

AN EMPIRICAL STUDY OF THE IMPACT OF ENVIRONMENTAL RESOURCES ON ECONOMIC DEVELOPMENT IN UTTARAKHAND

Dr. K. R. Jain,
Associate Professor
DAV (PG) College, Dehradun, India

Abstract: The main objective of this research paper is to measure the overall impact of environmental resources on economic development in Uttarakhand. The research paper highlights the environmental resources in three aspects namely, socio-economic, cultural and natural resources. Socio-economic resources comprises of education, employment, health services, trade and commerce. Cultural resources mainly include religious and recreational tourism. Natural resources include water resources, agricultural, mines and minerals. GDP, a measure of economic development of Uttarakhand, for 2017-18 stands at 2.18 trillion INR growing at a compounded annual growth rate of 11.15 percent since last five years. For the study, a structured questionnaire has been prepared, containing three aspects, socio-economic resources, cultural resources and natural resources segregated in three sections such as first section of general profile, second section and third section covering opinions for specific survey and survey through likert scale, respectively. The questionnaire was correctly responded by 485 respondents out of randomly selected 500 total respondents from six main districts of Uttarakhand covering both the regions namely Garhwal and Kumaon. The paper clearly exhibits people's understanding and opinions regarding the impact of environmental resources on economic development in Uttarakhand. **The research paper reveals that out of 485 respondents, 89 percent acknowledged tourism; educational resources conferred by 80 percent; 78 percent in favor of natural resources; 76 percent acknowledged health; 66 percent supported trade and commerce and 57 percent believed that transportation resources influence economic development of the state.**

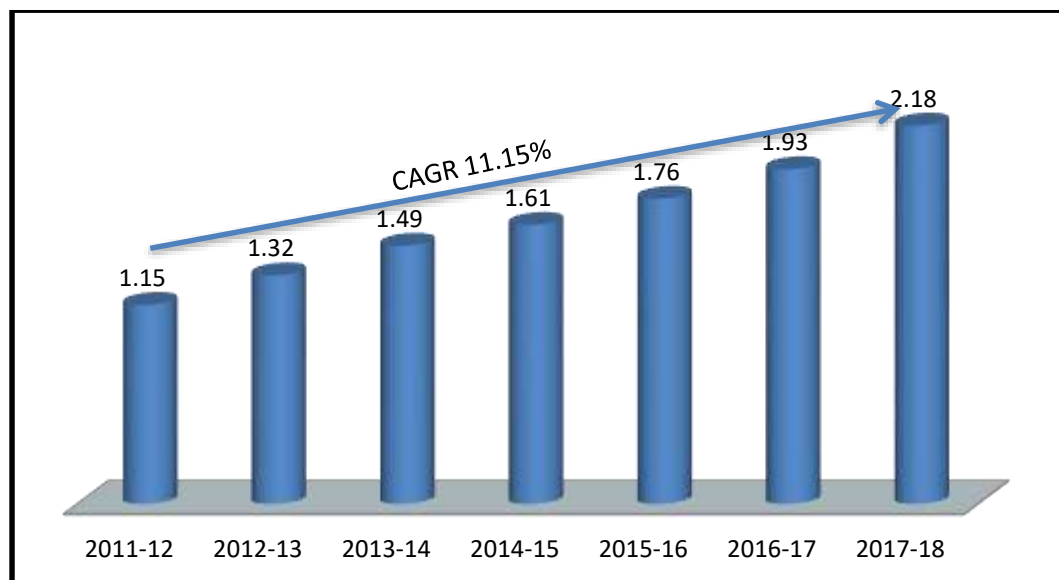
KEY WORDS: Cultural Resources, Economic Development, Education, Employment, Health Sector, Natural Resources, Socio-economic resources, Tourism, Trade and Commerce, Transportation, Uttarakhand.

1. Introduction

Environment refers to the elements of surroundings that provide support structure and main ingredients for survival and development of living beings. Basic requirements of a living being are water, air and land, which constitute part of natural resources. Human beings have found many uses of natural resources like electricity / power, houses, buildings, machines and other advanced technologies that originate from natural resources. Through ages of evolution and innovation, human beings not only need natural resources but also socio-economic resources and cultural resources to thrive and develop. Socio-economic resources include education, employment, health services, trade and commerce. These resources help in survival and economic development of human beings. Cultural resources mainly refer to religious and recreational tourism. All the three environmental resources namely, Socio-economic resources, cultural resources and natural resources contribute to human development. Human development is primarily measured by economic development. Thus, the three environmental resources contribute to economic development.

1.1 Economy of Uttarakhand

The state of Uttarakhand came into existence in the year 2000. It has population of one crore as per 2011 census. The state is divided into two regions of Garhwal and Kumaon comprising of 13 districts. The below figure depicts the rising Gross Domestic Product (GDP) of the state since 2011-12 to 2017-18 at a Compounded Annual Growth Rate (CAGR) of 11.15 percent. The per capita income of the state rose to Rs. 1, 77,356 in 2017-18 from Rs. 1, 61,102 in 2016-17 with an increase of 16 percent.



(Source: Ministry of Statistics and Programme Implementation)

Figure 1.1: GDP of Uttarakhand (in Rs. trillion)

Table 1.1: Sector wise percentage share in GDP of Uttarakhand

Sector	2013-14	2014-15	2015-16	2016-17	2017-18 Projected
Agriculture	10.59	9.98	9.34	8.91	9.46
Mining and Quarrying	2.38	1.47	1.34	1.37	1.32
Manufacturing	32.99	32.7	33.46	33.07	31.97
Utility Services	2.52	2.67	2.97	3.06	3.12
Construction	8.33	8.04	7.58	7.08	7.02
Transport	6.27	6.61	6.78	6.72	6.79
Trade, Hospitality	10.83	11.08	11.09	11.36	11.41
Financial Services	2.41	2.49	2.54	2.51	2.56
Real Estate	4.96	5.05	4.9	4.9	5.02
Public Administration	3.25	3.77	3.75	3.69	3.73
Other Services	5.55	5.68	5.61	6.09	6.19
Product tax	8.17	8.62	9.05	9.7	9.89
Product Subsidies	1.75	1.84	1.59	1.54	1.52
Total	100	100	100	100	100

(Source: State Domestic Product of Uttarakhand 2017-18, Directorate of Economic & Statistics, Government of Uttarakhand)

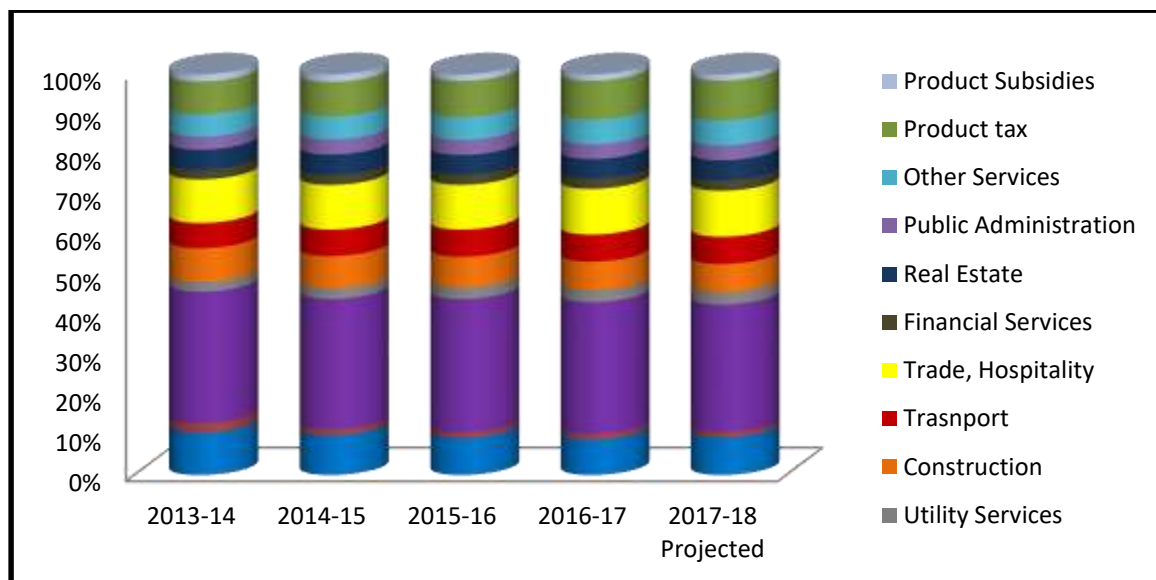


Figure 1.2: Percentage share of industries in GDP for five years

1.2 Key Highlights of the Environmental Resources of Uttarakhand

A. Socio-Economic Resources

I. Education

- Literacy rate is 79.63 percent as per 2011 census.
- The state has 15,179 government schools with student enrolment reaching 754,816 and 4,469 private schools with 923,857 enrolments.
- Almora medical college is expected to be started by academic year 2017-18
- The state possesses one central university, nine state universities, nine private universities, three deemed universities and four colleges of national repute such as IIM, Kashipur, IIT Roorkee, National Institute of Technology, Srinagar and Design and Research Organisation, Roorkee.

II. Employment

- As per latest census 2011, Uttarakhand had only 38.43 percent employed population.
- There are 25 employment exchanges within the state to facilitate unemployed.
- Various schemes of state government and central government are run to increase employment within the state. 'Pradhan Mantri Mudra Yojana' is flagship scheme to empower unemployed to start their own business with loan amount up-to 10 lacs. In 2017-18, the scheme distributed loans worth Rs. 968.48 crore, an increase of 10 percent from 2016-17.
- Total registered unemployed people at various employment exchanges are more than nine lakh in the state.

