INTRODUCTION

1.1: The Problem

Chilika wetland the largest brackish water lagoon of Asia is considered as a leading biodiversity hotspot of India. Home to approximately 160 species of birds mostly of intercontinental migrant species and Irrawaddy dolphin, the lake is having immense tourism potential. Chilika as a wetland has a complex and fragile ecosystem unlike other water bodies. However, the lake is losing its environmental quality as the water level is fast receding owing to large-scale soil erosion. Ironically, the lake is centre of high religious and cultural importance for the people of the region and unsustainable ritualistic practices add to the environmental issues concerning the lake. The unplanned practices and development surrounding the lake is highly debated as the conflict between diverse interest groups of fishing and tourism has become wide-open in the recent times. The traditional dependence on the rich fishery resources is now considered to be the domain of a few rich and powerful. Fishing barely support 200,000 fisher folk who live in the surrounding areas, thus require an alternate livelihood option. Tourism is not new to the region and there has been a steady growth of tourism over the years.

Studies on sustainable development in Chilika can be classified broadly based on disciplinary approaches. Ecologists while bringing out the increased pollution level and decreasing loss of biodiversity caution the developers against unplanned development. Sociologists studied socio-cultural and economic life of the natives and have noted the growing conflict between diverse interest groups of fishing and tourism that has become wide-open in the recent times. Economists on the other hand apart from justifying poverty with statistical parameters observed variation in income level of masses. Ineffective functioning of Chilika Development Authority (CDA) and lack of coordinated efforts by all stakeholders poses a major obstacle in development as perceived by the political scientist. Geographers blame the factors such as natural calamity, and unequal distribution of income sources in the lake as the causes of underdevelopment.

Whatever may be the approaches, the bottom line lies as despite of the abundant natural resources, the existing developmental practices in Chilika is
considered to be unsustainable and its tourism potential as a source of livelihood for the entire region has been a neglected area of academic research.

1.2: Rationale of the Study

Chilika receives a good number of tourists. According to the Statistical Bulletin of Odisha Chilika received 5,15,381 tourists in 2010, 5,25,637 tourists in 2011, 5,36,383 in 2012, 5,45,420 in 2013, 5,55,964 in 2014 and 6,01,666 tourists in 2015. The average growth of tourists’ inflow is below 3% over the last 6 years. Thus the Chilika despite of being the largest brackish water lagoon of Asia and important hub of biodiversity is considered to be under-utilized given its tourism potential. In addition the existing tourism practices are considered to be unplanned development and are debated to be unsustainable given the socio-cultural settings of the region. The conflict between diverse interest groups of fishing and tourism has become wide-open in the recent times. The rich fishery resources considered to be the domain of a few rich and powerful, barely support 200,000 fisher folk who live in the surrounding areas, require an alternate livelihood option. A robust tourism potential and a major source of livelihood for the millions has been a neglected area of academic research especially in tourism perspective. In this backdrop a systematic study is the need of the hour to summarize issues concerning the lake and its residents. The summarized issues then can be analyzed for developing an ideal model for sustainable tourism promotion in the region. The present research is an honest effort in the direction.

1.3: Scope of the study

The study on Chilika includes attractions sites such as Balugaon, Satapara and Barkul and activities that is open to individual tourist’s preferences. The aim of the research is to find the positive and negative impacts of the tourism such as ecological, economic and socio-cultural impacts and tourist’s perception about motivation and the quality of infrastructure in the Chilika wetland. For the purpose the following aspects have been picked up for extensive review of literature and field survey. These are Motivational factor, Quality of infrastructure, Environmental cognition, Ecological impact, Economic impact and Socio-cultural impact, Residents’ intention to participate in sustainable tourism development and Barriers of community
participation and tourism development. The geographies of the study restrict to select villages in the Chilka lake region which are entry points for tourists to the lake.

1.4: Research Questions

The basic question motivating the present study lies as to whether tourism in Chilika wetland is sustainable in its current form. To understand the issue in detail, the researcher studied following research questions.

