PREAMBLE

Jammu, the city of temples and the winter capital of J&K state, is a symbol of ancient values and present aspirations. In J&K state, Jammu has a distinct image due to its heritage, location and linkages. With the enactment of the J&K Urban Development Act 1970, the Jammu Development Authority was constituted in 1971. The Authority prepared the first Master Plan for Jammu for a 20 year perspective on a scientific basis. The Master Plan envisaged strict zoning norms on the pattern of Delhi Master Plan. However, JDA did not have absolute control over the land, only vacant land and nazool land in the shape of dry nallah beds were transferred to the Authority by the Govt. Though a few prestigious housing colonies were developed by JDA on such land which improved the image of the city, a large chunk of land transferred to JDA got encroached. In the absence of land pool, actual development could not take place as conceived in Master Plan. The periodic review as envisaged in the Master Plan could also not be carried out, requisite infrastructure was not developed nor the basic concept of self contained community realised.

The city has in recent years, faced unprecedented growth of population due to influx of migration from the Valley and rapid growth of commercial and industrial activities. The demand for serviced land increased tremendously to accommodate the increasing population and diversified economic activities in and around the city. The increased demand of serviced land could not match with supply. As a result, the city experienced large scale development on private land without any planning norms which are now causing severe environmental problems. The old city has been further densified alongwith commercial activities thereby increasing the problems of traffic congestion, water and power shortage and environmental degradation.

The first Master Plan was an effort towards organised development of Jammu. However, multifarious development of economic activities and huge influx of migration from the Valley undermined this effort. The experience of implementation of Development Plan of more than two decades of JDA and viability of various studies, the Master Plan for Jammu: 2021 has been recast to meet the changing local needs and aspirations.

The Master Plan for Jammu : 2021 is an effort to achieve an appropriate balance between the spatial allocation for various activities i.e. housing, employment, social infrastucture, organised shopping centres, transport, adequate arrangements and reservations to accommodate different kinds of physical infrastructure and public utility systems. It comprises of a set of co-ordinated policies concerned with virtually all aspects of development in the city.

The basic postulates for Master Plan for Jammu : 2021 are ennunciated as under:-

- **Jammu to be planned in context of its Region**

Due to its location, linkages, phenomenal population growth and urban sprawl Jammu is poised to become an important regional centre serving a vast

hinterland. Rapid growth of population and employment opportunities can only be channelised by planning Jammu as an integral part of the region through restructuring of the settlement pattern and transportation network. This is necessary because the major problems of a metropolis originate outside its limits. The regional plan may cover area upto Udhampur in the north-east, Akhnoor in the north-west, R.S. Pura in the south-west and Kathua in the south-east. Simultaneously, the city region covering the periphery outside the proposed urbanisable limits is also required to be delineated and controls made applicable in terms of landuse, its intensity, density pattern, transportation network, etc.; so as to regulate development along desired lines.

- **Ecological balance to be maintained**

Jammu has two distinct natural features *viz.* the River Tawi and Forests. No further infringement of the forest area should be allowed. River Tawi needs to be channelised for making available and freeing large areas, to be developed for recreational uses to be integrated with other developments so that the river forms an integral part of the city, physically and visually. Natural forests need to be protected to maintain ecological balance. Jammu also has number of rainfed nallahs which need to be channelised for rain water harvesting.

- **The old city area to be treated as Special Area**

The old city area and its extensions which constituted Planning Division-A of Master Plan 1994 is highly congested and thickly populated with a variety of misuse zones and the pattern of development is unique compared with other parts of Jammu. All economic, social, government and cultural activities are concentrated in the this area, on one hand and many unauthorised housing colonies have mushroomed, on the other hand, in the area extending upto Janipur Nallah from to the west of B.C. Road. The pattern of development is such that there is no scope of further development in this area on the basis of standard planning policies and controls. Hence, it shall have to be given the status of 'Special Area' to be treated in a different manner.

- **The Central Business District (CBD) to be decentralised**

Presently the old city constitutes the Central Business District where most of the activities relating to trade, commerce, government, work centres, education, health and recreation facilities are concentrated and further growing rapidly. It attracts and generates large volume of traffic from and to the residential colonies located in the south and west directions. This Core Area is required to be decentralised by planning new sub-CBDs, community centres, neighbourhood shopping complexes and shifting of many governmental activities.

- **Heritage of Jammu to be preserved**

  Jammu has an importoant historical past right from mythological times. In the modern context it is a historic city having been ruled by successive rulers who have left their indelible imprint on the urban fabric. The plan emphasises modernisation with special development controls alongwith identification of heritage zones, conservation areas and areas requiring regeneration, which would form the part of the process of urban renewal.

- **Mass Transport System to be remodelled**

  At present, the Matador, the only mode of public transport in Jammu is highly inadequate to deal with about 12 lakh passenger trips daily which are expected to grow to almost 29 lakh passenger trips daily by 2021. Besides this, about 8000 intracity goods vehicle trips are generated daily at present which will grow to about 31000 daily trips by 2021. Beyond 2005, road based transportation alone will not be able to cater to total passenger trips. As such, a multi-modal system of transport is envisaged for catering to total trip demand. In addition, the extension of the railway line to Udhampur offers possibility for introducing sub-urban rail system by earmarking dedicated tracks for catering to both future passenger and goods movement.

- **Urban Development to be Low Rise Medium Density**

  Urban development pattern to be adopted needs to be low rise low density in order to be responsive to city needs as indicated by JDA.

- **Urban Development to be hierarchical**

  Hierarchy of use zones proposed in order to achieve sufficient level of containment together with mixed use zones in designated areas.

- **Single Authority for Effective Implementation**

  JDA may be designated as the nodal agency with authority to use land as a resource and adopt alternatives to the land assembly and disposal processes. Authority will be solely responsible for coordination with various development agencies for effective and timely implementation of the Master Plan proposals.

Development being a dynamic process, it needs continuous attention by proper and coordinated planning. In order to channelise the surging growth potentials of the city along the desired lines, there is a need to conceptualise an innovative and realistic plan followed up by hard decision making and a professional approach. To carry out planning work in a systematic and professional manner with regard to regional, environmental and sociological aspects, the task of preparing a Master Plan for Jammu was assigned to TCPO to be taken up in various stages covering data collection, collation and analysis, planning studies, strategies for development and proposals.

In the absence of an updated Survey of India base map and census data, primary surveys were conducted for household, trade and commerce, industry, mixed use, informal sector, historical monuments, building material stores, open spaces, squatters, parking and private offices. The JDA also requisitioned the services of the Human Settlement Analysis Group (HUSAG) of Indian Institute of Remote Sensing, Dehradun for doing an urban sprawl study based on satellite imageries. Later on, base map for the city was made available by Survey of India to JDA March, 1999, thereafter existing landuse survey was conducted by JDA and forwarded to TCPO in September, 1999.

The Master Plan report is based on the extensive interactions of the TCPO team with the VC, JDA; CTP JDA; & CTP, TPO including their officers and staff and also with other various departments of the State Government viz. Industries, Police, Education, Transport, Tourism, AIR & DDK, Fisheries, Archives, Meteorological Department, STA, Development Commissioner, Forestry, Health and Family Welfare, Defence, Economics and Statistics, Food & Civil Supplies, Defence, etc.

HISTORICAL BACKGROUND 1

While hunting at the foothills of the Shivaliks near the picturesque Tawi River, Raja Jambulochan witnessed a tiger and goat drinking water from the same pond. Fascinated by this, the king decided to build a city at this site where the strong and weak may live together in peace and mutual tolerance. Historians believe that Raja Jambulochan founded the city in the 14th century BC. Today, the city of Jammu is popularly known as the city of temples. Jammu is not prominently reflected in history except that before and during the earlier phase of Moghul rule, Jammu was one of the important principalities of Shivalik hills ruled by Rajput Rajas. The Moghul rulers subdued the Rajas and made them tributary rulers in recognition of their independence.

