

Part II
Development Premises, Planning
Norms & Landuse Plan For
Srinagar City (1985-2001)

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INTRODUCTION

Under Section (2) (a) of the Development Act of the Jammu and Kashmir State, the Srinagar Development Authority with the assistance of the State Town Planning Organisation prepared in 1971, a 20-year Master Plan for Srinagar City. The Master Plan - the first ever to be prepared, aimed at, inter-alia:

- (a) better use of existing capacity of land and buildings
- (b) Injection of massive new growth
- (c) development of an efficient road network for the city
- (d) beautification of the city
- (e) provision of broad-based tourist infrastructures, and
- (f) arresting of environmental deterioration.

The Master Plan proposed a land use plan, based on the estimated requirements of 1991 population in respect of employment, housing, education, transport, health, community facilities and public utilities. Admitting that the development of Srinagar city may be overtaken by externalities and unforeseen events, it provided for its continuous review and reassessment; it pointed out :

"Over a period of twenty years, it is obviously difficult to predict with a fair degree of accuracy the changes that are bound to take place in the socio-economic behaviour of urban and rural areas in the State. Such changes will have a direct implication on the development of the capital city of Srinagar. On the other hand, the fiscal and administrative arrangements which are presently inadequate and less encouraging for the development of

urban areas in the state may also change with the passage of time. Many other unforeseen things are bound to take place over this period.

It is in this context that a constant review of this Master Plan is necessary so that overwhelming aberrations are not caused, if timely reassessment and modification in the plan are made."

In 1983, the Srinagar Development Authority proposed to the National Institute of Urban Affairs to undertake a review of the Master Plan for Srinagar city, and revise and update it upto the year 2001. In determining the terms of the proposals, the Authority asked specifically to explore possibility of suggesting a better use of the existing space, and a methodology for effective implementation of the Master Plan.

The National Institute of Urban Affairs accepted the proposal, and began work on the reversion and updating of the Master Plan for Srinagar City. Between December 1983 and September 1985, it held several rounds of discussions with the Vice-Chairman of the Srinagar Development Authority and his team of officials, collected and analysed information from almost all departments concerned with the development of Srinagar, and carried out land use, transport and household surveys, to primarily assess the existing situation and seek guidance for future trends.

In broad terms, the approach pursued by the NIUA to updating and revision of the Master Plan for Srinagar city consisted of two distinct but inter-related steps:

(1) Assessment of the existing situation in Srinagar city vis-a-vis the development path envisaged in the Master Plan (1971-91). In making this assessment, the NIUA focused main by on:

- (a) What development has taken place in Srinagar City since the formulation of the City's Master Plan in 1971; and
- (b) Whether this development is in conformity with the proposals and land use pattern laid down in the Master Plan?
- (c) Identification of the key development issues:

The main purpose of this step was to examine if the development issues is identified at the time of the formulation of the Master Plan for Srinagar i.e., in 1971, continued to enjoy the same order of priority in 1984-85, or whether new, even more urgent issues had surfaced on the scene.

(2) Determination of the broad development goals for the future development of Srinagar City and its environs, and the revisions that were called for reaching these goals.

This report gives a brief summary of the approaches and recommendations for the Srinagar Master Plan 1985-2000.

DEMOGRAPHY AND LAND USE

Salient Features

Srinagar Urban Area comprising the Srinagar Municipality, the city area and Badami Bagh Cantt; areas in 1961 had a total population of 2.91 lakhs distributed over an area of 47.08 sq. kms. In 1971, this urban area was elevated to an urban agglomeration comprising of Srinagar city including the municipality area, Badami Bagh Cantt; and out growth of Srinagar city as well as villages of Badgam District, stretched over to an area of 107.17 sq. kms. accommodating 4.31 lakhs of population. In 1981, the area was further extended and enveloped 8 villages belonging to Srinagar, Chadura and Badgam Tehsils and the population increased to 6.05 lakhs (Final Figures).

The increase in area and growth of population of the Srinagar Urban Agglomeration and of the other components thereof during the past three decades is as follows.

Table - 1
Population - Yearwise

Sl. No.	Urban Component	Year	Area in sq.kms.	Total persons	Decadal %age variation	Persons	
						Male	Female
1.	Srinagar Urban Agglomeration	1951		250724	-	135325	115399
		1961	47.08	291853	+16.40	156689	135164
		1971	a)103.27	423253	+45.02	228227	195026
		1981	57.54	b)604786	+42.90	324101	285901
a)	Srinagar (City)	1951		246522	-	132714	113808
		1961	41.44	285257	+15.76	152967	132290
		1971	97.65 (I)	415271	+45.58	224067	191204
		1981	153.31	593561	+42.80	317372	276189
i)	Srinagar (M.C.)	1951		246522		132714	113808
		1961	41.44	285257	+15.71	152967	132290
		1971	82.88 (X)	403412	+41.42	217765	185648
		1981	144.82	585464	+45.13	323190	281596
b)	Badami Bagh (Cantt. Area)	1951		4502		2611	1596
		1961	5.64	6469	+56.97	3722	2874
		1971	5.63	7982	+21.07	4160	3822
		1981	4.23	11225	+40.63	5818	5407

a) Excludes the Pampore town area of 3.89 sq.kms. and population of 8582.

b) Final figures supplied by Census Department.

(X) Area of new Localities added in the municipality area after 1961.

(I) Includes Srinagar Municipality O.G. of 1635 persons and Badam districts out growth of 6462 persons.

The Trend

The growth of urban population in Srinagar Urban Agglomeration was more or less at par with the urban growth rate of the State which was 44.64% and 45.72% respectively during these decadal periods. The Srinagar Urban Agglomeration on the whole registered a growth rate of 16.40% 45.02% and 42.9% respectively during the period of 1951-61, 1961-71 and 1971-81 respectively. The substantial higher growth rate

in the decade 1961-71 may be due to the fact that the area of the Srinagar Urban Agglomeration was increased by 119% during the decade. The growth rate has decreased marginally during the decade 1971-81. It may be mentioned that the area of municipality has increased by 80% during the decade 1971-81. However, the higher growth rate in the core area of Srinagar Municipality, during 1971-81 than the overall growth rate of Srinagar Urban Agglomeration indicates more congestion & pressure on the existing land and infrastructure.

The above trend of decreasing growth rate in the Srinagar Urban Agglomeration & increasing growth rate in the core area of Srinagar Municipality during the 1971-81, may perhaps be explained by the following reasons:

- a) Substantial increase in municipal area during 1971-81.
- b) The occupational changes during the decades reveals that the share of agricultural labour force has decreased from 11.2% in 1971 to 6.35% in 1981, while, the share of working force engaged in household industry has increased from 10.5% in 1971 to 15.62% in 1981. Most of these units are located in the core area of the city.
- c) Due to weak economic base and low employment potential, it is assumed in the absence of the available data, that the effective population (workers) might have migrated to other states in the country in search of a job. (Srinagar being the only class - I city in the valley of Kashmir).

Distribution of Population

The main spurt of growth is taking place in the northern direction towards Gandarbal and in the southern direction towards the Airport. The distribution of population and the percentage growth of the population (ward-wise) in the decade 1971-81 is given below: (Refer map No.12 for zonewise population).

Table - 2

Distribution of Population (Ward-wise)

Ward Nos.	Population 1971	Population 1981	Growth of Population in (%)
1.	15415	22951	48.9
2.	14022	16719	19.2
3.	27551	35211	27.8
4.	11575	38438	232.08
5.	25024	47658	90.45
6.	28081	37100	32.12
7.	23816	24380	2.37
8.	24595	30212	28.84
9.	38032	42914	12.84
10.	31780	43734	37.61
11.	28886	36786	27.35
12.	28311	42889	51.49
13.	25401	34738	36.76
14.	26908	29321	8.97
15.	8841	30933	249.88
16.	13698	24717	80.44
17.	8026	27117	237.86
Boat Population	3421	19646	4747.28

The above table reveals that the growth of population in the old city area varies marginally between 2.37% in ward number 7 to 37% in ward number 10, while there is a substantial increase (of above 230%) in the peripheral areas of the old city comprising wards No.4, 16 and 17 which are located in the north and the south direction. (refer map No.) It may be mentioned here that ward No. 4 was considered to be

seismic zone in the master plan, but due to effective enforcement and development control, the development activity has already taken place in this direction.

The ward No.1 which includes the Boulevard area near Dal Lake has shown an increase of 48% which may be due to the fact that a large number of commercial establishments are coming up in this direction.

The maximum growth has been noticed in the boat population (474%) located in Dal Lake, Jhelum River and other water bodies as they not only provided shelter to a proportion of the city's population due to increased pressure on land but also serve as guest houses for the tourists. The tremendous increase of boat population is largely due to the tourists' attraction to stay in these house boats and also to some extent as an alternative to the increased pressure on land in the core city.

At the outset of the review, a few facts emerging from the analysis of the 1981 Census data have been brought out to see as to what changes have taken place in the demographic composition of Srinagar city since the Master Plan was prepared in 1971.

(1) In 1981, the population of Srinagar municipal area (MC) was placed at 5.85 lakhs, having risen by 45.3 per cent during 1971-81. It is important to point out that the 1981 actual population of Srinagar (MC) was higher than what was visualised in the Master Plan 1971-91, suggesting that if the trends observed during 1971-81 continue, the population of Srinagar in 1991 and 2001 would be higher than what had been estimated earlier.

Table - 3

Population Trends

Year	Srinagar Municipal (% va)	Srinagar City (% va)	Srinagar Urban Agglomeration (% va)
1971	4,03,412	4,15,271	4,23,253
1981	5,85,464(45.3)	5,93,561(42.8)	6,04,786(42.9)
1991	-	8,84,000(48.93)	-
2001	-	13,37,000(51.24)	-

(2) The 1971-81 population growth rate of 42.9 per cent in Srinagar urban agglomeration (UA) which includes, Badamin Bagh Cantt. area, though lower than that of the municipal area, was higher than the overall urban population growth rate observed within the Jammu and Kashmir State, underlining the need to plan Srinagar in the wider context of the Srinagar capital region.

Population Projections

A. Growth of Srinagar city is related to growth of its population, economic activity, possibility of its development in the lateral and vertical directions, tradition of people, trend of development landscape and areas under heavy pressure of tourist traffic.

Srinagar City according to 1961 Census had a population of 2.85 lakhs. In the year 1959, 24 villages were added to the Municipality and the population of the greater Srinagar was estimated as 3.8 lakhs.

In 1971 local area (Master Plan Area) coverage of Srinagar has been extended further beyond 1969 municipal limits to an additional population 48,328 of surrounding villages. Thus the total population

of the Greater Srinagar City (Local Area) in 1971 was 4.63 lakhs. In the absence of the statistics, the total population of Srinagar Local Area in 1981 is yet to be calculated.

According to the monograph of population projections prepared by TCPO, Central Government for class I,II,III cities and towns, the estimated population of Srinagar town group with its limits unchanged has been estimated upto 2001, as given below:

	<u>1971</u>	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>	<u>1996</u>
Srinagar	403,413	426,851	471,216	518,623	569,072	622,564
	<u>2001</u>	Percentage of growth (1961-71)				
	679,098	44.42				

(By the geometrical interpolation & extrapolation of census)

However, the actual population of Srinagar in 1981 was 5,85,464 having a growth rate of 45.13% in the decade 1971-81. The population projection for the Srinagar city by 2001 has been computed by various methods indicated below:

A. By geometrical interpolation and extrapolation:

$$P_n = \frac{2000 + ng}{2000 - ng}$$

P_n = Estimated population
 n = Number of years
 P_o = Existing population
 g = Mean decimmlal growth rate during the latest & preceding census

B. Extrapolation by mean of parabolas:

$$Y = a + bx + cx^2$$

	<u>1961</u>	<u>1971</u>	<u>1981</u>
Existing Population	2.85 lakhs	4.03 lakhs	5.85 lakhs

	<u>1991</u>	<u>2001</u>
Existing Population	8.31 lakhs	11.41

c. By the Compound Growth Method:

$$P_n = P_o (1+r)^n$$

Where P_n = Estimated population
 P_o = Existing population
 r = Decadal increase @ 4.5%
 n = Number of years

Existing population = 5.93 lakhs

Estimated population = 9.08 lakhs (1991)

Estimated population = 14.11 lakhs (2001)

Taking the average of all three methods, Srinagar will have a population of 8.84 lakhs and 13.37 lakhs by 1991 and 2001 A.D. provided the municipal limits remains unchanged.

Besides this, the projected population upto 2001 A.D. would include the following:

1. Population of the villages in the local are limits.
2. Floating population of tourists.
3. Floating population of commuters.

The projected population of Srinagar Local Area (Master Plan Limits), has also been estimated by projecting the population increase @ 4.5 % per decade in the surrounding villages. The estimated population in the surrounding villages by the 2001 A.D. will be 1.81 lakhs, provided the Master Plan limits remains unchanged.

Thus the total estimated population of Srinagar Local Area (Master Plan) will be 8.84 lakhs + 1.17 lakhs = 10.01 lakhs by 1991 and 13.37 laksh + 1.81 lakhs = 15.18 lakhs by 2001 A.D.

The number of tourists visiting the valley reveals that there has been a variation of about 90 per cent increase in the decade 1960-70 and 400 percent increase in the decade 1970-80. In the decade 1960-70, the growth of tourists to the valley was 90% which increased to 400 % during 1970-80, though the master plan envisaged the growth of 120% in the period 1971-81. The number of tourists have been decreasing since 1981, which may be due to the political situation prevailing in the valley and the adjoining states. The maximum number of tourists visit the valley in the month of May which roughly constitutes 20% of the total tourists visiting the valley in a year.

Looking at the past trend, (refer map no. 2) the yearly growth of tourist from 1974 onwards ranges between 7% to 10% upto 1981, except in the years 1975-76, which shows a growth of 80%. Considering that the political situation and the infrastructural facilities will improve in the coming years, the growth of 150% has been envisaged for the tourist upto the years 2001 A.D. Thus, assuming the average stay of tourist to be between 2-3 days, the maximum number of tourists during the peak season in the valley will be about 25,000 persons a day.

The Srinagar Master Plan indicated the floating population of commuters @ 7% of the total population. Considering that the other urban growth nodes in the Kashmir region like Baramulla, Anantnag & Sopore have grown in economic activity and size, but still the future communication at the rate of 7% to the city will persist which will mean that the day time population of the Srinagar local area shall be of the order of 15.34 lakhs by 2001 A.D.

It may be mentioned here that for the purpose of requirement of water supply in the Greater Srinagar Local Area, the department of Public Health Organisation have estimated the population to be 7.82 lakhs in 1981, 10.63 lakhs in 1991 and 14.35 lakhs in 2001 A.D. This perspective population has been calculated on the basis of assuming the uniform growth rate @ 3.5 per annum.

Census Commissioner of India office has also appointed expert committees from time to time to undertake the study of population projections to estimate the future population size of all the states and Union Territories of India.

The quinquennial projections made by the committee had estimated the total population of the state to touch 59.8 lakhs by 1981, which is slightly higher than the actual population of the state (59.5 lakhs) as per 1981 census. The variation in actual population and the projected population is very marginal and rather insignificant. Thereby, it is safe to assume the estimated population of 67.3 lakhs and 75.5 lakhs as made out by this committee for 1986 and 1991, respectively.

Thus, the state is likely to touch the 75.5 lakhs population size by 1991. Though the state continues to be among the poorly urbanised states of the country, yet a comforting trend is emerging from the fact that urban population is growing at a faster rate (45.7%) in comparison with the rural growth rate of (25.14%) during 1971-81.

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1. Census of India 1971, Series I paper I of 1979. Report of the Expert Committee on population projection.
 2. Abid - p - 46 - 47.

Similarly, the share of urban component has increased from 16.66% in 1961 to 21.00% in 1981. In absolute terms the urban population has increased from 8.85 lakhs in 1971 to 12.51 lakhs in 1981 and with the pace of industrial growth and other economic activities this share is likely to reach upto 25% in 1991 and 30% in 2001 A.D.

With this proportion of urban component, the total urban population of the state would vary between 18-19 lakh by 1991. The share of Srinagar urban agglomeration varied between 48-49% of the total urban population of the State both in 1971 and 1981 census. With this trend in view the share of Srinagar urban agglomeration is not likely to come down to 45% of the total urban population of the state by 1991 and the estimated population is likely to vary between 8.1 - 8.5 lakhs in 1991 and otherwise also, with the present growth rate (42.9%), the population of the agglomeration will touch the maximum mark of 8.5 lakhs. Thus the estimated population of Srinagar urban agglomeration will touch the maximum mark of 8.5 lakh. Thus the estimated population of Srinagar urban agglomeration would range between 8 - 8.5 lakhs in 1991.

Sex Ratio

According to 1981 census Srinagar city had 870 females per 1000 males which shows a substantial increase in women concentration in the city as it had only 855 females per 1000 males according to 1971 census. The sex ratio in the city was still lower than the state average of 877 females per 1000 males in the urban areas of the state.

The increase in the sex ratio in Srinagar City may indicate that male population is going out of the city to the other cities of the

country in search of employment & future prospects.

Density of Population 1981

The density of population in different wards of Srinagar varies from as low as 8.94 in ward No. 1 to 502.5 in ward No. 8 in the core area of the city, with an average density of 39.1 persons per hectare for the city. According to the 1981 census, the Srinagar Municipal Area comprising of 17 wards had an area of 14982 hectares with a population of 565818 persons. The density of population (ward-wise) is given in the table below:

Table - 4

Density of Population in Srinagar City, 1981 (Ward-wise)

Ward Nos.	Total Population (1981)	Density of Population (P.P.H)
1.	22951	8.94
2.	16719	19.11
3.	35211	65.67
4.	38438	17.36
5.	47658	30.47
6.	37100	138.52
7.	24380	429.83
8.	30212	502.53
9.	42914	193.75
10.	43734	291.07
11.	36786	153.83
12.	42889	51.27
13.	34738	184.66
14.	29321	64.52
15.	30933	24.39
16.	24717	18.63
17.	27117	12.42
Total	565818	39.10

In fact, density of population was generally found to be high in mohallas around the Central Business District and in central pockets along two banks of the river Jhelum. Though the developmental activities has already started in the peripheral areas of the city, the density of population is quite low in these wards which may be due to the large areas with concentrated pockets of residential houses. (refer map no. 3)

Population density pattern has shown little change during 1971-81. Even though the 1981 gross population density in Srinagar was much lower (39 persons per hectare) than what was visualised in the Master Plan for Srinagar, the wide range in the density pattern, i.e. from a low of 8.9 persons/hectare in Ward No. 1 to 502 persons/hectare in ward No. 8 and an equally high density in Ward No. 7 presents serious problems for population redistribution.