- What are the main motivational factors influencing the tourists to visit Chilika wetland?
- What is the perception of the tourists’ about the quality of infrastructure in the destination?
- What is the level of environmental cognition of the tourist about the sustainable development of tourism?
- What is the intension of the residents to participate in sustainable tourism development?
- What are the underlying ecological, economic and socio-cultural issues of tourism development in Chilika?

1.5: Objectives

The above research questions are outlined in the form of study objectives for an easy reading.

- To identify the motivational factors influencing tourists to visit the Chilika wetland.
- To analyse the perception of tourists about the quality of available infrastructure.
- To analyze the environmental cognition of tourists in promotion of sustainable tourism development.
- To examine the intention of residents’ to participate in sustainable tourism development.
• To evaluate the select ecological, economic and socio-cultural impact of tourism development in Chilika wetland.

Theoretical Perspective

The prime motive for the concept of sustainable development was to assimilate environmental deliberation into economic policy. The environmental scientist Tim O’ Riordan has given his view in his 1988 essay ‘the politics of sustainability’ the main reason behind the wide recognition of the concept sustainable development lay in the way that it could be used both by the environmentalist and developers. Environmentalists prioritise the environmental part and developers emphasize the development part. According to Donella Meadows social sustainability means the human lives and justice. Even though the term development is vividly discussed in perspective of developing countries, it can be applicable to all parts of the world from the individual to global level. (Elliot, 1999). According to the UNDP’s Human Development Report (UNDP, 1990) development is the means of extension of human’s opportunity, increase the longevity, provide a healthy life, obtain sound education and right to use the resources for a better and fair life.

Sustainable development of tourism in Chilika

Theoretical Model

![Diagram of Sustainable Development Model](image)

Figure 1.1
Tourism produces both positive and negative impacts, and it could be classified into three aspects, such as economic impact, socio-cultural impact and environmental impact (Simpson, 2008, L’atkov’ and Vogt, 2011). Youell (1998) has segregated the economic impact of tourism into two parts, viz. Wealth generation & Employment creation. The reviews on tourism impacts thus can be summarised under the heads of a green checklist of environmental impacts in wetlands such as: natural environment, water pollution, depletion of natural resources, visual impact, the built environment, infrastructure, restoration, competition.

1.6: Conceptual model

The conceptual model of the study has been exhibited in the figure 1.2. The model consists of five constructs namely Motivation, Infrastructure, Environmental cognition, Ecological, economic and socio-cultural impacts of tourism.

![Figure: 1.2](image-url)
The motivational factor plays a pivotal role in tourism development in a particular destination and is the major attraction of the tourists. Chilika is such a destination which caters heterogeneous tourists due its diversified and unique attractions. The first construct consists of Rest and relaxation, Authenticity, Assimilation, Research and learning and Business prospective. The second construct infrastructure consists of five factors such as Hygiene, Infrastructure, Friendliness, Communication and Accessibility. Infrastructure is the determinant construct which directly influences all other constructs such as motivation, Environmental cognition, Ecological, Economic and Socio-cultural constructs. Infrastructure plays a significant role for development in general and a fast track to the tourism development in particular. Infrastructure is the major index, which defines development of tourism in a particular region. Environmental cognition consists of three factors such as Concern, Environmental awareness and contributing tourist. The fourth construct (Ecological impact) consists of 5 factors namely Loss of habitat, Conservation, Pollution, Congestion and littering and Primacy of tourism. The economic impact consists of 6 factors, Such as Economic wellbeing, Price-rise, Standard of living, Induced opportunities, Economic diversification and Inequity. The socio-cultural impact of tourism consists of 6 factors namely Harmony, Better facilities, Better opportunities, Deculturation, Preservation of culture and Discontent. The conceptual model shows that all these constructs are interrelated with each other directly or indirectly. Infrastructure in the study is considered to be the key construct which influences the other constructs.

1.6.1: Hypothesis of conceptual model

The model is tested for the relationship between individual constructs as mentioned below.

H1- Infrastructure influences Ecological Impact

H2- Infrastructure influences Economic impact

H3- Infrastructure influences Socio-Cultural Impact

H4- Infrastructure influences Ecological Impact through Environmental Cognition.

H5- Infrastructure influences Economic impact through Environmental Cognition.
H_6- Infrastructure influences Socio-Cultural Impact through Environmental Cognition.