There is not much historical evidence of the growth of city except that the city grew around the temples and shrines constructed by Hindus and Muslims under the patronage of different kings. Growth of city is of medieval character with a wide bazar and narrow streets and lanes, single storeyed buildings adjoining each other. The layout, however indicates that there has been a deliberate effort to plan the old city in an orderly manner. The city was divided into various mohallas named after the dominant community/caste, e.g. Malhotrian Mohalla, Afghan Mohalla, etc.

Dogra rule started in 1846 with Maharaja Gulab Singh as the first ruler of the Dogra dynasty. Dogras made Jammu the capital of the state to meet administrative exigencies. Maharaja Gulab Singh constructed the old Secretariat Complex at a commanding height. Under Dogra rule, the city transformed its medieval character to a feudal one. The seat of the government was located at the highest point. Nobles lived in the close proximity to the palace. The market functioned at the centre and the lowest class of the society settled on the outskirts. This is evident from the buildings like old secretariat and Palace Complex, Raghunath Bazar and Gummat Bazar in the centre and Gujjar Mohalla on the banks of Tawi River. The Dogra rulers took keen interest in the construction of temples. Development of city centred around these temples for example, Raghunath Temple in Raghunath Bazar, temples of Savitri and Devi Trikuta in Jullakha Mohalla, Mahalaxmi temple, Hanuman Temple, Laxmi Narayan temple, etc. This has given a vertical form to Jammu city which to this date dominates the city structure as a whole.

Mahraja Pratap Singh (1885-1925) contributed to the physical development of the city by constructing Tawi bridge, hospital and sadar, schools and colleges, Silk Factory and Dak Bangalow at Residency Road and Leper Home. He also added infrastructure on modern lines by constructing Ranbir Canal - a life line for agriculture of Jammu district, power house, a pumping station at River Tawi to supply piped water to the city and the Banihal road concecting Jammu with Srinagar. The physical character of the city improved considerably in a lateral form with the construction of new roads and provision of infrastructure. This comprehensive layout of infrastructure appears to have necessitated formation of a Municipal Council. With this, an attempt was made to prepare a layout plan for a housing colony in Rehari, indicating regular plots, grid-iron pattern of road system and open spaces.

Development during Maharaja Hari Singh's period oriented towards expansion of industry and provision of community facilities and infrastructure alike. Aerodrome at Satwari, SMGS Hospital and Reservoir at Parade ground were constructe. The city actually took shape in 1962 and its municipal limits extended on both banks of Tawi River over an area of 16.87 sq.km. The urban agglomeration is now expanding beyond the municipal limits and had engulfed an area of 143.52 sq.km. till 1994. The city area now extends upto Bhalol Nallah in South, Narwal Bala and Channi Himmat in east, Patoli Brahmana and Bantalab in north and village Muthi and Aquilpur in the west.

REGIONAL SETTING 2

Planning for the development of a city cannot be limited within municipal boundaries. It considerably influences and is influenced by happenings outside, especially the immediate surroundings. Besides being the gateway to Kashmir Valley, Jammu city occupies a position of central importance in the entire region of Jammu, not only because the city is the winter capital of J&K state but because of its role as the regional centre to its hinterland. With rapid pace of urbanisation and development of economic activities in Jammu, the city's influence has been increasing in range and impact.

Jammu province is one of the three provinces of the state, covering an area of 14,602 sq.km., the others being Kashmir and Ladhakh. It lies between the plains of Punjab in the south and south west, the high mountains of Pirpanjal ranges in the north and the Himalayas in the north-east. Physically, administratively and socially, the province may be divided into three regions i.e. Doda-Udhampur, Poonch-Rajouri and Jammu-Kathua. Doda-Udhampur Region is generally mountainous with extensive forests. Rajouri-Poonch is also mountainous with less forest cover. During Mughal period, the route to Kashmir Valley used to pass through Rajouri-Poonch Region via Shopian and Mughal Maidan in Gulmarg area. Jammu region is generally plain, sloping towards the south.

Three regions of Jammu Province *viz.* Doda-Udhampur, Poonch-Rajouri and Jammu-Kathua, cover 62%, 16% and 22% of the total area of the province respectively. Jammu province has population density of 103 persons per sq.km. against density of 59 persons per sq.km. of the state. Rural population in Jammu Region has grown by 29.26%, whereas urban population has increased by 49.03% during the decade 1971-81. Trend of urbanisation in various districts of Jammu region is shown in Table 2.1. District-wise density of population is shown in Table 2.2.

Table 2.1

Urban Population in Districts of Jammu Region

Sl.No.	Districts	Percentage of Urban Population to Total Population		
		1961	1971	1981
1.	Jammu	24.54	25.81	29.64
2.	Udhampur	6.41	8.38	9.53
3.	Kathua	7.49	9.08	11.38
4.	Rajouri	3.59	3.80	4.97
5.	Poonch	6.60	8.80	6.32
Total	J&K State	16.66	18.26	21.05

Source: Digest of Statistics 1996-97, Directorate of Economics & Statistics, Govt. of J&K State.

Table 2.2

Area, Population and Density of Districts of Jammu Province (1981 Census)

S.No	District	Area (Sq.Km.)	Total Population 1981	Total Population 1991@	Density Per sq.km. 1981	Density Per sq.km. 1991@
1.	Jammu	3097	9,43,395	12,07,936	305	390
2.	Udhampur	4550	4,53,636	6,02,807	100	132
3.	Kathua	2651	3,69,123	4,92,288	139	186
4.	Rajouri	2630	3,02,500	4,17,333	115	159
5.	Poonch	1674	2,24,197	2,92,207	134	175
6.	Doda-Kishtwar Region	11691	4,25,262	5,25,326	36	45
Total Jammu Province(1+2+3+4+5+6)		26,293	27,18,112	35,37,897	103	135
J&K State		2,22,236	59,87,389	77,18,700	59	76

Source: Digest of Statistics 1994-95 J&K Govt., Planning & Development Deptt. (Directorate of Economics & Statistics).

@1991 Figures are as per estimates based on the total estimated population of the state published by the Census Deptt.

The two districts of the region *viz.* Jammu and Kathua have shown greater increase of urban population than Udhampur and Rajouri districts. Due to disturbances on the border areas, the urban population in Poonch declined during 1971-81. The trend of fast urbanisation in Jammu district is mainly on account of rapid growth of Jammu. Jammu alone accommodates 79.87% of urban population of Jammu district.

Jammu district had total population of 9,43,395 persons in 1981 which comprised of 4,91,972 males and 4,51,423 females. The distribution of population in rural and urban areas and number of villages and towns at tehsil level of Jammu district is reflected in Annexure-I.

The table reveals that Jammu tehsil tops all other tehsils both in the size of population and the number of villages within its jurisdiction followed by Samba tehsil. All other tehsils have a small urban component, the least being in Akhnoor. District of Jammu is bounded by Udhampur district in its north, Gurdaspur district of Punjab in south and the border of Pakistan in south-west. It is spread over an area of 3097 sq.kms. Its northern part comprises of Shivalik hills with extensive forest cover. Its southern belt of 1931 sq.km. has rich agriculture due to alluvial soil. Administratively, the district has been divided into five tehsils *viz*. Jammu, Akhnoor, Samba, R.S. Pura and Bishnah with headquarter at Jammu.

2.1 Urbanisation Trend in Jammu District

Growth of Jammu urban agglomeration has been very fast. Many villages falling under Bishnah, Samba and Jammu tehsils have now come under urban sprawl of Jammu city. The impact of urbanisation on Jammu district with the growth of the city can be adjudged from the trend of decadal change in urban population in adjoining tehsils of Jammu city (Table 2.3).

