

A comparative analysis on impact of rural tourism on environment in Arunachal Pradesh, India

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Abstract

The state of Arunachal Pradesh, owing to its pristine environment, is visited by lot of tourists every year. The visit by tourists creates an impact on the socio-economic and environmental aspects of the tourist circuits. A survey on impact of rural tourism on environment was carried out in the two significant tourist circuits i.e. Tezpur – Bhalukpong – Bomdila - Tawang (TBBT) and Margherita – Miao – Namdapha - Vijaynagar (MMNV) of Arunachal Pradesh. The study was conducted during January 2016 to December 2016. The results obtained from the survey pertaining to various parameters are presented in this paper. The local residents were interviewed using questionnaires along with site visitation and photography. The study reveals that rural tourism in these two tourist circuit does not have any significant adverse effect on environment. The results also indicate that rural tourism doesn't contribute in noise pollution, littering, congestion and serious water pollution in the adjoining rivers and lakes. Rural tourism in these areas does not result in production of large quantities of waste products or significant volumes of garbage. It is further observed that rural tourism promotes the preservation of natural environment and the wildlife in both the tourist circuits. However, while comparing between the above two tourist circuits; rural tourism in MMNV seems to have lesser impact on the environment than TBBT, which may be attributed to higher volume of tourists in the TBBT and better management of the environment in the MMNV tourist circuit.

Keywords: Rural tourism, Tourist-circuit, Impact, Environment, Adverse.

Introduction

Tourism is identified as the world's largest and fastest growing service industries of 21st century¹. Rural tourism encompasses a variety of activities provided by rural community in order to magnetize tourists in their area, which helps them to generate extra income for their livelihood². In India, the concept of rural tourism is new even though it has got immense potentials which may help in improving socio-economic conditions of rural population. India's nearly 98% of the total geographical area is comprises of rural areas³ where 74% of total population inhabits in its 7 million villages⁴.

The North-Eastern region comprises of eight sister states and tourism development in these states are basically based on natural gorgeousness, unique flora and fauna, envy green tea gardens, tumultuous rivers, exciting and colourful cultural festivals⁵. It is further explained that the efforts of government of India i.e. India's Look East Policy and the 'Incredible India' campaign are important for boosting rural tourism in the region which ensure a mutually stimulating experience between the tourist and the host and also help to uplift the socio-economic conditions of the region⁶. Arunachal Pradesh is located in between 26°30' North and 29°30' North Latitude and 91°30' East and 97°30' East Longitude. Bounded by Assam in south, Burma in east, Bhutan in west, China in north respectively and covers a total geographical area of 83,743 sq. km. The state is

traversed by mighty rivers and rivulets and endowed with a number of rare and endangered flora and fauna. The rich and diverse forest types along with 525 species of orchids provide natural haven, food and habitat for large varieties of wild animals. Arunachal Pradesh is home to 26 and 110 major and minor tribes respectively⁷. Out of 12 tourist circuits of the state each one has distinctive character having different ethnic culture, topography and vegetation. It is also famous for its Buddhist tourist circuit and located in part of the Eastern Himalayan ranges. Arunachal has a good number of enjoyable tourist destinations of India because of its numerous turbulent streams, roaring rivers, deep gorges, lofty mountains, snow-clad peaks, abundant flora and fauna, everlasting disparity of scenic beauty and colourful indigenous tribes.

Tourism creates pressure on natural habitats through destruction of the surrounding environment and pollution to an area. The core problems associated with tourism are loss of control over local resources, low spread of positive effects outside the tourism enclaves, socio-economic disparity, fluctuating earnings, environmental damage and rising isolation among local populations leads to crime, overcrowding, poor infrastructures and pollution⁸. Some studies have been done on the environmental impacts of tourism, where the results highlighted that the environmental impacts of tourism on socio-cultural and physical aspects depends on the nature of impacts over space and time. Further, it was emphasized that the three

biggest issues related with the increase in tourism development are pressure on natural resources, destruction to flora and fauna and pollution⁹.