Land Use

The norms of the city development in the past has also been that the orchards and vegetable gardens have gradually changed into residential and other uses. With the increase in population and rapid changes in the land market, the process of conversion of vegetable lands and orchards into plots has gained momentum. This has resulted in haphazard development of all sorts of land with other concomittant problems and a sharp rise in land prices in the past one decade.

The review of the existing land use

The review of the existing land use within a period of 20 years (1963-83) reveals that the normal tendency of the growth of the city is mostly radial. The recent developments (residential, commercial

etc.) that have sprung up during these two decades with increase in population are given below: (refer map no. 4)

I Residential Development

The new residential development is taking place towards the north and south directions.

- i) Soura Housing Colony, Botakadal Housing Colony and Gawanpura have sprung up in between Nagin Lake and Anchar Lake on the northern part of the city.
- ii) The Bemina Housing Colony, Iqbal Memorial Colony, Batmallo, Luchmanpura have come up on the south-west of the old city.
- iii) In the south eastern direction, the residential and industrial development is taking place along-side the National Highway, towards Anantnag.
- iv) The development is fast on the southern part of city beyond the Floor spill channel.
- v) In the north-east direction, though the residential development has been restricted, but on the eastern side of Rupa Lank, residential development is coming up.

II. Commercial Development

As discussed earlier, the CBD of the city is mainly the Lal Chowk Area, but the shops and establishment are coming up very fast in New Housing Colonies and along-side the major arteries in the Srinagar City.

III. Industrial Development

The New industrial development could be seen in the southern part

of the city on the western side. Near Zanakot, a new industrial complex has come up which includes the H.M.T. factory also at the cost of agricultural land.

IV. Public and Semi-public Uses

It includes a New Secretariat in the Batmalina Area, Medical Hospital at Hazaratbal and on the western side of Tadoo ground and a new bus stand at Batmalina.

Diversification of Land Use from the Master Plan of Srinagar City

As per the Master Plan, local area (Greater Srinagar City) has been divided into seven zones (A, B, C, D, E, F & G) which has further been divided into sub-zones. The review of Master Plan reveals that the area which was earmarked for some specific purposes has not been used in the same direction, due to ineffective development control and regulation. The list of uses that have been earmarked in the Master Plan (zone-wise) and the diversion that has taken place in the land use pattern in 1983 is given below: (refer map no. 5)

Table - 5

Sl. No.	Development zone	Name of the locality	Proposed land use in the Master	Land ultimately used in 1983
1	2	3	4	5
01.	A8	Old Nishat	Cultivation	Public Utilities/residence
02.	A19	Nagin Lake	Park	Residence
03.	B8	Soura Nowshara	Orchard	Public/Semi-Public utilities
04.	C31	Rajbagh, Kursha, Kurajpora	Hotel sites	Convent Ashram

1	2	3	4	5
05.	D5	Batamalina Baranpathar Haftehinar	Govt. Offices	Gandhi Ashram
06.	D7	Lachmanpora, Syed Mohalla, Batamaline- zuart	Public/semi- public	Residences
07.	D8	Tengsn Batam- lina area	Public semi- public	Rresidences
08.	D9	Bemina College and surrounding area	Public-semi- public	Residences
09.	D23	Baghi-sunder bala, Baghi- dunder-pay in	Public-semi- public	Residences
10.	F2	Rambagh and Barzalla	Restricted Area	Public/Semi- public utilities
11.	F4	Natipora and Charipora	Industry	Residence
12.	D14.	Huhama Rawal- pora, Pir-bagh, Gurpora, Wara- pora, Majidbagh	Residence	Industry
13.	F18	Sanatnagar, Hakimbagh, Warapora, Majid- bagh Hyderpora	Industry	Industry and expansion to the outer limit.
14.	G1	Pantochowk	Tourist sites	Residence
15.	G8	Pampore	Tourist sites	Residence
16.	G9	Pampore	Public inter- action	Residence

What came to the fore was that the city area has not been developed according to the proposed plan. The reason may be attributed to some of the facts given below :

- i) Ineffective development control.
- ii) Long time gap between implementation and plan preparation.
- iii) Ineffective coordination among different departments dealing with urban planning and development.
- iv) The non-availability of technical expertise. Further, extensive field surveys were carried out to record the existing stages of development in Srinagar city. The types of surveys carried out, are :
 - a) Land use surveys
 - b) Traffic and transportation with particular reference to the growth in traffic in Srinagar, and
 - c) A household survey.

Further, the results of the survey carried out in 1984 for land use in Srinagar city, reveals the following :

The Master Plan for Srinagar has indicated the Stages of development expected to be attained in the year 1984. According to the stages, of a total of 12,681 acres planned to be developed by 1991, apporximately 8,197 acres or 64.6 per cent should have been brought under different uses by 1984. The results of the survey, however, show serious shortfalls in the attainment of this target, as only 3165 acres or 38.6 per cent had been developed by 1984. This is shown in Table 6 below :

Table - 6

Use	Estimates	Quantum of land expected to be under use by 1984 (Master Plan proposals)	Land actually brought under use by 1984 (field survey results)	Shortfall in percent
Residential	2,052	6,852	2938.3 - 2052 = 876.3	185.84
Commercial	52	247	70.5 - 52 = 18.5	250.35
Industrial	53	1,098	156.4 - 53 = 103.4	602.05
Governmental	202			
Community facilities	234			
Parks etc.	103			
Total	2,696	8,197	3165.2 - 2157 = 1008.2	

What this table shows is that only about 1,008 acres of land have been brought under different uses during the past 13-14 years, i.e. since the Master Plan for Srinagar was prepared. Clearly, the estimates made earlier for the pace of land development will need major revisions in the light of the progress made during 1971-84.

Of the total land developed between 1971-84, 676.3 acres or 88 per cent are for residential use. The land use survey shown a strong tendency for the city to grow radially, with a string of scattered housing along the main circulation arteries, in a somewhat formless and unplanned manner. The proposals of the Master Plan to organise

future development into self-contained residential clusters, and into units and planning areas do not seem to have been materialised.

Therefore, the revision of Master Plan for Srinagar City would have to look at the development control regulations urban extension city Government structure in detail, including the role of the State Government, the development authority, the municipality, the district administration etc. in order to evolve a pattern of city Government which would bring about co-ordinated development of the city and subsequent maintenance of created assets.

Economy

Cities grow or decay on the basis of their economic strength. It is a viable economy which provides for a healthy employment picture and it is only a strong economy which contributes to the resources of a city and permits it to develop along planned lines. Where economic stagnation occurs, urban degeneration inevitably follows. The economy of Srinagar is very heavily dependent on the tertiary sector, which is fed by the tourist trade and by the demand for goods and services generated by the Armed Forces. Such an economy is a highly dependent one and it is essential that measures be adopted for diversifications of employment and the creation of an economic base which is self-dependent. Even though comparisons are not always relevant, one could take the example of Switzerland where, despite the very strong input into the economy of the tourist industry, an equally strong industrial base has been built up so that Switzerland can survive even if not a single tourist visits the country. The Valley of Kashmir offers great natural advantages in terms of a pollution

free atmosphere and a temperate climate which makes it amenable to high technology industries. Because of the natural skill of the average Kashmiri in the matter of handicrafts, the population itself is capable of being trained in industrial work requiring finesse and a high degree of skill.

Occupational Structure

Participation ratio is an important indicator of level of employment available in the various economic activities of city life. A comparison of participation ratio between 1971 and 1981 reveals that while the male participation ratio did not change much, the female participation ratio has returned about three times more during the decade. Still the female participation ratio is quite low in view of the ratio in other urban agglomeration in the country, which can be attributed to low level of literacy and socio-cultural factors.

	<u>Overall Participation Ratio</u>	<u>Male Participation Ratio</u>	<u>Female Participation Ratio</u>
1971	26.4	47.45	1.7
1981	29.31	50.26	5.04

Occupational Pattern

Distribution of work force in the various occupations determines the functional category of the town to which it caters and reflects the character and level of development of the city.

According to the 1971 census, out of 1.14 lakh workers, as much as 1.00 lakh or 88.8% of the workers were engaged in non-agricultural pursuits.

The distribution between various industrial categories reveals that the tertiary sector (57.9%) comprising of Trade and Commerce (15.2%) Transport and Communication component (14.00%) and other services (28.9%) engaged the largest section of the work force followed by the secondary sector (30.9%) consisting of Household industry (10.5%) other than household industries (15.8%) and construction. (4.4%) (Table No. 7).

According to the 1981 census, out of the total work force of 1.77 lakhs as much as 1.66 lakhs (93.65%) including marginal workers are engaged in non-agricultural activities. The distribution of working force among the cultivators, agriculturals, household industry, other workers and marginal workers among the various constituents of urban components is given in table no. 8.

The share of agricultural labour force decreased from 11.2% in 1971 to 6.35% in 1981. Again the share of working force engaged in household industry has increased from 10.5% in 1971 to 15.62% in 1981 indicating the increasing role of household industries in the city.

Whilst suggesting the areas for future expansion there would be an attempt to integrate physical planning and economic planning so that land becomes available in ample measure for the expanding city of Srinagar in future. Great care should be taken in ensuring that the land areas selected for expansion do not either degrade the environment or compete with other equally useful activities such as farming.

Table - 7

Occupation Structure - 1971

Total Population	Total Workers			Cultivators			Agricultural Labourers			Livestock Forestry total				
	P	M	F	P	M	F	P	M	F	P	M	F		
431835	232976	199049	113863	110473	3390	4169	4902	77	1951	1925	26	6660	6542	118
	(26.37)		(3.66)				(1.7)					(5.84)		
Mining and Quarrying														
Manufacturing Repair Processing & Services														
Construction														
Trade and Commerce														
Transport Storage and Communication														
Other Services														
Other Services														
P	M	F	P	M	F	P	M	F	P	M	F	P	M	F
224	224	-	(a) Household Industry	5040	5040	-	5040	-	16795	16728	67			
(0.2)			12126	11845	281				(4.42)			(14.75)		
			(10.65)											
			(b) Other than household industry	18324	18180	114								
			(16.00)											
Transport Storage and Communication														
Other Services														
P	M	F	P	M	F	P	M	F	P	M	F	P	M	F
15601	15601	-	32930	30296	2634									
(13.70)			(28.9)											

Source: Census of India 1971. Series of Jammu and Kashmir
Part II-A General Population Tables

Table - 8

Occupational Structure - 1981

Population	Total Main Workers		Cultivators		Agricultural Labourers				
	P	M	P	M	P	M			
1. Srinagar Urban Agglomeration 606002	176653 (29.21)	162449 (50.26)	14204 (5.04)	7782 (4.41)	6916 (1.94)	866	3431 (1.94)	3328	103
2. M.C. 585464	171406 (29.28)	157631 (50.35)	13775 (5.06)	6808	6021	987	3383	3280	103
3. Badami 11225 Region Cantt.	2834 (25.25)	2859 (44.50)	245 (4.53)	2	1	1	1	1	-
4. Total 8097(a) Out Growth	2413 (29.80)	2229 (52.14)	184 (4.81)	972	894	78	47	47	-
5. O.G. 1635(b) of Srinagar	443	438	5	18	15	3	-	-	-
H.H. Industry, Manuacturing Processing, Services & Repairs									
1.	27602 (15.62)	23428	4174	137838 (78.02)	128777 (5.31)	9061 (5.31)	7731	6732	-
2.	27333	23266	4107	132882	525104	8778	6347	969	5378
3.	13	2	11	2818	2585	233	6	5	1
4.	256	200	56	1138	1088	50	1420	67	1353
5.	10	10	-	415	413	2	8	3	5

Trade and Commerce

Economic life of the city and its prosperity depends on commerce which flourishes in the city and the intensity of trader relationship it develops with other centres within and outside the region.

Studies were conducted to assess the functions of commercial areas, specialised markets, their problems in terms of space requirements, location, accessibility interrelationship with other areas, parking & movement of people and goods.

Commercial-cum-shopping Areas

The percentage of workers employed in trade and commerce sector in the city has increased from 11% to 14.8% in the decade 1971-81. The growth of shops and establishments and their employment pattern in the city (circlewise is given in the table below) :

Table - 9
Growth of Shops and Establishment in Srinagar City (Circle-wise) 1983-84

	Year	Circle I	Circle II	Circle III	Total	
<hr/>						
1.	<u>Shops</u>					
a)	No. of shops	1983	4584	7284	8144	20012
		1984	4743	7050	8491	21184
b)	% of growth		3.55	9.14	4.26	5.86
c)	Employment	1983	2158	1689	841	4688
		1984	46.03	36.03	17.94	849
<hr/>						
2.	<u>Commercial Establishments</u>					
a)	Total No. of Estab.	1983	169	188	426	983
		1984	175	411	436	1022
b)	% of growth	1983	3.43	5.93	2.35	3.97
c)	Employment	1983	1306	966	905	3177
			41.10	30.41	28.49	928

3.	<u>Hotels, Dhabas Etc.</u>					
	a) Total no.	1983	307	247	115	669
	of Estab.	1984	330	303	128	761
	b) % of growth		6.97	22.67	11.30	13.75
	c) Employment	1983	1771	265	138	2174
4.	<u>Places of Amusement</u>					
	a) No. of	1983	3	2	3	8
	cinemas etc.		37.50	25.00	37.50	
		1984	3	3	3	9
			33.33	3.333	33.33	
	b) % of growth	198	-	50.00	-	12.50
	c) Employment	1983	107	38	86	231
			46.32	16.45	37.23	
		1984			91	
5.	<u>Grand Total</u>					
	a) Shops &	1983	5063	7921	8688	21672
	Estab.	1984	5251	8667	9058	22976
	b) % of growth	3.71	3.71	9.42	4.26	6.02
6.	<u>Grand Total</u>					
	a) Employment	1983	5342	2958	1970	10270
			52.02	28.80	19.18	
		1984		3293	2008	

Source: Office of the Labour Commissioner, Srinagar City.

Following are the areas included in each Circle of Srinagar City:

Circle - I Lal Chowk, Residency Road upto Pantchowk, Boulevard upto Harwan, Budshah Chowk, Dalgate etc.

Circle - II Batmalloo, Maharaj Bazar, Safakadal, Raj Bagh, Karan Nagar, H.S. Singh Street, Jawahar Nagar, Chattabal.

Circle - III Habakadal, Fatah Kadal, Zaina Kadal, Ali Kadal, Safakadal, Nawa Kadal, Now Pora, Khanyar Rainawar, Hazratbal, Nowhatta, Nowshehra, Soura, Lal Bazar, Buchpora, Rajauri Kadal, Idgah, Nalayolar Road.

The above table reveals that in the year ending November 1984 the maximum number of shops (40.08%) and commercial establishments (42.66%) were located in circle III of Srinagar City, while the maximum number of Hotels and Dhabas were located in Circle - I of the city. It may be mentioned here, that the areas included in circle III constitutes the core area of the city while Circle - I constitutes the main central Business District and recreational areas of the city. Circle II includes the developing areas on the peripheries of the city, which show the highest percentage of growth in shops (9.14%), establishments (5.93%) and Hotels and Dhabas (22.67%).

There are 21,184 shops and 1,025 establishments within the Srinagar municipal limits which comes to one shop for 20 persons. The shops are generally 10'x10', 10'x12' and 10'x16' in size. A number of commercial establishments have been constructed by Government and local bodies. The location of shops & commercial establishments in Srinagar city shows that the commercial activity is not uniformly distributed. This is substantiated by the fact, that about 60 per cent of the shops are located in wards 3,7 and 9 of the Srinagar city which forms the core of the old city. Thus, the people from the peripheral areas of the city have to commute long distances for buying their essential requirements.

The places of amusement which include cinemas etc. are found to be evenly distributed in different circles of the city. The major shops and stores are available, either at Amirkadal upto Residency Road or in Habakadal and at Zainakadal. The wards 4,16 and 17 of the city are not self sufficient in commercial facilities. According to the Census of 1981, Srinagar district, of which Srinagar municipality

forms the main component, has returned the highest proportion of shops excluding eating houses, business houses and offices, factories, workshops and worksheds. Even in the case of hotels, Sarais, Dharamshalas, tourist homes and inspection houses, the district claims the next highest proportion in the State. However, it would be interesting to note that according to the data available in the 1981 Census on the total number of Census houses and the uses to which they are put in the Srinagar Urban Agglomeration, about 62.46 per cent of the houses are used wholly for residential purposes and about 14.21 per cent are used partly for residential purposes like shop-cum-residence including household industry and of 'other' category. The other important uses to which census houses are put, are shops, excluding eating houses and factories, including workshops and worksheds each constituting 12.70 per cent and 8.39 per cent, a respectively.

Wholesale Trade and Mandies

The city lacks organised shopping centres in terms of wholesale and retail market centres. Many of these markets are facing problems of space for expansion, accessibility and movement etc.

The wholesale markets are located in Lal Chowk, Maharajganj and Lal Mandi area. Owing to the inadequate space for parking/and movement of vehicles, the market suffers from overcrowding and traffic congestion. Due to shortage of organised space in the Lal Chowk area, some of shops function on the road space making movement of the people impossible. It is now a most congested area in the city core.

Mandies

At present, there is only one mandi located at Bemina in the South-West section of the city dealing with the business of the wholesale and retail fruit. This mandi not only caters to the city's needs but also functions as a wholesale market for the region and important urban centres of the neighbouring states. One of the problems faced by the mandi is that it does not have adequate godown facility in order to store fresh and dry fruits. Further, the area for such bulk handling of fruit in the mandi is very inadequate. In order to minimize the traffic congestion, smoothening of traffic links for Intra-city and Inter-city movements and to cope with the problems of inadequate space, the proposed mandies should be located in other parts of the region viz. at Sopore, Baramula or Anantnag, where adequate facilities for godown, parking, movement and linkage to the regional roads can be provided.

It may be mentioned here that, presently, more than 10,000 household are involved in the trade of horticulture produce, which includes the growing of fresh and dry fruits like apples, cherries, apricots, walnuts and almonds etc. However, there is a marginal decrease, under this trade during the decade 1971-81, which may be due to the problems faced by the workers on account of increasing transportation cost, fertilizers and insecticides.

Transport Agencies

Some of the transport agencies are located in the Lal Chowk area, which is the most congested area of the city. These transport agencies should be shifted elsewhere in order to minimise traffic

congestion.

Weekly Market

The weekly market is held in the Lal Chowk area on every Sunday. The weekly market is held on the road side space in the Lal Chowk area and performs the retail trade in items like clothes, carpets leather goods and general goods and the like.

