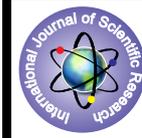


Carrying Capacity Assessment for the Promotion of Ecotourism in Bangus Valley : a Future Tourist Destination of J&K – India



Environment

KEYWORDS: Bangus valley, Carrying capacity, Ecotourism, Kupwara

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ABSTRACT

Bangus valley is an unexplored tourist destination of district kupwara of Jammu and Kashmir. The state government has proposed the place for the development of ecotourism but, to avoid environmental degradation from the tourism pressure and to maintain its ecological balance it was important to assess the tourism carrying capacity of the place. The present tentative investigation showed that the place can accommodate 3250 visits per day.

1.Introduction:

Tourism carrying capacity is commonly considered as the threshold of tourist activity beyond which facilities are saturated (physical carrying capacity) (Pearce 1989). The carrying capacity approach to tourism management stems from its application in determining wilderness use ((Stankey 1978). It in turn has been drawn from range and wildlife management (Dasmann 1945).Tourism carrying capacity is the highest bearing capacity of a natural, environmental and socio-economic system within which the maximum number of tourists has no influence on sustainable development of the entire system and tourists satisfaction are remained during the peak tourism period (Tran Nghi et al 2007). According to this definition, the tourism carrying capacity includes there components- Ecological carrying capacity, social carrying capacity and economic carrying capacity.

Ecological Carrying Capacity :

is the number of tourists who can undertake activities in a tourism site without causing, the degradation above the allowable limit of natural environment. In order to calculate the ecological carrying capacity, safety limits of ecosystems are often used through indicators of natural environment, biological diversity, environmental pollution.

Social Carrying Capacity : It is two aspects ,

- 1- Acceptance level of local community which is reflected by the maximum number of tourists which does not make local residents unpleasant, and
- 2- Acceptance level of tourists which is expressed by their satisfaction to tourism sites and the number of returnees.

Economical Carrying Capacity:

It is the acceptable level of tourism activities without doing any harm to key local economic activities. It means that tourism activities must not make conflict to other economic sectors and decrease in the income of local people.

2. Materials and Methods:

The Bangus valley is an unexplored region of district Kupwara (J&K) India. It is situated between 34°22'2" N latitude and 74°03'27" E longitude at an attitude of 3044 meters (10000 feet) above mean sea level occupying an area of approximately 300 km² with sloppy topography. Bangus valley is about 97 kmtrs North from the capital city Srinagar. Bangus is a huge meadow comprised of two parts – Bada Bangus (large Bangus) and Chota Bangus (Small Bangus). West of Bangus are located Shamusbari hills, towards East are Kazinag glacier, towards north-west are Badrum alpine region which is rich in medicinal herbs. Towards its North and South are lush green coniferous forest. Bangus valley is habitat of hundreds of species of fauna and flora, among flora dominant species are Abies pindrow, Cedrus deodara, Pinus wallichiana, Juniperus squarmata, Salix alba, Betula utilis, Berberis lycium, Bergenia stracheyi, Medicago polymorpha , Ramunulus hertillus, Aqualigia, Aconitum etc. and fauna found are Leopard (Panther pardus) Spotted deer (Axis axis), Black bear (Selenarctos thibetanus laniger), Jackal (Canis aureus in-

dices), Snow partridge (Lerwa lerwa), Red jungle fowl (Gallus gallus murgi) and many fresh water fish.



Map of Jammu and Kashmir showing the location of Bangus valley in District Kupwara

The tourism carrying capacity assessment method used in this study is based on general equation by cifuentes (1992) and Lasurain (1996). There are three levels of tourism carrying capacity. Physical carrying capacity (PCC), real carrying capacity (RCC) and effective real carrying capacity (ERCC).

Following basic information and criteria were considered in calculating the PCC of Bangus.

- i) Bangus is an open space (meadow) that allows visitors to move about freely.
- ii) Each person occupies an area of 8m².(assumed as that in Gulmarg)
- iii) There is no required distance between tour groups. Group size is, in this case irrelevant.
- v) 8 hours are required to visit the Bangus valley. It is open 12 hr a day.
- vi) The available area for visitors was taken from the starting point of Meadow Bada Bangus from east to Chota Bangus towards North West. Only the bowel i.e. the meadow area was considered for tourism activities. Forests and alpine regions were excluded because of high ecosystem sensitivity. Therefore the area available is 3250000m². (length = 6500 m,width = 500m).
- vii) If one visit requires 8 hrs and the site is open for 12hrs per day, then theoretically, a person could make 1.5 visits in one day. It means that practically a person could make one visit in one day.