Methodology

Location of the study area and research duration: The study areas constitute Margherita – Miao – Namdhapa - Vijoynagar (MMNV) located in Changlang district, situated in the eastern part of Arunachal Pradesh and ranges between altitudes of 200 to 4500 metres from mean sea level. Changlang district is a thickly populated district lying between the latitude $26^{\circ}40'$ E to $27^{\circ}40'$ E longitude and $95^{\circ}11'$ N to $97^{\circ}10'$ N latitudes on the Eastern most extremity of Arunachal Pradesh. Another study area is Tezpur – Bhalukpong – Bomdila - Tawang (TBBT) which covers districts such as West Kameng and Tawang of Arunachal Pradesh and is the western most part of the state and altitudes ranges between 500 feet to 23,500 feet above mean sea level. The second study area lies between the latitude $26^{\circ}54'$ E to

$28^{\circ}01'$ E longitude and $90^{\circ}45'$ N to $92^{\circ}40'$ N on the North West extremity of Arunachal Pradesh. These two sites were studied because Margherita – Miao – Namdhapa - Vijoynagar tourist circuit is famous for its eco-tourism, whereas, Tezpur-Bhalukpong – Bomdila - Tawang is famous for cultural tourism (Figure-1).

Data collection and Analysis: During the survey, in each tourist circuit 100 persons have been interviewed through questionnaires (Close ended Method) for the purpose of the study. Further, on the basis of literature survey and secondary data and informations from various sources such as seminar papers and summary of discussion in those seminars, journals and some periodicals on impacts of tourism environmental have been surveyed for the purpose of the study. The primary data collected from the respondents in both the tourist circuits (TBBT and MMNV) were analysed with the help of Chi-square test.