III. Health Services

- The state has 732 allopathic, 110 Homeopathic, 544 Ayurvedic and 5 Yunani hospitals, as per 2015-16 data from Family planning department.
- In 2016-17, the government utilized Rs. 1239.50 crore towards health services from the budget allocation.
- Under State Budget 2018-19, an allocation of Rs 2,286.57 crore has been made for health and family welfare, AYUSH and medical education.
- The state has 91 beds per thousand people in government hospitals.
- The state government has started a process of setting up 15 ICUs in the 13 District Centre's present in the state along with the appointment of 1,600 more doctors in hospitals and healthcare centres in 2018.

IV. Trade and Commerce

- IT Park in Dehradun, Pharma City in Selqui industrial Area, Integrated Industrial Estate in Haridwar, Integrated Industrial estate in Pantnagar, Integrated Industrial Estate-Escort Farm in Kashipur, SIDCUL Phase II in Sitarganj, Sigaddi Growth Centre in Kotdwar, IIE Bhimtal in Nainital and ESIP in Sitarganj has been identified as major industrial areas in the state.
- Trade and commerce of the state primarily depends on agriculture, tourism, Pharmaceutical and biotechnology, Hydropower, real estate and service sector.

B. Cultural Resources - Tourism

- There are numerous avenues for recreation in the state, particularly in key cities such as Dehradun, Nainital & Mussoorie. There is a botanical museum in the Forest Research Institute at Dehradun. The Indian Military Academy has a museum, library, war memorial, arms & ammunition, shooting demonstration room, & an 18-hole golf course. There is another popular golf course in Ranikhet. There are several heritage hotels such as the Chevron Rosemount, Chevron Fairhavens & the Ramgarh Bungalows. There are numerous unique entertainment and adventure avenues including

wildlife resorts such as Solluna resort in Nainital, Quality Inn Corbett Jungle Resort & Tiger Camp: Camp Forktail Creek in Jim Corbett Park

- There are 327 tourist places in the state well supported by 159 tourist rest houses, 4220 hotels and 877 dharamshalas.
- Under State Budget 2018-19, an amount of Rs 49 crore has been allocated to art and culture department.
- Among Religious tourism, Badrinath, Kedarnath, Gangotri, Yamnotri, Haridwar, Rishikesh and various other site are great important and value.
- The presence of several hill stations, wildlife parks, pilgrimage places & trekking routes make Uttarakhand an attractive tourist destination. Inflow of tourists into the state increased to 34.72 million in 2017.

C. Natural Resources

I. Water

- Ganga and Yamuna are the two major rivers of the state. Apart from these rivers, the state also receives adequate amount of water from rainfall every year.
- Uttarakhand is being developed as an 'energy state' to tap the hydropower electric potential of over 25,000 MW. As of March 2018, hydropower generation installed capacity in the state was recorded to be 1,815.69 MW.

II. Agriculture

- Uttarakhand has almost all agro-geo climatic zones, which provide commercial opportunities for floriculture and horticulture. The state has 175 rare species of medicinal and aromatic plants.
- Sugar Cane is the major crop of the state.
- Horticulture and Floriculture are rapidly growing agricultural products in the state.
- The centre government has allocated Rs. 1500 crore for three years for growth of organic farming in the state. The state department has identified 10000 new clusters for organic farming in the state.

2. Literature Review

Rajesndra P. Mangain (2007) in the research paper on "Growth, Poverty and Employment in Uttarakhand" for Institute for Human Development has examined the situation of poverty and employment in Uttarakhand in comparison with the pattern of growth. The research paper reveals that economic growth of the state has not improved the situation of poverty and employment in the state.

Nkechinyere V. Attah (2010), in the research work on "Environmental Sustainability and Sustainable Growth: A Global Outlook" for University of Pennsylvania, has emphasized the importance of sustaining the environment along with growth. The research describes various methods to prevent degradation of environment and suggests measures to have the balance between environment sustainability and sustainable growth.

PhD Chamber of Commerce (2013) in its report on "Life Ahead for Uttarakhand" has focused on rebuilding infrastructure with economic development to encourage tourism, employment and transport facilities in the state. The report also emphasized on integrated approach towards development of agro & food processing industry in the state, services sector to be boosted in the areas of education, banking services and information technology as they are performing well in the state.

Prof. S K Gupta (2017) in the research report on "Status of Tourism and hospitality education in Garhwal region of Uttarakhand: A Critical Appraisal" for Directorate of Economics and Statistics, Department of Planning, Government of Uttarakhand, has conducted an exploratory research on the subject to evaluated tourism and hospitality education in the region. The report reveals that there are low student intake at the education institutes of tourism and hospitality, inadequate infrastructure at the institutes, poor placements, and lack of research work the field are some of the major roadblocks for the skilled people working in this sector.

3. Objectives of the Research Paper

The main objective of the research is to evaluate the impact of environmental resources on economic development in Uttarakhand. To achieve the main objective, three sub-objectives have been identified, mentioned as under:

- To identify the environmental resources in Uttarakhand;
- To measure the impact of Environmental resources on economic development in Uttarakhand;
- To suggest measures for improvement of environmental resources in Uttarakhand, if any.

4. Hypothesis of the Research Paper

Hypothesis has been built on the main objective of the research paper, which is mentioned below:

- H0- There is no impact of Environmental resources on economic development in Uttarakhand
- H1- There is a significant impact of Environmental resources on economic development in Uttarakhand

5. Research Methodology

5.1 Research design and Sample Design: The research has been conducted through a descriptive research design in conjunction with simple random sample design to facilitate the objectives of the research.

5.2 Data Sources: Both Primary and Secondary data sources have been utilized to conduct the research. For primary data source, a structured questionnaire was administered through 500 respondents comprising of Socioeconomic, cultural and natural resources covered in three sections of general profile, specific survey and thirdly opinion through likert scale. Out of total 500 questionnaires, 485 correctly filled questionnaires have been included for the research work. For Secondary source, various reports, articles, and other published records of government have been used.

5.3 Sample area- The sample area refers to the state of Uttarakhand. The sample area selected within the state covers both the regions namely, Garhwal and Kumaon through selected six highly populated districts such as Dehradun, Haridwar, Srinagar, Udhamasingh Nagar, Nainital, and Almora.

5.4 Sample size- A sample of total 500 people from the six districts has been randomly selected.

5.5 Tools and Techniques: The data collected through the sources have been analysed with the help of tables, pie charts and bar charts using MS Excel 2010 and statistical interpretation has been conducted on likert scale data through SPSS 22.0.

6. Data Analysis and Interpretation

6.1 Data Analysis and Interpretation of Secondary Sources

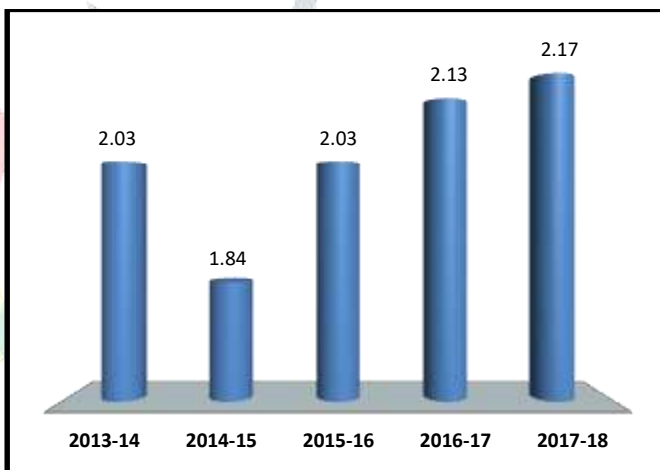
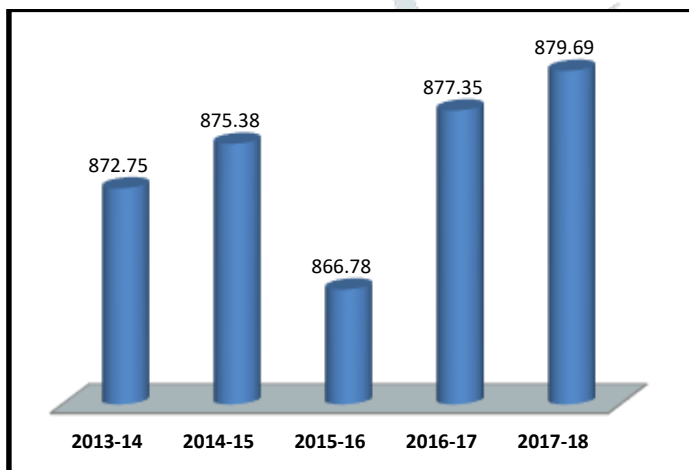


Figure 6.1: Agriculture Production Area (Per '000 Ha)

Interpretation: In the past five years the production area has grown at a very marginal rate of one percent since 2013-14 until 2017-18

Figure 6.2: Agriculture Production per Ha (Mt. Ton)

Interpretation: In the past five years the production area has grown at a very marginal rate of one percent since 2013-14 until 2017-18

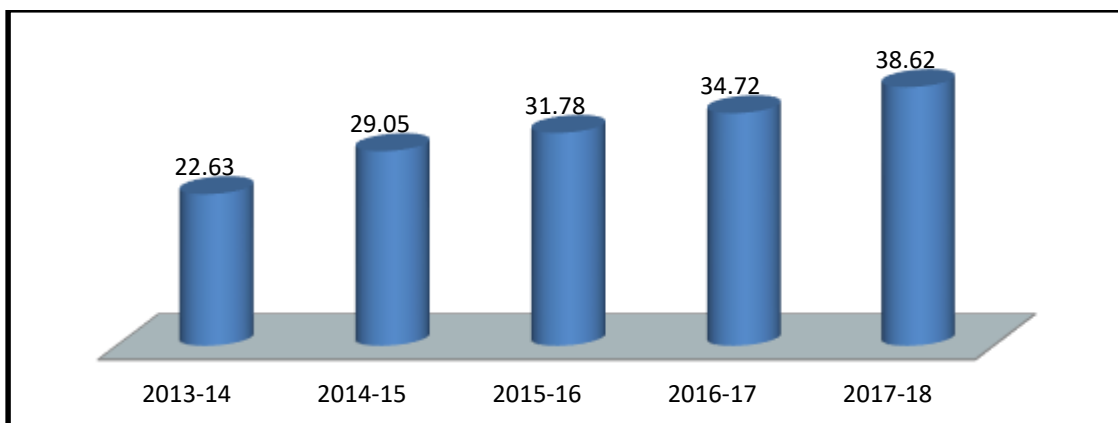


Figure 6.3: Number of Tourist (In Millions)

Interpretation: The figure shows a growth of 70.66 percent number of tourists in uttarakhand since 2013-14 to 2017-18.

