

Carrying Capacity Considerations - I

Carrying Capacity -- Focal to Sustainability

In view of the 'form of consumption' of the tourism product, especially in areas of tourist concentration, the carrying capacity of tourism resources become a focal consideration in thinking about the sustainability of the activity.

Carrying capacity relates to the upper limit of the use intensity of a tourism resource-what can be supported without doing damage to that resource. It is also directly related to the sustainability of an activity, i.e., the ability to meet tourism demands from ecological, economic, cultural, and social systems obtaining in a tourism area or at the site of a tourism resource. It is, thus, at once an observation and an ascertainment mechanism, as well as a tool of planning and management. The fact that conclusions about it are essentially judgemental in nature, and depend greatly on the assumptions made, does not detract from its utility, even if caution is called for on how it is used and applied.

It is important to note that the carrying capacity of tourism resources is not a fixed or unalterable limit but a dynamic range capable of being extended through investment, through better management of given resources, and through greater awareness and harmony with the environment. Again, it is a multidimensional value. There is first the simple physical dimension (i.e., space). To this must be added the whole living and pulsating world of wildlife, air, and water (i.e., the biological and ecological dimensions), the critical impact which they can absorb (the acceptable limits' notion), and the strains which they show beyond a given point unless change can be brought about to soften the impact or restore balance. This is further compounded by the economic and infrastructural support systems. Any one support system can only absorb the impact of a given magnitude and given frequency of use. Beyond a certain point, the carrying capacity of this support system shows strains, which call for adjustments to be made. Similarly, there is the social and cultural fabric of the tourism area itself which may be vulnerable and open to adverse impact beyond a certain point. All these dimensions qualify and characterise the carrying capacity of tourism resources, especially in mountain areas and in the context of concerns with mountain community development.

Relevance of Carrying Capacity to Kalam

The notion of carrying capacity is directly relevant to the case study area, in that the tourism demands have already started to put pressure on the component support systems of the area, and the environment and local economy have come under strain. Again, while the signals being received from the *current* carrying capacities are already pointing to the *critical thresholds*, especially in the critical zones, the *potential* carrying capacities are an invitation to renewed tourism planning and a scheme for the spatial dispersal of activities that could take in many more tourists, while releasing pressures on the existing resources. And if accompanied by a comprehensive design for mountain development and the involvement of the local communities, it would be conducive to sustainable socioeconomic development of the people over an extended range of tourist activities.

