

## **Ecotourism Development and Economic Perception of the Nicobarese Community: A Study of Car Nicobar Island**

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### **Keywords**

- Community Perception
- Economic Expectations
- Indigenous Livelihoods
- Sustainable Tourism Planning
- Car Nicobar Island

### **Abstract**

Tourism is the fastest developing industry of the world and ecotourism is the fastest growing sector of tourism industry. The fragile eco-system of the A & N Islands, its virtually untouched natural environment, and its distance from the mainland leave very limited option like fisheries and tourism for the upliftment of the community here. Ecotourism has unlimited potentiality in the Union Territory of Andaman and Nicobar Islands but for variety of reasons, it has not been fully exploited yet. Tourism industry is growing fast in Andaman group of Islands whereas the Nicobar group of Islands especially the Car Nicobar Island is not opened for tourism. The Car Nicobar Island is a remote but beautiful and unique for their indigenous culture, tradition, eating habits, dressings and festival. This study is to find out the Economic perception of the Nicobarese community on development of ecotourism in Car Nicobar Island. Further this study will also examine the differences in opinion of the demographic variable in respect of gender, age, education, occupation, income, expenditure, place of work and family type in respect of community perception regarding economic benefits of ecotourism in their island. This study is primarily based on the primary data which have been collected by using structure questionnaire to find out the differences in perception among the Nicobarese community, descriptive and inferential statistical techniques is being used to analyze the collected data. The result of the analysis is expected to give understanding on the community readiness, opportunities for livelihood generation and Nicobarese communities concerns about the introduction of Ecotourism in Car Nicobar Island. The study concludes with recommendation of opening the Car Nicobar Islands for community based ecotourism for the economic and inclusive development of the community.

## 1. Introduction

Ecotourism has been recognized as one of the fastest-growing segments of the global tourism industry, expanding at an annual rate of 20–25 percent (Ceballos-Lascurain, 2012). Unlike traditional mass tourism, which has shown signs of market saturation, ecotourism continues to demonstrate significant growth potential. According to the analysis of the United Nations World Tourism Organization (UNWTO, 2001), sun-and-sand resort tourism, which had long been the backbone of Caribbean tourism, had matured as a market with limited future expansion. In contrast, experiential tourism—including ecotourism, nature tourism, heritage tourism, cultural tourism, soft adventure tourism, rural tourism, and community tourism—was projected to experience rapid growth over the following decades.

Over the past few decades, ecotourism has gained global recognition as an effective tool for balancing environmental conservation with socio-economic development, particularly in remote and ecologically sensitive regions (Honey, 2008; Fennell, 2020). It has emerged as a sustainable development strategy that integrates biodiversity conservation, community participation, and livelihood generation.

## 2. Review of Literature

A significant milestone in the global development of ecotourism was the World Ecotourism Summit held in Quebec City in May 2002, where over one thousand delegates from 132 countries participated. The summit resulted in the Quebec Declaration on Ecotourism (2002), which emphasized that ecotourism embraces the principles of sustainable tourism by addressing economic, social, and environmental impacts. The declaration advocated for the establishment of small and locally managed enterprises and encouraged international financial institutions to support small and medium-sized ecotourism businesses.

Globally, increasing public awareness of environmental sustainability and Indigenous rights has further strengthened the relevance of ecotourism. Ecotourism acknowledges the deep cultural and spiritual connections between Indigenous communities and natural landscapes. At the same time, growing tourist demand for authentic Indigenous cultural experiences has created new economic opportunities for Indigenous populations through the sustainable use of land and natural resources (Honey, 1999; Christ, 2004).

Ecotourism also plays an important role in maintaining harmony between local communities and their natural environment by minimizing harmful impacts that may disturb this balance. Traditional knowledge, customs, and cultural practices become valuable economic resources through ecotourism. As noted by Poon (1993), tourists are often willing to pay for authentic cultural experiences, making tradition itself a foundation for development rather than a victim of modernization.

On islands and in less-developed regions, ecotourism can significantly contribute to regional development and poverty alleviation through careful planning of resource utilization and sustainable development practices. Policies such as promoting local goods and services, capacity building, education, and skill development are considered essential for successful island ecotourism (Stefanos, Dimitrios, and Gabor, 2002).

Ecotourism in Indigenous and aboriginal communities often involves cultural interpretation, display of traditional knowledge, and restoration of ethnic identity and pride. Hipwell (2007) describes this as ethno-ecotourism, where tourism development is centered around traditional knowledge, skills, crafts, and community-based practices. Such an approach supports local producers, minimizes environmental damage, reduces dependence on external capital, and respects the cultural integrity of host communities.

In the context of Car Nicobar Island, where tourism activities remain largely undeveloped, there is a significant need to assess the readiness of the Nicobarese community to participate in ecotourism and to understand their expectations regarding its economic benefits. It is equally important to examine how these perceptions vary across demographic factors such as gender, age, education, occupation, income, expenditure, place of work, and family type (Abdul Salam P., 2020). Such an analysis can provide valuable insights for planning community-based and culturally sensitive ecotourism development in the region.

