level of confidence = 1.96 for the level of confidence of 95% (In this study, we present results with 95% confidence intervals (CI))
- \( P \) = Expected prevalence or proportion = 80%
- \( d \) = Precision = 0.1
- \( N \) = Population size = 193

\( n = \text{sample size} = 61.47 \text{ with an error limit of 0.04} \)

\( \text{New } n = \text{New Sample Size} = 46.80 \approx 47 \)

The proposed sample size for the research initially consisted of 40 hotels (management & employees of these hotels were approached) and about 400 guests utilizing the facilities of these hotels for stay, meals or banquet facilities were interviewed. The sample size also included 10 travel agents & tour company representatives who book facilities at such properties for their clients.
Since this research is based on hotels & their customers, only a cursory opinion of the travel agencies was sought as to whether there was any guest preference for green hotels while making bookings. So, travel agencies were contacted randomly, without taking into consideration the total population in the area of study.

However, after confirming the number of two to five star hotels in Pune, the sample size of the finite population was calculated and was found to be 47. Around 85 Hotels, 500 guests and 34 travel agencies in the area of research were contacted totally as part of the survey in person, via telephone and by sending emails. Majority of those approached agreed to be interviewed and take the survey. Questionnaires with invalid responses were not considered. Also a few Questionnaires with more than one-third questions left unanswered were taken out, as using them for analysis of data would have led to incorrect results.

Finally, out of all the Respondents, 51 hotels, 402 guests and 20 travel agencies gave valid responses. Thus instead of 40 hotels as initially proposed in the synopsis, since 51 hotels with complete questionnaires were available, they were considered (more than the calculated sample size). This is one-fourth the total population size. Also instead of 10 travel agencies, opinions of 20 were considered.

The break-up of hotel questionnaires considered for this research is mentioned in the table given below-

**Table-3-2 Distribution of 2 to 5 star hotels & resorts in Pune region actually surveyed**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Area</th>
<th>Five Star</th>
<th>Four Star</th>
<th>Three Star</th>
<th>Two Star</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pune including Pimpri Chinchwad</td>
<td>14</td>
<td>9</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Saswad</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>Lonavala, Khandala and Mulshi</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

The period considered for the Research study was for 10 years-from between the financial year 2002 till the end of financial year 2012. Hence hotels which were in
operation in the proposed area of research during the above mentioned-period were only surveyed.

3.3.7. FINALIZATION OF QUESTIONNAIRES

To support or disprove a hypothesis, it is essential to have a well-designed questionnaire. A questionnaire consists of a typed form which has certain questions in a particular order. This is sent to respondents, either in person, or mailed hard or soft copies. It is expected that the respondents go through the questions, understand their meaning and select the response, or write the response that they feel is most apt.

The Researcher has decided to use questionnaires as a tool for the collection of data. Since the proposed sample size was large, it was thought prudent to design specific questionnaires that would generate answers to the questions faced by the Researcher.

In this research study, there were two primary sources from which information had to be sourced and further processed i.e. hotels and the guests who have experienced these facilities. Also, as another dimension, it was considered logical to have an opinion of travel agents/tour operators too.

Hence, there were three kinds of questionnaires designed-one for the management-level employees of hotels, one for the clientele or the guests who have visited the hotels and one for travel agents who make hotel bookings for clients as per their requirements.

The final questionnaires are attached in the Annexure.

3.3.7.1 QUESTIONNAIRE DESIGN

As per the Federation of Hotels and Restaurants Association of India (FHRAI)’s Environment Manual (E manual) (2003), there are certain eco-practices that are followed by some hotels, and also mentioned are a few recommendations of Best practices to be followed by Indian hotels. These are related to environment management, energy management, water conservation, waste control and
management, indoor air quality and air pollution control, eco-purchasing, training and human resources and community services.

While designing the final hotel and guest questionnaires, this manual was used as a source of eco-practices, in order to determine which green practices are more likely to be implemented in the hotels; and consequently observed/experienced by the guests.

While carrying out pilot study, literature review and seeking of relevant information from various secondary data sources, it was seen that there were certain eco-friendly practices that were commonly observed. Hence, these were selected and incorporated in the final hotel and guest questionnaires.

3.3.8. DATA COLLECTION

The research study is Survey-based Research for which the data has been collected by conducting detailed interviews and through the structured questionnaires from the selected hotels & resorts, and their clientele in Pune region.

Open eye observation was done, Documentary study and scheduling of interviews with management & staff of various hotel organizations, and their clientele, as well as travel agents & tour companies was carried out.

1. Primary data

This data was obtained by interviewing the management, staff & guests of the various two, three, four & five star hotels and resorts of Pune region, as well as travel agents and tour operators.

Two, Three, Four & Five Star Hotels: With reference to the hotels in Pune region, only two, three, four & five star hotels and resorts were considered.