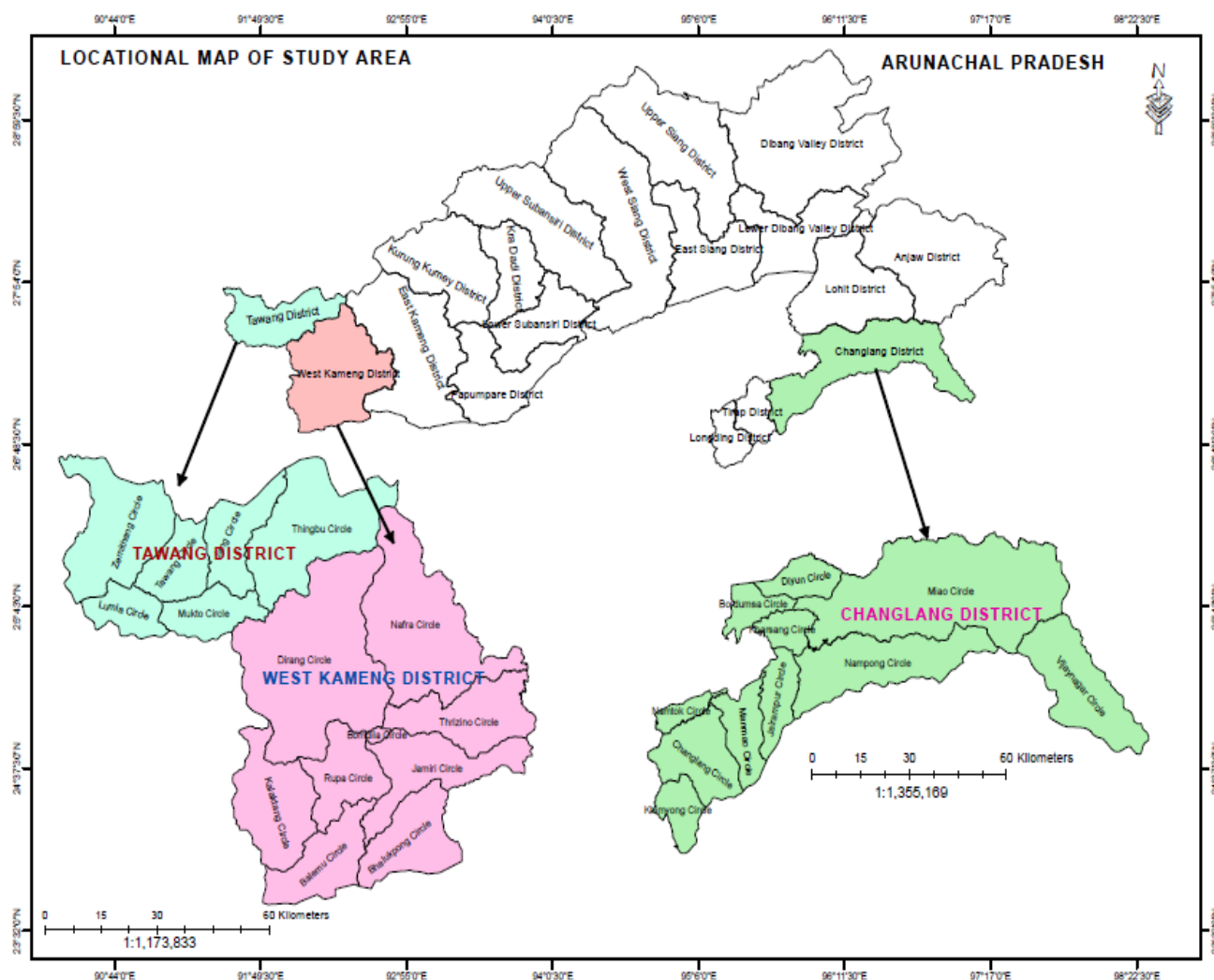


Figure-1: Map of the study area.

Results and discussion

Demographic Distribution: During the study an attempt was made to replicate the actual general and family characteristics (age, gender and marital status) distribution in the sample population of the study areas. Table-1 depicts that only (2%) respondents of (MMNV) general public were below the age of 20 years as compared to (6%) respondents in TBBT. However, it was also found that (74%) respondents of (MMNV) were above the age of 40 years as against (39%) respondents in TBBT.

During the study it was observed that respondents were male (65%) and female (35%) in Tezpur – Bhalukpong – Bomdila - Tawang Tourist Circuit whereas male (77%) and female (23%) respondents were in Margherita - Namchik-Namdapha-Vijoynagar Tourist Circuit. However, the male participation with the interview was significantly ($P < 0.1$) higher in both the tourist circuits and the reason for such over representation of male is their availability to the interviews without any hesitations.

The study also reveals that in both the tourist circuits the sample population was over represented by married respondents i.e. (85%) in TBBT whereas (90%) in MMNV. Moreover, regarding the percentage of unmarried respondents of the sample population it was 15% in TBBT and 10% in case of MMNV.

Level of Education: Table-2 reveals that (10%) respondents are illiterate, 30% primary level, 27% secondary and 17% higher secondary levels respectively. However, (16%) have attended college and above level in Tezpur - Bhalukpong – Bomdila - Tawang Tourist Circuit, whereas, Margherita - Miao-Namdapha - Vijoynagar Tourist Circuit shows that there are 4% illiterate respondents, 10% primary level, 42% secondary, 26% higher secondary levels respectively, whereas, (18%) have attended college and above level. While comparing between the two site, a significant ($P < 0.001$) difference is observed in their educational levels.

Occupation of the respondents: While attempting to identify occupation structure in TBBT Tourist Circuit, it is found that most of the respondents were farmers (47%) followed by others (20%), tourist food service (9%), sanitation workers (7%), tourist guides (6%), retired (5%), Tourist Security and Rural Tourism attraction attendants (2%) and Tour operator and Singers and dancers (1%). Similarly, it is also observed that the occupation structure of respondents in MMNV Tourist Circuit, consists of farmers (50%) followed by Tourist food service (15%), Rural Tourism attraction attendants (11%), Retired (9%), Tour operators and Tourist Security (4%), Sanitation workers, Tourist guides and Singers and dancers (2%) and others ((1%)). It was also found to be significantly ($P < 0.001$) different in occupation between respondents of the two areas of the study (Table-3).

Table-1: Personal Demographic Attributes of Respondents (in percentage).