Despite the growing recognition of ecotourism as a sustainable pathway for economic development, there is a lack of empirical understanding of how indigenous communities, particularly the Nicobarese of Car Nicobar Island, perceive its potential benefits and implications. The absence of such insights poses a challenge for planners and policymakers in designing inclusive and culturally sensitive ecotourism strategies. Moreover, variations in economic perceptions across different demographic groups within the community remain largely unexplored. In a pre-development context, where ecotourism initiatives are yet to be fully established, this gap in knowledge hinders the formulation of effective, community-oriented planning approaches. Therefore, it becomes essential to

systematically examine the perceptions of the Nicobarese community and identify demographic differences to inform sustainable and participatory ecotourism development.

### **3. Objectives**

1. To study the present trend of ecotourism in Andaman and Nicobar Islands.
2. To assess the perception of Nicobarese Community towards ecotourism and community development.
3. To examine whether there is any significant difference in the opinion regarding Socio-Cultural perception, Economic perception, Ecotourism perception and various attributes that Nicobar Island possess with respect to the following demographic variables. Gender, Age, Education, Occupation, Income, Expenditure, Place of Work, Family type.
4. To suggest ecotourism strategies for Car Nicobar Island for economic progress.

### **4. Research Methodology**

This study is confined to the Union Territory of Andaman and Nicobar Islands. This study is conducted for the period of two years approximately from July 2015 to September 2017. During this period field visits are undertaken in order to know the perception of the Nicobarese Community towards ecotourism and community development. The opinions of the Nicobarese Community people are gathered through the structured questionnaire.

The present study is an empirical research, so the whole study depends on the primary data collected for the purpose through questionnaire. A draft questionnaire was prepared for the purpose of research. Much effort was taken to prepare the questionnaire in a systematic way by designing adequate and relevant questions for better achievement of the research objectives. The researcher randomly selected 323 respondents. The questionnaire consists of two sections, section A and Section B; The Section A of the of the questionnaire is about the Economic Perception/ Impact Indicators, which covers statements like Ecotourism generate employment, income, business opportunities, and improvement in infrastructure and uplift the living condition etc. The Section B of the questionnaire was personnel demographic information about the respondents.

#### **Sampling -**

Instead of obtaining information from each and every unit of the universe, only a small representative part is studied and the conclusion are drawn on that basis for the entire universe or whole

population. Hence, for collecting the primary data from the local community of Car Nicobar Islands' all the fifteen villages has been included and this research uses a random stratified sampling approach. As there was time and money constrains. During the data collection it is found that the people of Car Nicobar are very shy and reluctant to express their view and very few come forward to fill the questionnaire.

### **Data Processing-**

After the collection of data from the respondents, the raw data are coded for processing. The analysis of data was done with the help of recommended statistical software packages like SPSS, and Microsoft Excel.

### **Tools Used -**

The study results were analysed by using various statistical tools. The data collected from the respondents were analysed and presented in the form of tables and Bar Charts. The results are compared and analysed by using descriptive analysis, average score analysis, chi-square analysis, *Mann–Whitney U test and Kruskal Wallis test.*

### *Hypotheses of the Study*

Null Hypotheses ( $H_0$ ):-

**H<sub>01</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to gender.

**H<sub>02</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to different age groups.

**H<sub>03</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to different levels of education.

**H<sub>04</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to different occupational groups.

**H<sub>05</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to different income groups.

**H<sub>06</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to different expenditure groups.

**H<sub>07</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to preferred place of work.

**H<sub>08</sub>:** There is no significant difference in the mean score of economic perception among the Nicobarese community with respect to family type.

### Demographic Distribution:

The study analyzes the perceptions of the Nicobarese community regarding ecotourism and community development in the Nicobar Islands. Responses were collected using a five-point Likert scale (from strongly agree to strongly disagree), along with nominal-scale questions on aspects such as economic perception. Demographic information was also gathered to examine respondents' opinions as independent variables.

### Descriptive Analysis:

The data collected from the Nicobarese community were classified, tabulated, and analyzed using simple percentage methods.

### Village-wise Distribution of Respondents

Car Nicobar Island consists of 15 villages, each led by a Village Captain and organized into Tuhets (extended family groups) where members live and work together. This study collected data from all villages to examine and compare perceptions of ecotourism and community development. The village-wise percentage distribution of respondents is presented in the table below.

**Village Wise Distribution of the Respondent**

| Parameter | Category    | Frequency | Percent |
|-----------|-------------|-----------|---------|
| Village   | Arong       | 20        | 6.19%   |
|           | Big Lapati  | 24        | 7.43%   |
|           | Chuckchucha | 23        | 7.12%   |
|           | Kakana      | 20        | 6.19%   |
|           | Kimois      | 11        | 3.41%   |
|           | Kinmai      | 19        | 5.88%   |
|           | Kinyuka     | 21        | 6.50%   |
|           | Malacca     | 30        | 9.29%   |

|              |    |       |
|--------------|----|-------|
| Mus          | 30 | 9.29% |
| Perka        | 26 | 8.05% |
| Sawai        | 20 | 6.19% |
| Small Lapati | 20 | 6.19% |
| Tamaloo      | 29 | 8.98% |
| Tapoiming    | 20 | 6.19% |
| Teetop       | 10 | 3.10% |

Primary Source

The table above presents the number of respondents from each village of Car Nicobar Island. The same is illustrated through a bar diagram, which clearly shows the proportion of samples selected from each village for the study.