Delimitation of Kalam Tourism Zone

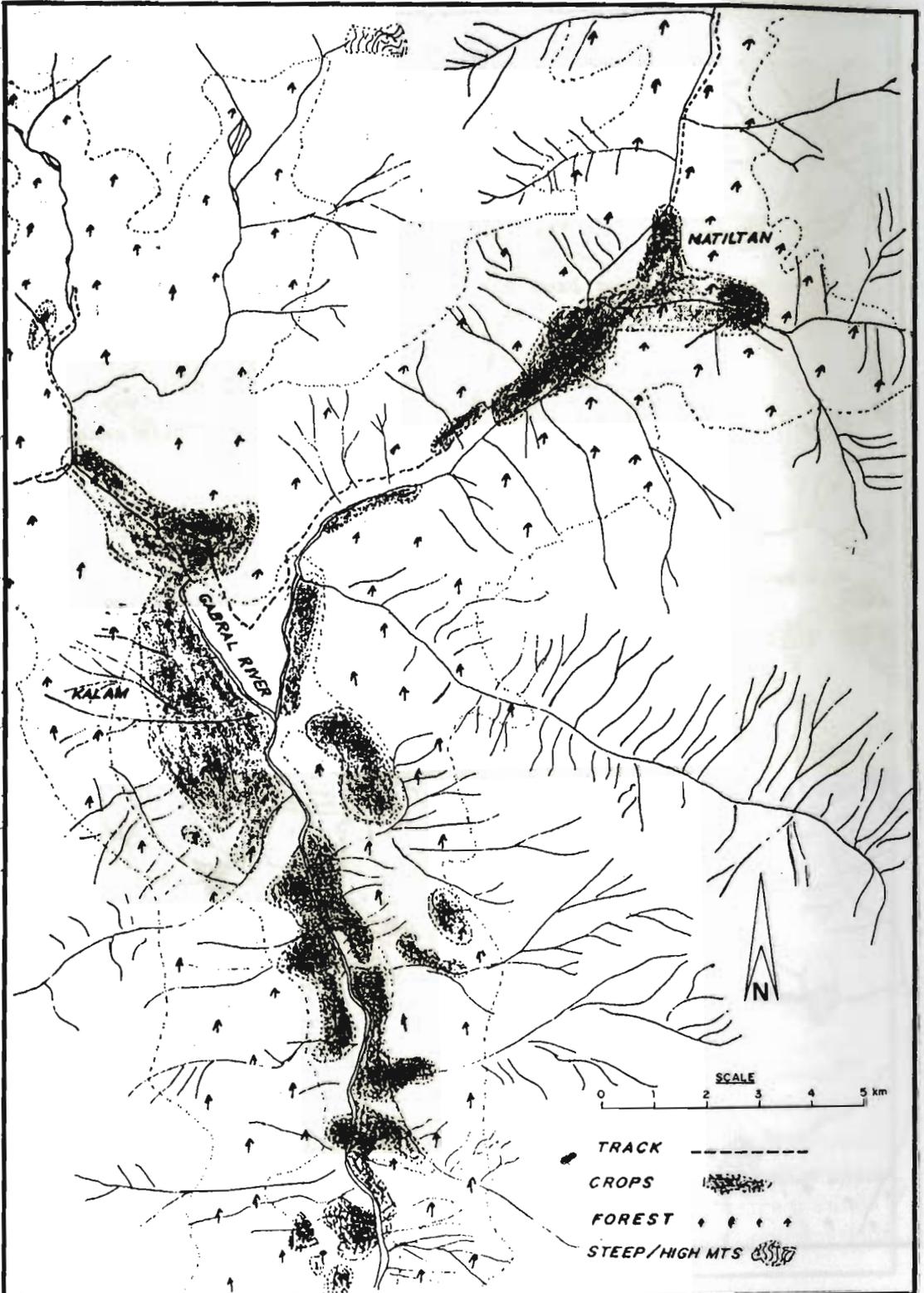
Maps 1, 2, and 3 indicate the broad zone of tourism activity centred on Kalam. The catchment has been delimited on the basis of the most extensive treks out of Kalam, as follows.

1. To the south of Kalam, a short boundary where resorts outside Kalam *tehsil* competed with Kalam as destinations for tourists (Map 1).
2. To the north, up to Mahodhand, as the main trek up to the Ushu Valley, and up to Andarap Dhand, along the trek up the Anukar Gol (Map 2).
3. To the north-west, up the Gabral Valley (Map 3).
4. To the south-west, to Kundlao Dhand, up the Batal Khwar and Laddu Khwar (Map 3).