Table 2.3

Decadal Change in distribution of Population in Jammu District

Sl.No.	Tehsils of Jammu Distt.	Percentage of decadal variations (1971-1981)		
		Total	Rural	Urban
1.	Jammu	+ 25.85	+ 16.45	+ 36.02
2.	Samba	+ 37.32	+ 20.30	+ 354.84
3.	R.S. Pura	+ 24.81	+ 22.85	+ 61.35
4.	Akhnoor	+ 34.66	+ 35.11	+ 26.03
5.	Bishna	+ 46.11	+ 50.03	+ 30.53
6.	Total	+ 30.16	+ 24.42	+ 46.15

Source: Census of India 1981, District Census Handbook, Jammu

The Table above reveals that Jammu district has registered a growth rate of 30.16% in population in the decade 1971-81 which is slightly higher than the growth rate of the state as a whole which stands at 29.69% The growth rate is 46.15% of urban population is significantly high. It is significant to note that Samba has the highest growth of urban population mainly due to the notification of Vijaypur and Bari-Brahman as urban agglomerations. Bari Brahman has become part of Jammu city urban sprawl and Vijaypur, a satellite township of Jammu. Urbanizing trend in the various districts of Jammu region and tehsils of Jammu district indicate that Jammu town has considerable influence on other towns in the region.

2.2 Workforce Participation Rate

The workforce participation rate in Jammu district as per 1981 census is given in Table No.2.4.

Table 2.4

Workforce Participation Rate in Jammu District in 1981

Area	Male	Female	Total
Urban	47.64	4.57	27.40
Rural	48.85	2.16	26.34
Total	48.48	2.86	26.66

Source: Census Handbook of Jammu District, 1981

26.66% of the work force in Jammu district was engaged in agriculture and its allied activities. The high percentage of male workers engaged in one or other activity related to agriculture in rural areas shows the tendency of rural workers to migrate to urban areas in search of work because of subsistence agriculture in the district.

2.3 Literacy

Literacy rate in Jammu district was 42.86 percent against 26.67% for the state as a whole. Break up of literacy rate of population of Jammu district is given as under:

Table : 2.5

Literacy Rate of Jammu District (1981)

Area	Literacy rate		
	Male	Female	Total
Urban	66.45	52.19	59.75
Rural	46.62	24.05	35.74
Total	52.60	32.24	42.86

Source: Census Handbook Jammu 1981.

Literacy rate in urban Jammu was 59.75% which was significantly higher than 35.74% for rural Jammu. Literacy rate among urban females was also quite high, but urban males outnumber the females. Jammu (MC) tops all other towns of the district, with a literacy rate of 63.79%, which is the highest in the state.

2.4 Resources

2.4.1. Agriculture

Jammu region has rural economy where agriculture is the main stay. 82.78% of the total population of Jammu region lives in rural areas and are dependent on agriculture. As per 1981 census, 69.12% of the total work force was engaged in agriculture and allied activities against 63.88% in the state. On an average 24.97% of total village area was under cultivation in 1994-95. Only 1/4th of total net area sown is irrigated. Size of land holdings is very small. As per Agricultural Census 1991-92, the size of land holdings for 90.24% of total holdings in Jammu region was less than 2 ha. The model size of holding was between 0.02 to 0.05 ha. Owing to scanty rainfall, small holdings and limited irrigation facilities, agriculture in the region is under developed. Ranbir Canal is the life line of Jammu and R.S. Pura tehsils. This part of Jammu district is the granary of Basmati rice. Rice, maize and wheat are the main food crops. Production per hectare for major crops *viz.* rice, maize and wheat was 308.1 qtl., 199.2 qtl. and 191.6 qtl. respectively for 1994-95 which is quite low compared to national standards. The ratio of net area sown (1994-95) to agricultural workers (1981 census) works out as 0.67 ha. for J&K state, 0.68 ha. for Jammu region and 0.89 ha. for Jammu district which is also very low as compared to national standards. The low land man ratio and production per hectare indicate subsistance level of agriculture in the region. Much of the cultivated land is under food crops and area under non-food crops has not shown a significant rise during the period 1971 to 1994. Production from other allied agricultural pursuits is also insignificant. Under the prevailing conditions, agriculture can hardly provide any assistance for the development of agro-based industries in the region. This is a direct indication for high shift from rural areas to urban areas. This shift will continue to grow faster than in future on account of rapid growth of population. It will have direct impact on the planning of Jammu city, as the city will offer unlimited opportunities of employment for rural folk in non-agricultural occupations.

2.4.2 Forests

48.52% of Jammu region was under forest cover in 1994-95. Jammu is a collection and distribution centre for timber supplies and other forest resources for which water courses and the river Chenab were once used. The economy of the region may be given a boost by exploiting forest wealth based on scientific methods and encouraging the development of forest based industry.

2.4.3 Minerals

Mineral wealth of Jammu region includes coal, bauxite and lime. Coal reserves to the extent of 3.68 million cubic tons at Kalakote, bauxite of the order of 12.2 million metric tons in Reasi and 500 to 600 million metric tons of lime stone reserves in Kalakote coal belt and Basohli are available. Such resources in the region will have impact on the development of industries in Jammu area.

2.4.4 Industries

Linking of Jammu and Udhampur with the railway network of the country and wide spread road linkages have greatly helped in creating an atmosphere conducive to the growth of industries in the region during the past few years. Arrangements of easy credit, raw material, technical know-how, subsidies, etc., are some of the important motivating steps which the government has undertaken to boost industrial development in the area. These factors have encouraged investors to establish small scale and cottage industries in the area. Growth centres like Bari Brahman, Digiana, Samba, Gangyal and Birpur have developed into industrial estates around Jammu city. In the coming years, Jammu is expected to develop as an important industrial area in the state as the market potentials for industrial and consumable products is very encouraging in the region and city has got access to industrial town like Ludhiana, Jallandhar and Delhi. Existence of traditional craftsmen in Jammu can give impetus for the development of handicrafts and village industries. Jammu city and its adjoining areas have various types of educational and technical institutions to impart training to skilled workers and entrepreneurs, a requisite for industrial development.

2.4.5 Tourism

Hitherto, tourism has played a pivotal role in the development of the state economy. Due to socio-political circumstances, tourism to Kashmir suffered a substantial setback whereas there has been increase in the pilgrim traffic to Jammu both by rail and road. Jammu, a city of temples enjoys a transitory status as far as tourism to Valley is concerned but has lately become the main base camp for pilgrims of Katra-Vaishno Devi pilgrimage.

2.4.6 Trade and Commerce

Apart from tourism, trade and commerce forms the single most important determinant of the economy. Pilgrims, tourists and Amarnath Yatris all pass through Jammu. Of late, the centre of trade of commodities like dry fruit, flowers and fruit, etc.; has shifted from Srinagar to Jammu. This had led to proliferation of shops dealing in general merchandise, catering to the needs of pilgrims and tourists. Large scale invasion of remunerative uses have taken place in residential use zones particularly in the core area with guest houses and hotels mushrooming all over. Development of 'Strip Commercial' has taken place along a number of roads in the core area with each street/zone specialising in a particular commodity.

Jammu therefore occupies a commanding position in the region in respect of development of industries, education and jobs opportunities in the non-agricultural sectors. Proliferation of economic activities in Jammu has attracted work force from the hinterland and outsie the state. Most of the migrants from the Valley have settled in Jammu. This has accelerated the process of urban sprawl in and around the city resulting mushrooming of many unauthorised colonies which create heavy load on the local infrastructure. Land use management of Jammu city, therefore, assumes greater importance.

2.4.7 District Plan

District Development Board comprises of the public representatives headed by the District Development Commissioner with responsibility of the formulation of plan, fixation of priorities and monitoring of progress financial as well as physical. In Jammu district, priority is mainly given to provision of drinking water in the villages and improvement of social and economic infrastructure in the district as evident from the following statement showing the expenditure against resources on priority sectors under the Jammu District Plan 1996-97.