### Gender of the Respondent:

Gender influences differences in understanding and preferences among individuals. In this study, the perceptions of male and female Nicobarese respondents show some variation. The frequency analysis reveals that the majority of respondents were male (200 out of 323, 61.92%), while 123 respondents (38%) were female. This distribution is considered adequate for further analysis and aligns with the general gender composition of the tribal population of Car Nicobar Island, where males slightly outnumber females. Lower female participation may also be attributed to their hesitation in expressing opinions.

The distribution is illustrated through a chart, clearly showing the proportion of male and female respondents included in the study.

### Gender of the Respondent

| Parameter | Category | Count | Percent |
|-----------|----------|-------|---------|
| Gender    | Female   | 123   | 38.08   |
|           | Male     | 200   | 61.92   |

Age-wise

Distribution

### of the Nicobarese Community

Age is an important factor in this study and has been classified into five groups: 15–25, 26–35, 36–45, 46–55, and 56 years and above.

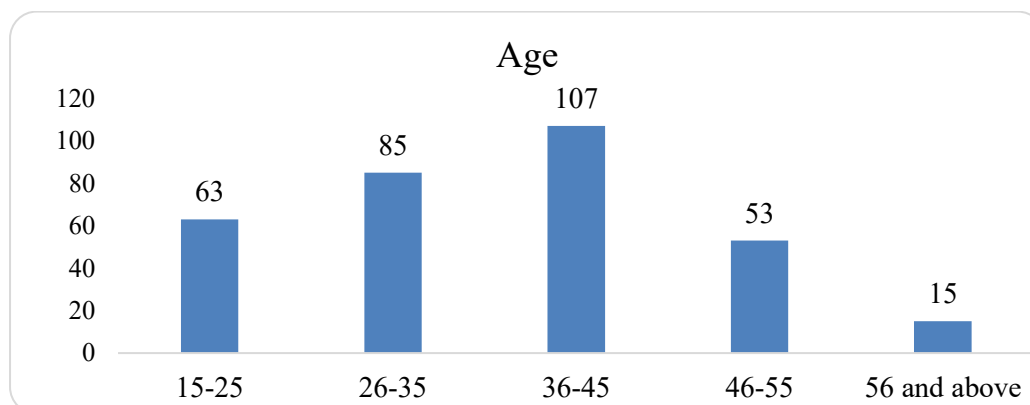
| Parameter | Category     | Frequency | Percent |
|-----------|--------------|-----------|---------|
| Age       | 15-25        | 63        | 19.50%  |
|           | 26-35        | 85        | 26.32%  |
|           | 36-45        | 107       | 33.13%  |
|           | 46-55        | 53        | 16.41%  |
|           | 56 and above | 15        | 4.64%   |

(Source: Primary Data)

The table provides a clear view of the age-wise distribution of respondents who participated in the survey. The majority of respondents (33.13%) belong to the 36–45 age group, followed by 26–35 (26.32%), which is the second largest group contributing their views on ecotourism and community development. Additionally, 19.50% of respondents fall in the 15–25 age group, 16.41% in the 46–55 group, and 4.64% are aged 56 and above.

Overall, the distribution indicates a fairly balanced representation of different age groups within the Nicobarese community. The bar diagram below illustrates the percentage-wise participation of each age group in the study.

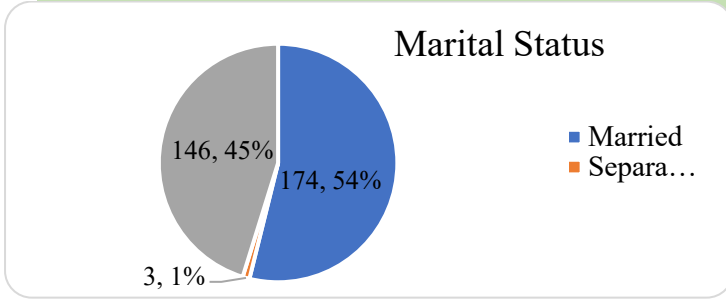
**AGE GROUP OF THE RESPONDANT**



(Source: Primary Data)

**Distribution Showing Marital Status of the Nicobarese Community**

The following pie chart describes the marital status wise distribution of the Nicobarese Community people. It has been classified into three categories via, married, Separated and Single.