Footpath Shops

The footpath shops are mostly located in and around the Lal Chowk area. Since the roads in the residential lanes are narrow and unsuitable for the retail trade, the footpath shops have mostly been established along major roads and have occupied whatever little space was available in the commercial areas. This has created chaos which will need continued efforts to clear. This is, of course, because of lack of shopping facilities in the new residential extension. Therefore, all the pressure has fallen on the existing commercial area which has been subjected to invasion of footpath shops. The 1981 census has placed the proportion of marginal worker at 6 per cent.

The growth of commercial development is noted to be significantly slower than the Master Plan's projections. Only about 18.5 acres of land have developed for commercial use, during the past 13-14 years.

Three features about the commercial land use are to be specially noted:

Appreciable increase in mixed land use, in particular shops and commercial establishments with residences, pointing to the need for

recognising the inevitability of this phenomenon, and even planning for mixed land use, wherever justifiable. (The 1981 Census placed 14.21 per cent of the total houses as shops-cum-residences).

The Master Plan for Srinagar did not contain any specific proposal for the integration of this unorganised or informal sector, though this section is a major source of employment & income for a substantial proportion of the work force. The informal sector units could be defined as those working without a roof, including small 'khokas' on road sides. Informal Sector study of trade and commerce in the city reveals.

- i) The informal sector units have located themselves strategically
 - within major commercial areas:
 - near transport nodes i.e. bus terminus and interchange points.
- ii) As a single item, cloth shops constitutes the highest number followed stables and personal services.
- iii) Ward-wise comparison shows that there is a concentration of informal sector activities in ward 3 of the city, which besides serving the ward population also serves other parts of the city.
- vi) Wholesale trading continues to be concentrated in the congested wards of Lal Chowk, Maharajanganj, and Lal Mandi. No decentralisation of such activities has occurred despite several proposal made in this regard.

Considering the stage of development of the city and the economic level of the people for the next two decades, it can be assumed that the informal sector would continue to exist and provide employment to large numbers of unemployed people. This sector needs to be fully

incorporated in the revised master plan. This sector needs full consideration as it provides much needed employment to the unskilled and the semi-skilled labourers. The persons working the informal sector mostly belong to economically seaker sections and low income groups. Thus, it is of utmost importance that economic development of this sector is integrated in the physical planning process. The solution for this informal sector, lies in both prevention as well as shifting and re-allocation. Some of the roads and areas sould be marked as 'footpath-shop less' roads and areas.

Organised shopping areas needs to be developed in new residential extensions also, so as to reduce the pressure in Central Commercial Areas.

Employment

In terms of employment, the highets percentage of workers (52.02%) are bound to be employed in Circle - I of the city, which constitutes the Central Business District and has the maximum number of showrooms and hotels.

The patterns of employment in Srinagar City reveals, that about 46 per cent of the workers are employed in the category of shops. followed by Hotels and Dhabas (31%) and commercial establishments (21.17%).

Industry

Since 1975 Srinagar has been rapidly progressing towards industrialisation. Every possible attempt has been made for the

exploitation of resources and despite being a rich natural resource state, Jammu and Kashmir is still considered to be a backward industrial state. The main reason could be negligence of government and other institutions who are responsible for industrial development. Other reasons could be attributed to low level of urbanisation due to difficult physical conditions and lack of other employment opportunities in the region. However, after 1975 considerable development has taking place, as government agencies are giving adequate incentives and other infrastructural facilities to enterprenures for the rapid industrialisation of the state. Being a rich natural resource state most of the industries are based on these resources and attempts have been made to find new possibillities to exploit these to some extent. Hence at attempt is made to observe the existing conditions of industries to determine the constrains in this area. Apart from this, the study also focuses on new areas where new industries could be set up.

There is a lot of scope for the traditionally nased Kashmiri art and craft. The state is earning a lot of revenue from this trade, but there are still possibilities to develop these industries more rationally as such types of industries could be set up with limited money and space.

Table - 10
Growth of Industries 1978-79 to 1983-84

Year	No. of Industries Registered	% Growth
1978-79	2471	-
1979-80	2621	6.07
1980-81	2771	5.72
1981-82	2913	5.12
1982-83	3142	7.86
1983-84	3288	4.64

Source: Department of Industries, Srinagar

1. As per the occupational structure of the state, a major proportion of workers are engaged in the household industry; this is the most common form of industry in the state. As per the 1971 census, household industry claimed 142053 workers out of a total of 13793901 workers in the state forming a state average of 10.33%. Only two districts, Srinagar and Doda, have returned the corresponding proportion higher than the state average.

Srinagar and Jammu are the two industrially most developed districts of the state. Srinagar had 35% of the state's industrial units in the year 1971.

2. Among various household industries in Srinagar, the textile industry claims the maximum number of workers. The second important industry is agro-based and employees almost 14.5% of the state's employment in this sector. Other important industries in the district

are forest, live stock, mineral etc. Among these industries Srinagar stands almost first in terms of industrial units and employment generation in the state. Being a most important industrial centre of the state Srinagar has lot of potential for its future development. (refer map no. 6).

Potential

Out of a total of 300 industries, 80 industries are based on agriculture products. It is further observed that because rice, fruit and vegetable are the main products of the district, the number of industries based on these products is not high compared to the productivity in the district. Hence there is a lot of potential for the future development of these products and by-products. For better production of rice there could be more mechanical equipment and fertiliser producing industries, after that for the cleaning process and for bye products there are many possibilities setting up small and medium scale industries, like oil seeds, fruits and vegetable based industries. These could be established in the small and medium scale sector because these type of industries do not need too much money, space and skill. The fruit business is a very important one in the district as there are a lot of industries based on these products like preservation of fruit juice, jams, pickles etc. Owing to inadequate infrastructural facilities and encouragement from the government, these industries have not developed to the extent possible.

Because the district is irrigation-wise 8th in the state, if better irrigation is provided by canals and wells there is every possibility of more production on the basis of which new industries

could be established.

The Srinagar District has an area of 51000 hectares of which 25000 hectares of land is under agricultural use. This means that almost 50% of the area is under agriculture which compares exceedingly well with other districts.

Out of the total 24.92 thousand hectares of land, the net area shown is 18.16 thousand hectares which indicates that 72% of agricultural land is well irrigated. Since 90% of the irrigation in the district is done by canals, it is proposed that 1.5 thousand hectares of land under permanent pastures and other grazing land, 3000 hectares of land under cultivable waste land, 2000 hectares of land under current fellow land, which comes to total 6.5 thousand hectares of land could be utilised for agricultural use through a better canal system of irrigation. A maximum area of 27.21 thousand hectares is under rice, which is almost 50% of all food crops area. The remaining major crops are maize with an area of 5.16 thousand hectares of land, pulses 0.79 thousand hectare of land, other food crops 0.80 thousand hectare of land. The area under rice is 13.63 thousand hectares, are under fruit and vegetable is 6.35 thousand hectares and area under maize is 5.16 thousand hectares which could be easily increased, so that in future there are better propsects for production of rice and other good grains. Agricultural based industries would then have high potential in the future.

As per information available from the Industries Department for the year 1981-82, there were 40 industries dependent upon forest based products which seems to be very high. The number of saw mills

is increasing every year with increase in forest products. Among various types of soft wood like deodar, chir, kail and others. Chir and kail are the main products as far as the total volume of wood is concerned. In the year 1974,75,76,77 and 1978 the total estimates of timber (Deodar, Kail and Fis) cut are of 51.58, 115.12, 41.71 and 22470.48 cubic meters.

Being a rich natural resource district Srinagar has plenty of potential for forest based industries. It is a basic resource yielding substantial revenue and makes a handsome contribution to the SDP. In addition to ensuring good agriculture, it offers considerable potential for industrial development of the state as more than half of the timber is exported from the state and yields a good return. Firewood is also a very good source of income.

Because of domestic and commercial use it has a lot of demand all over the state. As per available information for the years 1974 and 78 the total turnout of firewood from the forest of Srinagar was 157.44, 146.80 and 59564.23 quintals respectively. If the Forest Department gives more attention to forestry, with proper protection from illegal falling, then there is every liklihood of better return.

Apart from this packing, wooden furniture, and other industries also depend on the products of the forest and if net forest area could be expanded in areas where agriculture and other activities are not possible a lot of scope for new kinds of industries could be possible.

The Master Plan has envisaged a major expansion in industry, apparently a bid to change the occupational composition of the city

which until 1971 was weighted overwhelmingly in favour of services and tertiary sector (57.4 per cent of the total workers). Apart from making provision for substantial expansion of land for industrial purposes, the Master Plan has also recommended the setting up of work centres for household industries in residential planning areas, presumably to increase the percentage of women workers in the total population which in the case of Srinagar is significantly lower (i.e. 0.81 per cent in 1971 and 2.31 per cent in 1981) in comparison with the national average of 3.05 per cent in 1971 and 3.41 in 1981 for all urban areas. It has also proposed the establishment of two industrial satellite townships at Zainkote and Pampore, to both spur new industrial growth and absorb non-conforming manufacturing and other uses planned to be shifted out from the inner areas of Srinagar City. It has also sought to ease the congestion in the city by proposing to remove the transport yards and bus terminal, and to relocate the storage and warehousing on the city's periphery.

Shifting of industries from Planning Zones C & D to E & G as proposed in the Master Plan for Srinagar has not taken place. Rather, there has been a further concentration of industrial units in planning Zone C from where, the existing units should have been shifted out, according to the Master Plan.

The Master Plan had proposed the creation of work centres for household industries, especially in planning zones, A, C & D constituting a total area of 45 acres. However, only about 7 acres have been utilized so far in planning zones C & D.

HOUSING

In 1981, there were 57546* occupied houses with an increase of 60% over the number of houses in the year 1971. The wardwise increase in absolute numbers of occupied houses has been in the wide range from 82 to 5112, and in terms of percentage from 3.41 to 509.89. In both these terms ward no.17, which is a peripheral area, has registered the maximum increase, followed by ward no.4. On the other hand not much appreciable increase, both in terms of percentage as well as absolute numbers of houses, has been witnessed during the decade.

Table - 11

Ward No.	Occupied houses		No of houses added during 1971-81	% of increase during 1971-81
	1971	1981		
1.	2040	2473	433	21.12
2.	1398	1849	451	32.26
3.	2777	4203	1429	51.45
4.	1356	4435	3079	227.06
5.	2566	5033	2467	96.14
6.	2641	3663	1022	38.69
7.	2404	2486	82	3.41
8.	2364	2741	377	15.94
9.	3769	4209	440	11.67
10.	3118	4168	1050	33.67
11.	2820	3313	493	17.48
12.	2994	3749	755	25.21
13.	2437	-	-	-
14.	2469	4362	1893	76.67
15.	892	1746	854	95.73
16.	1560	3104	1544	98.97
17.	897	6009	5112	569.09
18.	500	-	-	-
	36065	57546	21481	59.56

* The No of houses in ward No.13 and the boat population have been kept out of the above discussion because of the non-availability of comparable data for the year 1981.

A more probing look at the table gives an impression that there is a tendency for housing activity to locate itself in peripheral areas rather than the core area. These points have been discussed in details with the help of the results put in a cross sectional table no.12 of a sample survey, of the housing stock in all zones of the city, conducted by the Institute.

Table - 12

Cross Sectional Analysis - Housing Stock

Zone	No. of House-holds	Plot size			Built up area			Building use			Age of house		
		01	02	03	04	05	06	07	08	09	10	11	12
A.	415	70.12	11.07	18.80	17.83	58.31	23.86	21.20	2.89	75.91	26.27	69.40	4.33
B.	577	92.89	1.39	5.72	2.65	25.75	71.60	30.16	4.94	64.90	56.79	27.82	15.34
C.	913	68.40	20.40	11.50	2.71	13.00	84.29	20.69	3.58	75.73	9.53	64.36	26.11
D.	779	13.22	12.71	74.07	1.28	48.78	49.94	10.53	2.18	87.29	3.47	86.39	10.14
E.	284	78.87	14.79	6.34	17.25	58.10	24.65	21.83	-	78.17	10.56	55.63	33.80
F.	690	66.23	10.29	23.48	0.72	68.70	30.58	6.52	0.29	93.19	43.91	51.45	4.64
G.	605	90.58	8.93	0.50	23.31	29.75	46.94	18.81	1.49	79.67	17.19	53.06	29.75
Total	4263	65.31	11.80	22.89	7.48	40.04	52.48	17.66	2.37	79.97	23.06	59.75	17.19

01. Plot area less than 230 mtrs.

02. Plot area between 230 mtrs. to 460 mtrs.

03. Plot area over 460 mtrs.

04. Single storey

05. Double storey

06. Three & more storeys

07. SF - R FF - R GF - R

08. SF - R FF - C GF - C

09. SF - R FF - R GF - C

10. Below 10 yrs. old

11. Between 10.1 to 49.9 yrs old

12. More than 50 yrs. old

Table - 12

Cross Sectional Analysis - Housing Stock

Zone	No. of House-holds	Type of structure					Conditions of structure					Assessed valuation of land		
		13	14	15	16	17	18	19	20	21	19	20	21	
A.	415	67.47	21.45	11.08	18.31	69.64	12.05	83.61	16.39	-				
B.	577	68.78	17.64	13.58	33.33	27.87	38.80	39.15	56.08	4.77				
C.	913	35.32	2.28	62.41	33.91	63.27	2.28	71.19	8.65	0.33				
D.	779	27.09	12.59	60.33	35.04	52.63	13.35	67.00	0.90	30.81				
E.	284	75.00	18.86	6.34	24.30	18.31	57.39	93.66	6.34	-				
F.	690	63.19	7.83	28.98	37.83	54.35	7.83	67.10	32.76	0.14				
G.	605	61.98	9.59	28.43	32.23	55.04	12.73	81.32	18.68	-				
13.	Brick walls & RCC Roofs													
14.	Mud walls with mud roofs													
15.	Corrugated sheet roofs													
16.	Good													
17.	Fair													
18.	Bad													
19.	Upto Rs. 99,999													
20.	Rs.1 Lakhs to Rs.4,99,999													
21.	More than Rs.5 Lakhs													

The analysis of the different plot sizes reveals that 65 per cent plots are small i.e. less than 2500 sq.ft. and 23 per cent are big plots while in between plots are only 12 per cent. The old city are has mostly small plots and 68 per cent of the total plots in the 'C' zone are of small sizes. The highest number of small sized plots are in 'B' zone (92.8 per cent), followed by 'G' zone (90.5 per cent), 'E' zone (78.8 per cent) and 'A' zone (70.1 per cent).

In Srinagar city more than 52 per cent houses are more than three storeyed and around 40 per cent are of two storeys. A very few structures are of single storey. The B and C zones constitute the central part of the city and fall above the average number of the three and above storeys. C zone represents more than 84 per cent structure of three and above storeys followed by B zone with around 71 per cent. It is clear that the central part of the city is fully developed whereas the outer zones have small percentage of multi-storeyed structures and have further scope of development. Other than in the B and C zones the majority of the structures are of two storeys. The outskirts of the outer zones like A and G have pucca structures of single storey. But in B and C zones the single storey houses are kuchha in nature. The interior area of the city consisting of B and C zones reflect the level of poverty and economic backwardness.

Building Use

The built up area is again classified into three categories in terms of their functional use. The first category represents the three floors where the ground floor is under commercial uses and the

other two are meant for residential uses. The second category has ground and first floors for commercial purposes and the third for residential. The third category is purely meant for residential uses. The percentage of houses with commercial ground floor and other residential storeyed is about 18 per cent. There are very few structures which have first two commercial floors and the third residential. The B, E, A, C and G zones fall above the average in the first category and share 30.16, 21.83, 21.20, 20.89 and 18.84 per cent houses, respectively. It means more than 18 per cent houses have been constructed for commercial as well as for residential uses. In all the zones except B, the built up area of more than three-fourths of the houses is used for residential purposes. In C zone, the largest number of houses provided the ground floor for commercial use and the rest for residential purposes followed by B zone accounting for 25.37 and 22.71 per cent, respectively. In the third category, C zone enjoys the highest percentage followed by D and F zones.

Age of Structure

Among these zones D stands first sharing 86.39 per cent houses of second category followed by A and C zones accounting more than 79, and 64 per cent houses, respectively. The B and F zone have higher percentage of houses which are equal or less than 10 years old. The analysis of age reflects that the interior area of the city has developed first and outskirts at a later stage. But certainly, the kuccha structures have been replaced by brick structure and it has explained the presence of new houses with 10 years of age in the inner circle of the city. The B zone which represent the institutional and hospital are has been developed very recently. Therefore, the major

proportion of houses are less than 10 years old. If we look into the date of construction in the sub-zones, sharp variations are also clearly visible.

Type of Structure

There are various types of structures which have come up in Srinagar in the very recent past. But broadly it has been classified into three groups with respect to raw materials used. Type one houses are made of brick walls and reinforced cement concrete roofs. Type one houses represent a fair amount of investment and reflect the middle and upper class ownership. Majority of the houses come under this class representing more than 52 per cent. This type of construction is not very prevalent in C and D zones. This has come under the third category where more than 60 per cent houses are of poor condition. This has come under the third category where more than 60 per cent houses are of poor condition. This is mainly because in the two zones in the central part of the city not only income level but the traditional attitude of the people also play an important role in replacing old, mud/wooden houses by new structures. Such people do not want to change the form of the structure.

Secondly most of the people have built houses in the outskirts of the city and they are keeping the house just to maintain the business and its identity. The smallest percentage of houses are of mud walls and mud roofs. The higher percentage of these houses are available in A, B and E zones. The majority of houses are in slums where poor people stay and do not have the economic means to construct fair houses to enjoy a better life.

Condition of Structure

A study of the structural conditions of the houses in which people live reveals that about 52 per cent houses are in fair condition. The B and E zones account for a lower percentage of houses in this category whereas A and C zones share a high proportion of houses. More than 32 per cent houses are in good condition and the lowest percentage of houses are noted in A zone. Here 16 per cent of the houses are in bad condition and this proportion varies from zone to zone. The E zone has highest percentage of houses which are in bad condition and is followed by B zone. The poor condition of houses reflect the poor condition of the population and their business and status of job.

Land Values

The outskirts of the city like A, E and G zones where the area is fully developed and enjoys all the facility of modern life, represents the localities with higher values of land. In Srinagar 69.48 per cent plots have land value less than one lakh. The E zone represents the highest percentage whereas B zone represents the lowest. In B zone more than 92 per cent houses are constructed on small size plots. Even then it enjoys the highest percentage of assessed valuation of land ranging between Rs. 1,00,000 to 4,99,999. This part of the city by and large is known as the university and hospital area. The environment of the institutional area and the advantage of available hospitals has pushed up the value of land. The D zone has 74.04 per cent plot of the size 5000 sq. ft. and above and accounts for 30.81 per cent houses valued at Rs.5 lakhs and above.