Table 6.1: Hydro Power Generation in Uttarakhand

Years	Capacity (Mt)	Production MU
2013-14	1284.85	4411.83
2014-15	1284.85	4348.95
2015-16	1284.85	4969.49
2016-17	1959.85	5796.94
2017-18	1959.85	6318.33

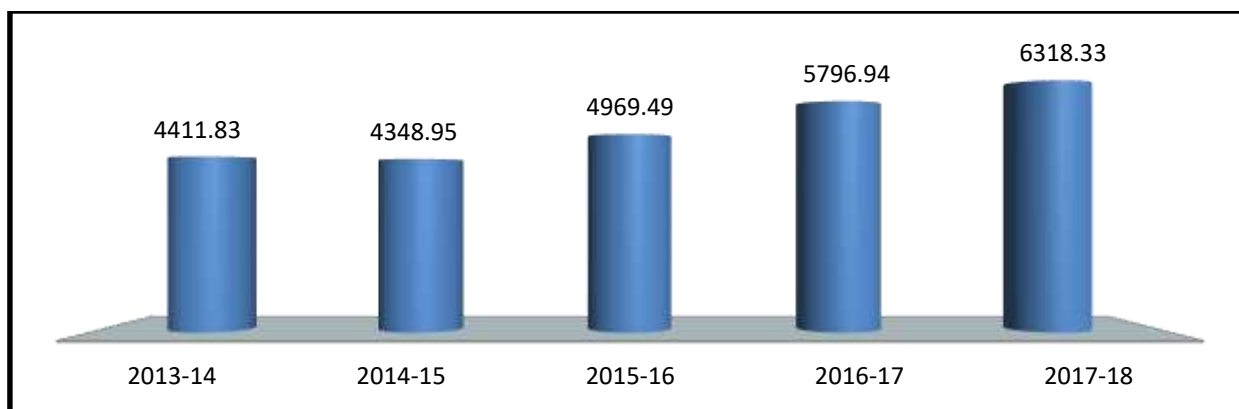


Figure 6.4: Electricity Production in MU

Interpretation: The figure shows a growth of 42.21 percent number of tourists in Uttarakhand since 2013-14 to 2017-18.

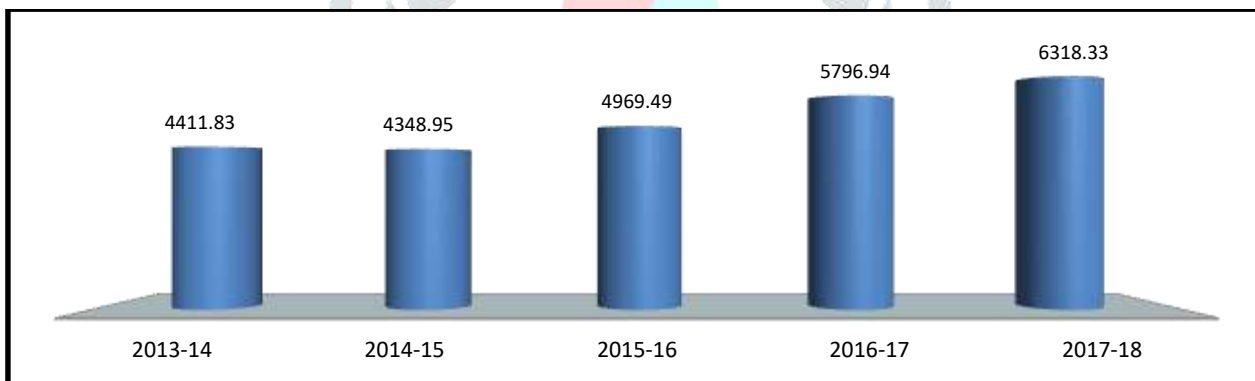


Figure 6.5: Number of Tourist (In Millions)

Interpretation: The figure shows a growth of 70.66 percent number of tourists in Uttarakhand since 2013-14 to 2017-18.

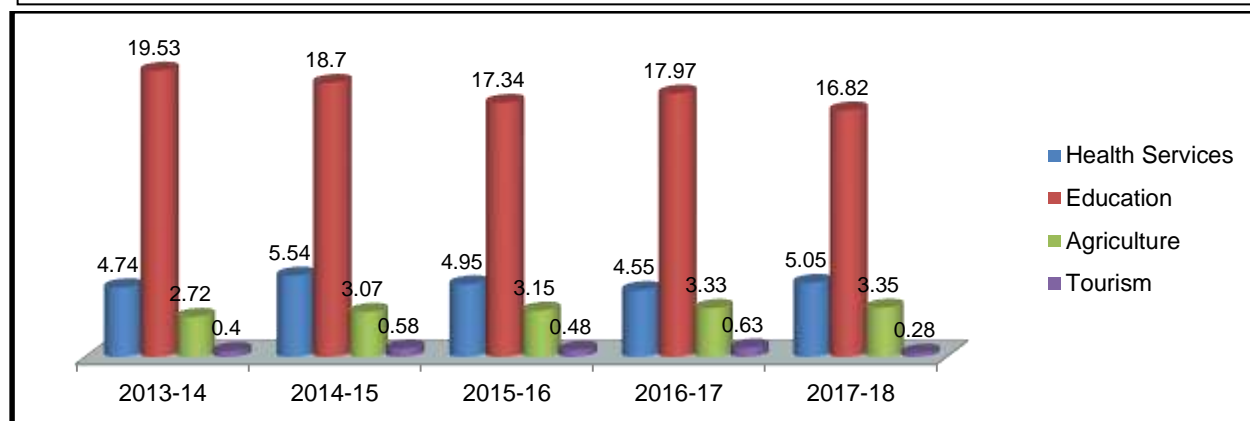


Figure 6.6: Budgetary Allocation (in %)

Interpretation: The figure shows the budgetary allocation of health services, education, agriculture and tourism from 2013-14 to 2017-18. Budgetary allocation for Health Services was 4.74 percent and 5.05 percent in 2013-14 and 2017-18 respectively. Budgetary allocation for Education was 19.53 percent and 16.82 percent in 2013-14 and 2017-18 respectively. Budgetary allocation for Agriculture was 2.72 percent and 3.35 percent in 2013-14 and 2017-18 respectively. Budgetary allocation for Tourism was 0.4 percent and 0.28 percent in 2013-14 and 2017-18 respectively.

6.2 Data Analysis and Interpretation of Primary Sources – Questionnaire

6.2.1. Profile of Respondents

Table 6.2: Profile of Respondents

Topic	Options	Number of Respondents	Percentage Distribution
Gender	Male	298	61%
	Female	187	39%
Age Group	Less than 21 years	41	8%
	21 – 35	207	43%
	36 – 60	183	38%
	More than 60 years	54	11%
Educational Qualification	Up-to Intermediate	28	6%
	Graduate	212	44%
	Post Graduate	198	41%
	Professional	47	10%
Occupation	Salaried Employee	183	38%
	Self-Employed	147	30%
	Professional	123	25%
	Any Other	32	7%
Statehood	Uttarakhand	418	86%
	Non-Uttarakhand	67	14%

Table 6.2 reflects the overall distribution and composition of the 485 respondents who correctly filled the questionnaire. Gender distribution shows 61 percent men and 39 percent female. Age group of the respondents reveal that, 43 percent respondents belong to age group of 21 years to 35 years, 38 percent respondents belong to 36 years to 60 years, 11 percent respondents belong to more than 60 years and eight percent respondents belong to less than 21 years of age. Forty-four percent respondents had education qualification as graduate, 41 percent respondents had educational qualification as Post-Graduate, 10 percent respondents were professionally qualified and six percent respondents were qualified up-to intermediate. Out of 485 respondents, 38 percent respondents were salaried employees, 30 percent were self-employed, 25 percent were professionals and seven percent were in other category in terms of occupation distribution of the respondents. Out of 485 respondents, 86 percent belong to Uttarakhand and 14 percent belong to other states. As a result, the table reveals that the respondents are distributed among various categories and represent overall population of the state.