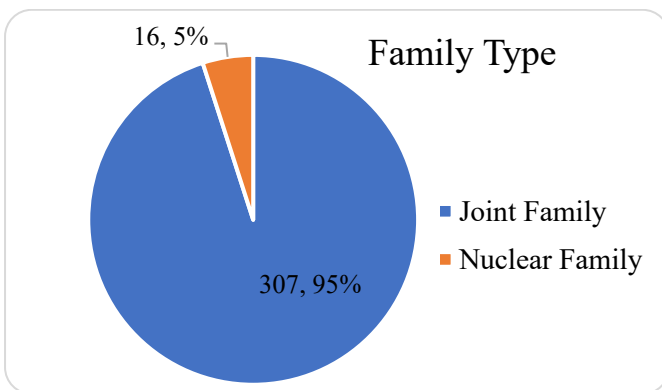


(Source: Primary Data)

### Distribution Showing the Family Type of Nicobarese Community

The pie diagram clearly indicates that 95.05% of the Nicobarese community follows a joint family system, while only 4.95% live in nuclear families. This reflects the strong tradition of joint family living among the Nicobarese, where social organization continues to be centred around extended family structures, and nuclear family living is less preferred.

The distribution is illustrated through a pie diagram, providing a clear understanding of the family types within the Nicobarese community.



### Distribution Showing Nicobarese Community Educational Qualification

The educational qualification of the Nicobarese community has been categorized into six levels, namely: Primary, Secondary, Senior Secondary, Graduation, Postgraduate, and Higher Education.

#### Educational Qualification of the Nicobarese Community

| Parameter          | Category         | Count | Percent |
|--------------------|------------------|-------|---------|
| Level of Education | Primary          | 70    | 21.67%  |
|                    | Secondary        | 176   | 54.49%  |
|                    | Senior Secondary | 52    | 16.10%  |

|  |                          |    |       |
|--|--------------------------|----|-------|
|  | Graduation               | 5  | 1.55% |
|  | Post Graduate and Higher | 20 | 6.19% |

It is evident from the above table that a majority (54.49%) of the Nicobarese respondents have studied up to the secondary level. About 21.67% have completed primary education, while 16.10% have attained senior secondary education. A relatively small proportion, 5%, have pursued graduation, and 6.19% possess postgraduate or higher qualifications.

The data presented in Chart 5.4 further illustrates that most respondents have completed secondary education, and notably, none of the respondents were found to be illiterate.

### Distribution Showing Nicobarese Place of preference to work Wise Classification-

The preference of the work place of the Nicobarese Community is tabulated as follows:

#### Preference of Place of Work of Nicobarese

| Parameter                  | Category              | Count | Percent |
|----------------------------|-----------------------|-------|---------|
| Where do you like to work? | Anywhere in the world | 15    | 4.64%   |
|                            | In India              | 15    | 4.64%   |
|                            | In Nicobar            | 251   | 77.71%  |
|                            | In Port Blair         | 42    | 13.00%  |

(Source: Primary Data)

It is evident from the above table that a majority (77.71%) of the Nicobarese community prefer to work within their own island, Nicobar. About 13% of the respondents prefer to work in Port Blair, while an equal proportion (4.64% each) are willing to work anywhere in India or abroad.

### Distribution showing Nicobarese Community Occupation Wise Classification

The occupation of the Nicobarese community has been classified into four categories viz; Government, Private, Self- Employment and Unemployed.

#### Occupation of the Nicobarese Community

| Parameter  | Category        | Count | Percent |
|------------|-----------------|-------|---------|
| Occupation | Government      | 55    | 17.03%  |
|            | Private         | 94    | 29.10%  |
|            | Self-employment | 38    | 11.76%  |

|            |     |        |
|------------|-----|--------|
| Unemployed | 136 | 42.11% |
|------------|-----|--------|

(Source: Primary Data)

The above table reveals that 42.11% of the Nicobarese community are unemployed. About 29% are employed in the private sector, 17.03% work in the government sector, and 11.76% are self-employed.

### Distribution Showing Nicobarese Annual Family Income Wise Classification

The annual family incomes of the Nicobarese community are classified in terms of rupees and are tabulated as follows:

#### Annual Family Income of the Nicobarese

| Parameter | Category            | Count | Percent |
|-----------|---------------------|-------|---------|
| Income    | Less than 300000    | 235   | 72.76%  |
|           | 300000-600000       | 47    | 14.55%  |
|           | Greater than 600000 | 41    | 12.69%  |

(Source: Primary Data)

The above table shows that a majority (79.88%) of the Nicobarese households have an annual family expenditure of less than ₹3 lakh. About 8.98% fall within the ₹3 lakh to ₹6 lakh range, while 11.15% have an annual family expenditure exceeding ₹6 lakh.

### Distribution showing the classification of Preference of the Nicobarese to serve the tourist

The table shows the interest and preference shown by the Nicobarese community people to serve tourism industry

#### Preference of Nicobarese family to serve Tourist

| Parameter   | Categories                   | Count | Percent |
|---|------------------------------|-------|---------|
| In which way you prefer to serve the tourist in your islands? | As a driver                  | 38    | 11.76%  |
|   | As a tourist guide           | 64    | 19.81%  |
|   | Handicraft sales man         | 87    | 26.93%  |
|   | As a travel agent            | 40    | 12.38%  |
|   | As an accommodation provider | 22    | 6.81%   |
|   | As entertainer               | 21    | 6.50%   |
|   | As a boat operator           | 10    | 3.10%   |
|   | As a restaurant owner        | 22    | 6.81%   |

|  |                                 |   |       |
|--|---------------------------------|---|-------|
|  | As a foreign currency exchanger | 4 | 1.24% |
|--|---------------------------------|---|-------|

(Source: Primary Data)

The above table depicts that a majority of the Nicobarese community are willing to serve tourists in various capacities. A significant proportion (26.93%) have shown interest in working as handicraft salespersons, followed by 19.81% who prefer to work as tourist guides. About 12.38% are interested in becoming travel agents, while 11.76% are willing to work as drivers. Additionally, 6.81% each have expressed interest in providing accommodation and running restaurants. Around 6.50% would like to work as entertainers, 3.10% prefer to be boat operators, and only 1.24% are interested in working as foreign exchange operators.