It must be mentioned that a lot of these hotels and resorts have not gone in for the formal classification from a government agency, but have the mandatory facilities
mentioned for star categorization by the Ministry of Tourism, Government of India and have thus declared themselves to be of that particular category.

**Choice of Respondents**

i. The Management and Employees of these properties were interviewed for information as well as their views. Most of the hotels belonging to international hotel chains emphasize on green practices, hence all employees are made aware of these practices across departments.

There may be certain people like the Executive Housekeeper, the Director of Engineering or Chief Engineer, the Human Resources Manager, the General Manager, representatives from all departments, or even a Specific committee that are delegated with the responsibility of managing eco-friendly practices.

In smaller hotels, the owners or directors themselves are aware of the green practices that are being implemented, if at all.

Hence, the Researcher has approached the person who is most likely to know about the various aspects of green practices being implemented in that particular hotel property across all departments, so that accurate and reliable information based on actual facts can be obtained, which would help in achieving the objectives of this research.

ii. The customers whose opinion is considered for the research study included the clientele/guests of these hotels, who have booked rooms, or banquet facilities, or come for meals to these places.

iii. The travel agents & tour companies who book such facilities on behalf of their clients were also be interviewed with the purpose being to find out whether they are aware of such practices & their opinion as to whether their clients take into account environment-friendly criteria while selecting hotels.
2. Secondary Data

Secondary data was collected from-


ii. Reference books

iii. News bulletins and articles published in the newspapers were also an important source for this data.

iv. Web- sites related to the Hospitality Industry, as well as internet search engines aided in acquiring relevant information.

v. Any existing Statistical Analysis done by research industries, in the form of Figures, Charts and Tables etc. were also a useful source of secondary data.

3.3.9 RELIABILITY TESTING

To test the reliability of the survey, there were two statistical tests carried out on the data collected from the survey, before data analysis could be done. They are mentioned below-

1. Cronbach’s Alpha
2. Kuder Richardson

CRONBACH’S ALPHA

This is a method used to measure the reliability of data that has been obtained from a survey. This data reliability is expressed in the form of stability, equivalence and consistency.

According to Osborne (2008), Cronbach’s Alpha co-efficient is a measure of internal consistency reliability and is useful for understanding the extent to which the ratings from a group of judges hold together to measure a common dimension.

Cronbach’s alpha assesses how reliably any survey items that are considered to measure the same construct actually do so. Cronbach’s alpha values range between 0 and 1 where higher values suggest higher internal consistency. A historical
benchmark value of 0.7 is commonly used to suggest that at least some of the items measure the same construct.

A high Cronbach's alpha is evidence that the items measure the same construct, in this case eco-friendly practices. On the other hand, a low Cronbach’s alpha shows that the items have little in common and are not good measures of the single construct.

**Formula**

Cronbach's $\alpha$ is defined as-

$$\alpha = \frac{K}{K-1} \left( 1 - \frac{\sum_{i=1}^{K} \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

Source- Best Practices in Quantitative Techniques - J.W.Osborne

where $K$ is the number of components ($K$-items), $\sigma_X^2$ the variance of the observed total test scores, and $\sigma_{Y_i}^2$ the variance of component $i$ for the current sample of persons.

A commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha is as follows:

**Table 3-3 Cronbach’s alpha internal consistency**

<table>
<thead>
<tr>
<th>Cronbach's alpha</th>
<th>Internal consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha \geq 0.9$</td>
<td>Excellent</td>
</tr>
<tr>
<td>$0.8 \leq \alpha &lt; 0.9$</td>
<td>Good</td>
</tr>
<tr>
<td>$0.7 \leq \alpha &lt; 0.8$</td>
<td>Acceptable</td>
</tr>
<tr>
<td>$0.6 \leq \alpha &lt; 0.7$</td>
<td>Questionable</td>
</tr>
<tr>
<td>$0.5 \leq \alpha &lt; 0.6$</td>
<td>Poor</td>
</tr>
<tr>
<td>$\alpha &lt; 0.5$</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

KUDER-RICHARDSON FORMULA

Ary et al (2009) stated that the Kuder-Richardson Formula 20 (K-R 20) is based on the proportion of correct and incorrect responses to each of the items on the test and the variance of the total scores. K-R 20 is applicable to tests whose items are scored dichotomously i.e. 0 or 1.

Because this method gives importance to all items in the test, it is appropriate for checking the reliability of the test used to measure a single trait.

Formula

\[ r_{KR20} = \left( \frac{k}{k-1} \right) \left( 1 - \frac{\sum pq}{\sigma^2} \right) \]


Where-

- \( r_{KR20} \) is the Kuder-Richardson formula 20
- \( k \) is the total number of test items
- \( \sum \) indicates to sum
- \( p \) is the proportion of test takers who pass an item
- \( q \) is the proportion of test takers who fail an item
- \( \sigma^2 \) is the variation of the entire test

This formula should be used if each item has a right answer.