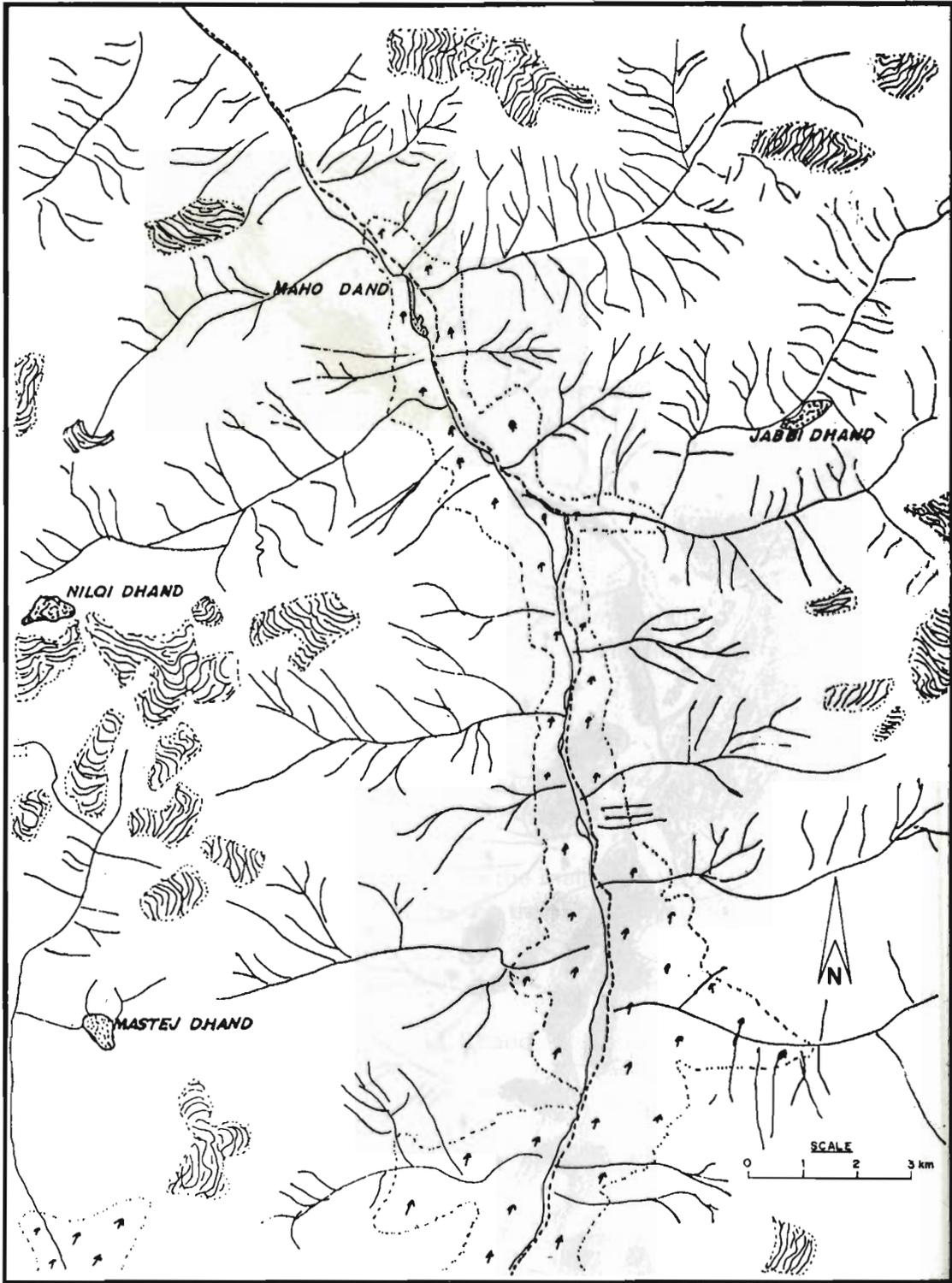
Extent to Physical Assets for Tourism

The areal extent of various categories of land use and lengths of treks in the above defined Kalam tourism catchment are given in Table 7.1.