6.2.2 Specific Opinion Survey

S. No.	Questions	Yes	No	No Comment
6.6	Is Education Sector one of the core components of economic growth in UK?	392 (81%)	76 (16%)	17 (4%)
6.7	Is Health Sector one of the core components of economic growth in UK?	372 (77%)	91 (19%)	22 (4%)
6.8	Is Tourism Sector one of the core components of economic growth in UK?	432 (89%)	41 (8%)	12 (3%)
6.9	Is Trade and Commerce one of the core components of economic growth in UK?	322 (66%)	121 (25%)	42 (9%)
6.10	Are Natural Resources one of the core components of economic growth in UK?	382 (79%)	88 (18%)	15 (3%)
6.11	Are Transportation facilities one of the core components of economic growth in UK?	277 (57%)	191 (39%)	17 (4%)

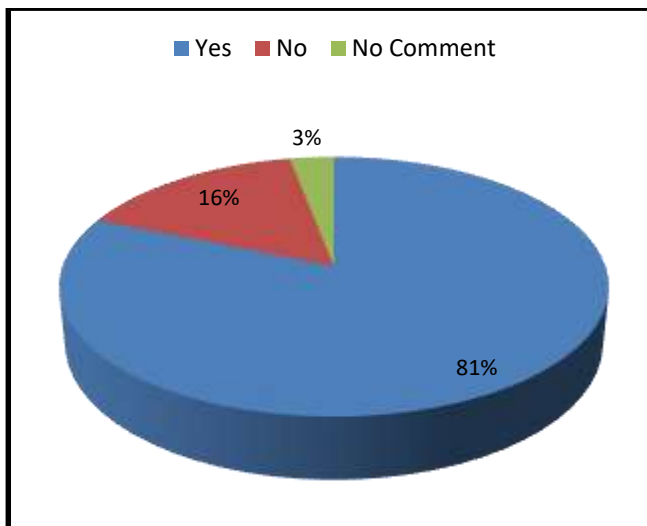


Figure 6.6: Responses of Respondents regarding Education Sector

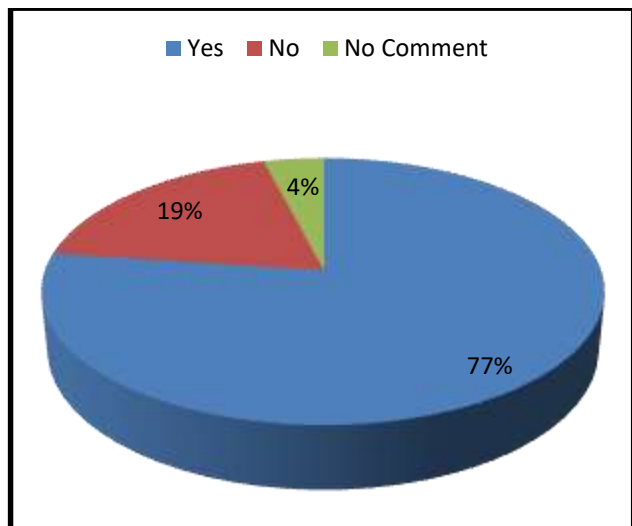


Figure 6.7: Responses of Respondents regarding Health Sector

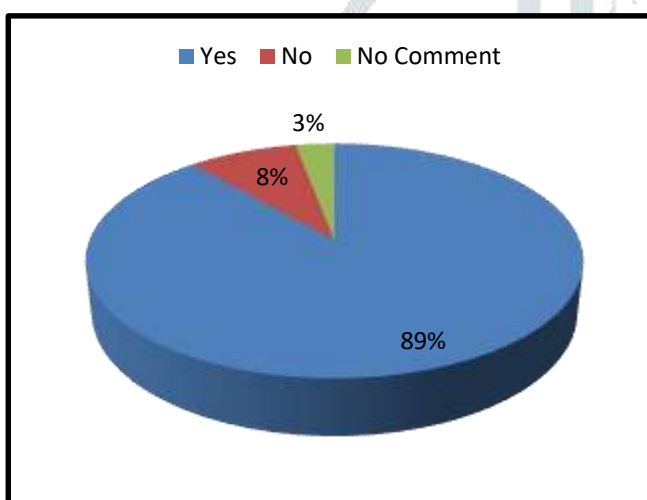


Figure 6.8: Responses of Respondents regarding Tourism Sector

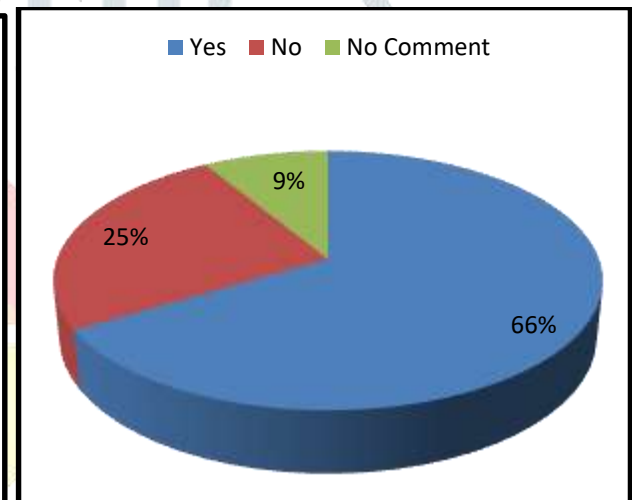


Figure 6.9: Responses of Respondents regarding Trade and Commerce

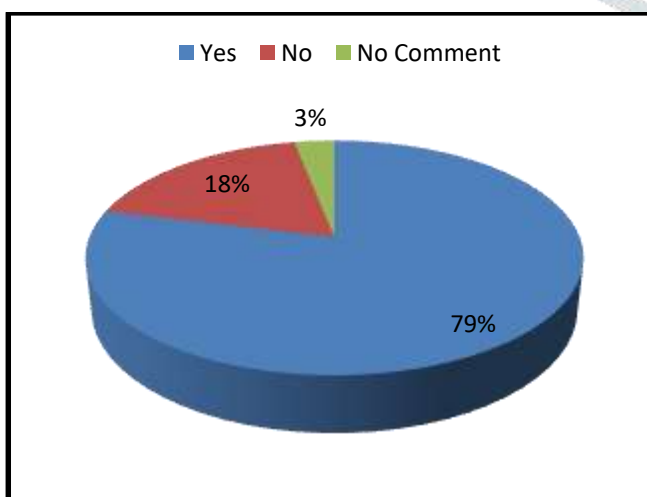


Figure 6.10: Responses of Respondents regarding Natural Resources

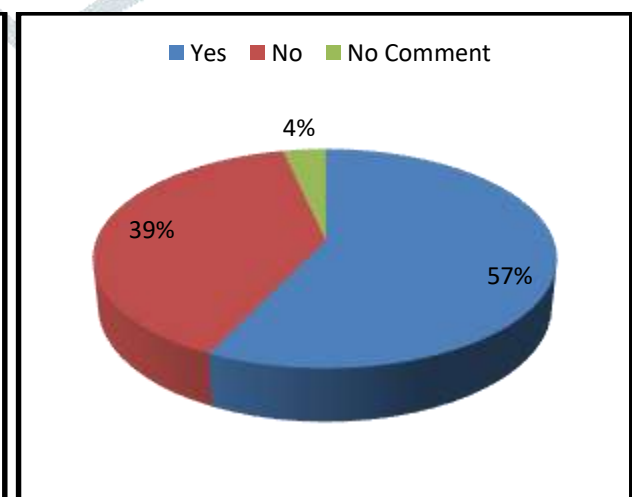


Figure 6.11: Responses of Respondents regarding Transportation

Interpretation: Figures 6.6 to figure 6.11 reflect that, out of 485 respondents, 89 percent respondents recognized tourism, 81 percent respondents selected education, 79 percent respondents identified natural resources, 77 percent respondents chose health sector, 66 percent respondents acknowledged 'trade and commerce' and 57 percent respondents recognized as core component of economic growth in Uttarakhand.

6.2.3 Opinion Survey through Likert Scale

S. No.	Details	Very Good	Good	Average	Bad	Very Bad
6.12	Scope of educational institutions in Uttarakhand	86 (18%)	217 (45%)	159 (33%)	14 (3%)	9 (2%)
6.13	Level of primary education in Uttarakhand	93 (19%)	224 (46%)	144 (30%)	13 (3%)	11 (2%)
6.14	Level of secondary education in Uttarakhand	99 (20%)	233 (48%)	136 (28%)	10 (2%)	7 (1%)
6.15	Level of higher education in Uttarakhand	46 (9%)	157 (32%)	219 (45%)	59 (12%)	4 (1%)
6.16	Level of professional education in Uttarakhand	31 (6%)	132 (27%)	236 (49%)	79 (16%)	7 (1%)
6.17	Level of preparation of competitive exams in Uttarakhand	81 (17%)	187 (39%)	174 (36%)	29 (6%)	14 (3%)
6.18	Availability of employment opportunities in hospitality industry in Uttarakhand	41 (8%)	147 (30%)	239 (49%)	40 (8%)	18 (4%)
6.19	Availability of employment opportunities in education sector in Uttarakhand	36 (7%)	152 (31%)	264 (54%)	16 (3%)	17 (4%)
6.20	Availability of employment opportunities in tourism sector in Uttarakhand	121 (25%)	212 (44%)	94 (19%)	34 (7%)	24 (5%)
6.21	Availability of employment opportunities in health sector in Uttarakhand	76 (16%)	182 (38%)	159 (33%)	53 (11%)	15 (3%)
6.22	Availability of employment opportunities in manufacturing industry in Uttarakhand	31 (6%)	157 (32%)	259 (53%)	24 (5%)	14 (3%)
6.23	Availability of employment opportunities in IT sector in Uttarakhand	26 (5%)	137 (28%)	229 (47%)	89 (18%)	4 (1%)
6.24	Availability of employment opportunities in financial institutions in Uttarakhand	46 (9%)	142 (29%)	234 (48%)	45 (9%)	18 (4%)
6.25	Availability of professional opportunities in Uttarakhand	41 (8%)	142 (29%)	249 (51%)	40 (8%)	18 (4%)
6.26	Availability of business opportunities in Uttarakhand	81 (17%)	187 (39%)	149 (31%)	39 (8%)	29 (6%)
6.27	Availability of hospital facilities in Uttarakhand	81 (17%)	172 (35%)	164 (34%)	59 (12%)	9 (2%)
6.27	Availability of specialist doctors in Uttarakhand	76 (16%)	182 (38%)	159 (33%)	54 (11%)	14 (3%)
6.29	Availability of pathology labs in Uttarakhand	66 (14%)	177 (36%)	194 (40%)	39 (8%)	9 (2%)
6.30	Availability of Allopathic medical services in Uttarakhand	86 (18%)	174 (36%)	139 (29%)	59 (12%)	27 (6%)
6.31	Availability of Ayurvedic medical services in Uttarakhand	21 (4%)	142 (29%)	224 (46%)	80 (16%)	18 (4%)
6.32	Availability of Homeopathic medical services in Uttarakhand	19 (4%)	147 (30%)	204 (42%)	94 (19%)	21 (4%)
6.33	Availability of preventive health	96 (20%)	177 (36%)	149 (31%)	39 (8%)	24 (5%)