Table 2.6

District Plan 1996-97

(Amount in Lakhs)

Sl.No.	Sector	Outlay	Expenditure
1.	Social Services	2874.25	2460.96
2.	Agriculture & Allied Services	561.62	523.47
3.	Rural Dev. JRY/IRDP	585.83	1387.02
4.	Road & Bridges	339.55	602.05
5.	Irrigation & Flood Control	198.50	118.32
6.	Village & Small Scale Industries	130.99	130.99
7.	Power	200.00	198.85
8.	Non-functional Buildings	29.95	29.95
9.	Planning & un-tied fund	6.25	6.17

Source: Eco. Review of District Jammu 1996-97, Deptt. of Eco. & Statistics.

JAMMU IN THE CITY REGION CONTEXT 3

The rural area of Jammu on the periphery of the city has special significance. Jammu district has 1192 villages, out of which 1054 are inhabited. More than 1/4 th of the villages are within a radius of 15-20 kms from Jammu city. Rural areas in the periphery of Jammu city provide sufficient scope for the current urban sprawl. Under the Master Plan 1974-94, 47 villages adjoining the city, were included in the urbanisable limits. The city is expanding very fast in size and shape. The urban extensions have engulfed many more rural areas especially towards the south side. As a rough estimate, more than 1000 ha. of agricultural land is being converted to urban use every year. Urban sprawl is also depleting forest reserves. Ribbon development is occuring towards south on NH-IA and along the railway line. Outgrowth of satellite townships i.e. Bari Brahaman, Samba and Birpur is also occuring and the land pockets with defence establishments around the city periphery are also a part of the sprawl.

The Ranbir Canal irrigates most the agricultural land from north west to south and south-west of Jammu district. The area is highly rich in agriculture, famous for basmati rice which are not only locally consumed but also exported. The rural areas in the periphery, feed the city population by producing cereals and pulses as well as vegetables, milk, building material and wood. As per surveys, milk flows to the city from Kathua, Pathankot and villages like Chatha, Gajansoo, Gole, etc. Vegetables mostly ply on reharas to the city from R.S. Pura, Miran Sahib, Marh, Ghomansa and Gajansoo. City is supplied wood and timber from forest areas of Doda district. Building material flows to the city from Kalu Chak, Satwari, Gadigarh, Nagrota, Janipur and Pathankot. Jammu city, therefore, is dependent on its periphery in many ways, thus, rural areas have special significance for the city's urban population.

Urbanisation offers opporotunities for increasing employment. Increasing workforce participation rate (WFPR) in Jammu during last three decades shows that diversification of economic activities has attracted migrants from rural areas and other parts of the state.

Table 3.1

Work Force Participation Rate, Jammu UA

Year	WFRR (%)
1971	24.85
1981	27.84
1994	28.82

Source: District Census Book Jammu, 1981 & Household Survey, 1994, JDA.

The extension of area under urban use was necessitated on account of phenomenal growth rate of population in Jammu after 1961. Population of Jammu (including Cantonment) was 1.08 lakh in 1961 which increased to 1.64 lakh in 1971, showing decadal growth rate of 51.68% and it further increased to 2.23 lakh in 1981 with decadal growth rate of 36.02%. Census for 1991 could not be conducted in J & K. However, JDA conducted a Household Survey in 1994 as part of the Master Plan exercise. On the basis of data collected, the population of Jammu (excluding Cantonment) was estimated as 7.28 lakh, showing an increase of 226.42 % during the last 14 years. This unprecedented growth rate of population may be attributed to huge influx of migration fom Valley after 1989 due to militancy, migration of work force from rural areas of Jammu and other states of the country, increase in the number of pilgrims to Vaishno Devi during recent years resulting in rapid expansion of commercial and transportation activities.

The genesis of growth of Jammu lies in the rapid urbanisation as is evident from the spatial growth of the city after the seventies. Jammu was spread over an area of 18.30 sq.km. in 1969 which increased to 21.42 sq.km. in 1973 at the time of preparing the Jammu Master Plan 1974-94. Satellite imageries taken in 1986, 1990 and 1995 reveal that Jammu urban agglomeration has spread over an area of 73.12 sq. km., 93.42 sq.km. and 143.52 sq.km. respectively. Satellite imageries also revealed that Jammu is facing lateral expansion of corridor type, along the roads towards the south, south east and south west. Studies have revealed that rural areas especially towards south have undergone extensive transformation from agricultural use to urban use. A large number of rural properties are being divided and sub-divided to be used for residential, industrial and commercial purposes. The agricultural areas falling within the limits of the Jammu Master Plan 1974-94 have extensively been converted into unauthorised residential colonies. The green belt has been eroded. Area under protected forest is being encroached upon by the unscrupulous colonisers.

The more the city grows, the more complex become its problems of land, housing, transportation and provision and management of essential infrastructure. Jammu at present, is facing all these problems and if a well planned strategy is not adopted to contain sprawl, the city problems may become alarming and unmanageable. Therefore the strategy lies in limiting urban growth within a specified boundary to save agricultural land and channelising growth to bring relief to the 'core city'. This calls for regional development planning approach by developing Akhnoor, Gajansoo, Ghomanasa, R.S. Pura, Arnia, Bishnah, Vijaypur, Samba, etc., where work centres may be created to attract work force from urban areas of Jammu and provide education, health facilities, recreation, cultural activities and physical infrastructure parallel to Jammu city.

REVIEW OF JAMMU MASTER PLAN, 1974-1994 4

As mentioned earlier, the Jammu Development Authority came into being in 1971 and the Master Plan prepared under the Development Act, 1970 was approved in 1978 for a twenty year perspective. The plan was designed to cater 5.52 lakh population over an area of 130.36 sq.km. The plan proposals consisted of a decentralised hierarchical system of planning, dividing the city into three planning divisions (A,B & C) and 126 development zones. A satellite township at Bari Brahmana, 18 km. away from the city, was also proposed for industrial development. Area to be developed was assigned uses as per the requirement envisaged under the Master Plan. Of the proposed developed area, 54.80% land was assigned for residential use to include 47,100 dwelling units by 1994 in public and private sectors. For the economically Weaker Sections, 10% population was to be assisted by way of releasing land at subsidized rates. More than 15% of total area was assigned for circulation to improve transportation network in the city. The Master Plan laid emphasis on self contained neighbourhood development with community facilities to provide good quality of life to people of Jammu.

The method of development envisaged was compulsory acquisition of land by JDA and its further disposal for a variety of uses after development of physical infrastructure. To strengthen the financial base of JDA, about 34,565 kanals of vacant and Nazool land was transferred by J & K Govt to JDA for development and disposal. The resources, thus, raised by disposal of developed land was conceived to form seed capital with JDA.

In spite of having prepared Zonal Plans and schemes, the implementation of plan proposals was not encouraging largely on account of the following constraints:

1. **Rapid Population Growth:** Unprecedented population growth due to migration from Valley and hinter land. About 12000 tourists/pilgrims were estimated to visit Jammu per day in 1994. The number of pilgrims/tourists has increased manifold in recent years.

2. **Encroachment on Nazool land** : JDA did not have absolute control over land. However, Nazool land, in the shape of dry nallah beds were transferred to the Authority due to which development was not cost effective. JDA did develop prestigious housing colonies like Trikuta Nagar, Roop Nagar, Ban-Talab, Paloura Phase I & II, Muthi,Udhayawala, and commercial complexes like New Transport Nagar, whole sale fruit market, rail head commercial complex (Bahu Plaza), etc. A large chunk of Nazool land was encroached. Due to resource crunch and heavy overhead charges, it was not possible for JDA to undertake further land acquisition and therefore the existing land pool got exhausted.