In Srinagar city, more than 65 per cent of the structures are of the value less than Rs. one lakh. The B and E zones constitute small percentage of structures whose value is less than one lakh but it shares higher percentage of structures ranging from Rs. one lakh to less than Rs. 5 lakhs.

Availability of Civic Amenities

Data has been collected to ascertain the extension of civic amenities in A, C, D, and G zones of Srinagar city.

Considering the services as a whole, zone I is best served and has all the facilities. However zone 'G' has water, electricity and drainage to about 87% of the household while zone 'D' 63.02%. Other zones can be taken up facility-wise for study and then provisions made for availability of these facilities, in these zone also.

Table - 13

Extension of Facilities % to Total Sample

Sl. No.	Zone	Water	Drainage	Electricity	Others	No. of HHS
1.	A	100.00	98.24	98.24	95.00	415
2.	C	96.88	88.77	98.19	29.94	913
3.	D	95.73	85.34	94.31	23.86	779
4.	G	93.54	88.59	100.00	0.99	605

It is a matter of satisfaction that electricity is available to most of the zones providing small scale industries a good impetus and gives protection to the hotel industry so that tourists can enjoy hot

meals and airconditioned rooms.

The extension of other equally important, services, namely sewerage, roads, parks and playgrounds, medical facilities, education centres and community centres, post and telegraph etc. and scavenging etc. is very low in C, D and G zones and is almost nil in 'G' zone.

Table - 14

Sl. No.	Zone	Amenities	Households	%
1.	A	1,2,3 & 4	272	95.10
2.	C	-do-	284	31.10
3.	D	-do-	161	20.66
4.	G	All the facilities not available		

Note : 1. Water 2. Drainage 3. Electricity 4. others.

Zone 'A' being the recreational area situated on the North-eastern side of the city beyond the river Jhelum, has fewer number of households because of the Dal lake which encompasses about 2/3 area of land and provides for tourists' resorts.

However, certain amenities are not available to a few number of households.

Table - 15

Non-availability of Amenities in Zone 'A'

Zone	Code No. of Amenities not available	No. of such Households	% to total Sample
A	2	2	0.70
	4	9	3.14

This shows that a very few people do not have the facilities of proper drainage system. Only 3.14% do not enjoy other facilities like sewerage and metalled road network.

Table - 16

Distribution of Amenities of Zone 'A'

Water %	Drainage %	Electricity %
100	98.24	98.24

'C' zone is situated in the heart of the city and is spread along the bank of river Jhelum. It has maximum number of households i.e. 913. On its West is river Jhelum and in the East are the back waters of the Dal lake.

However, the percentage of availability of all services to the people is restricted only to 31.10% or 284 household out of 913. The amenities-wide division of households will show its non-availability.

Table - 17

Distribution of Amenities in Zone 'C'

Water %	Drainage %	Electricity %	Others
96.88	88.77	98.19	39.94

Table - 18

Non-availability of Amenities in Zone 'C'

Code of Amenities not available	No. of households	% to total sample
1.	18	1.94
2.	92	10.05
3.	5	0.52
4.	538	58.88

A large number of people are not getting other facilities while about 10% people complaint of bad drainage system and bad roads in the locality.

Zone 'D' comprises of 779 households and provides all facilities to only 20.66% or 161 households of the total.

Table - 19

Distribution of Amenities in Zone 'D'

Water	Drainage	Electricity	Other services
95.73	85.34	94.31	23.86

Table - 20

Non-Availability of Amenities in Zone 'D'

Code of amenities not available	No. of households	% to total sample
1	1	0.12
2.	83	10.83
3.	13	1.67
4.	562	72.11

While the level of provision of water, drainage and electricity seems to be adequate, other services like roads, sewerage and sanitation etc. are available only to 23.86% which is very low. However, without a proper drainage system (which is inadequate by about 15%) the roads etc. also cannot be improved.

The 'G' zone is situated in the South of the city to the eastern side and is split by the Jhelum. There are only two big sub-zones on the western side of the river. The area is not thickly populated and has only 605 households within its small area.

Table - 21

Non-availability of Amenities in Zone 'G'

Code of Amenities not available	No. of households	% to total sample
1.	33	5.45
2.	63	10.40
3.	-	-
4.	593	98.00

It is indeed surprising that water is not available to about 6.50% of the households i.e. 33 households. The drainage system is also not available to about 11% of the households which poses a problem to the inhabitants.

Table - 22

Distribution of Amenities in Zone 'G'

Water	Drainage	Electricity	Other Services
93.54	88.59	100	0.39

Shortage of habitable Room space

The room space available per person is inadequate for proper hygienic living. The average occupancy of a residential house varies from 6 to 8 persons. In terms of surface area used per person, it is slightly less than 3 m^2 per head on an average, whereas a decent living norm would be around 15 m^2 per person. This problem is further aggravated by rapid increase in population which has outstripped the corresponding number of houses available. In the city, living on the water is a common practice and quite a number of house boats are used as permanent residences on the Jhelum and Dal lake.

The problem of housing is very complex in the whole city. It is not only the provision of four walls but also the quality of services attached to these houses.

Housing Requirement for Srinagar City

Housing gap is the difference between the total requirement and supply of houses which indicate how many additional houses would be required to provide each family with a separate house. The dwelling must conform to health needs and be of socially accepted standards. The housing gap can be measured in qualitative and quantitative terms. In this exercise only the quantitative aspect has been attempted in the absence of more detailed data required to analyse the qualitative aspect. Srinagar city is not unlike the other cities of India, regarding the housing shortage. During 1971 and 1981 the housing shortage has been noted as 17188 and 22859 developing units

respectively. This gap has been increasing over the period. If this trend of growth rate of housing construction and household expansion remains at what has been observed during the seventies, the number of households and houses would be of the order of 242980 and 209798 respectively by 2001 A.D. Thus the housing shortage will mount to the order of 33182. The requirement of additional 178117 developing units over the existing stock of 1981 can be met if the Srinagar city adds 8906 new houses per year. During 1961, on an average there are 2.14 persons per room and average space per room is 100 sq.ft. With the given standard, Srinagar city needs 4.35 crores sq. ft. additional floor area for residential purposes by 2001 A.D. The Master Plan has proposed 50 persons per acres and with this rate, Srinagar City needs 18584 acres additional land for residential purpose in 2001 A.D. over the existing residential area 1981.

WATER SUPPLY

Srinagar city has the unique situation of virtually being surrounded by water on three sides and rich agricultural land and orchards on the fourth.

The city is 2120 meters above MSL. The soil in Kashmir is classified as Gurtu (clayey) Behil (ill drained) Dasan land (Saline) and Surzamin (silty soil). The local area is mostly situated on Bahil Dasan land and Surzamine. The soil is not sandy. It is mostly clayey, capable of retaining a high content of moisture. With a minor drizzle, therefore, roads drain and the land get submerged. Water stagnation becomes an environmental hazard. For this purpose efficient drainage essential. Seismic zones lie towards the southwest of Badgam and its adjacent area.

The old city comprises huddled brick to brick and roof to roof houses in most parts along both the banks of river Jhelum. It is a city of mostly 2 to 3 meters wide lanes. Many lanes are even 1 to 1.5 meters wide. (Two persons cannot move abreast.) The land gradually slopes from South-East to North-West. The river Jhelum flows through the middle of the city from South to North-West. The land slopes are gentle, 1620 meters on eastern hills to 1580 meters in the vicinity of the river Jhelum. Besides Dal, Nagin and Anchal lakes there are two hillocks known as Shankaracharya and Hari Parbat.

The Kashmir Valley was formed by folding and faulting during the up-thrusting of the Himalayan Mountains. River Jhelum passes through the Pir Panjal Ranga at Baramula Gap. This is mainly Basaltic lava flows of the Pir Panjal Volcanoes and also sporadic sediments of

agglomeratic slates, Gondwara beds and Zewan formations of Permo Carnoneferrous period. The Dal lake is situated on alluvium cover of the Karewa Group.

In the not very distant past, all the water bodies and the river Jhelum were inter-connected by clean and transparent streams. Streams and springs no longer remain the cherished sources of water supply to the city. Even in the upland areas these have started to become polluted. The poor distribution system, consisting of very old and ver small diameter pipes running along and across surface drains, pollutes the fittered and protected supply.

Ground Water

Ground water is available everywhere at shallow depths, though the quality of water is doubtful. Water can be utilised for drinking purposes after adequate treatment. Deep tubewells have not been tried, for they apparently, were not needed. Wherever semi-deep tube wells have been tried and discharges has been fair. No serious attempt has however been made to expolit this source. Since the water table is high, surface pollution becomes a potential danger. It is, however, dangerous concept that under ground water can only be utilised if it does not need treatment. Ground water can be treated as well as surface water.

Population

Population estimation is highly empirical. Experience has shown what is projected does not obtain in future and actuals are much more than projected. Population projection used or suggested so far can beseen as the following:

Table - 23
Population Profile

Year	Actuals	Decadal growth %	Projected in ENEX	As Projected in CESF Report	Projection in Master Plan 1971	Population reported as actual or projected PHED writeups
1891	118960					
1901	N.A.					
1911	126000					
1921	142000	12.7				
1931	174000	22.5				
1941	208000	19.5				
1951	247000	18.8				
1961	285000	15.4	Increase probably due to extension of MPI limit	433000	450000	
1971	403000	41.4				
1975	-	-	-	-	-	610000 (actual)
1981	-	-	542000 @ 34.5% decadal growth	60800	542000	782000 (projected)
1983	-	-	-	-	-	814000 (projected)
1991	-	-	-	821000	660000	1063000 (projected)
2001	-	-	-	110000	Net projected	1435000 (projected)

In spite of the demographic studies by various methods the actuals have shot up (Refer Srinagar MP 1970). Without going into the mechanics of these figures, and until otherwise propounded, for the purpose of this report we adopt that which has been adopted by the State PHED and included in the country's Water Supply and Sewerage Decade Programme 1981-1991.

1981	-	7,82,000
1991	-	10,63,000
2001	-	14,35,000

This is what is relevant to us. Even to provide adequate services of water supply, drainage and sewerage to this population is a stupendous task.

Responsible State Authorities

There are two departments, Public Health Engineering Department responsible for water supplies and the other Urban Environmental Engineering Department for Sewerage Drainage.

There is no separate cadre for either service. Staff is drawn from PWD or even Irrigation, deptt. and resultantly there is a serious drawback, for the lack of trained personnel to appreciate environmental problems and need. There are only a handful of Engineers trained in Public Health.

A point of observation is that the Public Health Authorities play little part in the monitoring of the water supplies. They do not have any laboratory in the Department. The same is the situation in Urban Environmental Engineering Department.

Present Situation of Water Supply

Kashmir Valley is considered as a land gifted with abundant surface water resources in the form of springs, glaciers, snowfed nallahs, rivers and lakes etc. To a layman provision of water supply, to any place in the Valley should not have normally posed any serious difficulty. It is reasonably correct to presume that in earliest times Nallah Mar and the river Jhelum passing through the city formed the main sources of water besides other water bodies such as Dal, Ashhar and Nagin lakes. That is why the city grew on the two banks of

the river. Now the situation has changed.

Dachigam is an upland perennial stream, north-east of Srinagar flowing into the Dal lake. On this Nallah, the first impounding reservoir was built at Harwan in 1887. Water was taken to Nishat along the hill slopes in a masonry conduit. This settled water supply was made to the then old city, covering an area of 6 sq. miles and a population of 1,18,960 in 1891. Then onwards the whole system has grown in different parts added at different times, sometimes pipelines and at other times filters and clarifiers.

The provision of drinking water supply system for any community has to take place according to the felt needs. The city of Srinagar witnessed considerable urbanisation on its outer limits during the 20th century. Size of the city increased from 15 sq. kms. to 107 sq. kms. i.e. seven times over. The expansion has taken place haphazardly and in the most unplanned manner. Half-hearted implementation of the first Master Plan (1970) has not improved the situation.

The Natural population growth coupled with urbanisation of peri-urba areas, coming up of commercial concerns, increase in tourist inflow, growing health consciousness, huge building activity and coming up of hotels and guest houses had a colossal pressure on the water supply systems. While realising the need one has to keep in mind that in winter the snow fed streams decrease in discharge. Hydroelectric systems work on half load for want of flow in the streams so that while gravity flow decreases, pumping of water suffers shortage of power.

There is another problem, that of resources, water supply services do not generate any significant revenue.

Tube-wells were tried between 1959-64 but they encountered water with marshy grasses giving rise to bad taste and odour.

Supply Position in 1975-76

	<u>Capacity</u>
(i) <u>Nishat System</u>	
a. Ist Treatment Plant.	2.20 MGD
b. 2nd Treatment Plan (without clariflocculator) so mostly fair weather plant.	4.80 MGD
(ii) <u>Alusteng system (from Sindh Extension Canal)</u>	
a. Treatment Pla at Alusteng.	4.80 MGD
(iii) <u>Doodganga River System</u>	
a. Treatment Plant at Doodganga	2.25 MGD

Total	: 14.05

Commulative supply of 14.05 MGD. was made available to the city population of 6.10 lakh souls in the year 75-76 which on an average meant a per capita supply of 23 gallons/day. But due to a wornout/defective/inadequate distribution system some areas received even less than 10 gallons/capita/day. A gap of 13.20 MGD. (on the basis of 45 of gpcd.) existed between the demand and the actual supplies, which continued to widen further due to sharp rise in population.

Proposal Performance

It was in the year 1975-76 that the problem was seriously considered in respect of developig new sources and improving and

updating the existing system. Accordingly, a major scheme of "IMPROVEMENT AND AUGMENTATION OF WATER SUPPLY SRINAGAR MASTER PLAN PHASE - 1" was initiated at a cost of Rs.20.33 crores (now being revised to Rs.27.64 crores) firstly to improve and stabilise the existing arrangements and secondly to augment the supplies by tapping other dependable sources. (Refer Map No. 6)

The details of the project of "IMPROVEMENT AND AUGMENTATION OF WATER SUPPLY SRINAGAR MASTER PLAN PHASE - 1" which was seriously launched in the year 1975 are as under :

Estimates cost :

Stabilisation work	-	Rs. 543.53 lacs
Augmentation works	-	Rs.1,489.47 lacs
Total	:	<u>Rs.2,033.00 lacs</u>

Stabilisation Work

Under this part of the scheme, the following major components were provided :

a) Nishat System :

- i) Providing of 4.8 MGD. capacity Flocculator for the old 4.8 MGD plant at Nishat.
- ii) Providing of additional (no. 1) 4.00 MGD. Plant at Nishat (complete with clarifiers).
- iii) Providing of additional (no. 2) 4.00 MGD Plant at Nishat (complete with clarifiers).

- iv) Replacement of old worn-out brick conduit from Harwan to Nishat by 36" C.C. pipe Conduit.
 - v) Replacement of Shorabl Khul by C.I. pipe line.
 - vi) Constructing of 4.3 MG Service Reservoir at Nishat.
 - vii) Barge mounted Dal Bund lift station to augment supplies during winter.
- b) Doodganga System :
- i) Construction of additional 1.5 MGD capacity Treatment Plant at Doodganga.
 - ii) Additional pumping unit at Intake works.
- c) Alusteng System :
- i) Construction of additional 2.00 MGD capacity Treatment Plant at Alusteng.
- d) Augmentation Works :
- i) Construction of additional 20.00 MGD capacity Treatment Plant at Rangil on Sindh Extension canal.
 - ii) Construction of 10 MG capacity Service Reservoir at Rangil.
 - iii) Provision of main distribution network for the entire city.
 - iv) Construction of Zonal Reservoirs.
 - v) Construction of Contingency Plants to take care of breakdowns in supply of water from Ganderbal Power

Channel.

This project was to be completed by December, 1983 but owing to several problems, the project is now expected to be completed by December 1986. When this project is completed following would be the Water Supply position :-

a) From Nishat (including Dal lake and Dachigam stream)	=	12.00 mgd.
b) From Sindh Extension Canal		
i) Aulsteng	=	6.8 mgd.
ii) Rangil	=	20.00 mgd.
c) Doodganga	=	3.75 mgd.

Total	=	42.55 mgd.

Situation in the Year 1984 :

Position of water supply as it obtains in 1984 is as follows :

a) From Nishat	=	11.00 mgd.
b) From Alusteng	=	4.80 mgd.
c) From Doodganga	=	3.75 mgd.

	=	19.55 mgd.

This means a supply of 23.15 gpcd. for a population of 845000 (estimated) in 1984.

While the works are still under construction, 24 tubewells were drilled in difficult zones during scarcity. Of these 19 were commissioned with a yield of 5.28 mgd. Methane gas and Iron were noticed in many. Iron removal plants have been put on five. Small

zonal pressed steel tanks are provided adjacent to these Tube-well where Iron removal plants are installed. Out of these 19 tube-wells, eleven have yield more than 10,000 gallons/hr. Five others have been drilled but not harnessed for some unknown reason.

Tanker service is made to 25 specified areas. Out of these, in 13 areas 1000 litres m.S. Tanks are provided on the ground and kept always full.

In spite of all this, and looking at inherent delays in Rangil Plant, consequent to land acquisition of critical properties, further interim arrangement of lifting of 4 mgd. of water from Nagin lake is one the anvil. This will help primarily Benina Colony, where the demand is immediate. Incidentally on the way it will service critically low pressure zones namely Chatabal Qamarwari Karannagar, Nawabazar, Tankipora, Zaindar Mohalla, Shaheed Ganj and Batamalu, Magarmal bagh areas.

Master Plan proposals for 1991 :

For the year 1991 the Master Plan projects a population (for purposes of determining future water demand] of 7.5 lakhs including residents, commuters and tourists. For this population total quantity of water required has been worked out @ 30 gpcd. as 22,500,00 gd.

Since the supply position in 1971 was 13.8 mgd., the Master Plan calculated an additional demand of 9 mgd. by 1991. This proposed to "be met either by pumping the waters of the Sindh or River Jhelum whichever one is economical". The Master Plan went on to say that "Out of the said two alternatives of water supply, if the Sindh

waters are tapped the treatment plant can be located closer to the northern hills at an elevated place to have a desirable head of water for catering the needs of population in Srinagar District. In the Master Plan proposal, however, the pumping of river water at Paralbagh (Pampore Karewa) with its treatment plant on the area has been identified as a suitable alternative and the water supply systems of Greater Srinagar has been linked with this proposal.

Water Supply in the Year 2001 :

When all the augmentation schemes presently planned for the future are complete, the total quantity of water available in Srinagar is expected to be 42.55 mgd.