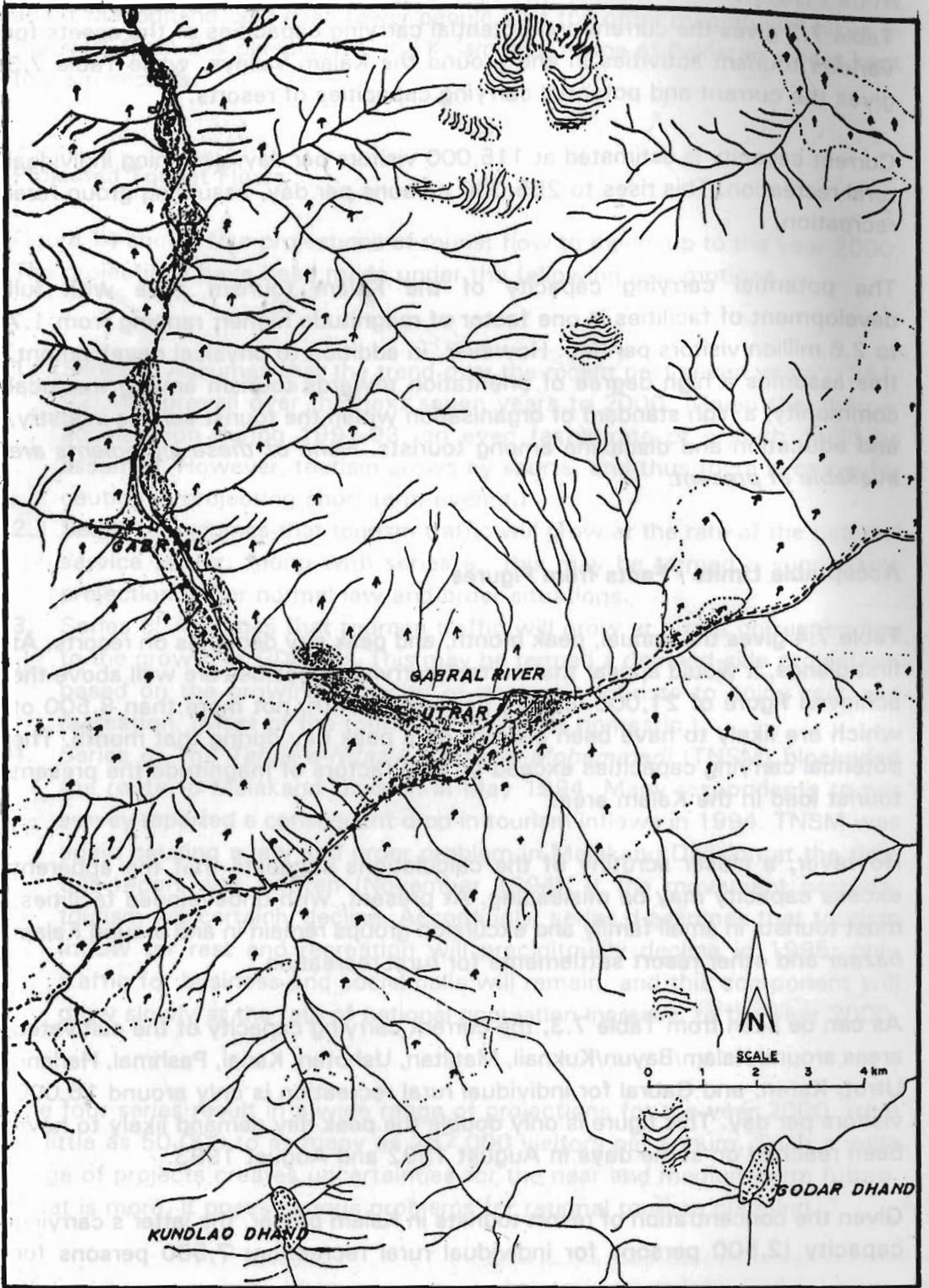
Map 1:



Map 2:



Map 3:



Quantitative Estimates of Carrying Capacity

Table 7.2 gives the current and potential carrying capacities of the assets for various tourism activities in and around the Kalam valleys, while Table 7.3 gives the current and potential carrying capacities of resorts.

Current capacity is estimated at 115,000 visitors per day, assuming individual rural recreation. This rises to 255,000 persons per day, assuming group rural recreation.