H_7- Infrastructure influences Environmental Cognition.

H_8- Infrastructure influences Environmental Cognition through Motivational factors

1.7: Methodology

Methods of the study involve the research design, sampling design, research tool and software, which are applied for this research. Based on the review of literature the pertinent aspects of sustainable tourism development were extracted such as ecological impact, economic impact and socio-cultural impact. The survey instrument was developed using the above variables for this study. In order to evaluate the perception of the tourists and the residents about the sustainable tourism development in the Chilika Lake the primary survey has been conducted with the help of a structured questionnaire. There are two sets of questionnaires, one is for tourists and another is for residents.

1.7.1: Data Collection Instrument

As this study is based on the perception of tourists and residents, the primary survey is conducted to collect the data through well structured questionnaires. The questionnaires are designed in a manner to fulfil needs and objectives of the study. Content validity has been tested in questionnaire to know whether the instrument or measurement scale is providing adequate coverage to a given construct. This can be tested by judgement and penal evaluation. The researcher has used the both judgement and penal evaluation to decide the content validity of the questionnaire. Content validity is ensured by consulting a panel of subject experts.
1.7.2: Use of the scale in the questionnaire

Different kinds of scales are used to measure profiles of tourists, residents and their perceptions about sustainable tourism development. Nominal and ordinal scales are used to measure the demographic and Tripographic profiles of the tourists and the demographic profile of the residents whereas five point likert’s scale is used to evaluate the perception of the respondents about the motivation, infrastructure, environmental cognition and sustainable tourism indicators in Chilika lake. The values of five point scales are 1 for strongly disagree, 2 for disagree, 3 for neither agree nor disagree, 4 for agree and 5 for strongly agree.

1.7.3: Components of questionnaire

To know the perception about sustainability tourism development two setup questionnaires are used. One setup questionnaire deals with tourist perception and other one deals with resident perception about sustainable tourism development. With respect to tourist perception, questionnaires are divided four parts. First part deals with demographic profile of the tourists such as age, gender, marital status and annual income. Second part based on the tripographic profile of the tourist, which includes types of tour, Pattern of travel, knowledge about the place, mode of transportation etc. Third part is based on motivation and infrastructure related questions. Motivation question is based on what are the main motivational factors influence the tourists to visit the Chilika lake, which includes visiting wetland for enjoyment, relaxation, research, adventure sports, visiting Kalijai temple, bird watching, business purpose etc. whereas the infrastructure part includes the items such as road condition, hygiene, health care facilities, etc. Fourth part consists of Environmental cognition and the fifth part includes tourism impacts (ecological, economic and socio-cultural).

Similarly, residents questionnaire consists of four parts such as demographic profile, obstacles of community participation and tourism development in Chilika lake, Intention to participate in sustainable tourism development and tourism impacts (ecological, economic and socio-cultural).
1.7.4: Pilot survey

Before finalising the questionnaires for the final data collection, a pilot study was conducted to develop and test the validity and reliability of the research instrument. The pilot study was conducted among 30 respondents. After occurrence of the pilot study, certain changes have been made in order to make the questionnaire more comprehensible and purposeful.

Certain questions were not understood by respondents and therefore, they were revised into simple statements for better readability and understanding.

1.7.4.1: Test of Reliability

After conducting the pilot study, the researcher verified the reliability of data collected from the pilot study by using the Cronbach’s alpha. The Cronbach alpha is a method used to verify the internal consistency of the data. According to Peterson, R.A. (1994) and Nunnally, (1978), the value of Cronbach alpha should exceed the threshold limit of 0.6. The researcher has performed the reliability test for all constructs.