For the population in 1991 assumed to be 10,63,000 this works out to approximately 40 gpcd. According to the PHED department, @ 45 gpcd this would suffice for a population of 9,45,000 expected by the year 1986.

For the population in 2001 assumed to be 14,35,000 this works out to approximately 30 gpcd. as is done in most cities in India. Therefore, the expected 42.55 mgd. supply position will be just about sufficient for the year 2001 though at a lower per capita supply of 30 gpcd. and not at 45 gpcd. as the department would desire. The supply of civic services is always a continuous battle and no sooner is a new scheme or augmentation scheme completed than plans have to be drawn up for further increase in infrastructural capacity. This point is always to be kept in mind.

DRAINAGE AND SEWERAGE

Existing Conditions

The existing conditions of drainage, sewerage and solid waste disposal are poor in Srinagar. The river Jhelum has become the main sewage and sullage carrying duct for the city. In addition there is no separate storm water drainage system. Mixed sullage and storm water flows are carried through a system of surface drains and buried conduits and are discharged untreated into natural water bodies (such as the Helum and Dal Llake) or into marshes and seamy lands. There surface drains are also inadequate in size and gradient and cause overflow and water logging in the rainy seasons.

Waste water and storm-water from the area on the left bank of the Jhelum bounded by the Flood Spill Channel to the south, by the Jhelum on the north and east and the Dood Ganga Nalah on the west, are pumped into the Jhelum, Flood Spill Channel and Dood Ganga Nallah causing heavy pollution of the Jhelum.

Areas on the right bank of the Jhelum drain either into the Jhelum or into the Dal Llake. New communities on the slopes east of the Dal have steep gradient drains discharging directly into the lake.

The oldest combined sewer (Green's sewer) is 4.83 km. long and is 50 years old. It carries the combined storm water and sullage flow from Hazuri Bagh, Karan Nagar, Bal Garden etc. Since most of these areas are lower than the flood level of the Jhelum, pumping is necessary for transmission across the Tsunti Khul. This sewer is presently severely choked and operates at a greatly reduced capacity.

Problems associated with Cold Weater :

The Winter is accompanied by occassional snowfall in Srinagar. Within the city on the Eastern hill sides, a greater amoun of snow is deposited at higher altitudes. A cycle of heavy snowing over a few consecutive days followed by a spell of warm sunshine may result in ahigh run-off in the lower catchment of Dal and other eastern basins. This run-off, as an extreme case, may exceed the run-off due to an equal amount of rain fall over the catchment area.

Problems associated with Topography

River Jhelum is the ultimate recipient of al run off from the city area. This natura drainage channel also carries the run-off from the upper catchment areas. A heavy rainfall in the upper catchment of the valley reslts in flash flood in the River Jhelum. One problem is the diversion of flood flows and the other is the impact of flood protection embankment on the topography and drainage. Flood flows are diverted through the hgh level food spill channel into Rakh Gandak Shah Marsh which stores the flood flows. After the flood water recedes in the Jhelum, the water stored in the marsh flows back into the river. Clearly, the high water surface elevation inthe flood channel requires the provision of embankment of its two sides.

The elevation of the ground surface adjoining the River Jhelum is lower than that of high flood level in River Jhelum. Embankments have, therefore, been constructed to protect the adjoining area from flooding. Areas with low ground elevation have no natura drainage outfall. The flood spill channel also constitutes an East-West

barrier obstructing natural drainage of storm run-off from the southern part of the city. In the old city area the existence of canals, local depressions and flood protection embankments has resulted in drainage basins with extremely poor natural drainage outlets.

Drainage

With regard to the Master Plan proposal, Srinagar city was divided into 3 zones. A Master Plan for Drainage of two zones was prepared in 1968. Zone 1 was divided into 17 sectors and the cost on account of work associated with drainage was estimated as Rs. 1.75 crores which included construction of main lines, cross system and the remodelling of the Green's sewer. Also included were land compensation, surveys and construction of hutments. (Refer map no. 8).

Zone 1 Sector

Drainage Area

1. Balgarden, Karan Nagar and Hospital area.
2. Tanki Kadal to Habakadal and Kanikada.
3. Tank-Kadal along left bank Kuta-Khul and between Shaheed Ganj.
4. Habakadal, Kanikadal to Fatehkadal to Krishna Mill.
5. Fatehkadal, Watalkadal and Nawab-bazar bridge.
6. Alikadal, Watalkadal and Nawab-bazar bridge.
7. Syed Mansure Bridge to Chattaba bridge between Sonar Khul, Watal Khul and river Jhelum.
8. Area between Hospital, Chattabal Kadal main road, Lato Kadal and Doodganga.
9. Area between Doodganga, Chattabal, Octroi Post and main road.
10. Area between Rambagh bridge, right side Doodganga and

Doodganga bridge at Batmaloo, Exhibition bridge and Rambagh road.

11. Area between Hazuribagh, Tanki Kadal and along Rrambagh road.
12. Batmaloo area.
13. Barzalla area.
14. Rambagh area.
15. Jawaharnagar area.
16. Wazirbagh area.
17. Haftchinar, Solina and Stadium area parallel to Goggibagh and Wazirbagh.

Zone 2 was divided into 6 sectors enveloping civil lines areas from Gagribal, Taley Manzil, Batwara, Panthachowk to Gawkadal along river Jhelum. Cost of drainage work was estimated at Rs. 0.9 crores. Zone 3, included in 1970, covered the areas bound on the north by Srinagar Naseem Bagh road and in the west and south by the river Jhelum. The drainage and sewerage of this zone was to be connected with a storm water drain and trunk sewer respectively to be constructed along Nallah Mar. This scheme was to cost Rs. 1.25 crores for the construction of sewers, filling of the Nallah and construction of approach roads.

The basic proposals in the first two zones were to dig deep surface drains, collect water from individual water sheds and pump it to a nallah or the river. It was envisaged that these drains would be changed to a combined system of drainage and sewerage with outfall into the Jhelum without any treatment which would endanger the river with further pollution.

The Master Plan admitted that because of the constraints of

topography and high demolition costs of heavily built up areas, there was no escape from the water shed pumping system until the proposed trunk sewers were constructed and all the water sheds brought under a combined drainage system.

In Zone 3 no. problems of pollution of river water was envisaged as its sewage was to be connected to the proposed sewage treatment plant on the downstream side beyond Waniyar near Palapora.

The total cost for drainage schemes for all three zones was estimated to be Rs.5 crores. It was recommended that the complete drainage programme of the Drainage Division, Srinagar and construction of main drains in such extended areas which may be opened up for development within the framework of the Master Plan be completed in the remaining three years of the Fourth Five Year Plan period.

In subsequent plan periods, emphasis was to be given for construction of main drains, trunk sewers and treatment plants in such areas as may be opened up for development from time to time. It was suggested that the branch system of drainage be financed by self-generating schemes failing which, such drainage schemes of individual areas were to be included in the Annual Plan.

Five treatment plant sites of 20 acres each have been proposed in Zone D-27, E-4, E-9, F-8 and F-20. It was also proposed to connect the treatment plant at Batamaline with the main drainage network.

To solve the houseboat drainage problem, the Master Plan proposed mobile refuse collecting boats which would suck refuse from houseboats and carry it to safe discharging points thus not polluting the lake.

In any alternate proposal sullage was proposed to be removed by a houseboat layout arrangement which facilitated the laying of pipes alongside. Sullage was to be led to a collected point and pumped into the main drainage system of the city.

The garbage problem was proposed to be solved by sanitary land filling of selected ditches and depressions on the outskirts of the city.

The Master Plan expected problems in the expansion of the city westwards since most of this area is in the flood absorption zone of the Jhelum. It was proposed to obviate this difficulty by the creation of three artificial lakes in zones D-7, D-8, and D-9 with surface areas of 11, 22 and 12 acres, respectively. Water collected in these lakes from the surrounding area was proposed to be drained by connecting them with covered or open drains proposed to run parallel to the right bank Flood Supplementary Channel upto Primpora, further to be either connected to the treatment plant or pumped into the Parimpora nallah as would be found economical.

The Master Plan also states that the provision of infrastructure like roads, water supply, drainage and massive development of central lake in Zone C-11 around Brari Numbal warranted the construction of a Lock Gate at Nowpore. This was proposed to control the water level of the Central Lake, maintain it clean and avoid flood hazards.

A scheme for Drainage prepared by Consultancy Company for Rs.118 crores stands approved by Government. During the first three years only 3.75 crores have been allocated. Rs. 2.25 crores have been

provided in 1984-85. Thus against Rs. 8 crores in 6th Plan only 6 crores have been provided. This way it will take ages before the project can see the light of day. Alternative scheme is necessary. The Nalla Mar was closed without laying the sewer below the road, already made now. This did the damage. Nallah Mar would have taken care of old city drainage as a natural drain as the city slopes to Nalla Mar.

Park, playgrounds and other open spaces act as the lungs of a city. Many of these are being encroached upon by construction. This is detrimental to the environment of the city. Most of the central and old parts of the city, (except new outgrowths) are extremely congested which puts pressure on existing water supply and drainage services. In the old town the lanes are very narrow bordered by tall three storeyed buildings. Surface drains are proposed with ultimate pumping into the Jhelum. Some pumping stations are working while others are proposed.

Poor flush latrines have been taken up experimentally in the old city where soil is more favourable for absorption.

Owing to the pressure on land west of the River many colonies have come up there which are thoroughly insanitary. During flooding such colonies as Rajbagh see water levels touching the first floor of buildings. The water table remains almost above ground level most of the year. Sewage treatment plant sites have been chosen at two places and land has been acquired. Three alternative plants are under consideration.

Sewerage

Srinagar city lacks modern sewerage facilities. The combined system of sewerage presently in operation in isolated places is also quite inadequate.

At present most houses in the old city have service privies. The excreta are either removed by buckets or directly flushed into open drains. Civil lines and the newly developed areas are mostly provided with septic tanks. The same system is also used for public latrines in the city area. Unfortunately, the prevailing high water table prevents satisfactory disposal of the septic tank effluent through soak pits.

The surface drains, which carry all wastewater and storm water, tend to get clogged in the summer season when the combined flow is insufficient. During the rainy season on the other hand, overflow occurs with attendant health hazards. Indiscriminate dumping of garbage into the surface drains is also a frequent reason for choking of the drains. Although Srinagar is not an industrial area, there are some industries located within the metropolitan area. The main industries are textiles, watch making and tanning. There are also a large number of small scale and household industry units.

At present, most industrial wastewater is discharged untreated, through the surface drains into water bodies. Large scale hotels and commercial establishments also lack effluent treatment facilities.

Although a convention centre with treatment facilities has come up, it is badly located projecting inside the lake.

Electric Power

The staging of development of Electric Power from 1971-1991 as envisaged in the existing master plan is 15,500 K.W. as per the break-up given below:

Total additional requirement				
<u>1971-91</u>	<u>1971-74</u>	<u>1974-79</u>	<u>1979-84</u>	<u>1984-91</u>
15,000 K.W.	2,500 K.W.	4,000 K.W.	400 K.W.	5,000 K.W.

From a negligible base of 3 to 4 megawatts in 1950-51, the installed capacity has risen to 210 megawatts in 1982. Excluding a few diesel sets and the Kalakot Thermal unit the entire power is produced by hydro power projects. The most important projects are the lower Jhelum with 105 megawatts, Chenani with 25 megawatts, upper Sind with 22.50 megawatts and Kalakot (thermal) with 22.50 megawatts. The power production in the state would get a boost when the central project of Salal is completed. Work is going on at some other projects also. The important future projects are the Dalhasti projects, Vri project and the Stakna Project.

Existing level of Power Generation

a) Within the State

The total installed capacity of power in the state of Jammu and Kashmir upto the year 1982 was 210.33 Megawatts. The year wise increase in the installed capacity is indicated in Table 24 and the district wise distribution of installed capacity is given in Table 25.

Table - 24

Total Installed Capacity - Year wise

<u>Year</u>	<u>Installed Capacity</u>
1955-56	11.48
1960-61	12.33
1965-66	27.58
1968-69	40.36
1973-74	82.87
1977-78	139.56
1979-80	174.56
1980-81	208.56
1981-82	210.33

Source : Chief Engineer, Electricity, Jammu and Kashmir.

Table - 25

District-wise Distribution of Installed Capacity of Power

<u>District</u>	<u>Power House</u>	<u>Installed Capacity</u>
1. Srinagar	a) Ganderbal (Hydro)	15.00
	b) Upper Sind Project (Hydro)	22.60
	c) Bemina (Diesel)	5.00
2. Baramulla	a) Mohra (Hydro)	9.00
	b) Lower Jhelum	105.00
3. Ladakh	a) Leh (Diesel)	1.61
	b) Kargil (Diesel)	0.48
4. Jammu	a) Canal Power House (Hydro)	1.00
5. Udhampur	a) Udhampur (Hydro)	0.86
	b) Chenani (Hydro)	25.60
6. Doda	a) Badherewah (Hydro)	0.56
7. Rajouri	a) Rajauri (Hydro)	0.56
	b) Kalakot (Thermal)	22.50
8. Roonch	a) Poonch (Hydro)	0.56
Total		210.33

Source : Chief Engineer, Electricity Jammu and Kashmir.

b) Outside the State

In the year 1982 the state of Jammu and Kashmir purchased 2918.3 K.W. of power from neighbouring states. Table 26 gives the total power generated, purchased, sold and the revenue realised from the year 1973-74. Upto 1981-82. The total quantum of electricity made available in the year 1982 was 10793.3 K.W. which brought in a revenue of Rs.1564.56 lakhs.

Table - 26

Sl No.	Year	Power				Revenue Realised (Rs.in lakhs)
		Generated	Purchased	Total available	Sold	
1.	1973-74	2355.91	650.00	3005.91	2160.00	305.00
2.	1974-75	3028.30	403.50	3431.80	2008.20	487.24
3.	1977-78	3412.40	2214.70	5627.10	2868.90	715.74
4.	1979-80	6917.9	3159.50	10077.40	3976.10	988.04
5.	1980-81	7737.7	2883.4	10621.1	4199.0	1249.18
6.	1981-82	7875.0	2918.3	10793.3	3229.8	1564.57
7.	1982-83	9338.99	2999.34	12338.33	-	-

Source : 1. Chief Engineer Electric Maintenance and R.E. Department Kashmir/Jammu.

2. Dy. Director Planning and Statistics Leh/Kargil.

Power Generation Potential

a) Identified Potential

The State has great power potential estimated at about 9629. M.W. In addition to Commissioned Power Plants, several projects with a total potential of about 66 M.W. are under Construction and a number are under investigation. The various stages of the project are as follows :

<u>Sl.No.</u>	<u>Item</u>	<u>Potential (M.W.)</u>
1.	Project Commissioned	179.36
2.	Projects under Construction	660.00
3.	Projects under Investigation	5844.50
4.	Projects Identified but not investigated	2945.00
Total Potential :		<u>9628.86</u>

Considerable sums of money have been invested in the development of power potential in the State under the five year plans. The total investment ending 1981-82 was Rs. 27303 lakhs while the anticipated expenditure for 1982-83 is Rs. 3334 lakhs. The 6th Plan outlay of Rs. 16950 lakhs is over 18% of the total plan outlay. The installed capacity has been enhanced from about 11 M.W. in 1955-56 and 83 M.W. in 1973-74 to 209 M.W. now.

A number of power projects are in hand in the central and the State sectors. In this connection mention may be made of the two major projects of Salal and Dulasti with installed capacity of 345 M.W. and 390 M.W., respectively. In the state sector the Upper Singh Hydel Project State II with installed capacity of 105 M.W., the Sewa Hydel Project with 96 M.W. are both going on, the Pernai and Bichlari Hydel Project and the Nichhama Hydel Project each with capacity of 60 M.W., the Lower Jhelum Project with 4 units are all worth special mention. There are a few other smaller units also in hand. Nearly 70 projects are under investigation. In Ladakh also the work is going on Stakna Project.

Enhancement in generating capacity is accompanied by attempts to improve the transmission and power distribution in order to economise the use of available resources and other factors. An up-to-date transmission network was, therefore, erected connecting the State grid with the northern region and an amount of 83.09 crores was likely to be spent on the construction of transmission and distribution network ending 1983-84. This includes Rs. 13.28 crores on grid stations, Rs. 55.88 crores on transmission and sub-transmission and Rs. 13.93 crores on distribution systems.

Problems

Supply during winter season

The extensive availability of power is very necessary for sustained development of the state, especially for expansion of the industrial base and for extension of irrigation to areas where it has not been possible to take gravity canals. The state lags behind the neighbouring states of Punjab and Haryana and is subjected to acute shortage of power specially during the winter. This not only hampers development but also puts the common man to great hardship and also has a negative effect on tourism in Winter. The shortage experienced during the summer and winter months; with a 1984-85 winter deficit figure of 230 Mega Watts, shows that the shortage is not only considerable but is progressively increasing year after year. Such deficits are going to cause more and more distress to domestic consumers, to agriculture and to industry in the future.

b) Power Generation Sources:

Almost all of the electric power generated in the state of Jammu and Kashmir is from hydroelectric sources barring a few power stations like the Kalakote thermal power station and the Bemina diesel power station at Srinagar. Although electric power generated hydro-electrically is by far the cheapest, it is however subject to certain problems particular to it. During the winter months, the headwaters of the dammed rivers freeze and the inflow into the catchment area of the dams is greatly reduced. This seriously affects the amount of electricity which can be generated and is the prime cause for the winter shortfall in

power. The obvious alternative would be to look for alternative would be to look for alternative methods of power generation like thermal and atomic. The state of Jammu and Kashmir being devoid of coal reserves and the high cost of transportation of coal to it precludes the possibility of the former, while the sensitive geographical location of the state near our border with Pakistan makes the setting up of atomic plants a possible hazard. These constraints in the possible setting up of either thermal or atomic power plants in the state constitutes a serious problem for future power generation. Additional possibilities like wind and solar power sources need to be extensively investigated. Energy losses throughout the state are considerable. These occur on account of both technical and commercial reasons. Technical losses cover losses of energy in the form of heat which occur during transformation and distribution of power. Commercial losses occur due to unaccounted for consumption. Various steps have been taken to minimise the losses and during 1982-83 the Kashmir wing's percentage loss dropped to 45.24% from 61.38% in 1979-80. However there is considerable scope for further minimisation of energy loss in the state.