The potential carrying capacity of the Kalam tourism zone with full development of facilities is one factor of magnitude higher, ranging from 1.7 to 2.6 million visitors per day. However, in addition to physical development, this assumes a high degree of orientation towards tourism among the local community, a high standard of organisation within the tourist service industry, and education and discipline among tourists. *None of these ingredients are available at present.*

Acceptable Limits - Facts from Figures

Table 7.4 gives the annual, peak month, and peak day demands on resorts. At first glance, it would appear that current carrying capacities are well above the achieved figure of 21,000 visitors per peak month, not more than 8,500 of which are likely to have been present on a peak day during that month. The potential carrying capacities exceed by two factors of magnitude the present tourist load in the Kalam area.

However, a closer scrutiny of the calculations suggests that the apparent excess capacity may be misleading. At present, with undeveloped facilities, most tourists in small family and excursion groups remain in and around Kalam *bazaar* and other resort settlements for rural recreation.

As can be seen from Table 7.3, the current carrying capacity of the cultivated areas around Kalam/Bayun/Kuknail, Matiltan, Ushotan, Kanai, Pashmal, Hariani, Utrot, Karen, and Gabral for individual rural recreation is only around 16,000 visitors per day. This figure is only double the peak day demand likely to have been reached on some days in August 1992 and August 1993.

Given the concentration of resort tourists in Kalam proper, the latter's carrying capacity (2,500 persons for individual rural recreation; 7,500 persons for

scenic beauty) is already likely to have been exceeded on a number of days during the peak season. On the other hand, only a few avid anglers know about Mahodhand, and even fewer people visit the other magnificent lakes in the area. From this perspective, the Kalam area is one of Pakistan's best kept tourism secrets.

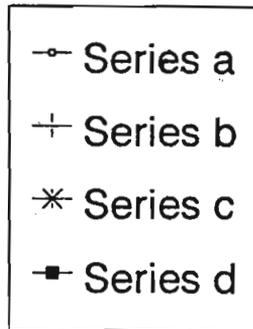
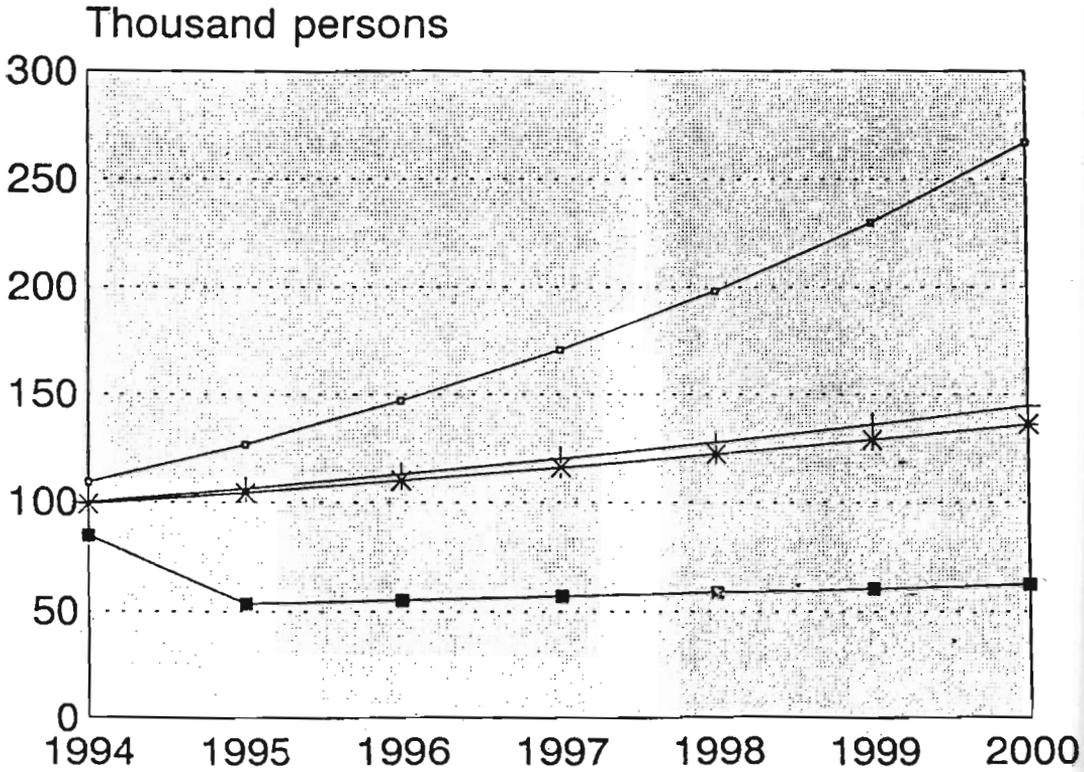
Projected Tourist Flows