services in Uttarakhand						
6.34	Availability of recreational tourism sites in Uttarakhand	126 (26%)	142 (29%)	169 (35%)	29 (6%)	19 (4%)
6.35	Availability of facilities at recreational tourism sites in Uttarakhand.	41 (8%)	132 (27%)	224 (46%)	74 (15%)	14 (3%)
6.36	Availability of facilities at religious tourism sites in Uttarakhand.	151 (31%)	212 (44%)	69 (14%)	39 (8%)	14 (3%)
6.37	Availability of overall transportation facilities in Uttarakhand	111 (23%)	152 (31%)	147 (30%)	59 (12%)	16 (3%)
6.38	Availability of agricultural land in Uttarakhand	21 (4%)	112 (23%)	239 (49%)	79 (16%)	34 (7%)
6.39	Scope of production of horticulture items in Uttarakhand	91 (19%)	182 (38%)	139 (29%)	49 (10%)	24 (5%)
6.40	Scope of production of floriculture items in Uttarakhand	111 (23%)	172 (35%)	154 (32%)	44 (9%)	4 (1%)
6.41	Scope of Mines and Mineral resources in Uttarakhand	71 (15%)	127 (26%)	224 (46%)	39 (8%)	24 (5%)
6.42	Scope of water resources in Uttarakhand	141 (29%)	122 (25%)	179 (37%)	29 (6%)	14 (3%)
6.43	Scope of hydro power electricity generation in Uttarakhand	131 (27%)	112 (23%)	209 (43%)	24 (5%)	9 (2%)

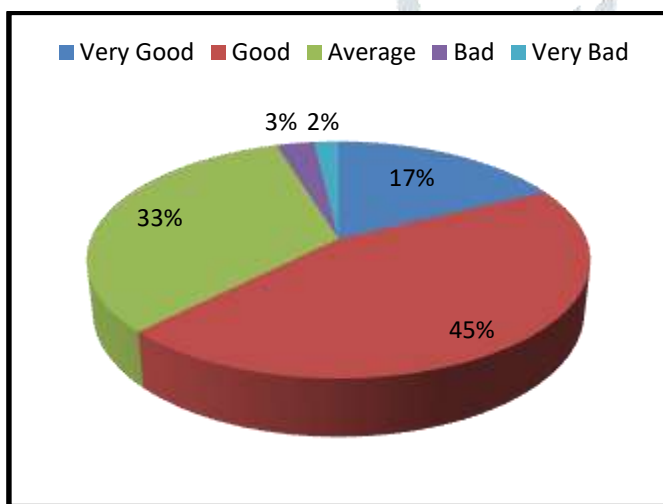


Figure 6.12: Scope of educational institutions in UK

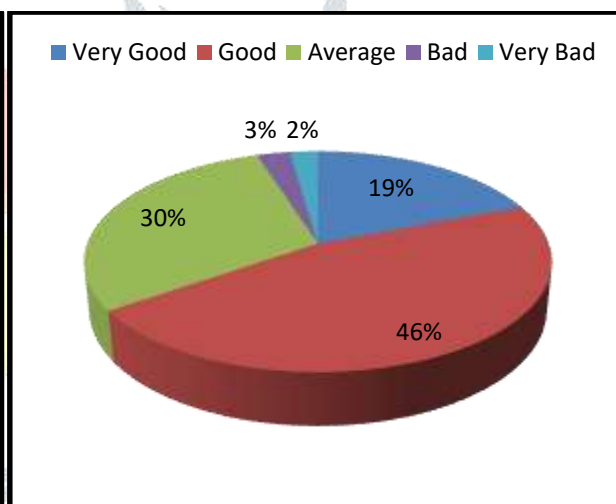


Figure 6.13: Level of primary education in UK

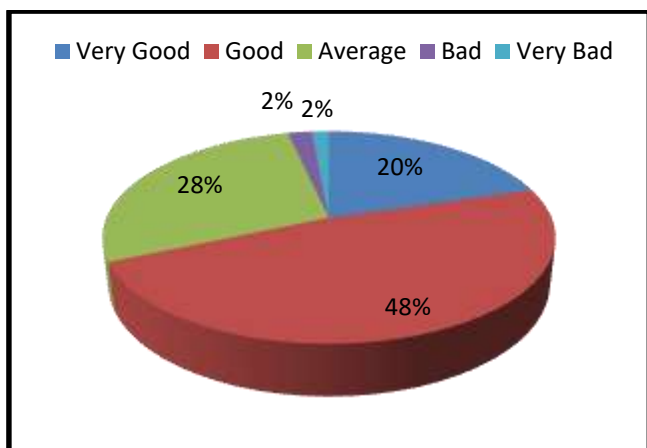


Figure 6.14: Level of secondary education in UK

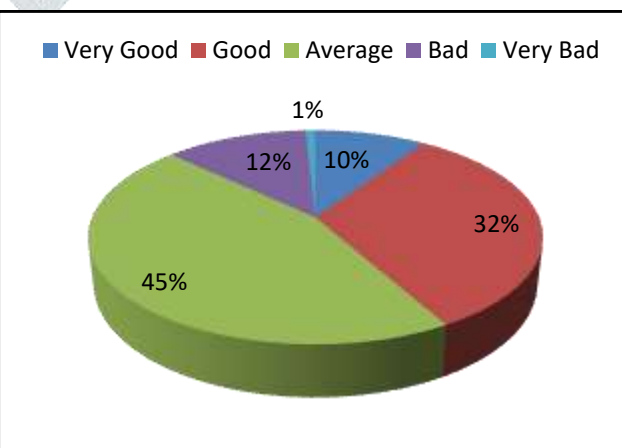


Figure 6.15: Level of higher education in UK

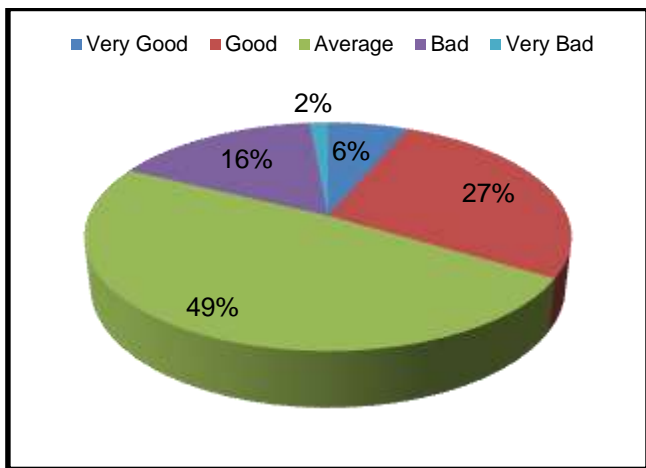


Figure 6.16: Level of professional education in UK

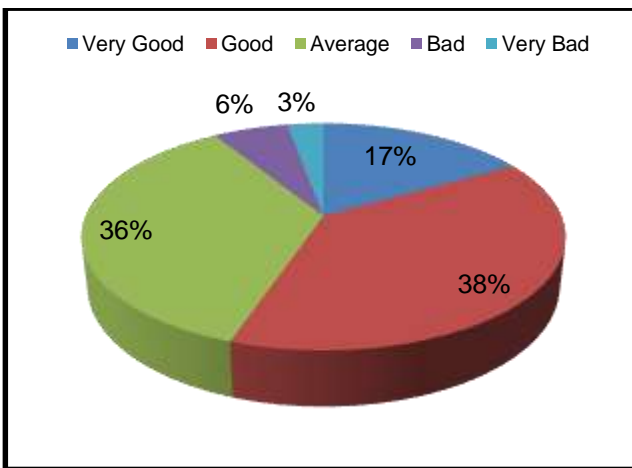


Figure 6.17: Level of preparation of competitive exams in UK

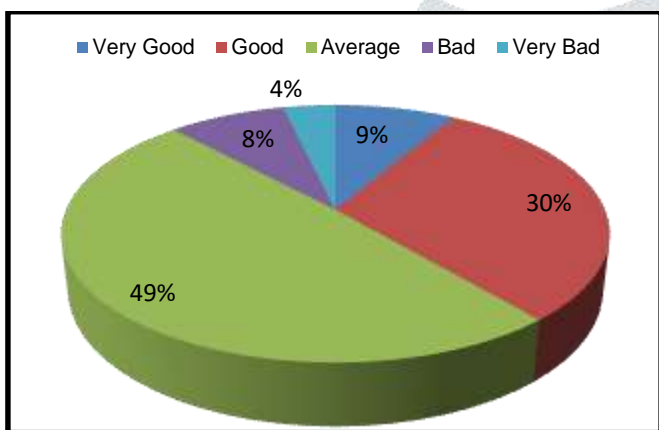


Figure 6.18: Availability of employment opportunities in hospitality industry in UK