At the time of preparation of the existing master plan for Srinagar city there were two hydro-electric plants in Kashmir Province. These were located at Mohara and Ganderbal, 32 miles and 13 miles respectively from the city. Ganderbal generated 1500 K.W. of power and the Mohara Plant had a capacity of 9000 K.W. Out of 24000 K.W. thus generated, 14000 K.W. were consumed in the city and the remaining 10000 K.W. was consumed in other

parts of the valley. An additional 5000 K.W. was also generated at the diesel Power Station at Bemina in the South-Western part of Srinagar city.

At that time all the electric lines were overhead on wooden poles spread all over the roads and lanes of the city. Only the Boulevard area had underground lines. Street light arrangements were generally inadequate throughout the city except again in the Boulevard area. However, domestic installations were in the neighbourhood of 95%.

Requirement of Power

The estimation of energy requirement is one of the key exercises for planners every-where. The world is passing through an energy crisis and such an estimation is therefore, of great importance. It has been estimated that the peak power requirement by the year 2000 will be 1700 M.W. The over all energy requirement have been worked out as under:

i. Lift Irrigation	=	600 M.W. month
ii. Energy domestic use 340X12	=	4080 M.W. month
iii. Domestic lighting 35X12	=	420 M.W. month
iv. Transport and Transportation		
a) Ropeway 26X12	=	312 M.W.
b) Internal transport and trolley busses 63X12	=	756 M.W.
v. Industrial load including cold storage etc.	=	1800 M.W. month

The peak power needed to produce the above energy is estimated as under:

Table - 27

	Spring	Summer	Autumn	Winter
1. Life Irrigation	600	200 M.W.	600	600
2. Energy for domestic heating 25:20:25:30:	340	271 M.W.	340	542 M.W.
3. Light domestic	35	35	35	35
4. Transport				
i. Ropeway System	26	26	26	26
ii. Internal trolley buses	63	63	63	63
5. Construction Industry Power Lime and cement	32	32	32	32
6. Central heating hospitals, hotels and domestic use	-	-	-	20 150
7. Industry energy	150	150	150	150
	646	833	702	1018

Therefore the peak power requirement in the year 2000 would be 1700 Mega Watts.

SOCIAL INFRASTRUCTURE

Educational Facilities

One of the basic objectives of the Government of Jammu and Kashmir is to make universal elementary education in the age group of 6-14 years tentatively to be achieved by the year 1990. Elementary education has been identified as one of the priority sectors and attempts are to be made to provide schooling facilities within walking distance of residential areas.

According to the existing master plan there was a total of 223 educational institutions in Srinagar in 1961 with a total of 47124 students. There were 4 professional colleges 6 academic colleges, 4 higher secondary schools, 31 high schools, 6 lower high schools, 15 middle schools, 28 central schools and 129 primary schools including private ones. Out of the 47,124 students of 1961 in the institutions located in the municipal limits, about 28,555 were boys and 17,569 were girls. In 1969 the municipal limits were extended and there were then 239 institutions in the municipal limits and 276 in the local area limits. In the area thus added were 42 primary and basic activity schools, 6 central schools, 2 middle schools, 2 lower high schools and one high school.

The existing situation in this sphere is summarised below:

Table - 28

Sl.No.	Type	No.
1.	Primary Schools	276
2.	Middle Schools	120
3.	High Schools	17
4.	Higher Secondary Schools	11
5.	Colleges including Medical Colleges, Engineering colleges & Polytechnics	
	Total	436

As per the above, primary education seems to be doing very well in that, going by the numbers of primary schools, the extension of primary education is quite wide. But the number of other educational institutions except the middle schools, is on the lower side as compared to primary education. This may be largely due to economic factors which often demands the participation of man power in economic activity at an early age. Because of the household industry being a dominant economic function, there is almost always a scope for easy employment, predominantly self employment.

Medical Facilities

An indicator of the progress in the provision of health services is the progressive increase in the bed strength available in hospital and dispensaries. The total bed strength in government hospitals and dispensaries has shown considerable increase from 4939 in 1973-74 to 6153 in 1982-83 and the bed: population ratio is 1022. Again, the number of doctors has gone up from 1177 in 1973-74 to 2230 in 1982-83. There are also 447 v aids and Hakims. The doctor/hakim/vaid population ratio has come down from 3001 to 2350 during the same period. The number of other medical personnel has also shown great increase with the number of nurses having gone up from 433 to 952 of the basic health workers from 420 to 600 and of auxiliary nurses/dais/midwives from 788 to 1218. There are 164 lady health visitors against one previously.

Table - 29

Types of Medical Institutions

	Distt./ Sub Distt./ Private Hospital	Dispensaries			P.H. Centres	Medical Aid Centres	T.B. Centres	STD/VD Clinics	Family Planning Centres	Leprasy Control Unit
		Allo- pathic	Unani	Ayur- vedic						
Srinagar	14 (34.15)	46 (10.13)	33 (16.42)	2 (0.93)	28 (5.29)	4 (2.00)	2 (15.38)	1 (8.33)	25 (13.19)	4 (9.52)
Total Jammu & Kashmir State	41	454	201	215	483	200	13	12	182	42

Figures in parenthesis denote percentages.

Source: 1. Director, Health Services.

2. Administrator Associated Hospitals, Jammu/Srinagar.

3. Medical Education.

Srinagar provides specialised medical treatment and people from large distances come there for specialised treatment and important operations because the city offers medical facilities of a relatively high order in the region as well as the state.

The city has 14 hospitals out of which the major hospitals including specialised ones:

- i. S.M.H.S. Hospital
- ii. Govt. Lalded Hospital for Women
- iii. Chest Diseases Hospital
- iv. Nursing Home
- v. Children Hospital
- vi. Bone and Joint Hospital
- vii. Chittaranjan Dass Mobile Hospital
- viii. Jawahar Lal Nehru Memorial Hospital
- ix. Sheri-i-Kashmir Institute of Medical Sciences

However, the existing master plan indicated that upto the year 1971 there were 18 medical institutions in Srinagar consisting of 8 hospitals, 2 health units, 5 allopathic dispensaries, 1 ayurvedic dispensary and 2 unani dispensaries.

Parks and Play Fields

The existing parks in the city are disproportionately distributed. According to the existing master plan, out of a total space of 15.5 acres under parks, 13 acres are in ward 1 in Pratap park, New Kashmir Park, Lal Mandi Park and Jawahar nagar park. Only 2.5 acres of land were under parks over the entire area of the old

city. However, in the Dal Lake area there are green areas on the Lake front like the Mughal Garden of Nishat, Shalimar and Chashmashahi etc.

Play fields covered an area of about 860 acres which too are mostly located in ward 1 of the city. Other wards of the city are devoid of this important community facility. Religious lands like Idgah and Malkah grounds at Zinda-Shah, Mohallah, are being used by the people of respective localities as Play fields.

Cinemas

There are nine cinema halls in Srinagar City. They are not evenly distributed in the city and most of them are situated in the central and congested parts. The nine cinema halls are:-

Broadway

Firdous

Khyam

Naaz

Neelam

Palladium

Regal

Shah

Shiraz

Of the above halls the positioning of the Palladium cinema deserves mention. It is situated in the congested Lal Chowk commercial area and whereas the other halls have their own vehicle parking area, this hall does not and all vehicles have to be parked on the roads adjacent to it. This further aggravates the already congested traffic problems in the area. Palladium and Regal (situated

near the bus stand) are both situated in the same of vehicles. Most of the other halls are situated in residential or partially residential areas.

Recreational Spot, Important Festivals and Religions places

There are recreational places which afford the residents and incoming tourists plenty of variety and choice.

There are also four major clubs which also offer a variety of facilities for recreation. They are :-

- a) The Amar Singh Club in Ram Munshi Bagh
- b) The Kashmir Government Golf Club on Maulana Azad Road
- c) The Nagin Government Club at the Nagin Lake
- d) The Srinagar Club at Zero Bridge.

At Srinagar, facilities for playing Squash and Tennis are available at Amar Singh Club, Billiards at Srinagar Club and Amar Singh Club and Golf at the Kashmir Golf Club on a 18 hole course. There is also a 6 hole course at Palace View.

Srinagar and its environs has a large muslim population. Therefore the muslim festivals are the main ones to be celebrated by the local people. Among the main muslim festivals are Id-ul-Fiter, Id-ul-Zuha, Shab-e-Barat, Mohurramand Fateha Dwazdehum (the Prophet Mohammad's birth day). Religions festivals of the other main religions are, of course, also celebrated by the respective religious groups.

The main places of religious worship in Srinagar are Hazratbal Shrine where lies a relic of the Prophet Mohammad, the Jamia Masjid in

its Sprawling grounds in the centre of the city and the Shankaracharya Temple close to the Dal Lake. The places of worship in the city are the following:-

Durga Temple, Durga Nagar

Gurdwara Singh Sahib, Chati Padshahi, Kathi Darwaza

Hazratbal Shrine (Relic of Prophet Mohammad)

Imam Bara, Hassanabad

Imam Bara Zadibal

Jamia Masjid

Khanqahi Mir Syed Abdul Qadir Jeelani, Dastgir Sahib

Khanqahi Mir Syed Ali Hamdani, Khanqahi Moula

Khanqahi Mohammad Baha-ud-Din Naqashbandi, Naqashband Sabih

Protestant Church, Munshi Bagh

Roman Catholic Church, Maulana Azad Road

Rughnath Temple

Shahi Masjid, Majahid Manzil

Shankaracharya Temple, Shankaracharya Hills

Shrine of Sheikh Hamza, Makhdoom Sahib.

Sports Facilities

The centrally heated Sheri-i-Kashmir complex at Hazuribagh, Srinagar is the 3rd largest in India. It has a capacity of 4050 spectators, planned as per national standards. The sports complex provides facilities for tennis, basket-ball, badminton, table tennis, gymnastics, boxing, archery, in-door rifle range and weight lifting. Facilities of open tennis courts, card/chess/billiard tables and players association rooms are also provided.

Conference Facilities

The conference complex on the banks of the Dal Lake near Cheshmashahi provides modern facilities for holding conferences/conventions of an international standard. The complex has a seating capacity of about 800. It also has meeting rooms with 250 seats each capable of being converted into a large hall for 400 people as also smaller rooms to serve as conference rooms. Other in-house facilities include lounge and bar, cafeteria, music system, fire-fighting equipment, swimming pool etc. Simultaneous translation facilities are also provided.

TRAFFIC & TRANSPORTATION

National highway No.1 A passes through the city. To the south, it connects Srinagar with Anantnag and to the west to Baramulla. This highway used to pass through the city before but a new by-pass has been constructed which skirts the south-western part of the city so that through traffic does not further congest the city centre. In addition one major road runs through the city in the north-south direction. It leads to Charar-i-sharif in the south and to Ganderbal and beyond in the north. Yet another road starts in the central part of the city, skirts the Dal Lake to the east, and goes north eastwards towards Harwan and Dachigam. In addition to the above are the other city roads many of which are too narrow to accommodate the traffic that ply on them. Circulation of traffic in the congested, commercial, central parts of the city is hampered because of lack of parking space, footpaths and narrow carriageway widths.

Effect of Quality of Roads on Traffic Movement

The quality of roads in Srinagar is by and large poor. This is because most of the roads in the city have to cater to a higher intensity of traffic than they have been designed for and do not have the required structural strength required for such intensity. These are four main factors which contribute to this. They are :-

- a) Poor drainage system
- b) High Winter Precipitation
- c) High ground water level
- d) Frost action.

Road pavements though constructed with the required thickness of hard crust (taking into account the intensity of traffic) may still fail due to poor drainage conditions leading to loss of strength of the supporting sub-grade soil. The increasing trend in traffic volume further aggravates the situation. In addition the high ground water level encountered in the Srinagar area also has a determinental effect on road strengths. High winter precipitation, both in the form of rain and snow, also results in poor road conditions. Frost action is a phenomenon of ice formation in the pavement subjected to long spells of sub-zero temperatures. This effect also causes considerable damage to the road surfaces.

Growth in Vehicular Traffic

The total number of registered vehicles as per the Regional Transport Office, Srinagar were 16,914 upto the end of November 1983. Table 30 gives the total number of Registered Vehicles under different heads from 1975-76 to 1983-84 (the figures for 1983-84 are upto the end of November 1983). It is interesting to note that the number of jeeps have declined from the peak of 128 in 1978-79 to 90 in 1983-84 with the lowest figure of 59 in 1982-83. The number of buses have also declined from 214 in 1981-82 to 118 in 1982-83 and lower still 80 in 1983-84. A similar trend is seen also in the number of trucks which have declined from 453 in 1981-82 to a mere 167 in 1983-84. Car numbers have also declined from 411 in 1981-82 to 307 in 1983-84. Similar trends are also noticed for taxies (cars), tractors and trailers, minibuses and taxies (jeeps).

Table - 30

No. of Registered Vehicle

Type of Vehicle	(Year-wise)										Total
	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84 (ending Nov. 83)		
Jeeps	81	61	64	128	124	124	117	59	90	848	
Scoters	426	641	664	590	605	733	717	893	837	6106	
Buses	134	132	102	69	84	164	214	118	80	1097	
Trucks	234	374	298	182	244	336	453	377	167	2665	
Cars	66	116	130	207	196	331	411	304	307	2068	
Taxi Cars	1	22	47	118	187	166	94	136	110	1069	
Tractors	27	6	12	26	26	55	104	74	44	374	
Trailors	23	x	7	6	21	27	55	30	11	180	
Minibuses	94	30	1	9	16	61	292	96	60	659	
Auto Rickshaws	16	20	146	94	504	311	108	62	220	1481	
Jeep Taxis	x	24	45	39	8	15	23	2	-	156	
Others	x	-	13	29	21	57	73	15	3	211	
										16904	

1102

Source: R.T.O. (Srinagar)

Table - 31

Mode of Transport - Water

Sl. Year	Passenger Boats		Luggage Boats		Fishing Boats		Passenger Dongas		Taxi Shikaras	
	Number	Persons engaged	Number	Persons engaged	Number	Persons engaged	Number	Persons engaged	Number	Persons engaged
1. 1975-76	780	1800	624	1248	100	1198	100	300	470	940
2. 1976-77	800	1600	500	1000	250	750	150	450	500	1000
3. 1977-78	830	1660	400	800	225	675	200	600	600	1200
4. 1978-79	900	1700	600	1100	300	800	200	500	550	1100
5. 1979-80	1000	1800	650	1127	377	835	285	560	600	1175
6. 1980-81	1070	1860	700	1172	417	875	312	590	642	1212
7. 1981-82	1070	2140	735	1140	791	443	335	1005	675	1350

The types of vehicles which have been shown an increase in their numbers are scooters and auto-rickshaws whose registration numbers totalled 837 and 220 respectively in 1983-84. In addition, there has been a substantial increase in the water transport modes in the past 7 years, with a corresponding increase in the number of persons employed on these transport modes. The number of passenger, luggage and fishing boats, passenger tongas and taxi shikaras increased from 2074 in 1975 to 3606 in 1981, registering a growth rate of nearly 75 per cent.

Passenger Traffic

In the year 1983-84 the Jammu and Kashmir State road transport corporation carried a total of 215.98 lakhs Passengers, out of this the district services carried 97.32 lakhs. Table 30 shows the total number transported by Jammu & Kashmir S.R.T.C. buses from 1975-76 to 1983-84. This corresponds to a total percentage increase of 37.81 during the decade. The corresponding increase in the city services was 23.56%, it may be noted here that the highest total figures were in 1979-80 (264.23 lakhs) followed by 1980-81 (264.15 lakhs).

Further, for Srinagar city Table 32 gives the monthly break-up of the number of buses used and the numbers of passengers carried during the years 1981-82, 1982-83 and 1983-84. It is found that the number of passengers was highest in 1981-82 when their number totalled to 15,18,130. This figure dropped to 13,02,094 in 1982-83 and again to 13,39,971 in 1983-84. In 1981-82 the largest number of passengers (2,15,441) were carried in the month of May. In 1982-83 the highest number (1,88,759) was carried in September. In all the years the

lowest numbers carried were in the winter months of December, January and February.

Goods Traffic

During the year 1983-84, Jammu and Kashmir State Road Transport Corporation trucks lifted a total of 40.05 lakh quintals of solid goods and 36.25 lakhs litres of liquid commodities. The quantities of goods lifted by Jammu & Kashmir S.R.T.C. trucks from 1975-76 to 1983-84 are as follows:

1975-76	26.48	Lakhs Quintals
1981-82	37.03	Lakhs Quintals
1982-83	40.34	Lakhs Quintals
1983-84	40.05	Lakhs Quintals
	+ 36.25	Lakhs Litres

Table - 32

Monthly Break-up of Bus Passengers

Months	1981-82		1982-83		1983-84	
	Buses used	Passengers carried	Buses used	Passengers carried	Buses used	Passenger carried
1. April	3707	102056	3821	117330	2096	74807
2. May	5949	215441	3644	109440	4904	157319
3. June	6294	191876	5155	173934	4317	138925
4. July	3630	123133	4100	166103	3315	116631
5. August	3704	133578	3588	98243	4199	132480
6. September	4119	151093	4271	136088	3913	188759
7. October	5611	194848	4769	169601	4512	159498
8. November	3984	112142	3017	99558	3131	100340
9. December	2954	97543	2021	62098	2479	79851
10. January	2053	65902	1506	48654	2129	57589
11. February	1673	48371	1460	52252	1528	45553
12. March	2546	82147	1883	68793	2967	88249
	Total	1518130	Total	1302094	Total	1339971

Parking Lots

The availability of Parking space particularly in the Central areas of Srinagar (where it is most needed) is very low. There are no parking facilities at all for shoppers and shopkeepers alike in the Commercial Areas. Vehicles are invariably parked on the road in front, or in the vicinity of shops. Again on both sides of Srinagar, trucks are parked all along the length of the National Highway 1 A. This seriously hampers the movement of other traffic along this road. The need for truck parking space is felt at all places where roads enter the city and at the truck unloading points. There are no proper taxi stands in the city in general. Parking, wherever provided, is also further hampered by the encroachment of hawkers & stalls on pavements and roads.

Location of Transport Terminals

There are two transport terminals located in the congested heart of the city. They are set opposite to each other near the Lal Chowk and fashionable Regency Road area next to the Exchange. These two terminals take care of the inter-city and intra-city buses. There is therefore, considerable disruption of traffic in the area due to the large number of incoming and outgoing buses. Passenger embarkation and disembarkation is quite chaotic, since there are no proper bus ways or even for that matter, proper time tables according to which the buses ply. Incoming buses and outgoing buses are not segregated on different paths which leads to further confusion. The surface inside the terminals and its approaches are more often than not in a very sorry state of repair and in the rainy seasons of year the

position there is almost unbearable.