Figure 14 shows four projections of tourist flow to Kalam up to the year 2000. The projections have been made under the following assumptions.

1. Series a: Assumes that the trend over the recent past seven years (1981-92) will prevail over the next seven years to 2000. (Given the sharper acceleration during 1991-93, an even faster rate of growth could be assumed. However, tourism grows by spurts, and thus there is cause for caution in projecting short-term events.)
2. Series b: Assumes that tourism traffic will grow at the rate of the national service sector. Along with series a., this may be termed a supply-side projection under normal law and order situations.
3. Series c: Assumes that tourism traffic will grow at a rate corresponding to the growth of GDP (fc). This may be termed a demand-side projection, based on the growing capacity of domestic tourists to enjoy rest and recreation. (Most of the tourism to Kalam is domestic.)
4. Series d: The *Tehrik-e-Nifaz-e-Shariat-e-Mohammadi* (TNSM) blockaded the route to Malakand Division in May 1994. Many respondents to our survey reported a consequent drop in tourism inflows in 1994. TNSM was again causing a law and order problem in Malakand Division at the time this report was written (November 1994). If the movement persists, tourism will certainly decline. Accordingly, series d assumes that tourism inflow for rest and recreation will precipitously decline in 1995; only traffic for business and social calls will remain, and this component will grow slowly at the rate of national population increase, to the year 2000.

The four series result in a wide range of projections for the year 2000, from as little as 50,000 to as many as 267,000 visitors per annum. Such a wide range of projects creates uncertainties for the near and medium-term future. What is more, it poses serious problems for rational tourism planning.

Figure 14: Projections of Tourist Flows to Kalam



Source: MoT, R&S Wing; GoP, Economic Survey, 1992-93
based on a: past trends (1985-92); b: growth of service sector (1980-93)
c: GDP (fc)(1990-93); d: shariat/law & order situation

Potential Carrying Capacities

With complete infrastructural development and a high degree of rational management, the potential capacity of the entire Kalam tourism catchment, as per WTO standards, is a staggering 1.7 million to 2.6 million visitors per peak day (Table 7.2). Yet the figure may well be attained by the middle of the next century, when the national population will perhaps exceed 300 million. Catering to this scale of inflow assumes:

- great improvements in the education and discipline levels of tourists;
- even greater improvements in infrastructure; and
- truly huge improvements in the management and coping skills of local communities and the tourism service industry.

For the short-term future, concern should focus on the risk of saturation or overload in Kalam proper and in other resort settlements.

The current and potential carrying capacities of the main resort settlements of the Kalam tourism area, for group rural recreation, for enjoyment of scenic beauty and for individual rural recreation, are given in Table 7.3. These capacities may be compared with peak day demand projections to the year 2000, under the Series a projection (Table 7.4).

Comparison of Projected Flow with Capacities in Resorts

A comparison between tourism capacities in the resorts and projected demands is covered below.

1. **Potential capacities** are more than adequate to cater for all kinds of projected demands; but these entail development and management of resort infrastructure, and *are not relevant* for the current decade.
2. **Current capacities** for group rural recreation are adequate to cater for projected demand to the year 2000; but organised large-group recreation is not the norm for tourists in Kalam, hence this category is *marginally relevant*.
3. **Current capacities** for enjoyment of scenic beauty are likely to be adequate until the year 2000 if proportionately distributed among the resorts. If concentrated around Kalam and Matiltan, they are *likely to be exceeded by 1999* and, if exclusively concentrated around Kalam, by 1995.