Values of KR 20 generally range from 0.0 to 1.0, with higher values representing a more internally consistent instrument.

Justification for using the above two formulae to measure the Reliability Coefficient-

To assess the green practices followed by hotel is dichotomous. It has only two options yes/no. So to measure the reliability KR20 formula has been used.
Whereas to assess the level of implementation of various categories of green practices followed in the hotel is a rating scale; so to measure the reliability Cronbach’s alpha has been used.

**Reliability coefficient:**

The inter-item reliability coefficients of the items in the hotel and guest questionnaires are presented in the table below.

**Table-3-4 Reliability coefficients**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Scale</th>
<th>Hotel Questionnaire</th>
<th>Guest Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assess the green practices followed by hotel</td>
<td>0.8966 (KR20)</td>
<td>0.8015 (KR20)</td>
</tr>
<tr>
<td></td>
<td>k = 36, $\sum \sigma = 5.7067, \sigma^2 = 44.4768$</td>
<td></td>
<td>k = 5, $\sum \sigma = 6.6734, \sigma^2 = 30.2218$</td>
</tr>
<tr>
<td>2.</td>
<td>Assess the level of implementation of various categories of green practices followed in the hotel</td>
<td>0.8837 (Cronbach’s alpha)</td>
<td>0.8021 (Cronbach’s alpha)</td>
</tr>
<tr>
<td></td>
<td>K = 9, $\sigma^2_X = 54.3906$, $\sigma^2_{Y_i} = 11.6665$</td>
<td></td>
<td>K = 5, $\sigma^2_X = 21.7107$, $\sigma^2_{Y_i} = 7.7788$</td>
</tr>
</tbody>
</table>

**Results**

The Rating Scales were reliable. All the reliability coefficients for the rating scale were above 0.8. These results demonstrate that the rating scale is a reliable test for assessing the green practices followed by hotels as well as for assessing the level of implementation of various categories of green practices followed in the hotel.
3.3.10. DATA ANALYSIS AND TESTING OF HYPOTHESIS

The first step in testing of a hypothesis is formulation of the hypothesis, which has already been done. The next step is to collect suitable information about it. Finally, the data has to be analyzed to reach certain conclusions about the validity of the hypothesis.

The data collected from primary & secondary sources was analyzed by using statistical tools, such as- Percentage, One Sample Proportion test for testing of Hypothesis, Kruskal-Wallis Test, and Chi square test for testing the significance of percentages. A $p$ value of 0.05 or less was considered significant.

3.3.11. SIGNIFICANCE OF THE RESEARCH

1. This research is expected to be beneficial to the hotel industry as it will be a comprehensive reference of the various environment-friendly practices that are carried out in the two star, three star, four star and five star hotels and resorts of Pune region.

2. Students of Hotel Management will also find this study useful as it will give them an idea about various eco-friendly practices that can be carried out in hotels & resorts, and how to involve guests in the same. Thus it will aid in increasing their environmental awareness.

3. Hotels and resorts that are not following any green practices can be encouraged to do so, by increasing their awareness. This study can be source to point them in the direction of incorporating green practices in their operations as well as involve their guests in the same.

4. The society in general will also become aware of need of such green initiatives carried out in the hotel industry & may feel the need in its own way to do its bit for the environment.
5. This research will also be useful for policy makers to think of making the incorporation of green practices mandatory in government policies, as these will help in the optimum use of resources, which leads to saving of resources. Thus, it will benefit the economy as a whole.

6. This research will be a pointer tool to academicians to carry out further research in the area of green practices that can be carried out in hotels and their implications on society and economy.

3.3.12. LIMITATIONS

1. Since the topic based on the management of green practices in hotels is a comprehensive one, ideally it should have been conducted across the country. However, since this Research is an individual one, it is not possible for a single person to do so. Hence, there is a geographical limitation, as this research will be conducted Pune region. So for this Research, Pune region has been defined from the tourism point of view and so will include Pune city, Pimpri, Chinchwad, Lonavala, Khandala, Mulshi and Saswad.

2. Although it has been said that this Research will be carried out in two to five star category hotels, not all the hotels to be surveyed have gone in for the formal classification as per the Ministry of Tourism norms. However, they have the facilities as required for obtaining that particular star classification. Hence, they will be considered as belonging to that particular category. They have not gone in for the formal classification to avoid paying higher taxes.

3. Period of study- it was in the year 2002 that the hotel industry in Pune region started developing rapidly with new hotels coming up. Hence it was decided to base this research on hotels that were in operation over the past 10 years. So, only hotels which started operations prior to the year 2012 in the geographical area of research were approached for the study.