3. **Non-implementation of Zonal Plans:** Under section 8 of the J&K Development Act, 1970, it is mandatory to prepare Zonal Plans for the area covered under the Master Plan. The whole area under Jammu Master Plan, 1994 was distributed under 126 Zonal Plans. Only 36 Zonal Plans were prepared by JDA, out of which hardly 16 Zonal Plans could be

approved. For implementation of even these approved Zonal Plans, JDA was required to acquire private land which was not feasible due to inadequate funds with the Authority. Thus, even the approved Zonal Plans could not be implemented.

4. **Increased demand for land:** Large chunks of Government land were grabbed by colonisers where the end-buyers had no title over the land that they bought. Buildings have been constructed without obtaining building permission.

5. **Gross Violation of prescribed landuse :** Unexpected future developments i.e. migration from Valley & border districts; rapid inflow of tourists/yatris, development of communication sector, liberalisation of economy, etc. could not be anticipated at the time of framing the Master Plan. These developments generated competitive markets and open business opportunities which needed a much higher percentage of land under commercial use in Jammu than envisaged under the Master Plan. As a result, the tendency to go in for unauthorised constructions for erecting commercial assets in areas not originally demarcated for commercial use increased manifold.

6. **Non-availability of serviced land for housing :** Against a total number of 47,100 residential plots proposed to be developed under Master Plan in public and private sectors, JDA and Housing Board could develop only 8000 plots. The community facilities also could not be matched. As a result, while on the one hand, the Planning Division-A comprising the old city which had already reached a saturation point became further densified and commercialised thereby increasing the problems of traffic congestion, water and power shortages and environmental pollution and on the other end the Planning Divisions B and C comprising area on the west of BC Road and across the bridge respectively, which had lot of open areas got built up in an unplanned and haphazard manner without basic infrastructure. Thus, the neighbourhood concept conceived in Master Plan could not be materialised.

7. **Non-enforcement of Development Control Regulations:** With a steady trend of migration from rural areas around Jammu to city, breaking up of the joint family system, rising income amongst inhabitants of old city and mass migration from Valley to Jammu, resulted in the mushroom growth of colonies on the periphery of the city. A large number of plots in these colonies are so small that they do not have enough land for the prescribed set backs. Owners of such plots also found no options but to go in for unauthorised construction as their building plans could not be approved. Similar was the case for construction of additional storeys over the existing buildings beyond the prescribed heights. People do not submit building plans for approval. Commercial units start functioning even without obtaining a completion certificate issued by the local authority regulating construction activity.

8. **Lack of Periodic Review** : Master Plan provided periodic review of the execution of plan proposals, which has not been carried out.

9. **Zoning Regulations:** The Master Plan followed strict zoning regulations. Since JDA could not undertake land acquisition due to financial constraints, the zonal plans could not be prepared in absence of land pool. As a result only 10-15% of the proposals could be implemented over a period of time which undermined the physical environment.

10. **Absence of Unified Controlling Authority**: JDA had to depend on line department like PHE, UEED, PWD, etc., for most of the services. All these departments have their independent programme of action in Jammu which were not synchronised with the Master Plan. So the provisions of the Master Plan got diffused and adhoc schemes have been taken up on a short term basis.

On account of above mentioned constraints, Master Plan proposals could not be implemented. Development, whatsoever, took place, was piecemeal and adhoc. Line departments got studies conducted on specific problem and tried to implement the proposals independently. Even the proposals of these specific studies were implemented by line departments in piecemeal and adhoc manner. In nut shell, in absence of coordination between JDA and other line departments, all development efforts could not respond to the comprehensive planning framework enunciated in the Master Plan.

4.1 Studies Undertaken

1. NATPAC Study

The JDA appointed National Transportation Planning and Research Centre (NATPAC) in 1988 to develop a perspective plan for a cost effective transport action system for Jammu Urban Area required by the turn of the century. The study proposed amongst others, specific traffic engineering and management schemes, construction of some new roads, upgradation of certain roads, bus terminals and parking facilities after conducting a socio-economic survey of the population of the city. The study indicated the need for high capacity mass transit system after 2001.

2. RITES Study

Since transportation scenario had undergone change due to socio-economic and socio-political reasons by the time NATPAC completed its study, JDA felt it necessary to have a long-term plan for transport requirements covering a period of 25-30 years. JDA appointed RITES to have a fresh look at the immediate/short term traffic engineering/management measures and to prepare a phased comprehensive Urban Transportation Plan for Jammu city to meet its transport demand upto the year 2021. RITES made use of available base year data from the NATPAC study and conducted primary traffic surveys. Data from secondary resources *viz.* state departments was also used. The main findings of the RITES study are given below:

- Population of Jammu was forecasted to grow to 8.53, 12.51 and 18.34 lakh by the year 2001, 2011 and 2021 respectively.

- Per capita trip rate was expected to grow to 1.0, 1.1 and 1.2 in 2001, 2011 and 2021 respectively.

- Forecast for passenger transport was expected to be more than 10,000 peak hour peak direction trips (PHPDT) which indicates the necessity of high capacity mass transport system along certain corridors.

- The study proposed an Integrated Multi-Modal Urban Transportation Plan to keep pace with the increasing demand in Jammu Urban Area. Two high capacity mass transit corridors, North-South and East-North-West were proposed to cater to the transport demand upto the year 2021, besides a sound transport strategy which consisted of gradual upgradation of mass transport system to be implemented in phases.

- To meet mobility requirements, 45 km. of major new roads and 85 km. of road widening exclusive to the Core Area were proposed. A down stream bridge in addition to upstream bridge, was also proposed. Improvements of Jewel-Dogra Chowk, Satwari Chowk; a railway level crossing near Channi-Himmat; four sub-ways at Jewel Chowk, Vikram Chowk, Shalimar Chowk and K.C. Chowk and pedestrian facilities on many roads were suggested. Study also proposed increasing parking spaces by 2021.

- To cater to long term transport demand, 92.08 km. of LRT system with 26 stations in exclusive and mixed right of way was proposed to be completed in 3 phases at an estimated cost of Rs.635 crores.

- Study also proposed setting up of a Transport Management Unit in JDA to manage traffic and transportation matters of the city and an independent Corporation to construct and operate LRT system.

- An exhaustive data bank was suggested to be created. Traffic and travel surveys be conducted to review traffic and travel characteristics to evaluate the post implementation impact of various schemes.

3. NEERI STUDY

The water supply system of Greater Jammu had not been keeping pace with the rapid growth in population and all round development in the city. To augment the water supply in the city, a study was entrusted by the Public Health Engineering Department, Jammu to National Environment Engineering Research Institute Nagpur. The report was presented in 1993. The main findings of this report were:

- The population of Jammu was forecast to grow to 10.69 lakh in year 2006 and 14.34 lakh by 2021.

- Water supply to Jammu was to be managed from water lifting plant at Shitlee and tubewells. Total water supply in 1992-93 to city was 143 mld. which on completion of work of Phase-I will increase to 163. mld in 1994.

- Greater Jammu divided into seven zones for water distribution.

- Since there is acute shortage of water in various parts of Jammu, the study recommended lifting Chenab River Water near Gaur 23 km. from Jammu and water treatment plant at Jandial. The portable water to be conveyed to various distribution centres of Jammu.

- Construction of a conventional water treatment plant of 121 mld. capacity to meet the requirement upto the year 2006 and adding another plant of equal capacity to meet the requirement for the second stage for the year 2021.

4. SMR (Sidhra-Majeen-Rangura) Township

As Jammu was facing phenomenal population growth and JDA felt that this growth needed to be organised and directed in an optimal and rational manner so as to avoid impact of unplanned development, it assigned to HUDCO the project of preparing a plan for Sidhra-Majeen-Rangura Township on a consultancy basis. HUDCO attempted to develop this township on the principles of sustainable development so as to ensure that the manmade system and natural eco system both combine mutually to contribute and compliment each other so that adverse impact on the environment is minimised. The plan was developed for a total area of 743 ha. along the slopes of existing Sidhra,Majeen,and Rangura villages.