**Normality Test for the Variables:**

An exploratory analysis of the variables related to the economic perception of the Nicobarese community is presented in the tables below.

| Variable | Mean | Mode | Median | Standard Deviation | Skewness | Kurtosis |
|----------|------|------|--------|--------------------|----------|----------|
| Economic | 4.02 | 4.00 | 4.00   | 0.539              | -1.092   | 2.382    |

For the variable Economic Perception, the mean, median, mode, and standard deviation are 4.02, 4.00, 4.00, and 0.539 respectively. The skewness value of -1.092 (less than -1) indicates that the distribution is negatively skewed and deviates from normality. To further validate this, normality tests such as the Kolmogorov–Smirnov and Shapiro–Wilk tests were applied, and the results are presented in the following tables.

| Parameters | Kolmogorov-Smirnova |       | Shapiro-Wilk |       |
|------------|---------------------|-------|--------------|-------|
|            | Statistic           | Sig.  | Statistic    | Sig.  |
| Economic   | 0.163               | 0.000 | 0.907        | 0.000 |

The results of the normality tests indicate that the significance values are less than 0.05, leading to the rejection of the null hypothesis that the data follow a normal distribution. This confirms that the data are not normally distributed.

Since the assumption of normality is violated, parametric tests such as the t-test and one-way ANOVA are not appropriate for analyzing group differences. Therefore, this study employs non-parametric

tests, namely the Mann–Whitney U test for comparing two groups and the Kruskal–Wallis test for comparing more than two groups.

Objectives:

To check whether there is any difference in the opinion regarding Economic perception, with respect to the following demographic variables Gender, Age, Education, Occupation, Income, Expenditure, Place of Work, Family Type.

*H01: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to Gender.*

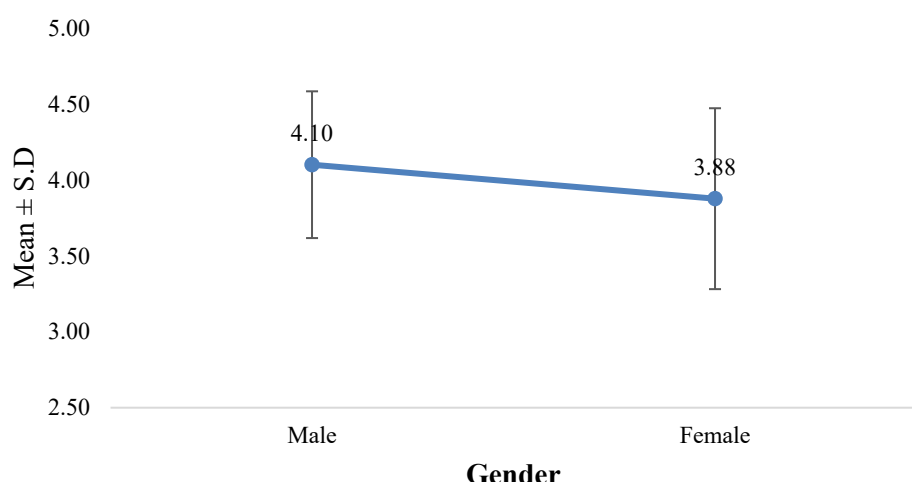
Result:

| <b>Table:</b> Mann-Whitney U test result for comparison of different variables with respect to Gender |        |      |                |                |         |
|---|--------|------|----------------|----------------|---------|
| Variable  | Gender | Mean | Std. Deviation | Mann-Whitney U | p-value |
| Economic  | Male   | 4.10 | 0.484          | 9792.50        | 0.002*  |
|   | Female | 3.88 | 0.596          |                |         |
|   | Female | 3.95 | 0.413          |                |         |

The above Table contains the mean, standard deviation, Mann-Whitney U statistic and p-value. For the variable Economic, the Mann-Whitney U statistic is 9792.50 and the corresponding p-value is 0.002. The p-value 0.002 is less than 0.05, which leads to the rejection of the null hypothesis H02. There for we can say that there is a significant difference between the mean score of Economic perception among the Nicobarese with respect to Gender that is the male and female population differ significantly in their mean score. The male population has a higher mean score (4.10) than the female population (3.88). From the above table we can make an inference that the male population support more than female regarding the economic perception and they believe that ecotourism can generate employment, bring income and create new business opportunities for local community and they believe that ecotourism also improve the infrastructure in Nicobar.

The Line-Whisker plot for the not significant variables has been drawn and is shown below.