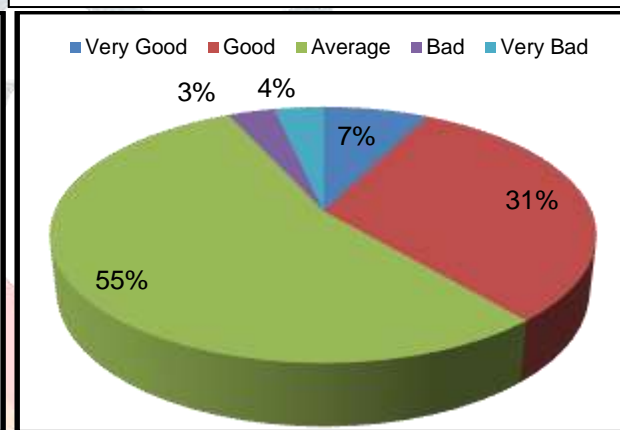


Figure 6.19: Availability of employment opportunities in education sector in UK

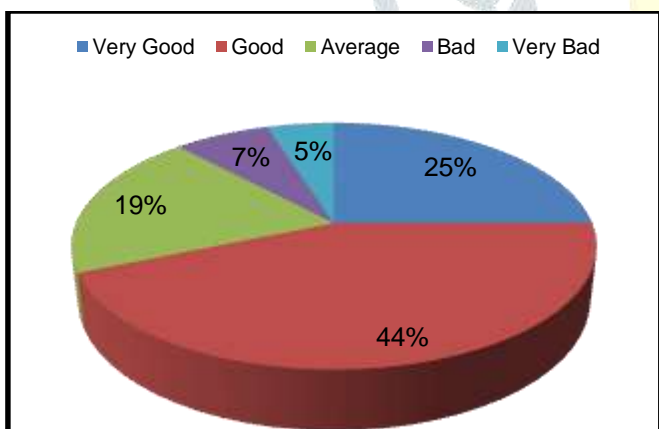


Figure 6.20: Availability of employment opportunities in tourism sector in UK

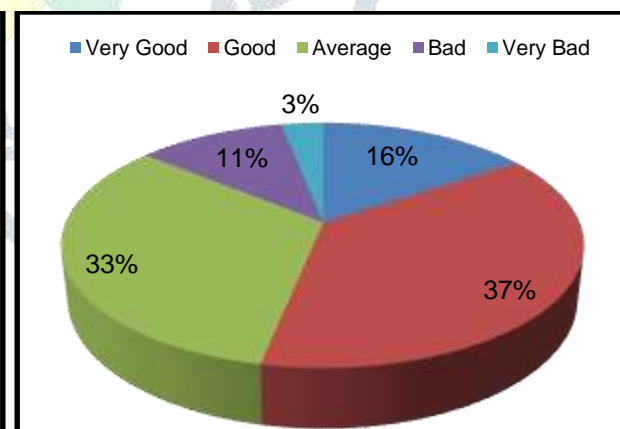


Figure 6.21: Availability of employment opportunities in health sector in UK

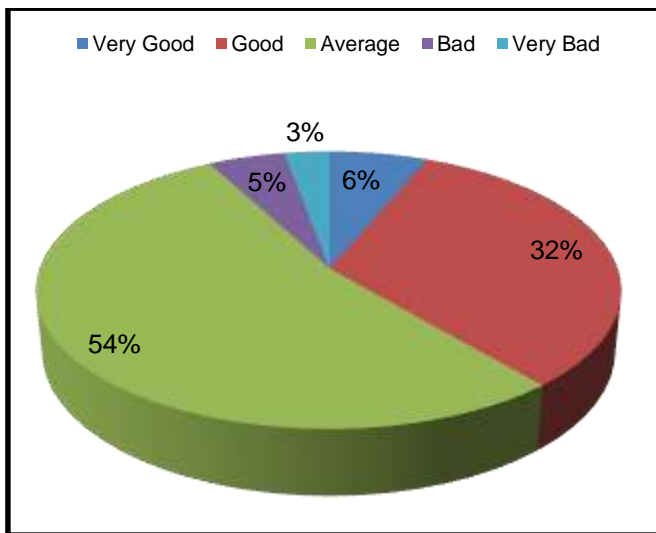


Figure 6.22: Availability of employment opportunities in manufacturing industry in UK

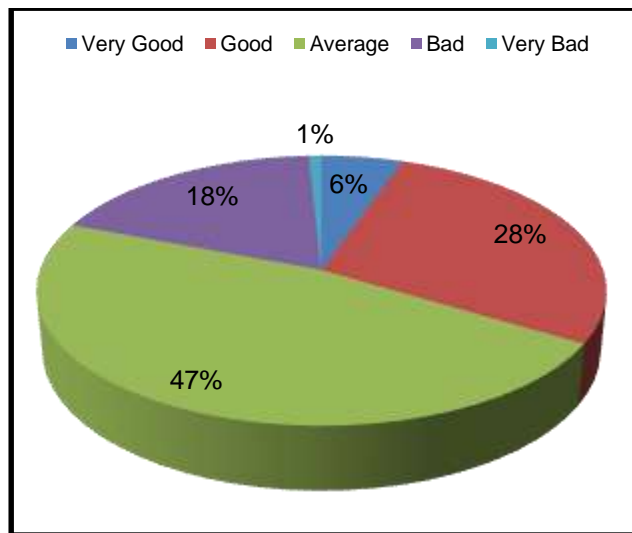


Figure 6.23: Availability of employment opportunities in IT sector in UK

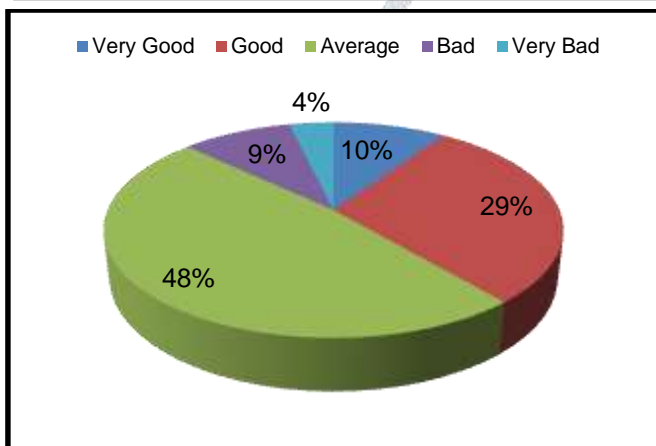


Figure 6.24: Availability of employment opportunities in financial institutions in UK