The above mentioned undesirable state of affairs is further compounded to by the situation immediately in front of the Exchange which, apparently by convention, has now become a terminal for intra-city minibuses. Actually, these minibuses give good auxiliary support to the bus system and provide fast, cheap transport all over the city. And the juxtaposition of this so-called terminal to the other above mentioned terminals gives good connecting services to the commuter. However, the continuance of these existing conditions is highly undesirable and measures need to be taken to regularise the minibus terminal in a location(s) which is compatible to efficient city management. There are other such minibus terminals of a smaller size scattered all over the city (both in the central city areas and the outer turn-around points) all of which need to be regulated and the whole system streamlined.

In 1962 the bus strength of the western bus stand was as low as 93 buses. This has grown to a bus strength of 570 in 1984. Further, in 1962, 20% of buses were 50 seaters and the balance 80% were 44 seaters. In 1984 this situation has changed completely and 90% of buses are now 55 seaters and only 10% are 44 seaters. Thus the size of the majority of buses has gone up and need more space for parking, turn-around and manoeuvring.

A new truck terminal has also come up near Bemina, details of which are yet not available. The shifting of the fruit mandi to the west of the city will also increase the viability of the location of this terminal.

Traffic Bottlenecks

There are a number of traffic bottlenecks in Srinagar city. Understandably, most of these are located in or near the congested core of the city. This part of the city is quite old and many of the narrow streets in these congested parts of the city are chronic traffic bottlenecks. Certain bottleneck sections have been identified and a list of these is given below:

- i) Baspora - Khanyar - Dalgate - M. Azad Road
- ii) Nawakadal - Nawabazar
- iii) Khanyar Chowk - Nawapora - Barbershah Chowk
- iv) Exhibition Chowk - Ram Bagh - Airport
- v) Zaina Kadal - Nawa Kadal
- vi) Regal Chowk
- vii) Alanda Bridge

These areas are also accident-prone spots to the heterogenous quality of the traffic, in addition to the impediments to the smooth flow of traffic.

At many places in the city one also finds examples of encroachment on municipal lands and amenities. Many pavements in the central city area are encroached upon by hawkers. Hawkers with handicrafts also impede the flow of traffic on many roads by constructing the width of existing carriage ways.

GOVERNMENT PLAN AND POLICIES

Circular Road Plan

The city authorities have embarked on a widespread project to improve the city's roads called the Circular Roads Projects. This is divided into two parts.

- i) Right River Circular Road Division, Srinagar
- ii) Left River Circular Road Division, Srinagar

These two divisions have authority on the right and left sides of the river Jhelum respectively. Most of the work is in the right river division mainly because of geographic reasons since most of urban Srinagar lies to the right of the river.

Traffic Volume (Incoming and Outgoing)

Traffic studies were conducted at eighteen selected points in the city. These points were chosen with the help of the Traffic Police Department of Srinagar. The objective was to assess the volume of traffic along major roads of the city and to gauge traffic congestion in different parts in order to develop remedial measures. This survey represents the peak hour road frequency in the lean season of Srinagar. The crude estimates envisaged around 75 per cent more frequency during the summer season, which further adds to the additional volume of traffic and the source of road congestion/bottlenecks in the city.

During the morning hour the high frequency towards the city has been noted at the Dalgate (1404 P.C.U.), Lal Chowk (1187 P.C.U.), Batmaloo Bridge (1183 P.C.U.), Natipora (1089 P.C.U.) and Habakadal

(1050 P.C.U.) Table 33. These points are located in the core area of the city. If we look at the road map of Srinagar city, the number of link roads from peripheral areas join the main roads of the city and reach these points. Each and every small road and street contributes its additional volume of traffic. Consequently, the volume of traffic keeps on increasing with the movement towards the central part of the city. Those roads which approach the core area are widely used as short-cuts to join the end corners of the city. In contrast to the above, Gandal Bal, Mahzoor Bridge and Harvan are the points of low frequency where 97, 57, and 47 P.C.U.'s pass through respectively. This is a true reflection of the situation in the peripheral area from where the movement begins towards the city core. The hierarchy of the traffic around the central points, intermediate areas and outskirts of the city have been plotted to give a clear picture of the existing situation. However, there are only two points which recorded high frequencies during morning hours where the inward and outward movement had small differences. These points, namely Batmaloo Bridge and Anantnag Road, are located on the national highway and also cater to the industrial areas containing saw mills, timber yards etc. Population from the surrounding areas converge to these two points for entry into the city for work. On the whole, in Srinagar city, the inward movement was greater than the outgoing movement of vehicles during the morning hours.

The evening traffic flow explains that at the ten traffic survey points the inward entry again is higher than the outward movement of vehicles. Among these ten points, six are in the outer zones and people often move to the city for marketing and entertainment purposes

in the evening. Secondly, traffic from the other towns approach this destination (Srinagar) in the evening. The other four points are located in the central and intermediate zones and have also recorded higher movement to the city side. The remaining eight points namely Dalgate, Nehru Park, Khanyar, Nawa Bazar, Batmaloo and Balchowk, Srinagar and Gander Bal have registered the higher percentage of vehicles as outbound. (Refer map No. 11)

To defuse the intensity of the problem with the increasing volume of traffic and population, the policy of decentralisation of economic activities and uniform distribution of infrastructural facilities is to be implemented strictly. In addition, market centres have to be created near the residential areas to restrict the movement of population a reas for such purposes. The city bus service needs to be improved thoroughly. Traffic intensity and origin-destination studies will illustrate the requirement of a properly planned city bus service. This needs to be available to each person wanting to approach the city, during peak hours particularly. Traffic congestion problems will then be improved to allow more free movement of vehicles.

Table - 33

Volume of Traffic at Selected Points

Selected Points	Peak hour flow (P.C.U) Passenger car unit			
	Morning		Evening	
	Incoming	Outgoing	Incoming	Outgoing
1. To & From Anantnag	895	862	412	341
2. To & From Dalgate	1404	769	765	877
3. To & From Nehru Park	145	94	98	131
4. To & From Khanyar/Lalchowk	433	348	629	664
5. To & From Islamia College/ Lalchowk	650	665	398	351
6. To & From Nawa Bazar	891	578	612	683
7. To & From Batmaloo (Karan nagar chowk)	292	387	304	477
8. To & From Habakadal/Lalchowk	1187	446	773	700
9. To & From Habakadal/ Batmaloo+ Lalchowk	1050	660	692	563
10.To & From Varan Nagar	967	574	504	462
11.To & From Batmalloo Bridge	1183	1113	1067	1039
12.To & From Lalchowk (Batmalloo side)	267	253	128	196
13.To & From Harivan/Shalimar	47	66	57	55
14.To & From Srinagar	642	584	436	466
15.To & From Gander Bal	97	160	107	109
16.To & From Baramulla	528	371	491	380
17.To & From Natipora	1069	538	1325	736
18.To & From Jawaharnagar/ Mahzoor Bridge	57	105	39	38

ROADS AND CIRCULATION

Norms and Space Standards:

The Project Planning Division of the Town and Country Planning Organisation of the Central Government has laid down norms and standards for road widths, access standards and street lighting for Indian towns and cities. These have been recapitulated below for ready reference.

a) Norms for Road Widths:

The actual width of the roads and streets and the number of traffic had generally depend upon the volume of traffic during the peak-hour prevailing at present, the projected volume of peak-hour traffic in the next 20 years and also the composition of traffic.

Table - 34

Based on this following recommendations regarding road standards have been made

Road and Street Standards

Type	Right of way	No. of lanes
Arterials with central median	200' (61 m) on the periphery of the town otherwise 160' (49 m)	One on either side of the central median to start with and two on either side ultimately.
Major Roads (Principal	80 to 100' (25m to 30m)	Two lanes to start with and four lanes ultimately
Neighbourhood Road	45' to 60' (14m to 18m)	Two lanes.
Residential Streets	30' to 45' (9 m to 14m)	Two lanes.
Culde sac not to exceed	25' to 30' (8 m to 9 m)	Two lanes.
Loops giving access to residences (with open spaces on one side)	10' to 15' (3 m to 5 m) (These will be more in the nature of access paths within a group housing block).	-

Service Lanes (to be provided in the case of row housing only)	15' to 20' (5 m to 6 m)
Cycle Tracks	7' to 9' (2 m to 3 m)
1.	Footpaths of adequate width should be provided on the arterial roads, major roads and some of the neighbourhood roads.
2.	Cycle tracks may be provided along major roads, if necessary. The above widths provide for this.
3.	All roads should be block topped or concreted except service lanes.

b Access Standards:

Recommendations prescribing the minimum and maximum distances to be covered for gaining access to schools, recreation areas, parks, shops and various public buildings in a residential sector made in the COPP report are as follows:

Access standards for community facilities within the neighbourhood and the sector.

	<u>Suggested walking distance</u>
1. Schools Nursery	1/4 mile (0.40 K.M.)
2. Primary Secondary	1/4 to 3/8 mile (0.40 to 0.60 K.M.) 1/2 to 1 mile (0.54 to 1.61 K.M.)
3. Recreation	
Tot lot	1/8 mile (0.30 K.M.)
Children Park	1/4 to 1/3 mile (0.40 to 0.54 K.M.)
Adults' playground	1/2 to 1 mile (0.80 to 1.61 K.M.)
Adults's Park	1/2 to 1 mile (0.80 to 1.61 K.M.)
4. Groceries and local shopping	1/4 to 1/2 mile (0.40 to 0.80 K.M.)
5. Health Centre	1/2 to 1 mile (0.80 to 1.61 K.M.)
6. Post Office	1/2 to 1 mile (0.80 to 1.61 K.M.)

7. Institutional 1 mile (1.61 K.M.)
8. Service shopping 1 mile (1.61 K.M.)

c) Street Lighting:

A well designed street lighting system should make it possible to recognise the presence of an object but not necessarily its finer details. There are many factors which influence the planning of a street lighting scheme and generally a good installation is the result of achieving the best visibility consistent with relatively low cost per unit of light. Some traffic centres require special lighting. In designing street lighting, the governing factors are, therefore, traffic density, layout, type of road surface and junctions.

Dr. Walrauf, an eminent illumination engineer, considers that good street lighting is one in which motorists can drive at the designed speed of a highway without the use of head lights, so that he can see properly and stop within the safe stopping distance. In towns where the speed limit varies from 30 to 35 m.p.h. the safe stopping distance is about 130 ft. If the motorist can see an object within 130 ft. without the use of headlights, the lighting standard will fall under the category of 'good lighting'. In an industry where, shift working is resorted to, the standard of street lighting in the town should be better to facilitate the movement of workers to and from the factory at night.

Suggested Standard

It would be appropriate to adopt the following recommendations relating to street lighting made in the COPP Report for industrial

project towns.

- i. Single row of lighting for sector roads and double row for main roads may be provided.
- ii. The lighting poles may be spaced at 100' intervals.
- iii. Flourescent tubes could be used with advantage on the main roads, as they are economical in the long run. For other roads, incandescent lighting may be sufficient.

TOURISM

Tourism has been the crutches of socio-economic development of the city and has rapidly won considerable recognition as an activity generating a number of social and economic benefits. It helps the creation of employment opportunities, removal of regional imbalance, opening up of new growth centres in the interior areas and augmentation of earnings including that of foreign exchange. Tourism has stimulated economic activity in the state as several branches of the economy supply goods and services and also has given support to local handicrafts and cultural activities both in urban as well as in rural areas. It may not be out of place to argue that the economic activity generated in the Primary, Secondary and tertiary sectors of occupation in Srinagar city depends on the tourists visiting the valley. Expenditure by tourists has a multiplier effect besides generating a considerable tax revenue for Government, both in the central and state sectors.

Tourism, therefore, has great potential for growth as any other industry in the state. The basic resources of tourism like mountains, lakes, parks and gardens, meadows and waterfalls being available, does not consume substantially the scarce financial resources of the state. Limitations of adequate natural resources in other fields for economic growth make the development of tourism in the state more important. Tourism inflow in the state has been steadily increasing. The figures for home tourist represent an increase of 579.21% between 1951 to 1960, 66.36% from 1960 and 420.29% from 1970 to 1980. The foreign tourist recorded an increase of 795.20 between 1951 and 1960, 40.75% between 1960 and 1970 and 192.63% between 1970 and 1980.

The number of tourist, thus visiting the state has gone up considerably in the course of the last three decades. However, there has been a decrease in foreign tourist traffic during the last few years which can be attributed to global factors like recessionary trends etc. The total number of tourists who visited the state is reflected in Table no. 35 below (refer map no. 9 and 10).

Table - 35

No. of tourists, 1981

(Figures in '000)

Sl.No.	Year	Home	Foreign	Total
1.	1951	9.33	1.25	10.58
2.	1955	48.19	2.83	51.02
3.	1960	63.37	11.19	74.56
4.	1965	35.78	7.43	43.13
5.	1970	105.42	15.73	121.15
6.	1975	162.58	22.21	184.79
7.	1980	548.49	46.03	594.52
8.	1981	598.56	43.74	642.30
9.	1982	560.99	42.85	603.84
10.	1983			439.52
11.	1984			222.56

The development of tourism is primarily the development of tourist and other infrastructure. These include provision of adequate transport services, hotel accommodation, camping sites, water supply, electricity etc. To this end liberal incentives are already being

provided to the private sector by the Government to motivate them for expansion of tourist amenities like hotel, recreational and entertainment facilities, tourist huts, houseboats, etc. The assistance is given in the shape of a subsidy in land price and rent, reduced rates of interest on loans, refund on sales tax, road toll and octroi on construction material etc.

The field studies conducted by Directorate of Economic and Statistics in 1985 have shown that a home and a foreign tourist spends on an average an amount of Rs. 954.12 and Rs. 2133.20 respectively on various items during their stay in state. The estimated expenditure during 1982-83 when the tourist traffic was of the order of 602 thousand is Rs. 62.37 crores, viz. Rs. 10.22, Rs. 11.60, Rs.14.10 and Rs. 26.45 on account of boarding, lodging, transport and purchases, respectively. Major proportion of their income has flown to Srinagar city. The estimated expenditure by the tourists during 1982-83 separately for Home and Foreign is indicated in Table 36 below.

Table - 36

Estimated Expenditure during 1982-83

Item	No.of tourists ('000)	Average expenditure per tourist (Rs.)	Total estimated expenditure (Cr)	No.of tourists ('000)	Average expenditure per tourist ('000)	Total estimated expenditure (Cr)	Total estimated expenditure (Cr)
1. Boarding	560	159.51	8.93	42	307.99	1.29	10.22
2. Lodging	560	177.01	9.91	42	404.56	1.69	11.60
3. Transport	560	221.42	12.40	42	406.20	1.70	14.10
4. Purchases	560	396.18	22.19	42	1014.45	4.26	26.45
		954.12	53.43		2133.20	8.94	62.37

The estimated figure for the number of tourists per day by the year 2001 is 25,000 tourists per day. Financial earnings per day, based on 1982-83 prices, would then be Rs 41,56,500 per day. Again assuming that 8 per cent of all tourists will be foreigners, the estimated foreign exchange earning per day will be Rs 3,32,520. It is expected that these earnings will have a marked effect on the economic base of the state in all sectors. Compared to these figures, according to the existing master plan, the state earned Rs 11.5 crores from home tourists during 1968-69 and 1.5 crores from foreign tourists for the same period.

a) Internal Tourist Traffic:

Domestic tourists constitute the major part of tourists to the Kashmir Valley. Over the past decade the average percentage of domestic tourists to the total number of tourist has been 90.50 per cent. The highest percentage was in 1981 (93.19 per cent) corresponding to the year with the highest tourist traffic. Correspondingly, the lowest percentage of domestic tourists was in 1984 (84.22 per cent) again, interestingly, corresponding to the year with the lowest tourist traffic.

The reason for the low figures for 1984 can be explained, as mentioned, by the unstable political atmosphere in the state recently as well as the troubled state of the Punjab. Most domestic tourists use the land route to the valley which invariably passes through the state of Punjab. Dislocated transport facilities made the passage of tourists to Jammu & Kashmir impossible during most of 1984.

b) Foreign Tourist Traffic:

The average percentage of foreign tourists to the total number of tourists has been 11.60 per cent. It is noteworthy that the percentage for the year 1984 was the highest ever (15.78 per cent) indicating again that fewer domestic tourist could visit Srinagar in that year. The lowest percentage of foreign tourist was in the year that witnessed the largest number of tourists ever to visit the valley.

c) Fluctuation of Tourist Traffic:

An examination of the fluctuation in tourist traffic to the Srinagar Valley proves to be very interesting, which is both positive and negative. It is found that the number of domestic tourists increased steadily upto the year 1981, when it touched the figure of 5,98,555. In that year the percentage increase was 9.12 per cent. However, the greatest percentage increase was in the year 1976 (76.17 per cent). From 1982 onwards the numbers of domestic tourists dropped, with 1982 indicating a percentage decrease of 6.27 per cent and 1983 indicating the sharper decrease of 28.97 per cent. The 1984 figures, being incomplete, have not been shown as they would give a wrong picture of both the total number of tourists as well as the percentage decrease for that year. Now looking at foreign tourism to Srinagar it is found that their numbers also showed a steady increase, but only upto the year 1978 when their number was 59,323, exhibiting a percentage increase over the previous year's number of 9.40 per cent. Thereafter their numbers steadily fell to 41,101 in the year 1983 when the percentage decrease for that year was 4.08 per

cent. Again the figures for 1984 have not been considered as they are not correctly indicative. It is hoped that the problems which together have contributed to the low figures for 1984 will be solved in the near future so that the numbers of tourists to the valley rise once more and Srinagar regains its identity as an important place on the tourist map of India.

d) Countrywise Evaluation of Tourists:

The foreign tourists who come to Srinagar can be categorised into seven groups according to the geographical areas from which they originate.