**Representation of Mean  $\pm$  S.D of Economic perception across Gender**



***H<sub>02</sub>: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different age groups.***

In order to examine whether there are significant differences in the opinions of the Nicobarese community across different age groups with respect to the four variables—Socio-Cultural, Economic, Ecotourism, and Attributes—the Kruskal–Wallis test was employed. This non-parametric test was chosen as the data failed the normality assumption and the comparison involved more than two groups. The Kruskal–Wallis test was conducted for all four variables, and the results are presented in Table. Further, wherever a significant difference was observed, the Mann–Whitney U test was applied for pairwise comparisons between age groups to identify the specific groups that differ.

| Variable | Age Group    | Mean | Std. Deviation | Chi-Square | p-value             |
|----------|--------------|------|----------------|------------|---------------------|
| Economic | 15-25        | 3.94 | 0.552          | 7.763      | 0.101 <sup>NS</sup> |
|          | 26-35        | 3.96 | 0.461          |            |                     |
|          | 36-45        | 4.03 | 0.546          |            |                     |
|          | 46-55        | 4.15 | 0.570          |            |                     |
|          | 56 and above | 4.09 | 0.696          |            |                     |

The result shows the comparison of opinion among different age group with the Economic variable and here the mean score of five age bracket that is (15-25), (26-35), (36-45), 46-55) and (55 and above)of Nicobarese community respondent is 3.94,3.96,4.03,4.15 and 4.09 and the standard deviation is 0.552, 0.461, 0.546, 0.570, 0.696 respectively with the P value 0.101, which is greater

than 0.05 so we accept the null hypothesis H02: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different age groups. From the result this inference can be made that all the age group respondent feel that ecotourism can generate employment, bring income and can create new business opportunities for local community and they believe that ecotourism also will improve the infrastructure in Nicobar.

**H03: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different Education Levels.**

| <b>Table :</b> Kruskal-Wallis test result for comparison of different variables with respect to different Education Level. |                          |      |                |            |                     |
|--|--------------------------|------|----------------|------------|---------------------|
| Variable   | Education Level          | Mean | Std. Deviation | Chi-Square | p-value             |
| Economic   | Primary                  | 4.01 | 0.628          | 4.999      | 0.287 <sup>NS</sup> |
|  | Secondary                | 4.07 | 0.476          |            |                     |
|  | Senior Secondary         | 3.83 | 0.636          |            |                     |
|  | Graduation               | 3.80 | 0.620          |            |                     |
|  | Post Graduate and Higher | 4.08 | 0.316          |            |                     |

The results present a comparison of opinions among the Nicobarese community across different levels of education with respect to the Economic variable. The mean scores for the five education levels—Primary, Secondary, Senior Secondary, Graduation, and Postgraduate and above—are 4.01, 4.07, 3.83, 3.80, and 4.08 respectively. The corresponding standard deviations are 0.628, 0.476, 0.636, 0.620, and 0.316.

The obtained p-value is 0.287, which is greater than 0.05. Therefore, the null hypothesis (H02) is accepted, indicating that there is no significant difference in the mean scores of economic perception among the Nicobarese community with respect to different education levels.

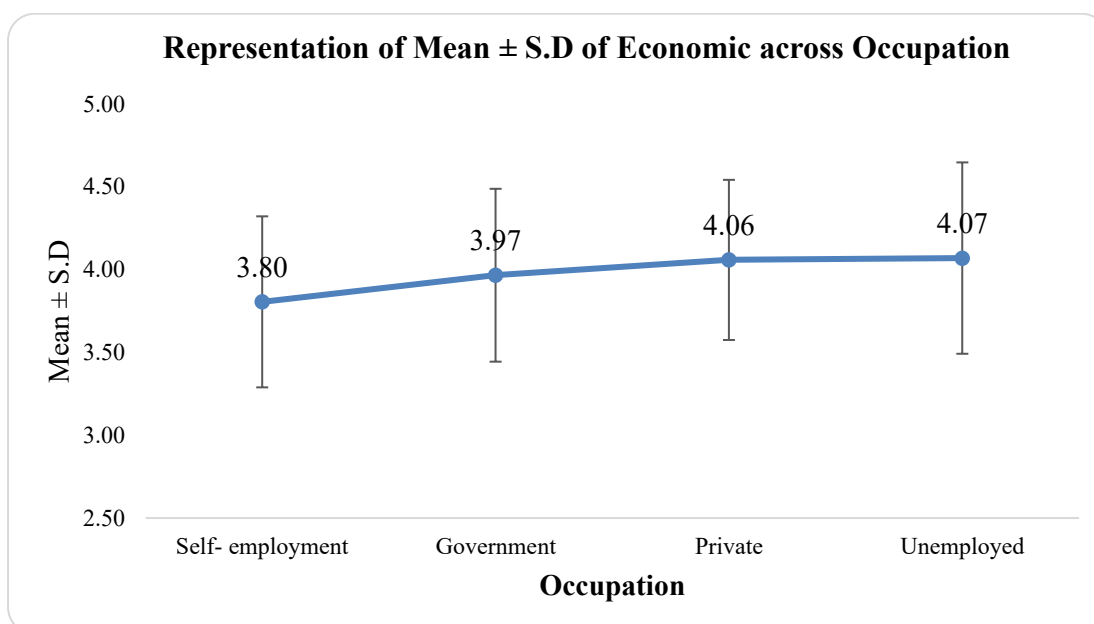
**H04: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different occupation groups.**