Variable	Sub-Variable	Area		χ^2	P - Value
		TBBT	MMNV		
Age		N= 100	N= 100	23.48	0.001
	Below 20 year	06	2		
	20-30 year	28	10		
	31-40 year	27	14		
	Above 40 year	39	74		
Gender		N= 100	N= 100	3.59	0.1
	Male	65	77		
	Female	35	23		
Marital Status		N= 100	N= 100	1.18	0.3
	Married	85	90		
	Unmarried	15	10		

Source: Self generated through field study during 2015. Note: TBBT = Tezpur – Bhalukpong – Bomdila - Tawang Tourist Circuit. MMNV = Margherita – Miao - Namdapha - Vijoynagar Tourist Circuit.

Table-2: Level of Education.

Variable	Sub-Variable	Area		χ^2	P - Value
		TBBT	MMNV		
Educational Level		N= 100	N= 100	19.24	0.001
	Illiterate	10	04		
	Primary	30	10		
	Secondary	27	42		
	Higher secondary	17	26		
	College and above	13	17		
	Others	03	01		

Source: Self generated through field study during 2015. Note: TBBT = Tezpur – Bhalukpong – Bomdila - Tawang Tourist Circuit. MMNV= Margherita - Miao- Namdapha –Vijoyanagar Tourist Circuit.

Table-3: Occupation of the respondents.

Variable	Sub-Variable	Area		χ^2	P - Value
		TBBT	MMNV		
Occupations		N= 100	N= 100	36.5	0.001
	Tour operators	01	04		
	Tourist guides	06	02		
	Sanitation workers	07	02		
	Tourist food service	09	15		
	Tourist Security	02	04		
	Singers and dancers	01	02		
	Rural Tourism attraction attendants	02	11		
	Farmers	47	50		
	Retired	05	9		
	Any other (s)	20	01		

Source: Self generated through field study during 2015. Note: TBBT = Tezpur- Bhalukpong- Bomdila– Tawang Tourist Circuit. MMNV= Margherita - Miao- Namdapha –Vijoyanagar Tourist Circuit.

Annual Income of the Respondents: Table-4 shows the annual income earned by respondents. It was found that annual income of 40% respondent's was less than Rs. 1 lakh; 50% of them earned 1 to 5 lakhs; 7% of respondents had annual income of 5 to 10 lakh whereas 3% of sample population earned more than 10 lakhs in TBBT Tourist Circuit. Similarly, it was also found

that in MMNV Tourist Circuit the per annual income of 11% respondents was less than Rs. 1 lakh, 70% earned 1 to 5 lakh, 17% of them had annual income of 5 to 10 lakh whereas 2% of sample population earned more than 6 lakh per annum. There was also significant ($P < 0.001$) income parity between the peoples of MMNV and TBBT.

Table-4: Annual Income of the Respondents.

Variable	Sub-Variable	Area		χ^2	P - Value
		TBBT	MMNV		
Income per annum		N= 100	N= 100	24.18	0.001
	Less than 1 lakh	40	11		
	1 lakh to 5 Lakh	50	70		
	5 lakh to 10 Lakh	07	17		
	Above 10 Lakh	03	02		

Source: Self generated through field study during 2015. Note: TBBT = Tezpur – Bhalukpong – Bomdila – Tawang Tourist Circuit. MMNV= Margherita – Miao - Namdapha – Vijonagar Tourist Circuit.

Environmental impacts of rural tourism: A survey was conducted to know about the impact of tourism especially of rural tourism on environment. Pollution of rivers and lakes was least affected by the tourism. Noise pollution was insignificant as assessed from respondents. However, there is significant difference while comparing the parameters between the two tourist circuits (TBBT and MMNV). Littering and garbage as waste product has always been a major threat to soil pollution in a tourist place. When peoples are asked about same problem (MMNV) informed that they do not believe this to be an environmental hazard of tourism in their area. This may be due to preferences of tourists for eco-tourism over cultural tourism. But majority of the people of TBBT agree that littering destroy the beauty of landscape but are not sure that whether tourism is responsible for littering.