- i. North America
- ii. South America
- iii. Europe
- iv. Middle East
- v. Asia
- vi. Africa
- vii. Australia

i. North America:

The North American continent contribute the second largest numbers of foreign tourists to the Srinagar Valley. Table 37 gives the countryside and continentwise break-up of foreign tourists visiting Srinagar. In 1979 north America accounted for 28.72 per cent of all foreign tourists for that year. In 1980 this percentage dropped to 20.19 per cent. The years 1981, 1982 and 1983 showed an almost static percentage of 18.32 per cent, 17.65 per cent and 18.39 per cent respectively.

ii. South America:

South American countries, being further away from India, contribute very few tourists to this region of the world. Their figures vary from a low of 0.23 per cent in 1979 to a high of 0.48 per cent in 1981 with the other years indicating intermediate figures.

iii. Europe:

European tourists number by far the greatest of all foreign tourists visiting the valley. In 1979 they constituted 52.25 per cent of all foreign tourists. In 1980 this rose to 53.81 per cent. The 1982 and 1983 percentages were 53.01 per cent and 50.82 per cent respectively. It is noteworthy that English, French and West German tourists constitute the largest numbers in all years of the total number of tourists. The highest individual number from any country was in 1979 when 11,519 English tourists visited Srinagar.

iv. Middle East:

The Middle Eastern Countries also do not contribute much to the international tourist figures. They rank sixth in our inter-continental list with percentages varying from a low of 1.14 per cent in 1983 to a high of 2.19 in 1982.

v. Asia:

Asian countries come fourth in our countrywise list and the 14 named countries contributed their highest percentage of 7.41 per cent of all foreign tourists in 1980. The lowest percentage was in 1979 (3.57 per cent). Of all Asian tourists the Japanese rank

the highest because they are the most prosperous of all the Asian travellers. A lot of Japanese tourists to Srinagar is actually a spin-off from the tourists who come to visit the many Buddhist shrines in our country.

vi. Africa:

African countries also generate few tourists. They rank fifth in our list with percentage varying from a high of 3.87 per cent in 1982 and 1983, to a low of 2.07 per cent in 1979.

vii. Australia:

The two countries of Australasia together contribute the third largest numbers of tourists to Srinagar. Of course, as expected, Australian figures are much higher than those of New Zealand accounted for by the fact that the first country is so much larger than the other. Australia contributed 6.40 per cent of all foreign tourists in 1979. 8.10 per cent in 1980, 7.82 per cent in 1981, 9.88 per cent in 1982 (the highest ever) and 9.17 per cent in 1983.

The other countries of the world contribute the balance of the tourists. Their number was highest in 1983 (10.15 per cent) and lowest in 1980 (2.14).

A. Accommodation

Being a rallying point for the tourists the question of accommodating them is of utmost importance and is tackled with an infrastructure which provides for 14,357 beds capacity. This includes all types of hotels, guest houses, government accommodation

registered and unregistered places of boarding. There is also a proposal of opening nine new hotels and guest houses, to supplement the boarding capacity by 782 beds. The break up of the existing infrastructure is given below:

Table - 37

List of Boarding Places

Sl.No.	Name	No. of beds
1.	Hotels	5,799
2.	Registered House Boats	4,052
3.	Unregistered House Boats	608
4.	Govt. Accommodation	1,282
5.	Guest Houses	1,948
6.	Hotels in Dal Lake area	434
7.	Unregistered Hotels	234
Total		14,357

The source for the no. of beds for registered places is the Directorate of Tourism Department (Registration) Jammu and Kashmir Government.

B. Incentive for the Development of Tourism

The development of tourism is synonymous with the development of certain aspects of infrastructure. These include the provision of adequate transport facilities, hotel accommodation of various types, camping sites, medical facilities, water supply, electricity and a peaceful climate harmonious with the surrounding natural attractions

Liberal incentives are already being provided to the private sector by the Government to motivate them for expansion of tourist amenities like hotels, recreational and entertainment facilities, tourist huts, houseboats etc. The assistance is given in the shape of subsidy in land price and rent, reduced rates of interest, refund on sales tax, road toll and octroi on construction material etc. A subsidy of Rs 16.96 lakhs has been advanced by the State Government to the entrepreneurs in this behalf from March 1978 to January 1982. The bed strength in the public and private sector has consequently gone up from 14,000 in 1978-79 to 26,044 in 1981-82. This includes the bed strength of 814 houseboats also, which are registered with Tourism Department. Other facilities such as water, electricity, improvement of trekking routes etc. have been provided. Besides, extension in the existing Dal Bunglows Gujjar type huts VIP suites etc. have been constructed at many places. Places of tourist interest like Mansar, Katra, Kokernag, Tourist complex at Railway Station, Jammu and tourist hotel at Srinagar are other important steps taken in this behalf. Khag, Doodapathri, Athwato, Baisaran, Tral, Shikargah Baderwah, Kishtwar and Purmandal are the places being developed as tourists resorts by the Government at present. The intention is to open up the interior areas of the state to the tourist traffic with a view to augment the earnings of people living there. The Tourism Department on its own is maintaining 129 tourist huts and 9 rest houses located at different tourist resorts in the State.

Travel/Excursion Agents

A number of publicity centres are functioning at many places within the country and the Indian Embassies are also playing their

part in promoting the tourism industry of the State by furnishing necessary details to potential foreign tourists. Besides, close liaison has been developed with a number of travel agencies of international fame which have proved helpful in attracting many a large contingent of foreign tourists to the valley during recent years. As many as 613 tourist trekking parties/individual units comprising 1461 persons availed of various trekking facilities in the state during the year 1981-82. About 50 travel agencies are at present registered with the Tourism department.

In addition there are about 13 excursion agents who by themselves and in collaboration with travel agents have also proved helpful in bringing a large number of tourists to Srinagar in particular and to the state of Jammu and Kashmir in general.

Dal Lake

The Dal Lake is spectacular in that it is bounded by a back-drop of lofty mountains which remain snow-capped in winter, descending to the lake in slopes of orchards and groves of popular and willow trees. The lake is of immense importance both from the international/internal tourist point of view as well as various economic activities connected with the lake. As such not only its preservation but also its improvement is of vital importance. The lake can be divided into four zones;

- i. House Boat area,
- ii. Mini Lake with floating garden,
- iii. Bod Dal - Clear Water Lake,
- iv. Hazratbal Lake.

The lake has been extensively reclaimed to form man made islands separated by water channels. Natural deposition of silt from the Telbal Nallah has created extensive marshes around the Northern part of the lake. The pressure of population coupled with denudation of the catchment area and flow of human wastes and nutrients have given rise to a serious problem of pollution and shrinkage of the lake.

The total area of the lake which was once 24 sq.kms. is at present estimated at 19.6 sq.kms. with the following breakup:

1. Open Water	-	11.7 sq.kms.
2. Floating gardens	-	3.9 sq.kms.
3. Land	-	1.4 sq.kms.
4. Marsh	-	2.6 sq.kms.

The Dal lake catchment in addition to its vastness is diverse and varied in topography, ranging from the lake body itself to Srinagar city on the western side, paddy cum orchards and fields to high mountainous ranges on the northern side. The total catchment area contributing to the lake inflows is of the order of 316 sq.kms. Dachigam Sector provides 148 sq.kms. This drains into the lake via dachigam and Tel Bal Nallahs which provides the maximum silt. The Tel Bal sector is about 80 sq.kms. This is mostly denuded hill faces with paddy fields and orchards right up to the lake shore. It has a well knit irrigation system. Lake Hills side sector is about 47 sq.kms. Srinagar city sector is about 21 sq.kms. And lastly the lake area itself is about 20 sq.kms. This includes open water marshes, floating gardens and man made land pieces.

From the above it can be concluded that heavy silting is due to uncontrolled entry of cattle and their grazing which results in tremendous damages to the vegetable cover and erosion of top soil. Unbridled deforestation denudes the catchment area causing instability and sliding of the steep hill side slopes particularly during cloud bursts, storms and winter. No conservation activity has been undertaken in the past.

While the Lake is fed by several streams the main source is Tel Bal Nallah, which drains the Dachigam Valley. Owing to indiscriminate deforestation, developments of agricultural holdings in the deforested areas, year after year more and more silt flows into the lake. Springs under the lake bed also contribute water. 80 per cent of inflow is from the Tel Bal Nallah. Outlet along Nallah Amir Khan and the Dal Gate, evapotranspiration seepage and storage losses, along with the inflows have been estimated to balance at $291.9 \times 10^6 \text{ m}^3$ which comes to 2.36 lacs acre feet.

Sewerage and sullage from House boats are discharged directly into the water, as also those originating from the donga boats/water front houses of the houseboat owners/staff. The resultant pollution has already seriously affected the Dal Lake and constitutes a major environmental problem.

The existing marshy land in the western part of Dal Lake is proposed to be dredged and the south-western shore of the lake protected by a proposed ring road according to the proposals of the Master Plan. The strip of the marsh on the western flank of the proposed ring road is also proposed to be reclaimed. The Dal

Development Authority is presently carrying out these major programmes of improvement of Dal Lake. The boundary of the basin has been considered in accordance with this programme.

Adjacent and connected to the lake is Nagin Lake. There is a small water body called the Brari Nambal which also is connected to the main lake. This is relevant to Dal Pollution problem.

Tel Bal Nallah carries annually as large as a quantity of 64 acre feet of silt. In the vast expanse of the lake, this quantity gets unloaded and creates extensive marshes around the Northern end of the lake. The deposition also takes place all over the Bod Dal although at a reduced degree.

The problem as a whole can be broadly classified as under:

- a) Reclamation of the lake by constant extension of floating gardens which in turn provide land mass for house construction.
- b) Sedimentation of nutrients rich in nitrogen and phosphorus inflow from the catchment, giving rise to weeds and algal bloom.
- c) Inflow of liquid and solid wastes from the population and house boats within and outside the lake infesting it with pathogenic organisms, bacteria and viruses. The total coliform count are seen to range from 640 to 2400 MPN/100 ml.
- d) Continous accumulation of nutrients from the surrounding lands leading to increased annual plant production which puts into action increased bacterial and fungal activity to deal with decomposition of the greater number of dead organisms.

In short the Dal Lake is very seriously affected by weed growth and in some areas by water quality deterioration. This affects the appearance of the lake and its recreational potentials. House Boat area has an increasing water quality problem.

LAW AND LEGISLATION

The following legislations deal with one or the other aspect of town planning/development activities within the state:

a) Town Planning/Development Acts:

- i. The Jammu and Kashmir Town Planning Act, 1963
- ii. The Jammu and Kashmir Development Act, 1970
- iii. The Jammu and Kashmir Housing Board Act
- iv. The Jammu and Kashmir Land Acquisition Act, Samvat 1990.
- v. The Natural Calamities and Destroyed Areas Improvement Act, 2011 (1954 A.D.).

b) Civic Laws:

- i. The Jammu and Kashmir Municipal Act, 2008 (1951 A.D.)
- ii. The Jammu and Kashmir Town Area Act, 2001

c) Regulatory Laws:

- i. The Jammu and Kashmir Prevention of Ribbon Development Act, 2007 (1950 A.D.)

The Jammu and Kashmir Town Planning Act, 1963 and the Jammu and Kashmir Development Act, 1970

The Town Planning Act, 1963 and the Development Act, 1970 are the two important legislations that deal with town planning/development activities within the state. Master Plans have been prepared by the State Town Planning Organisation for the two capital cities of Jammu and Kashmir. Plans have also been prepared for tourist resorts like Pahalgam, Kokernagh and Gulmarg and for other towns viz., Sopore, Katra and Doda. Under the Development Act, 1970 Development

Authorities have been constituted for Jammu and Kashmir for the implementation of the master plans. For Gulmarg and Pahalgam area, a Project Authority has been constituted for implementing the plans in the esecive areas.

The Jammu and Kashmir Development Act, 1970

The Jammu and Kashmir development act was enacted in 1970 "to provide for the development of the state according to plan and for matters ancilliary thereto". The Act empowers the State Government, to declare any area within the state to be a 'local area' for the purpose of the Act and constitute an Authority¹ to promote and secure the development of local areas for which it is constituted according to plan². The Act is largely modelled on the Delhi Development Act,³ 1957, with minor modifications. The Authority is enjoined the power to prepare master plans and zonal development plans for the local⁴ area (under the Delhi Act it is development area). The Act prohibits the undertaking or carrying out the development of any land or building in the zone without the written permission of the Authority, after notice approving data of operation of the plan is published under section 11⁵ (under the Delhi Act, the restriction starts from the commencement of the Act). It also provides that after coming into operation of a plan in the zone, the use of land and buildings are to be in accordance with such plans⁶. These restrictions, like under the

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1. Under section 4, the Authority is to consist of nine members including the chairman appointed by the State Government.
 2. Section 6.
 3. The Delhi Development Act 1957 will be discussed under DELHI.
 4. Section 7 and 8.

Delhi Act, are applicable not only to private individuals but also to government departments.

The lands required for the purpose of development or other purposes are to be acquired by the State Government under the provisions of the Jammu and Kashmir Land Acquisition Act, Samvat 1990⁷. The Act empowers the authority to dispose off the lands so acquired without undertaking any development or after development "to permanent residents of the state in such a manner and subject to the terms and conditions as it considers expedient for securing the development of the area according to plan."⁸

As in the case of the Delhi Act, the powers of the Authority include the right to appoint the person responsible for providing amenity or to carry out the development of the land for which permission has been obtained to provide amenity or to carry out development or to get something done through some agency.⁹ Moreover, the Authority may ask the local authority concerned to take responsibilities for providing amenities and maintaining the same in certain cases.¹⁰ There are also provisions in the Act for the enforcement of the plans and for ensuring that all development activities confirm the master plan or zonal development plans. Thus, the Authority in addition to any prosecutions is empowered to remove unauthorised development by demolition or could stop such developments.¹¹ However, the authority can compound the offences before or after the institution of any legal proceedings.¹²

10. Section 31

11. Section 25 and 26

12. Section 32

The fund of the Authority is to be constituted by grants, loans and advances from the Central and State Governments, money borrowed from sources other than the Government by way of loans or debentures, fees and charges, money received from the disposal of lands, buildings and other properties and by way of rents and profits.¹³ The Act provides for the levy of betterment charges from the owners of the properties whose values have increased or are likely to increase as a consequence of the execution of the developments in those areas¹⁴ and also for the appointment of an arbitrator for the settlement of betterment charges.

The Act specifically excludes the application of the Jammu and Kashmir Town Planning Act, 1963, Chapter XXI of the Jammu and Kashmir Municipal Act, 2008 and section 45(4) and 46 of the Jammu and Kashmir Town Area Act, 2001 in the zones in which the plans have come into operation, from the date of such operation, for this period as the government notification may specify. This is presumable to avoid overlapping of jurisdictions and functions.

The Existing Legislations - An Overview

It may be noted that Act has not repealed the Jammu and Kashmir Prevention of Ribbon Development Act, 1950. These legislations are simultaneously operating in the state, even though overlapping of jurisdictions is avoided to some extent. The Development Act may not be effective in preventing haphazard development as it empowers the authority to impose restrictions on such development only after the approval of the plans. Further, while the Act lays emphasis on plan preparation and enforcement of Regional Plan. It would, therefore, be

desirable that the Govt./ authority arms itself with provisions under which the Regional Plan could be prepared and enforced. In fact, the Act needs a complete revision. (Some suggestions in the Development Act are given below :)

There is need for a comprehensive legislation for undertaking planning and development in the state. Multiplicity of functional agencies in planning and development and lack of co-ordination amongst them have hampered the planning process in the state. For instance, there is non co-ordination between the State Town Planning Organisation and other organizations like the Public Health Engineering Department, Electricity Board, Housing Board etc. In fact, the Town Planning Organisation is not represented in any of these boards. Even the 1970 act does not provide for the co-ordination of various planning/development agencies in the state.

It is pointed out that the allocation of private lands for community facilities and recreational uses is often questioned and unauthorised constructions are coming up against the master plan proposals in all these areas which are shown in the master plan for community facilities and recreational uses.

There should be constituted a Municipal Committee which Committee meets twice a month and communicate the refusal/approval within 30 days after receipts of application failing which permission will deem to have been granted.

1. It is believed that no person submit an application for building permission to Municipal Committee. Therefore, development permission is necessary to be obtained from the development Authority, unless an action can be taken against him.

2. It is necessary to lay down procedure for development undertaken by Union and State Govt. Departments.
3. Since member of agencies are involved in the development activities in the same jurisdiction, there is no such open agency to co-ordinate the work of all these agencies functioning in an area. The Development Act does not have any provision to paly the role of co-ordinating authority to regulate, enforce and integarate all development work undertaken by most of public agencies.
4. The 'building permission' granted by the M.C. under the Municipal Act and the 'Development permission' granted under the development act has no been distinguished.
5. The plan comes into operation after a notice approving the date of operation of the plan is published under section 11 of the Act. Since the preparation of development plan takes about 2-3 years, it is more often that by the time the plan is finalised, the form and patern of the city becomes altogether changed and the development problems becomes totally irrelevant. Therefore, it is suggested that the Act should be suitably modified so that plan comes into force after the notice is published that preparation of master plan under section 7, or modifiaion in plan under section 12, has been undertaken.
6. The 'development committee' should be constituted to deal with the application of development permissions effectively. The members of the 'development committee' shall be represnetative of :
 - i. Town Planning Orgainsaion not below the rank of Dy. Town Planner - Convenor,
 - ii. Development Authority not below the rank of Ex.Engineer/Town Planner,
 - iii. Municipal Committee not below the rank of Architect/Town Planner/Dy. Commissioner
 - iv. P.H.D. Department not below the rank of Ex.Engineer.

Institutional Framework

The major organisations involved in urban planning/development activities in the State are as follows :

List or 'core agencies' with city functions :

- i. Srinagar Development Authority
- ii. Municipal Committee, Srinagar

List of 'peripheral agencies/utility undertaking with the State-wise jurisdiction or other larger jurisdiction but functioning in the city area as well :

- i. Town Planning Organisation
- ii. Public Wealth Engineering Deptt.
- iii. Urban Environmental Engineering Deptt.
- iv. Directorate of Tourism
- v. District Industries Centre
- vi. Directorate of Horticulture production & marketing
- vii. Electricity Board
- viii. State Housing Board
- ix. Post and Telegraph Deptt.
- x. State Industrial Development Corporation

All these agencies are interconnected but at the same time, some of them are not 'interdependent' in terms of their goal/priorities/budget/orientations etc. Hence, inter-organisational or inter-subsystem conflicts are bound to arise as they go about pursuing their own policies and practices that may be 'optional' from their own angles but only 'sub-optional' from the urban system's angle.

Another fact for execution of Urban Development is to prepare a phased and detailed plan which could translate the proposals of development plans into concrete terms. In fact, the city Development Plans should contain definite proposals for execution and indicate suitable priorities in respect of different sectors of urban development, land acquisition, road development and provision of activities and services devoted into a well co-ordinated programme of

action. The Srinagar Master Plan is merely a land use plan and the aspects of fiscal planning have not been taken into account, clearly indicating the execution of action programmes proposed to be taken by development action agency within the framework.

Another important question is whether the planning should begin or end with the master plans. Besides plan preparation, there has to be plan programming, plan implementation, plan co-ordination, plan monitoring without which the effective implementation cannot take place.

The object of planning is promotion of development in an orderly way to achieve maximum benefit both individually and collectively. Development Plan is only a tool to achieve this objective. Planning should include stimulation of development potential, development and development monitoring. Neither the law setting up Urban Development Authority nor the town planning legislaion specifically mention this.