The plan proposals indicated low density development on the higher slopes and intensive development on the lower slopes so that reasonable amount of open spaces are ensured for the township. The major activity envisaged was institutional use, sports and cultural activities, tourism, in addition to commercial and residential development. The level of containment was assumed to be around 70-80% and for higher level facilities, this township would depend on Jammu. A detailed urban design proposals was also developed for the city centre spine comprising of commercial areas, sports complex and town centre.

Unfortunately, SMR Township could not take off as envisaged largely on account of land acquisition and compensation amount to be paid to the villagers.As such, today, a large proportion of land has got encroached.

JAMMU - PRESENT 5

5.1 Location and Approach

Jammu, the city of temples and the winter capital of Jammu & Kashmir, is located on both the banks of the River Tawi. The old city is confined to the right bank and the later expansions of the city (new Jammu) have largely taken place on the left bank of the river but a number of new colonies such as Roopnagar, Janipura, Barnai, Bantalab, Anand Vihar, Tathar etc. have come up on the right bank also. Large scale urbanisation and industrialisation has given rise to what is called now Greater Jammu, the name given to old, new and the suburbs of Jammu.

Jammu is located about 585 km. to the North-West of Delhi on National Highway-1A. It is about 290 km. to the south of Srinagar, the summer capital of J & K State. Jammu is the northern most railway head and is well connected to all State Capitals of India by rail. It is connected to Srinagar, Leh, Chandigarh and Delhi by air. The city is well connected by roads with all parts of J & K as well as with other major cities/towns of Punjab and Himachal Pradesh. Due to its locational advantage, Jammu assumes importance on the linkage corridor to Salal Project, Rajouri, Poonch, Kishtwar, Doda and serves as the gateway to Kashmir Valley. Greater Jammu is spread over an area of 170 sq.km. The area lies between 32^0 38'15" & 32^0 48' 00" North latitude & between 74^0 47' 18" and 74^0 50' 05 East longitude.

5.2 Physiography

The Greater Jammu area falls in sub Himalayan region. It can be sub-divided into two physiographic units; the Outer Plains and the Outer Hills of Shivaliks.

Outer Plains: The elevation of this tract varies from 280-400 MSL. The outer plains lie parallel to the mountains in Jammu. The streams, ravines and gullies issuing from these mountains run across this plain which is dissected into series of plains. The lower slope of Shivalik hills having an attitude of 320-400 MSL constitute what is called Kandi area, which is formed due to the reworking of upper Shivalik boulder beds. This region is characterised by thirsty soils, very deep water table and acute shortage of water. Every shower of rain deprives the soils of its clay contents and more and more pebbles, boulder beds are exposed due to rampant erosion. Gandhi Nagar, Shastri Nagar, Sanjay Nagar, Satwari, New plots, Patoli, Paloura, Railway Station & University Campus fall in Kandi belt. For most of the year, these ravines, locally called Khads are transformed into gushing torrents. The areas located on left bank of River Tawi and area between Jewel Chowk and Bhori (Talab Tillo) on the right bank of River Tawi fall in the outer plains of Jammu.

Outer Hills: To the north of outer plains, stands the outer most range of the Shivaliks. These are also called the foot hills. The Shivalik hills slope gently and slopes are covered with boulders and pebbles. The Shivalik hills like the outer plains, are also dissected by ravines and on this account they represent the

appearance of isolated hills and broken hills ranges. Most parts falling on right bank of River Tawi such as Mubarkmandi, Pacca Danga, New Janipur, Roopnagar & Bantalab lie on the on the hills.

5.3 Climate and Rainfall

The climate of Jammu varies between tropical and monsoon type. Winter season lasts for three months i.e. December to February. The mean monthly temperature during this season is between 13.5^0 to 20.0^0 C. While the days are often sunny and warm, nights are cold. About 150 mm. of rainfall is received during this season. The summer season sets in from March when the temperature begins to rise and continues to rise upto June when the mercury reaches above 40^0 C. The weather is dry and hot during summer. South west monsoon normally arrives in Jammu by the 1st week of July and ends by mid September. There is a complete reversal of the direction of winds from south west to north east. In October and November, the weather is generally dry. The mean monthly temperature, total monthly rainfall and relative humidity of Jammu city is given below:

Table 5.1

Mean monthly temperature, rainfall and relative humidity in Jammu

Month	Mean Monthly Temp (oC)	Total monthly Rainfall (mm)	Relative humidity %
January	13.5	57	68
February	16.4	61	63
March	21.1	50	54
April	26.7	32	42
May	32.4	23	32.7
June	34.0	70	45
July	30.5	320	71.4
August	29.0	249	80
September	28.5	123	69
October	27.1	29	55.7
November	21.7	07	49.3
December	14.5	31	63

Source: Metrological Department 1995, Jammu,

5.4 Population

Jammu was a small town before fifties but started growing in size and shape after 1971. The growth of population in Jammu since 1941 is given in following table.

Table 5.2

Census Population of Jammu City

Census Year	Population	Decadal growth (in %age)
1941	58,847	-
1951	83,551	41.98
1961	1,08,257	29.56
1971	1,64,207	51.68
1981	2,23,361	36.02
1991@	5,88,412	163.43
1994*	7,27,940	+225.90

Source: Census District Handbook, Jammu.
@Estimated : 1991 census was not conducted in J & K state
* Estimated by Household Survey conducted by JDA
+ Population growth in 1994 over 1981

With rapid industrialisation, urbanisation and mass migration from Valley, (between 1989 to 1994), the population of Jammu grew to 7,27,940 representing 225.90% increase over 1981 population. Now Jammu is one of the fastest growing city in India in terms of population and area. Besides this increase in residential population, the floating population of pilgrims to Mata Vaishno Devi, military and para military forces and their families stationed at Jammu also add to the population of Jammu.

Population characteristics is one of the vital components for planning a city. Since census operations in Jammu & Kashmir were not conducted in 1991 and population scenario of Jammu drastically changed due to large migration of people from the Valley during 1989-94, data collected for Household Survey in Jammu during 1994 by JDA is the only base to assess the existing characteristics of population for the purpose of planning.

5.4.1 Migration: Jammu is located in the extreme corner of the country. The city is surrounded by subsistence agricultural and industrial economies and protected by stringent regulation against settlement by outsiders. Socio-economic and political compulsions have been pushing intra-regional migration to the city which is one of the main reasons for phenomenonal growth of population. In fact, in-migration to the city from hinterland is directly proportional to the impoverishment of rural economy. Subsistence agricultural practices, fragmentation of land holdings and steep rise in population have pushed more and more people out of the rural economy in search of employment in the city. Annual rate of intra-regional migration is estimated between

29% to 35%. The city faced unprecedented migration of about 2 lakh Kashmiri Hindus during the period 1989-94. On going militancy in the state has pushed out a large number of Muslim families from Valley to settle in the city. The migrants have purchased land either to settle permanently in Jammu or have an alternative house. Because of legal restrictions, there was check on inter-regional migration. In order to fill the gap of demand and supply of labour in the fast diversifying economy and flourishing construction activity, more than 40,000 to 50,000 workers have migrated to Jammu from Bihar, AP and MP in search of employment. Besides in-migration, floating population which constitutes pilgrims to Mata Vaishno Devi, Amarnath Yatra, military and para military forces and their families is also adding about 2 lakh people to the population annually. Darbar Move brings about 18000 families from Srinagar to Jammu for six months of winter.

5.4.2. Age and Sex Composition: The total population of Jammu in 1994 was estimated as 7,27,940 comprising 53.14% males and 46.86% females. The sex ratio works out to 882. In comparison to 1971 and 1981 census, the percentage of males in total population in 1994 has shown slight decline. Males constituted 53.82% of total population in 1971 and 53.20% in 1981 but females increased from 46.20% in 1971 to 46.68% in 1981. This shows some migration of females to city which may be due to marriage or families joining the bread earners in the city.