| <b>Table:</b> Kruskal-Wallis test result for comparison of different variables with respect to different types of Occupation. |                  |                     |                |            |         |
|---|------------------|---------------------|----------------|------------|---------|
| Variable  | Occupation       | Mean                | Std. Deviation | Chi-Square | p-value |
| Economic  | Self- employment | 3.80 <sup>a</sup>   | 0.516          | 10.952     | 0.012*  |
|   | Government       | 3.97 <sup>a,b</sup> | 0.522          |            |         |

|  |            |                   |       |  |  |
|--|------------|-------------------|-------|--|--|
|  | Private    | 4.06 <sup>b</sup> | 0.483 |  |  |
|  | Unemployed | 4.07 <sup>b</sup> | 0.578 |  |  |

In the case of the variable *Economic Perception*, the superscript groupings indicate that the Self-employed and Government categories share the same superscript, implying no significant difference between them. Similarly, the Government category shares the same superscript with both the Private and Unemployed categories, indicating no significant difference among these groups as well.

Furthermore, the Private and Unemployed categories also share the same superscript, suggesting that their mean scores do not differ significantly. However, the remaining pairs of categories have different superscripts, indicating significant differences between those groups.



**H<sub>05</sub>: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different Income groups.**

| Table :Kruskal-Wallis test result for comparison of different variables with respect to different categories of Income. |                     |      |                |            |                     |
|---|---------------------|------|----------------|------------|---------------------|
| Variable  | Occupation          | Mean | Std. Deviation | Chi-Square | p-value             |
| Economic  | Less than 300000    | 4.03 | 0.554          | 1.752      | 0.416 <sup>NS</sup> |
|   | 300000-600000       | 3.96 | 0.472          |            |                     |
|   | Greater than 600000 | 4.04 | 0.537          |            |                     |

From Table, we can see that Economic perception, the Chi-Square values is 1.752 and p-values 0.416 which is greater than that of the level of significance (0.05). Hence the Null Hypothesis  $H_{02}$  is accepted, which means that there is no significant difference in the mean score of Economic perception among the Nicobarese with respect to different categories of occupation. They believe that the Nicobarese culture can attract eco-tourist to Nicobar and ecotourism bring income, employment and upliftment for the local communities of Nicobar.

***H<sub>06</sub>: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different Expenditure groups.***

| <b>Table:</b> Kruskal-Wallis test result for comparison of different variables with respect to different categories of Expenditure. |                     |      |                |            |                     |
|---|---------------------|------|----------------|------------|---------------------|
| Variable  | Occupation          | Mean | Std. Deviation | Chi-Square | p-value             |
| Economic  | Less than 300000    | 4.02 | 0.543          | 0.397      | 0.820 <sup>NS</sup> |
|   | 300000-600000       | 4.07 | 0.531          |            |                     |
|   | Greater than 600000 | 3.97 | 0.532          |            |                     |

From Table, it can be observed that for the variable Economic Perception, the Chi-square value is 0.397 with a corresponding p-value of 0.820, which is greater than the level of significance (0.05). Hence, the null hypothesis ( $H_{02}$ ) is accepted, indicating that there is no significant difference in the mean scores of economic perception among the Nicobarese community with respect to different categories of expenditure.

This suggests that respondents, irrespective of their expenditure levels, share a similar opinion that the Nicobarese culture can attract eco-tourists to Nicobar and that ecotourism can generate income, create employment opportunities, and uplift the local community.

***H<sub>07</sub>: There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different place where they like to work.***

| <b>Table :</b> Kruskal-Wallis test result for comparison of different variables with respect to different Place of Work. |               |      |                |            |                     |
|--|---------------|------|----------------|------------|---------------------|
| Variable   | Place of Work | Mean | Std. Deviation | Chi-Square | p-value             |
| Economic   | In Nicobar    | 4.04 | 0.532          | 2.984      | 0.394 <sup>NS</sup> |
|  | In Port Blair | 3.85 | 0.643          |            |                     |
|  | In India      | 3.97 | 0.299          |            |                     |

|  |                       |      |       |  |  |
|--|-----------------------|------|-------|--|--|
|  | Anywhere in the world | 4.15 | 0.477 |  |  |
|--|-----------------------|------|-------|--|--|

From Table we can see that Economic perception, the Chi-Square values is 2.984 with corresponding p-values 0.394 respectively which are greater than that of the level of significance (0.05). Hence the Null Hypothesis  $H_{02}$  is accepted, which means that there is no significant difference in the mean score of Economic perception among the Nicobarese with respect to different categories of place of work.  
 $H_{08}$ : There is no significant difference between the mean score of Economic perception among the Nicobarese with respect to different Family Type.

| Table :Mann-Whitney U test result for comparison of different variables with respect to Family Type |                |      |                |                |                     |
|---|----------------|------|----------------|----------------|---------------------|
| Variable  | Family Type    | Mean | Std. Deviation | Mann-Whitney U | p-value             |
| Economic  | Nuclear Family | 4.21 | 0.358          | 2026.50        | 0.235 <sup>NS</sup> |
|   | Joint Family   | 4.01 | 0.546          |                |                     |

From Table, we can see that in Economic perception, the score of Mann-Whitney U test is 2026.50 with corresponding p-values 0.235 respectively which are greater than that of the level of significance (0.05). Hence the Null Hypothesis  $H_{02}$  is accepted, which means that there is no significant difference in the mean score of Socio-Cultural perception and Economic perception among the Nicobarese with respect to family type.