Table no 1.1: Reliability of Pilot survey Data

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s Alpha First 30 respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation factor</td>
<td>.852</td>
</tr>
<tr>
<td>Quality of infrastructure</td>
<td>.936</td>
</tr>
<tr>
<td>Environmental cognition</td>
<td>.729</td>
</tr>
<tr>
<td>Ecological impact</td>
<td>.819</td>
</tr>
<tr>
<td>Economic impact</td>
<td>.724</td>
</tr>
<tr>
<td>Socio-cultural impact</td>
<td>.793</td>
</tr>
<tr>
<td>Barriers of community participation</td>
<td>.808</td>
</tr>
<tr>
<td>Intension to participate in sustainable tourism development</td>
<td>.886</td>
</tr>
</tbody>
</table>

The above table shows that there are eight constructs in the study. The motivation construct consist of 13 statements and it’s Cronbach’s Alpha is 0.852, Quality of infrastructure consists of 17 statements and it’s Cronbach’s Alpha is 0.936, the environment cognition consists of 11 statements and it’s Cronbach’s Alpha is 0.729, Ecological impact consists of 17 statements and it’s Cronbach’s Alpha is 0.819, Economic impact consists of 13 statements and it’s Cronbach’s Alpha is .724, Socio-
cultural impact consists of 18 statements and it’s Cronbach’s Alpha is 0.793, Obstacle of sustainable tourism development consists of 11 statements and it’s Cronbach’s Alpha is .808 and Intension to participate in sustainable tourism development consists of 8 statements and it’s Cronbach’s Alpha is 0.886.

1.8: Sampling design

Sampling design is a method or procedure adopted by the researcher for selecting the samples from a given population. It is a pre-planned technique for data collection. There are many sample designs from which researcher may choose. Here the researcher has used the standardized sampling design technique for obtaining a sample from the population. Sample design includes the sample population, sample area, sample unit, sampling method, sampling process, sample size.

1.8.1: Population

In absence of any conclusive statistics of day visitors to the lake population is considered to be infinite.

1.8.2: Sampling Area

Balugaon and Barkul have been selected as the sampling area. As both of the spots are well connected by rail and bus and situated from a close proximity to the Railway station and the National highway so they receive the lion share of the tourists. Apart from this Balugaon is the major economic hub of trade and commerce.

1.8.3: Types of respondents

Data is collected from two types of respondents. One is Tourist and another is Residents.

1.8.4: Sampling Unit

Tourist-Tourist who visit the Chilika, it may be domestic or foreign tourist.
Residents – Local people who are directly involved in tourism activities in Chilika lake, including boat pullers, Sellers of souvenir products, Eco-guides, travel agents and employee of restaurant and hotels.

1.8.5: Sampling Method
Two different methods are used to draw the sample of tourist and residents. Simple random sampling method is used for data collection from Tourist because its population is very large. Stratified random sampling method is used to collect the data from residents by grouping its total population into local people and service providers (residents who are engaged in tourism sector).

1.8.6: Sampling process
This study selected two major villages of Balugaon and Barkul of Chilika. Data are collected by following steps given below.

1.8.7: For Tourist
Step-1: Sampling area is selected
Step-2: Appropriate sampling method is chosen. Simple random sampling method is used to draw the sample of tourist whereas stratified random sampling method is used to draw the sample of residents.
Step-3: Tourist samples are drawn on random basis. Resident samples are drawn by dividing the total population into Non-participating residents and service providers.
Steps-4: Thus questionnaires were distributed to tourists as well as residents and they were asked to fill the questionnaire.
Step-5: Filled-in questionnaires were collected from respondents.

1.8.8: Sample Size
The sample size for tourist and residents are determined based on the collected data from pilot study by using following formula.

\[
 n = \left( \frac{\sigma \times 1.96}{\mu \times 0.05} \right)^2
\]
Where $n$ is sample size, $\sigma$ is standard deviation, $\mu$ is mean.

Before finalising sample size, the researcher determined the sample size for each and every statements in the questionnaire using this formula and choosen highest number as sample size which is 290 where standard deviation value is 1.409 and mean value is 3.24. This is considered as minimum sample size for the tourist respondents. In case of residents, sample size arrived at 102 respondents where the standard deviation is .80 and mean value is 3.1.

To attain the arrived sample size, the researcher distributed 320 and 115 questionnaires amongst the tourist and residents respectively. After data collection process was over, the researcher received the 315 and 110 questionnaires from tourists and residents respectively, out of which 6 and 4 questionnaires respectively were found to be incomplete. Hence, final sample size arrived at is 309 for tourist and 106 for residents.