3. Study findings:

PCC is the maximum number of tourists that can physically fit into or onto a specific area, over particular time, Thus

$$PCC = A \times \frac{V}{A} \times Rf$$

A= available area for use (m²).
 D = tourist density (tourists /m²)
 Rf = Rotation factor (No. of visits /day)
 Therefore in case of Bangus

$$PCC = 3250000m^2 \times \frac{1}{8} \times \frac{12}{8}$$

$$PCC = 3250000 \times 0.125 \times 1 = 406250 \text{ visits / day}$$

However, in order to find out the tourism carrying capacity it is very important not only to consider the physical carrying capacity of a particular area but, to take other parameters like Infrastructure, Management facilities, Ecological environment of the area and other services into consideration. For this reason effective real carrying capacity (ERCC) of a specific area is to be determined. For determining the ERCC of Bangus valley corrective factors or limiting factors were found out.

3.1.Effective real carrying capacity (ERCC) :-

ERCC is the maximum number of tourists that is permitted by the local environmental conditions and management capacity without influencing the tourists demand.

$$ERCC = PCC - Cf_1 - Cf_2 - \dots - Cf_n$$

Where : Cf1 (corrective factors or limiting factors) are factors which have negative impact on tourism activities and assessed by limiting threshold which is used for identifying impact level of a factor (%)

$$ERCC = PCC \times \frac{100 - cf_1}{100} \times \frac{100 - cf_2}{100} \times \dots \times \frac{100 - cf_n}{100}$$

Where limiting factors can be determined

Ml = limiting magnitude of variable
 Mt = total magnitude of variable

In case of Bangus at present the following limiting factors were identified.

i) Weather limiting factor Cf1-

Because of heavy snow-fall Bangus remains closed for at least six months i.e. from Nov. to April.

$$\text{Therefore, } Cf_1 = \frac{M_1}{M_t} = \frac{6 \times 30}{365} = \frac{180}{365} = 49.3\%$$

ii) Hiking route limiting factor (Cf2) :-

According to the assessment of world tourism organization, the

route slope of 100 or greater has impact on the travelling speed and health of tourists. Thus, it is the factor limiting the tourism capacity. In case of Bangus, as derived from the topographic map approx. 5kms (77%) hiking route length has the slope of greater than 100 thus,

$$Cf_2 = 77\%$$

iii) Infrastructure limiting factor (Cf3) :-

At present Bangus occupies log huts of local communities who visit Bangus to graze their livestock. But these small log huts cannot be used for tourist services, as these are occupied by the local herders. However, if any visitor goes there they can provide a roof to visitor with least facilities. A questionnaire was served to the local community and visitors for infrastructure quality assessment. According to the results 46 out of 50 respondents indicated that infrastructure in Bangus will not meet the basic needs of visitors.

$$Cf_3 = 46/50 = 92\%$$

The ERCC for Bangus therefore is :

$$ERCC = PCC \times \frac{100 - cf_1}{100} \times \frac{100 - cf_2}{100} \times \frac{100 - cf_3}{100}$$

$$= PCC \times \frac{100 - 49.3}{100} \times \frac{100 - 77}{100} \times \frac{100 - 92}{100}$$

$$ERCC = 406250 \times 0.5 \times 0.2 \times 0.08 = 3250 \text{ visits /day}$$

The ERCC of Bangus valley was tentatively estimated as 3250 visits/day.

4. Conclusion:

The paper investigated the tentative assessment of the carrying capacity of the Bangus valley. At present infrastructure is the most limiting factor of the tourism activities which can be overcome once the eco-tourism development starts in the region. Although there is need of determining the tourism carrying capacity to protect the environment of the place but there are challenges also which are : a) That carrying capacity is not fixed. It develops with time and the growth of tourism and can be affected by management techniques and controls (Saveriades,2000). b) That carrying capacity is the blunt instrument which does not answer the question "how much is too much". However calculating carrying capacity of a tourism destination like Bangus valley can be used as the preliminary benchmarks for future tourism planning and development.

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