4. *Kalam proper is already close to overload for individual rural recreation. Current capacities* for individual rural recreation are *likely to be exceeded* around the resorts by 1997, and saturation will continue to worsen to the year 2000, even with perfect distribution of tourists around the resorts.

Table 7.1: Areal Extent of Prime Environmental Assets in Kalam

(hectares)

Toposheet	43 A/10	43 A/11 North Half	43 A/7 NE Quarter	43 A/6 SE Quarter	Total
Total catchment	62,765	27,650	16,000	15,400	121,815
Steep mts. (above 4000m)	5,600	7,000	700	1,860	15,160
Rangeland	43,620	18,000	10728	9,820	82,168
Forests	Ushu 7,238 Ushotan 5,354	Kalam 640 Bayun 980	4,027	3,000	21,239
Cultivated land	Matiltan 422 Ushotan 407 Kanai 38	Kalam 500 Kaknail 85 Bayun 138 Pashmal 190 Hariani 140	Utrot 475	Karen 270 Gabral 450	3,115
Lakes (height above sea level)	Andrap 36.25 (36.50m) Niloi 13.33 (4,000m) Mastej 18.75 (4,000m) Mahodhand 11.25 (2,750m) Jabba 6.66 (3,000m)	Godar Dhand 45 (3,800m)	Kundlao Dhand 40 (3,000m) Lacpand- ghali 30 (3,400m)		

Length of Prime Tourism Treks

kilometres

Treks from Kalam	Mahodh- and 65 Kanai 20 Andrap 38	Godar Dhand 19	Kundlao 20 Lacpand-ghali 30	Utrot 45	237
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Table 7.2: Current and Potential Carrying Capacities

Activity	Areal Extent of Suitable Area (ha)	Standards (visitors per day/ha)	Current Capacity	Potential Capacity
1. Wilderness enjoyment on rangeland	82,168	0.25-5	20,542	410,840
2. Nature park enjoyment in forest land	21,239	1-15	21,239	318,585
3a Individual rural recreation on cultivated land	3,115	5-50	15,575	155,750
3b Group rural recreation on cultivated land	3,115	50-300	155,750	934,500
4. Water sports around/in lakes	201.24	50-3000	10,062	603,720
5. Technical mountaineering	15,160	0.01-0.2(a)	152	3,032
Total:			114,970-255,145	1,681,527-2,460,277

(a) Standards from mountaineering guides

(b) Assuming 200 metres average width

Table 7.3: Current and Potential Carrying Capacities of Resorts

'000 Visitors/Peak Day

Name	Area (ha)	For Group Rural Recreation		For Scenic Beauty		For Individual Rural Recreation	
		C	P	C	P	C	P
1. Kalam, Bayun, Kuknail	723	36	217	11	145	4	36
2. Utrot Kanai	513	26	154	8	103	3	26
3. Gebral	450	23	125	7	90	2	23
4. Matiltan	422	21	127	6	84	2	21
5. Ushotan	407	20	122	6	81	2	20
6. Karen	270	14	81	4	54	1	14
7. Pashmal	190	10	57	3	38	1	10
8. Hariani	140	7	42	2	28	1	7

Current = with present facilities

Potential = with full development of infrastructure and management

Table 7.4: Annual, Peak Month, and Peak Day Demands on Resorts

'000 Visitors

Year	Annual Tourist Flows	Peak Month Demand (1*0.223)	Peak Day Demand (2*0.4)
1993	94 (e)	21.1	8.5
1994	109 (p)	24.5	10.0
1995	127	28.6	11.4
1996	147	33.1	13.2
1997	171	38.5	15.4
1998	198	44.6	17.8
1999	230	52.0	20.0
2000	267	60.0	24.0

(e) = estimated; p = projected as per series a.