1.9.: Assessing the Measurement Model of the Sustainable Tourism Development in Chilika Lake

Assessment of measurement model includes composite reliability, convergent validity and discriminant validity.

1.9.1: Composite Reliability

The composite reliability is a measure of the overall reliability of a construct. It is calculated by using following formula (Raykov, T., 1997)

\[
\text{Composite reliability} = \frac{(\text{sum of standardized loading})^2}{(\text{sum of standardized loading})^2 + \text{sum of indicator measurement error}}.
\]

Composite reliability varies between 0 and 1. The composite reliability with higher values indicates higher levels of reliability vice versa. The composite reliability value should be 0.708. According to Nunally and Bernstein, (1994), the composite reliability values of .60 to .70 are acceptable in exploratory research while the values between .70 to .90 are considered as satisfactory. The values of less than 0.60 indicate a lack of internal consistency reliability.
1.9.2: Convergent Validity

The items that are indicators of a specific construct should converge or share a high proportion of variance. There are many ways available to estimate the convergent validity among items of measures. Here, the researcher has used the average variance extracted (AVE) for measuring convergent validity.

Average variance extracted is defined as the mean variance extracted for the items loading on a construct. It is a summary indicator of convergence. The value of AVE is calculated by using the standardized factor loadings. The formula of the AVE is the sum of the squared standardized factor loadings divided by the number of indicators. The convergent validity depends upon the AVE value, if the AVE value is .50 or more than 0.50 indicates adequate convergence. Conversely, if the AVE value is less than 0.50 indicates that, on average, more error remains in the items than the variance explained by the construct. So, it can be said that there is convergent validity issue on that construct.

1.9.3: Discriminant Validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs. The high discriminant validity indicates that a construct is unique and captures phenomena not represented by other constructs in the model. There are two methods available to assess the discriminant validity. One method for assessing discriminant validity is by examining the cross loading of the indicators and another method is Fornell Larcker criterion. The researcher has used the Fornell Larcker criterion to assess the discriminant validity in the model.

The Fornell Larcker criterion is a more conservative method to assess the discriminant validity. It compares the square root of the AVE values with the latent variable correlations. Particularly, the square root of AVE of each constructs should be greater than its highest correlation with any other constructs.

The researcher has assessed the measurement model for sustainable tourism development by taking six constructs such as Infrastructure, Motivation, ecological, economic, socio-cultural and Environmental cognition.
Figure 1.3: Measurement Model
Table 1.2: Results of Measurement Model

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>ASV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infra</td>
<td>0.843</td>
<td>0.540</td>
<td>0.078</td>
<td>0.046</td>
</tr>
<tr>
<td>IF</td>
<td>0.878</td>
<td>0.605</td>
<td>0.070</td>
<td>0.035</td>
</tr>
<tr>
<td>Ecolo</td>
<td>0.834</td>
<td>0.529</td>
<td>0.078</td>
<td>0.030</td>
</tr>
<tr>
<td>SCF</td>
<td>0.799</td>
<td>0.507</td>
<td>0.138</td>
<td>0.068</td>
</tr>
<tr>
<td>Eco</td>
<td>0.802</td>
<td>0.512</td>
<td>0.138</td>
<td>0.050</td>
</tr>
<tr>
<td>EV</td>
<td>0.824</td>
<td>0.614</td>
<td>0.038</td>
<td>0.020</td>
</tr>
</tbody>
</table>

**Infra** - Environmental cognition, **IF** - Motivational factor, **Ecolo** - Ecological, **SCF** - socio-cultural factor, **Eco** - Economic, **EV** - Environmental cognition.

From the above table 1.2 it can be inferred that all outer loadings of all constructs are higher than the threshold value of 0.40. Hence, all indicators for six constructs are well above the minimum acceptance level for outer loadings in the model.

The composite reliability values are 0.843, 0.878, 0.834, 0.799, 0.802 and 0.824 for the constructs Infrastructure, Motivational factor, Ecological, Socio-cultural, economic and Environmental cognition respectively are well above the 0.708, indicating that all six constructs have high level of internal consistency reliability. The convergent validity is assessed by AVE value. The AVE values are 0.540, 0.605, 0.529, 0.507, 0.512 and 0.614 for the constructs Infrastructure, Motivational, Ecological, Socio-cultural, Economic and Environmental cognition respectively which are pretty higher the threshold level 0.50. So the measures of the six constructs have high level of convergent validity.