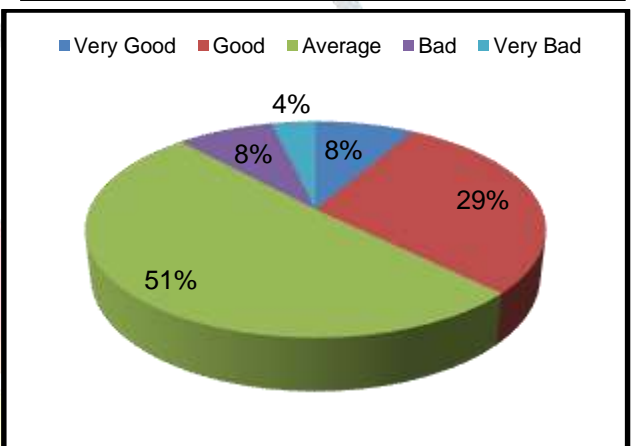


Figure 6.25: Availability of professional opportunities in UK

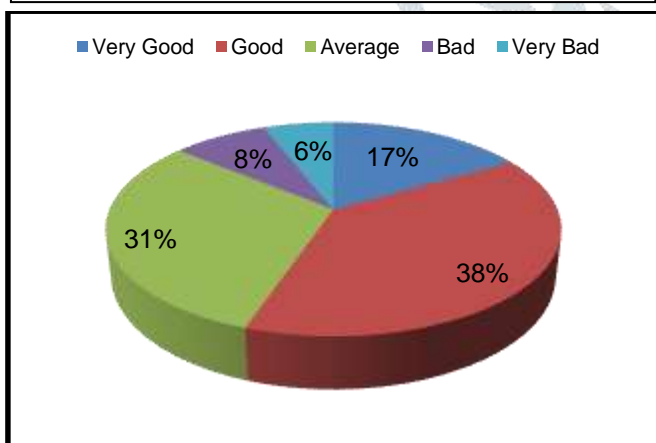


Figure 6.26: Availability of business opportunities in UK

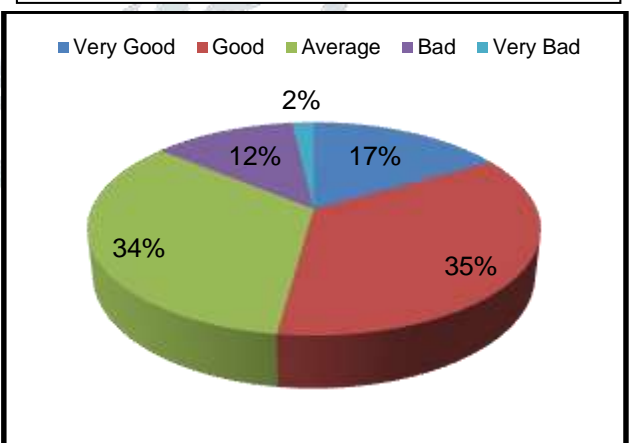


Figure 6.27: Availability of hospital facilities in UK

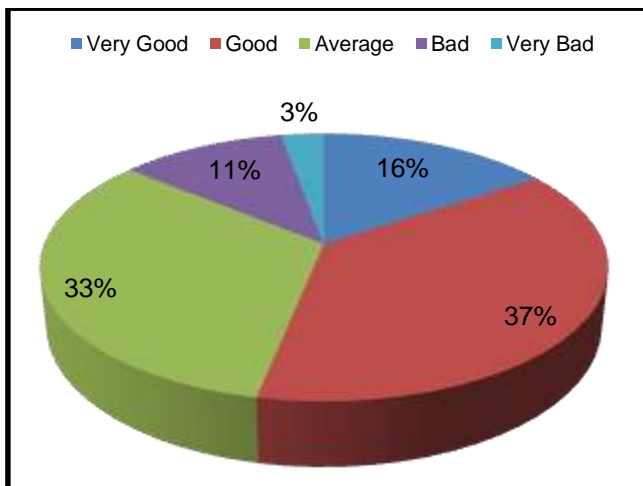


Figure 6.28: Availability of specialist doctors in UK

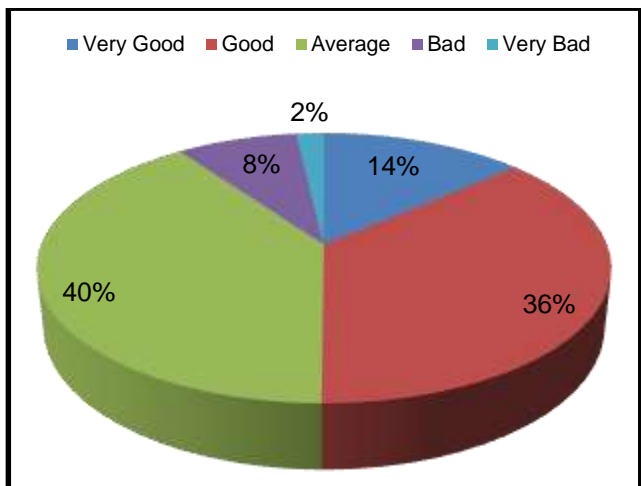


Figure 6.29: Availability of pathology labs in UK

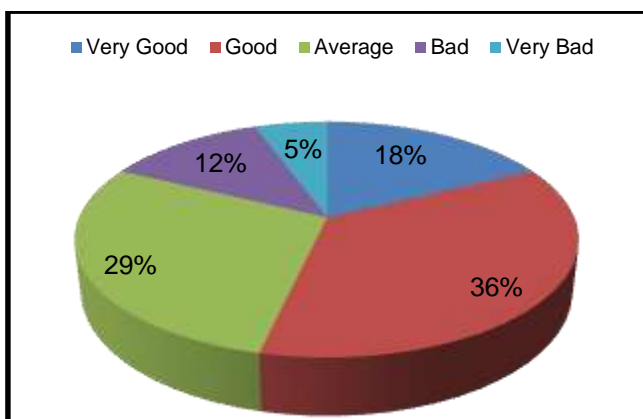


Figure 6.30: Availability of Allopathic medical services in UK

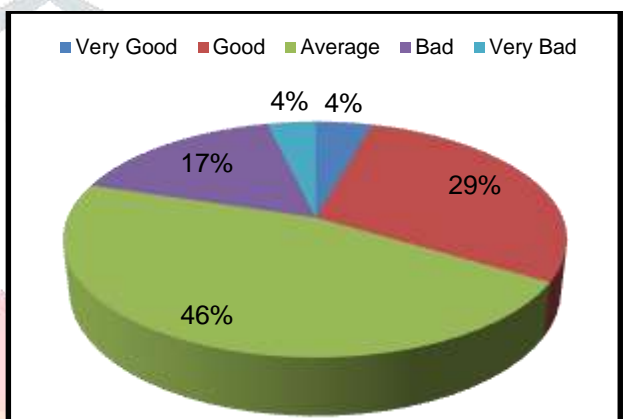


Figure 6.31: Availability of Ayurvedic medical services in UK

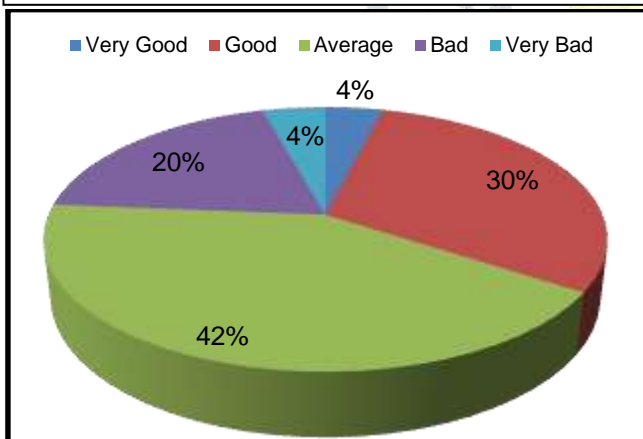


Figure 6.32: Availability of Homeopathic medical services in UK

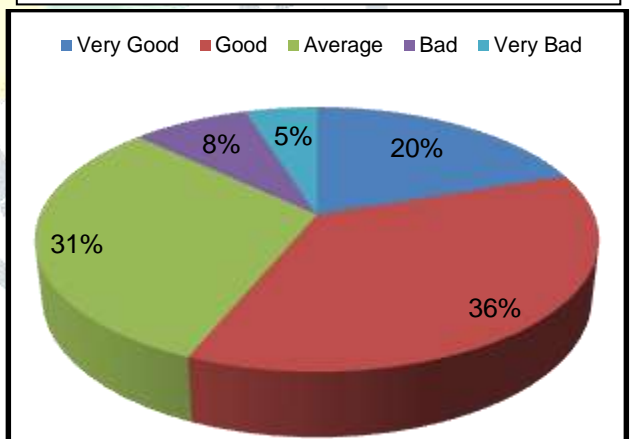


Figure 6.33: Availability of preventive health services in UK

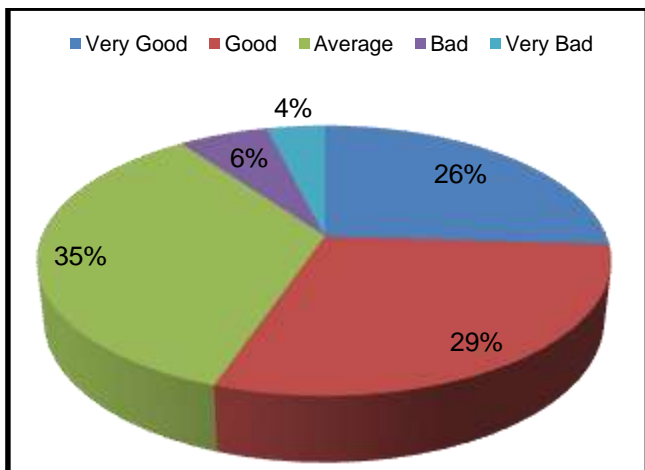


Figure 6.34: Availability of recreational tourism sites in UK

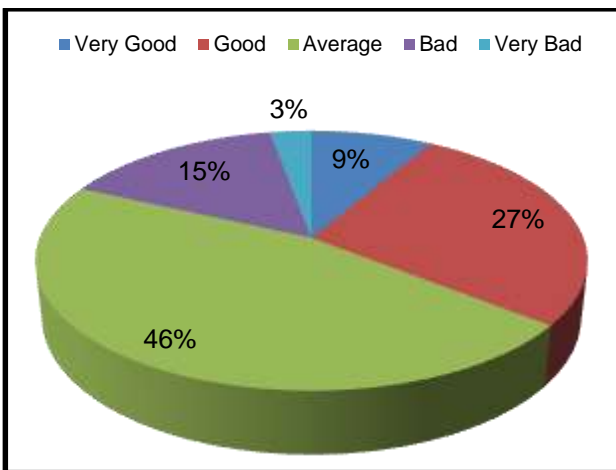


Figure 6.35: Availability of facilities at recreational tourism sites in UK

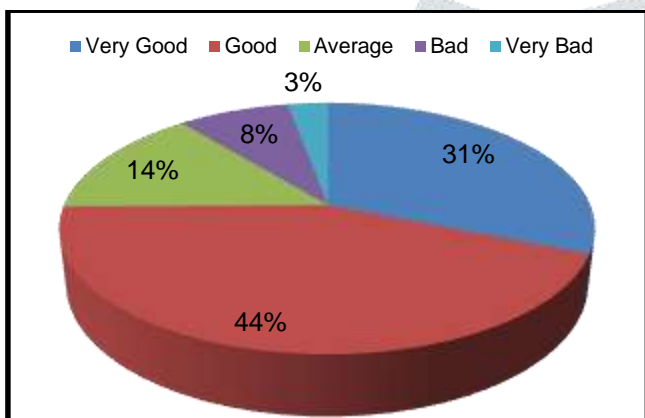


Figure 6.36: Availability of facilities at religious tourism sites in UK

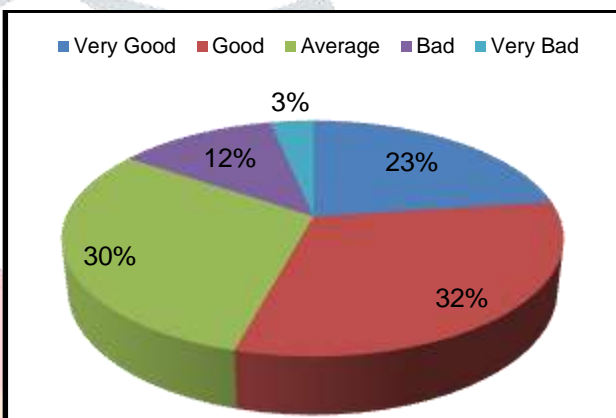


Figure 6.37: Availability of overall transportation facilities in UK

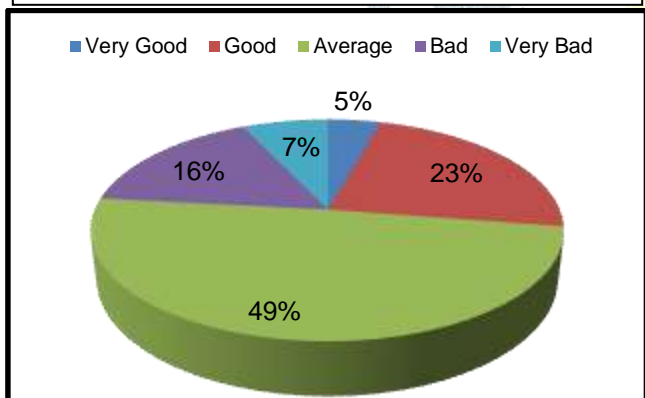


Figure 6.38: Availability of agricultural land in UK

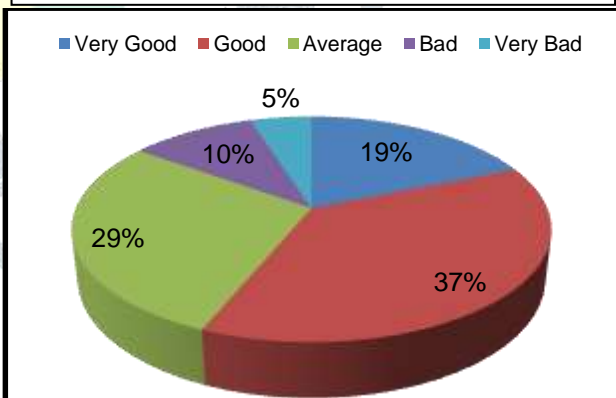


Figure 6.39: Scope of production of horticulture items in UK

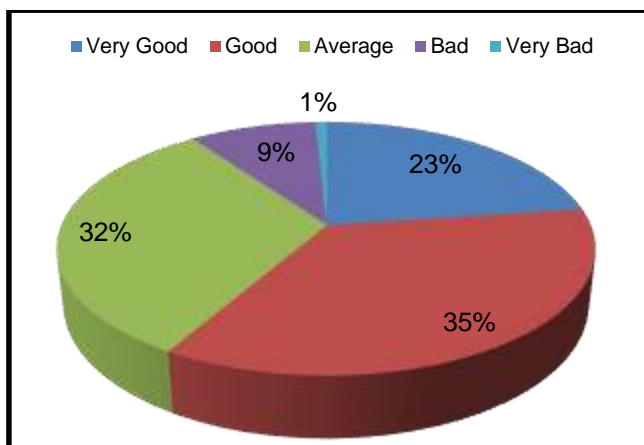


Figure 6.40: Scope of production of floriculture items in UK

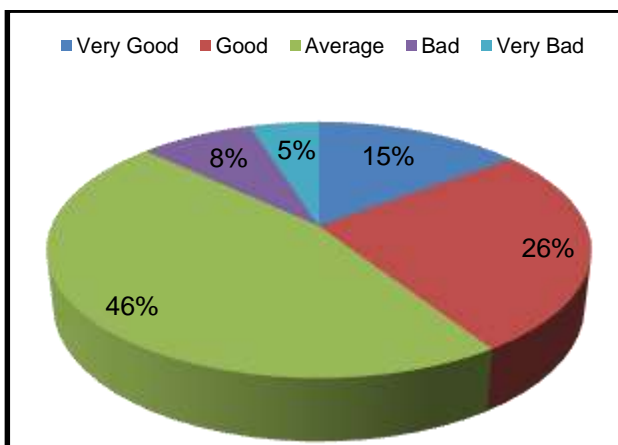


Figure 6.41: Scope of Mines and Mineral resources in UK

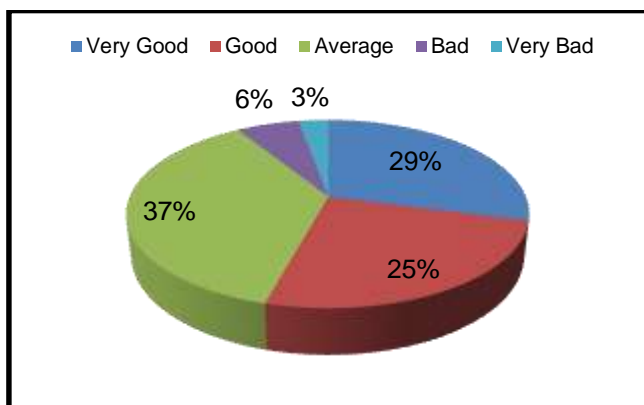


Figure 6.42: Scope of water resources in UK

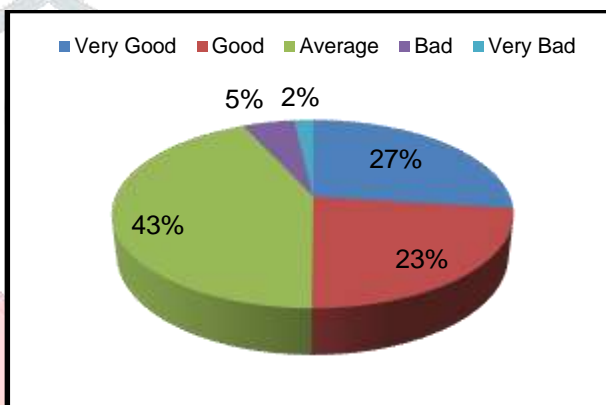


Figure 6.43: Scope of hydro-power electricity generation in UK

6.2.4 Statistical Study of Likert Scale data

Statements	Calculated Value of Chi-Square
Scope of educational institutions in Uttarakhand	333.299
Level of primary education in Uttarakhand	330.598
Level of secondary education in Uttarakhand	359.526
Level of higher education in Uttarakhand	319.897
Level of professional education in Uttarakhand	344.206
Level of preparation of competitive exams in Uttarakhand	261.134
Availability of employment opportunities in hospitality industry in Uttarakhand	363.113
Availability of employment opportunities in education sector in Uttarakhand	489.876
Availability of employment opportunities in tourism sector in Uttarakhand	230.206
Availability of employment opportunities in health sector in Uttarakhand	203.629
Availability of employment opportunities in manufacturing industry in Uttarakhand	477.629
Availability of employment opportunities in IT sector in Uttarakhand	338.454
Availability of employment opportunities in financial institutions in Uttarakhand	332.804
Availability of professional opportunities in Uttarakhand	397.237
Availability of business opportunities in Uttarakhand	325.567
Availability of hospital facilities in Uttarakhand	197.732
Availability of specialist doctors in Uttarakhand	204.433
Availability of pathology labs in Uttarakhand	283.814
Availability of Allopathic medical services in Uttarakhand	141.732
Availability of Ayurvedic medical services in Uttarakhand	314.454
Availability of Homeopathic medical services in Uttarakhand	266.371
Availability of preventive health services in Uttarakhand	178.660
Availability of recreational tourism sites in Uttarakhand	189.485

Availability of facilities at recreational tourism sites in Uttarakhand.	287.938
Availability of facilities at religious tourism sites in Uttarakhand.	270.928
Availability of overall transportation facilities in Uttarakhand	137.608
Availability of agricultural land in Uttarakhand	316.289
Scope of production of horticulture items in Uttarakhand	166.804
Scope of production of floriculture items in Uttarakhand	206.495
Scope of Mines and Mineral resources in Uttarakhand	271.443
Scope of water resources in Uttarakhand	211.134
Scope of hydro power electricity generation in Uttarakhand	276.082