Table 5.3

Distribution of Population by Age & Sex During 1994

Age Group	Male	Female	Total
0-14	154488 (21.36)	137144 (18.84)	292632 (40.20)
15-19	38253 (5.26)	33813 (4.65)	72066 (9.90)
20-24	33922 (4.66)	29991 (4.12)	63913 (8.78)
25-29	25112 (3.45)	22204 (3.05)	47316 (16.50)
30-39	47171 (6.48)	41492 (5.70)	88663 (12.18)
40-49	36543 (5.02)	32175 (4.42)	68718 (9.44)
50-59	24605 (3.38)	21619 (2.97)	46224 (6.35)
60+	25769 (3.54)	22639 (3.11)	48408 (6.65)
Total	386863 (53.13)	341077 (46.86)	727940 (100.00)

Source: Household Survey 1994, Jammu.

Table 5.3 indicates that more than 50% of total population in Jammu is below the age of 20 years and 6.65% above the age group of 60. Out of males, as high as 26.62% are in the age group of 0-19 years and 3.54% in the age group of 60 and above. On the other hand, out of females, 23.49% are in the age group of 0-19 years and 3.11% are 60 years and above. 22.97% of males and 20.26% of females which comprises 43.23% of total population, constitute the total workforce in Jammu.

5.4.3 Occupational Pattern: Changing trend in occupational structure of working force in Jammu can be judged from following table.

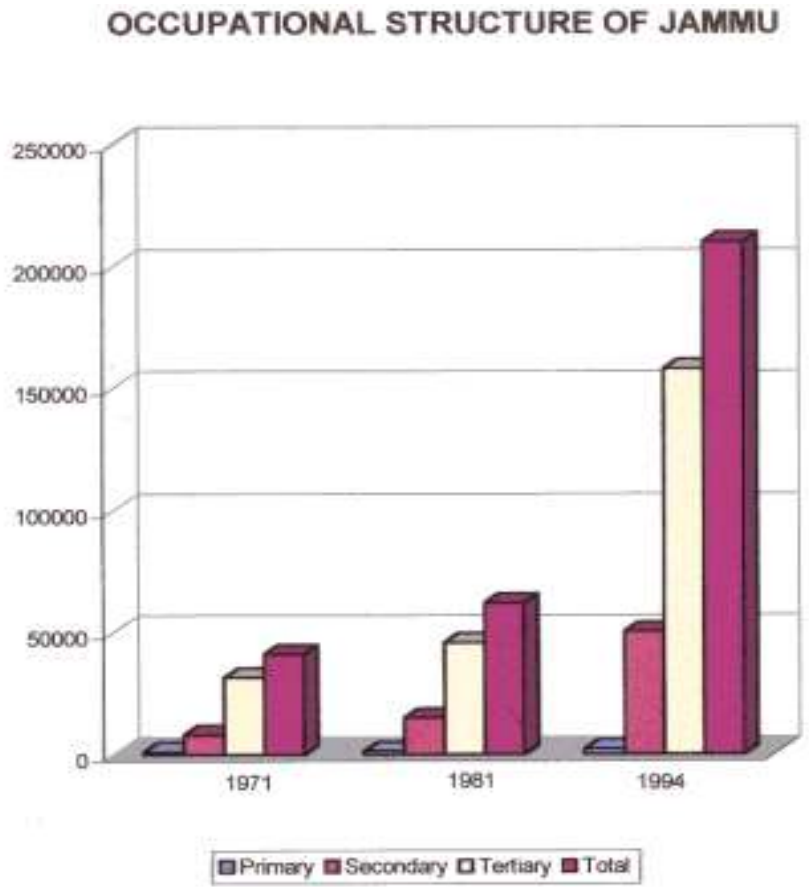
Table 5.4

Occupational Structure of Jammu

Occupation	**1971**		**1981**		**1994**	
	Workers	**%age to total workers**	**Workers**	**%age of total workers**	**Workers**	**%age of total workers**
(1) Primary Sector Agricultural & Allied	1240	3.04	1352	2.19	2097	1.00
(2) Secondary Sector						
Manufacturing	5297	12.98	9346	15.14	33983	16.21
Household Industry	98	0.24	237	0.38	250	0.12
Construction	2730	6.69	5370	8.71	15812	7.54
Sub-Total (Sec)	8125	19.91	14953	24.22	50045	23.87
(3) Tertiary Sector						
Services	16215	39.73	19322	31.30	50659	24.14
Trade & Commerce	9694	23.75	17660	28.61	67174	32.02
Transport, Storage & Communication	5539	13.57	8445	13.68	39787	18.97
Sub-Total (Ter)	31448	77.05	45427	73.59	157620	75.13
(4) Trade Total (1)+(2)+(3)	40813	100.00	61732	100.00	209762	100.00
Participation rate of workers		24.85		27.64		28.84
Total	**164207**		**223361**		**727440**	

Source: Director of Census, Govt. of India & Household Survey 1994, JDA.

Table 5.4 reveals that more than two thirds of working force in the city was employed in the tertiary sector during 1994. With the increasing influx of pilgrims to Mata Vaishno Devi, employment in activities relating to tourism or pilgrims has increased tremendously while employment in services is gradually declining. Industry is also picking up. The number of workers employed in construction activity has tripled but their share in total workforce in percentage terms has declined.



5.5 Urban Extensions

Jammu was spread over an area of 21.42 sq.km. in 1971. Jammu Master Plan 1974-94, proposed extension of the city over an area of 130.36 sq.km. to accommodate 5.52 lakh population by 1994. Satellite imageries taken in 1986, 1990 and 1995 indicated that area under urban agglomeration has increased tremendously to 73.12 sq.km., 93.42 sq.km. and 143.52 sq.km. respectively. Urbanisation is engulfing more and more area under agriculture, forests and waste lands to accommodate the fast growing population of the city. The city has faced lateral expansion on the National Highway NH-1A and Railway line towards south and on Akhnoor Road towards north. The city at present is covering an area of about 170 sq.km.

5.6 Existing Landuse

Notification of the following areas was done by JDA for the 1974-94 Master Plan.

1) Area under Jammu Municipality upto 1969 (i.e. Notified areas under SRO No. 14 dated 28.9.1961 and SRO No. 107 dated 21.2.1969).

2) 53 villages falling in the proximity of the city were added to form local area under development vide the following notifications:

- SRO No. 44 dated 2.2.1971, 39 villages;
- SRO No.130 dated 1.3.1978, 7 villages;
- SRO No. 338 dated 10.8.1984, 7 villages.

Besides this notified area, Master Plan proposed to develop a Satellite Industrial Township at Bari Barhaman which covered 11 villages as Division-D. It covered total area of 2566 ha. out of which area of 1789 ha. was proposed to be developed for different landuses. Later on,however,it was not notified by JDA under the Master Plan.