The values of maximum shared variance are 0.078, 0.070, 0.078, 0.138, 0.138 and 0.038 for the constructs Infrastructure, Motivational, Ecological, Economic, Socio-cultural and Environmental cognition respectively which are less than AVE. In addition, the values of average shared variance are 0.046, 0.035, 0.030, 0.068, 0.050 and 0.020 for the constructs Infrastructure, Motivation, Ecological, Socio-cultural, Economic and Environmental cognition respectively which are less than...
AVE. So the measures of the six constructs have high level of Discriminant validity. Other method Fornell Larcker Criterion is also used to check the Discriminant validity. The result of Fornell Larcker Criterion has been given in table 1.3

Table 1.3: Discriminant Validity - Fornell Larcker Criterion

<table>
<thead>
<tr>
<th></th>
<th>Infra</th>
<th>IF</th>
<th>Ecology</th>
<th>SCF</th>
<th>Eco</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infra</td>
<td>0.735</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IF</td>
<td>0.128</td>
<td>0.778</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eco</td>
<td>0.280</td>
<td>0.176</td>
<td>0.727</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCF</td>
<td>0.274</td>
<td>0.265</td>
<td>0.134</td>
<td>0.712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eco</td>
<td>0.244</td>
<td>0.175</td>
<td>0.077</td>
<td>0.372</td>
<td>0.716</td>
<td></td>
</tr>
<tr>
<td>STD</td>
<td>0.043</td>
<td>0.167</td>
<td>0.137</td>
<td>0.196</td>
<td>0.122</td>
<td>0.784</td>
</tr>
</tbody>
</table>

The above table 1.3, shows that the Fornell Larcker criterion assessment with the square roots of construct AVE on the diagonal and the correlations between the constructs in the lower left triangle. The square roots of the AVEs for the constructs Infrastructure(0.735), Motivational factor(0.778), Ecological impact (0.727), Socio-cultural factor (0.712), Economic factor (0.716) and Environmental cognition is 0.784 are all higher than correlations of these constructs along with other constructs in the path model. Hence, Fornell Larker criterion provides the evidence for constructs discriminant validity.

1.10: Research tools and software

The researcher has used the most suitable statistical tools for analysing the data with the assistance of different software. The statistical tools such as Frequency, Simple mean, Independent sample t-test, ANOVA, Factor analysis, Post hoc (Duncan). In addition, researcher has also used advance data analysis tools such as canonical correlation and structural equation model in this research. The software’s used for this research are SPSS16 and AMOS 20.

1.10.1: Frequency Analysis

The frequency analysis is one of descriptive statistics method, which indicates the time of occurrences of each response chosen by the respondents. Frequency analysis
is used in the demographic and tripographic profile of the tourists and the demographic profile of the residents. It is conducted with the help of SPSS 16 software.

**1.10.2: Simple Mean Analysis**

Like frequency, simple mean analysis as part of descriptive statistics shows that the average value of response chosen by the respondents. Simple mean analysis is used in all the construct variables such as Motivation, Infrastructure, Ecological, Economic and Socio-cultural impacts of tourism and Environmental cognition of the tourists and as well as residents perception about the constructs such as obstacles of tourism development, Intension to contribute for sustainable tourism and Ecological impact, Economic impact and Socio-cultural impact of tourism in Chilika lake. The simple mean analysis is done with the help of SPSS 16 software.

**1.10.3: Independent Sample T Test**

Independent sample t-test is used to compare the means of the two groups. Usually, it is used to test the hypothesis. In this study, independent sample t-test is performed by taking the gender variable and marital status as independent variable/grouping variable and the perception of tourists as well as local people about the impacts of tourism which includes ecological, economic and socio-cultural impacts, environmental cognition and motivation as the dependent/factor variables. This analysis is performed with the help of AMOS 16.