They are also of the opinion that hotels are major source for the increase of tons of garbage. The similar findings which emphasis that residents living in more mature tourist industry are aware of both positive and negative environmental impacts¹⁰. The respondents of TBBT contradict with their opinion that tourism is not effecting the environment. This may be due to the availability of a large area for natural degradation of garbage. However, in MMNV tourist circuit the respondents totally disagree with the views of TBBT tourist circuit. The studies supported the findings by stating that the environmental quality may improve even though the average amount of waste produced per customers' increases¹¹.

When rural tourism was related with the wildlife protection, fewer people are of the opinion that it contributes to the preservation of natural environment and the wildlife in the area. Specially, in MMNV areas hardly 11% people believe that rural tourism has helped in the improvement of ecological environment of the community. In contrast 56% also agrees that it does not contribute to the negative effect on vegetation and green space. However, other studies do not agree with these

findings and viewed that the vital negative consequences of rural tourism of a region is destruction of vegetations¹². The insignificant effect on the environment in these circuits may be because of their immature status. Further increase in the flow of tourists, inefficient management and maturity of these circuits may lead to conditions as stated by Bahrami and Noori.

Conclusion

Both MMNV and TBBT tourist circuits are seen to have significant inflow of tourists during the period of study. The study indicates that the burden of rural tourism on environment is lesser in MMNV tourist circuit than that of TBBT tourist circuit because of difference in topographical features, volume and the quality of the tourists. TBBT receives tourists of diverse taste such as of adventure, cultural, pilgrimage and ecotourism, however, MMNV is exclusively meant for eco-tourism. Moreover, in MMNV the road communication from national highway is quite different from TBBT. The different responses given by local residents reflected in the results (Table-5) may be due to above cited reasons.

Arunachal Pradesh is having high rural tourism potential, however, owing to lack of required favourable factors such as transport, communication, accommodation and other tourism related facilities, most part of it areas remain undiscovered to the tourists. Arunachal Pradesh is profusely blessed with natural resources. Hence, with precise planning and innovative accomplished management Arunachal tourism shall absolutely transform itself into a desirable hub of adventure, cultural, pilgrimage and ecotourism in the country.

However, the environmental impact of tourism needs to be assessed from time to time and steps to check adverse effects must be implemented whenever the need arises. Such timely intervention is must for maintaining the pristine natural environment of region.

Table-5: Environmental impacts of rural tourism.

Statement	Area	N	Responses of Residents			χ^2	P - Value
			Disagree	Don't Know	Agree		
Rural Tourism causes environmental pollution.	TBBT	100	37	28	35	42.22	0.001
	MMNV	100	80	15	05		
Rural Tourism produces noise.	TBBT	100	36	27	37	52.16	0.001
	MMNV	100	82	16	02		
Rural Tourism produces littering.	TBBT	100	26	45	29	56.50	0.001
	MMNV	100	78	18	04		
Rural Tourism produces congestion.	TBBT	100	14	33	53	65.32	0.001
	MMNV	100	70	15	15		
Tourist activities like boating produce serious water pollution in rivers and lakes.	TBBT	100	31	37	32	26.8	0.001
	MMNV	100	63	10	27		
Rural Tourism produces large quantities of waste products.	TBBT	100	40	29	31	20.60	0.001
	MMNV	100	70	20	10		
Sources like hotels and other related tourism businesses establishments throw away tons of garbage.	TBBT	100	24	36	40	36.02	0.001
	MMNV	100	65	22	13		
Tourists' littering destroys the beauty of the landscape.	TBBT	100	19	41	40	35.16	0.001
	MMNV	100	60	20	20		
Rural Tourism is contributing to the preservation of natural environment and protection of the wildlife in the area.	TBBT	100	44	29	27	10.50	0.01
	MMNV	100	36	50	14		
Rural Tourism has improved the ecological environment of the community in many ways.	TBBT	100	32	25	43	26.42	0.001
	MMNV	100	55	34	11		
Rural Tourism does not contribute to the negative effect of vegetation and loss of meadows and green space.	TBBT	100	15	48	37	10.97	0.001
	MMNV	100	04	40	56		

Source: Self generated through field study during 2015. Note: TBBT = Tezpur - Bhalukpong - Bomdila – Tawang Tourist Circuit. MMNV = Margherita – Miao - Namdapha – Vijoynagar Tourist Circuit.

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