### 5. Recommendations:

Based on the findings of the study conducted in Car Nicobar Island, several policy and practice-oriented recommendations are proposed to enhance the sustainable development of ecotourism and ensure meaningful community participation.

Firstly, it is imperative to strengthen community-based ecotourism frameworks by actively involving the Nicobarese community in planning, decision-making, and management processes. Such participatory approaches would not only empower local stakeholders but also ensure that tourism development aligns with indigenous values and socio-cultural norms.

Secondly, the study highlights the need for capacity building and skill development initiatives. Structured training programs in areas such as tourist guiding, hospitality management, handicraft

production, and communication skills should be introduced. These initiatives would enhance the employability of local residents and improve the overall quality of tourism services.

Thirdly, promotion of local employment opportunities should be prioritized. Government agencies and private stakeholders must adopt inclusive hiring practices to ensure that the economic benefits of tourism are retained within the local community, thereby contributing to livelihood enhancement and poverty reduction.

Further, the development of sustainable and eco-friendly infrastructure is essential. Infrastructure planning should be guided by environmental considerations, with emphasis on low-impact accommodation, efficient waste management systems, and sustainable transport facilities to minimize ecological degradation. In addition, there is a need to preserve and promote the unique cultural heritage of the Nicobarese community. Cultural expressions, traditional practices, and indigenous knowledge systems should be integrated into tourism offerings in a respectful and non-exploitative manner.

The study also underscores the importance of environmental awareness and conservation programs. Educational initiatives aimed at both residents and tourists should be implemented to foster responsible behavior and ensure the long-term sustainability of natural resources. Moreover, institutional support and policy interventions are crucial for the systematic development of ecotourism. The government should formulate clear guidelines, provide financial assistance, and establish monitoring mechanisms to regulate tourism activities effectively.

The role of public–private partnerships (PPPs) should also be emphasized. Collaborative efforts between government bodies, private enterprises, and local communities can facilitate investment, improve infrastructure, and enhance destination marketing. Finally, it is essential to ensure equitable distribution of tourism benefits across different socio-economic groups. As the study indicates no significant variation in perceptions across expenditure categories, inclusive policies must be designed to guarantee that all sections of the community benefit from ecotourism development.

## **6. Limitations of the Study**

The present study has the following limitations:

1. The study is geographically limited to Car Nicobar Island in the Nicobar group of Islands. Therefore, the findings and conclusions drawn from the study may not be generalised to other islands or regions with different socio-cultural and economic conditions.

2. The study is based on the survey method using a structured questionnaire, which has inherent limitations such as response bias, misunderstanding of questions, and subjectivity in responses. However, adequate care was taken to minimise bias and ensure the reliability of the data collected.
3. The study focuses primarily on the perceived economic aspects of ecotourism and does not extensively cover environmental and socio-cultural impacts in a quantitative framework.
4. The findings are based on the perceptions of respondents regarding a proposed concept of ecotourism, as tourism activities are yet to be developed in Car Nicobar Island. Therefore, responses reflect expectations rather than actual experiences.

### References:

- Ceballos-Lascuráin, H. (2012). *Ecotourism and protected areas*. Gland, Switzerland: International Union for Conservation of Nature (IUCN).
- Christ, C. (2004). *Tourism and biodiversity: Mapping tourism's global footprint*. Washington, D.C.: Conservation International.
- Fennell, D. A. (2020). *Ecotourism* (5th ed.). London: Routledge.
- Hipwell, W. T. (2007). Taiwan aboriginal ecotourism: Tanayiku natural ecology park. *Annals of Tourism Research*, 34(4), 876–897.
- Honey, M. (1999). *Ecotourism and sustainable development: Who owns paradise?* Washington, D.C.: Island Press.
- Honey, M. (2008). *Ecotourism and sustainable development: Who owns paradise?* (2nd ed.). Washington, D.C.: Island Press.
- Poon, A. (1993). *Tourism, technology and competitive strategies*. Wallingford: CAB International.
- Quebec Declaration on Ecotourism. (2002). World Ecotourism Summit, Quebec City, Canada. United Nations Environment Programme (UNEP) and World Tourism Organization (WTO).
- Stefanos, F., Dimitrios, B., & Gabor, M. (2002). Sustainable tourism development in island destinations: Issues of regional development and poverty alleviation. *Journal of Sustainable Tourism*, 10(6), 503–520.
- United Nations World Tourism Organization (UNWTO). (2001). *Tourism 2020 Vision: Global forecasts and profiles of market segments*. Madrid: UNWTO.