Chi Square has been calculated with 4 degrees of freedom and significance level at 95 percent. The p-value of each statement is 0.001, which signifies the probability of having similar results for null hypotheses.

Since, calculated values of chi-square are much higher than the table value of chi-square that is 9.488, thus NULL hypothesis is rejected and alternate hypothesis is accepted.

7. Concluding Observations

- Uttarakhand is a growing state with GDP growth in double digits.
- Education is the focus area of the government of the state, as reflected through the budgetary allocations.
- As per opinion survey, Secondary Education is recognized as good as compared to primary, higher and professional education in Uttarakhand.
- Tourism is considered as an industry to provide higher employment as compared to any other industry.
- Health services in the state have good distribution of allopathic, ayurvedic, homeopathic hospitals and care units.
- Trade and commerce is also a vital element of the state economy, as the state possesses nine identified industrial areas specific to pharmaceuticals, food processing and IT companies.
- Investments in tourism have been growing from private sector, as government budgetary allocation is reducing and industry is growing at a steady pace.
- Tourism is the main source of income for large number of people in the state.
- Religious tourism is more prevalent than recreational tourism in the state.
- There are good amount of natural resources available in the state.
- Hydro-power projects are key focus area of the government to utilize the water resources in the state.
- Horticulture and Floriculture products are growing rapidly in the state.
- Government is investing in Organic farming in the agricultural industry.

8. Suggestions

- Higher education needs lot of investment and support from the government and allied institutions. Quality checks need to be employed to improve the overall standard of higher education. Specific cities may be identified for development of higher education in the state.
- The growth in economy is not resulting in increasing of employment opportunities. Employment generation is critical for sustained economic development. Governments support for Industrial growth will help in employment creation. Government may also provide financial and technical support in establishing small businesses to help the unemployed.
- Health services with specialized facilities need improvement in terms of quantity.
- There is need to increase hospital beds per person in the state by opening new hospitals.
- Government hospitals need improvement in quantitative and qualitative terms.
- Transport service is not adequate in the state. Road, railway and air transport facilities need to be improved.
- With high dependence on tourism, transport is an area that needs complete overhaul in terms of quantity and quality as well.
- Agricultural land may be increased through technological advancement in identifying new technique of farm production in hill areas.
- Farmers may be educated and motivated to adopt organic farming techniques.

9. Conclusion

The research paper has been prepared with the three main aspects of environmental resources namely, Socio-economic, Cultural and natural resources. These three aspects are elaborated with sub-components in the form of education, employment, health services, trade and commerce forming part of socio-economic resources; religious and recreational tourism forming part of cultural resources; water and agriculture as natural resources. GDP of Uttarakhand for 2017-18 stands at 2.18 trillion INR which is growing at a compounded annual growth rate of 11.15 percent since last five years. The research paper revealed that out of 485 respondents, 89 percent acknowledged tourism; educational resources conferred by 80 percent; 78 percent in favor of natural resources; 76 percent acknowledged health; 66 percent supported trade and commerce and 57 percent believed that transportation resources influence economic development of the state. The study reveals that employment opportunities must increase to regulate and barricade the migration of qualified and trained human resources of the state.

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