**1.10.4: Analysis of Variance (ANOVA)**

Analysis of variance is used to compare the means of more than two groups. In this research, ANOVA is performed by taking the perception of the tourists about the motivation, infrastructure, pro-environmental attitude and the impacts of tourism as dependent variables (metric variables) and demographic variables and Tripographic variables of the tourists as factor or grouping variables, Likewise the perception of the residents about the barriers of community participation, tourism impacts(ecological, economic and socio-cultural) and Environmental cognition as dependent variables and the demographic variables as factor or grouping variables. This analysis is done with the help of SPSS 16 software.
1.10.5: Exploratory Factor Analysis (EFA)

Generally exploratory factor analysis is used to reduce the large numbers of variables into small number of factors. When performing the factor analysis, it is necessary to check three things such as data adequacy, variance explanation and factor loading. Barlett’s test and Kaiser Meyer Olkin (KMO) test in the factor analysis explores data adequacy level. In factor analysis, there are many methods available for factor extraction; principle component is one of them and more appropriate method for extraction. The researcher has used the principle component method for extraction. There are many criteria followed for deciding the number of factors such as latent root criteria (factors with Eigen value greater than 1), a prior criterion (predetermined factors), percentage of variance, Scree test and heterogeneity of the respondents. In this research study, the researcher has followed different criteria in different situation while deciding the number of factors. In addition, many methods also are available for rotation, varimax is one of them and used for rotation because it gives clearest separation of factors than the other rotation methods. In this research, factor analysis is used in the questions such as motivation, infrastructure, environmental cognition and ecological impact, economic impact and socio-cultural impact of tourism as well as obstacle of tourism development in Chilika wetland and intension to participate in sustainable tourism development. SPSS 16 is used for this analysis.

1.10.6: Canonical Correlation

Canonical correlation is used to find out the linear relationship between the two sets of variables. One set of variables is taken as dependent variables and another set of variables is taken as independent variables. The variables may be metric or categorical in nature. In this research, canonical correlation is used to identify the most influencing variables in the different models. The tripographic variables such as place of resident of the tourists, mode of information, reasons of travelling, pattern of travelling, mode of travelling and duration of stay are taken as independent variables and the factor variables of Intension to participate in sustainable tourism development are taken as dependent variables for the analysis. This analysis is performed with the help of STATA 10 software.
1.10.7: Structural Equation Model (SEM)

Structural equation modelling is a multivariate method that observes a series of interrelated dependence relationships among the measured variables and latent constructs as well as between latent constructs. Structural Equation Modelling consists of the measurement model and path analysis. The measurement model is performed to identify the items of the constructs and evaluate the reliability and validity of the constructs. On the other hand, Path analysis is employed to determine the strength of the paths in the model whether dependent constructs are significantly influenced by the independent constructs or not. In this study, the researcher has developed the model for sustainable tourism development. The model is analysed by using the SEM. SEM is carried out with the help of software AMOS 20.

1.11: Chapterization

Chapter one- The proposed research is confined within five chapters. The first chapter entitled as Introduction, It consists the need of study, objectives, research questions, scope of the study and conceptual models for the study with their hypothesis and the methodology.

Chapter two- The second chapter consists of the ‘Review of Literature’ through light on the previous studies conducted in the area to the proposed research. Based on the previous literature the research gap has been identified and justification for current research has been provided.

Chapter three- The third chapter consist of the area of the study. It includes the geographies of the study, tourist attractions of the Chilika lake and details of demographic distribution of the select villages surrounding the lake.

Chapter four- The fourth chapter consists of “Analysis and Interpretation”. It is divided into two parts. One is for tourists and second is for residents.

Chapter fifth-The fifth chapter entitled as “Findings, Suggestions and Conclusion”.
Figure No. 1.4: Research Framework

Selection of the topic: Sustainable Tourism Development in Chilika wetland

Why

Literature Review

Empirical

Selection of constructs for the questionnaire

Conceptual

Selection of problems and objectives

Exploratory Survey

Selection of study area

Respondents

Tourists

Analysis- Tools used- Mean, frequency, factor analysis, ANOVA, t test, Post hoc (Duncan), Canonical.

Residents

Analysis- Tools used- Mean, frequency, factor analysis, ANOVA, t test, Post hoc (Duncan).

Integrated Sustainable Tourism Development in Chilika (Structural Equation Modelling)