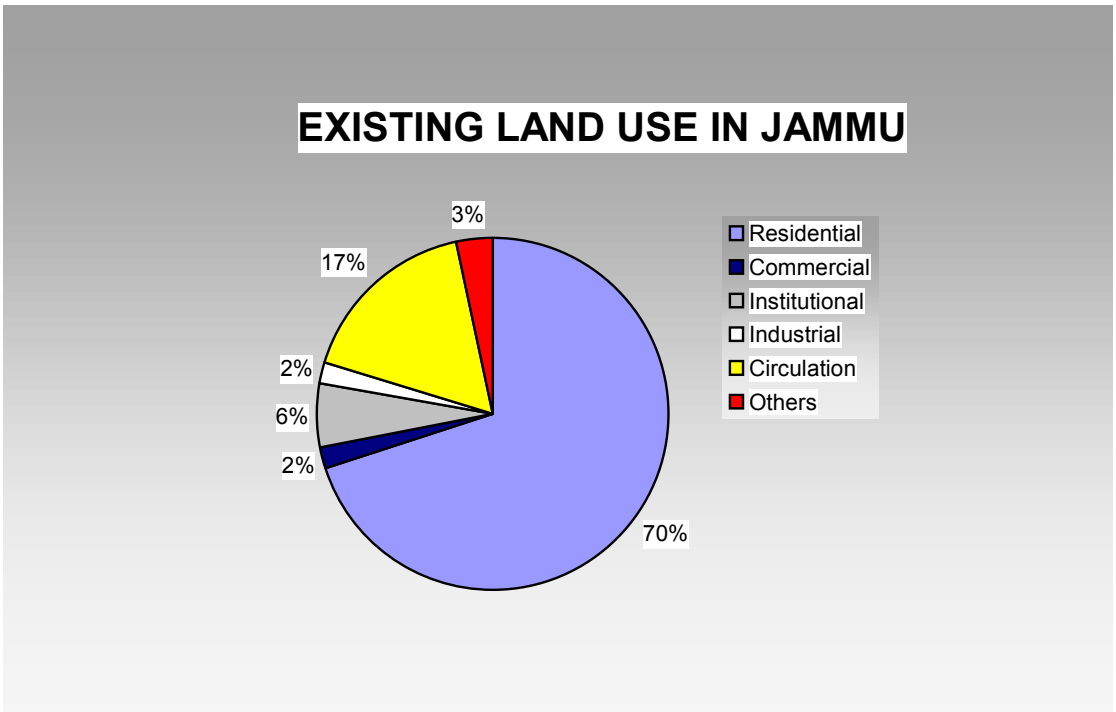
Table 5.5

Landuse in Jammu (1999)

S.No.	Landuse	Area (Ha.)	Percentage
1.	Residential	3755	69.98
2.	Commercial	110	2.05
3.	Institutional	307	5.72
4.	Industrial	106	1.98
5.	Orchard	85	1.58
6.	Cremation & Grave Yards	09	0.17
7.	TPT Nagar	76	1.42
8.	Warehousing	25	0.46
9.	Timber Depo.	22	0.41
10.	Forests	40	0.74
11.	Circulation	831	15.49
	Total	**5366**	**100.00**

Source: Existing Landuse Survey, 1999 JDA.

The notified area under Master Plan 1994 limits extended Municipal Core Area City limits towards North upto Ram Nagar Rakh; West upto left bank of Thather Khad' South - west near village Gol; Southward meeting Bhalole Nallah near Chatta, Hakal and all along right bank of Bhalole Nallah upto Kulu Chak; towards south-east direction upto village Thanger on NH-1A byepass and a passing Narwal Bala to left bank of River Tawi including areas of Rakh Bahu and Bahu.



The notified area for development was bifurcated into three planning divisions *viz.* A, B and C. The total area was 10,470 ha. which included 1416 ha. area under defence use. Excluding area under Defence use, out of 9054 ha., 5928 ha. (65%) was proposed for development under the M.P. 1994.

5.7 Physical Conditions

Settlements in Jammu can be divided into two distinct parts, the medieval feudal settlement of the old city and post independence development. Both these have distinct physical characteristics.

Old City : The old city is situated on a hillock on the right bank of River Tawi. Its ground slope varies between 0 to 80 mt. from the river bed to the Palace. The old city stretches over an area of 404.1 ha. of which an area of 249.44 ha. is residential and lies between B.C. Road and River Tawi. Most of the activities relating to trade, commerce, government offices, educational institutions, health facilities and recreation are concentrated and growing rapidly in this area. It is the main Central Business District (CBD) of Jammu which caters to varying day to day shopping needs of residents of outlying colonies, villages and tourists. Raghunath Bazar, Kanak Mandi, Moti Bazar, Pacca Danga, Jain Bazar, Link Road, Purani- Mandi, City Chowk and Hari Market are the important shopping centres. The old city is highly congested. The estimated

population of this area is 1,46,355 as per household survey conducted by JDA in 1994. The residential density of old city works out as 587 persons per hectare.

The Household Survey conducted in 1994 in Jammu revealed that physical conditions of the old city are bad, as more than 82% of houses were constructed more than 15 years ago and hardly 5.12% of houses had been reconstructed within the last three years. The physical character of the old city is still maintained with narrow and congested bazaars, streets and bylanes which are well linked. Linear development of commercial units along the major roads has now penetrated appreciably even to the narrow streets which are mostly paved and stepped. Some development of commercial units has taken place in recent years which caused substantial strain on the available infrastructure. Narrow roads make accessibility difficult. Light vehicles and three wheelers also find it difficult to ply here. As there is no parking place nearby, the cars are parked on the road side which makes the movement of pedestrians difficult. The old city, therefore, still retains its human scale and pedestrian character.

The famous Raghunath Mandir is the main attraction centre of the tourists and its residents. The temple is situated at one end of the Raghunath Bazar. More than 42% of shops in the old city are devoted to the requirements of tourists. A number of hotels have mushroomed in along Chand Nagar area, Gumat area, Gurudawara Sunder Singh road, Raghunath Bazar Road and Residency Road and near by areas which provide 90% accommodation for tourists and pilgrims.

The city has undulating terrain which provides natural advantage of sanitation. There is no sewerage system. Dry latrines are in vogue. Open drains mostly meant for storm water carry sewage. The water distribution network is of loop type. The city is fed by municipal water supply scheme. More than 98% households have water taps in their premises and rest avail of the facility through community taps. But the water supply is intermittent, i.e. 1-2 hours each in the morning and in the evening. The city is fully electrified, 99 % of households had regular electric connections as per household survey. Old city is densifying day by day and fast degenerating the quality of life.

Post Independence Development : The city developed on planned as well as unplanned lines after independence. Still the physical condition of this post independence developed areas is definitely better than that of old city. Post independence development of Jammu may be divided into following parts. Bakshinagar - Sarwal (a part of Division A), Extensions of Bakshinagar (Division B), Gandhinagar and its extensions (Division C), Outer Areas beyond Gandhinagar extensions i.e. Satellite industrial township of Bari Brahmana.

5.7.1 Bakshinagar - Sarwal (a part of Division A): Bakshinagar - Sarwal colonies are the extension of the old city. They were originally planned for refugees affected by partition. Thereafter, these expanded upto Janipura where State Government planned and developed flatted accommodation for its Government employees who use to move with annual Darbar Move. This whole area lies between west of B.C. Road upto Janipura Nallah covering a total area of 1018 ha. out of which 389.56 ha. is under residential uses. Its population in 1994 was estimated as 1,38,959. It is also thickly populated with residential density of 357 persons per ha. which is next to the old city. The Household Survey revealed that new construction has taken place in outer parts of Bakshinagar as 26.46% of houses were constructed during the last five years prior to the year of survey (1994) while 56.96% of structures were more than 10 years old and only 16.40% were more than 15 years old. As compared to the old city where 65% of the respondents were owners, 76.95% of the households in this area were owners and 21.23% households were tenants. Development of area was envisaged in a planned manner but due to increase in population, the demand for plots was more than supply, as such, number of unauthorised colonies like Shakti Nagar, Bhagwati Nagar, etc.; have came up. Residents of this area, mostly belong to middle class and upper middle class income groups. There is no sewerage system. More than 51% of households have their own septic tanks while the rest use dry latrines. Almost all households enjoy electricity facility. The low lying areas draw their water supply from tube wells which contribute 80% of the total potable water requirement. Municipal water supply is available in some parts of the area. In these areas, 86.70% of total households have taps and remaining draw water from community taps. Water supply is intermittent, hardly 1-2 hours each in the morning and in the evening. The area is fully electrified.

5.7.2. Extensions of Bakshinagar (Division-B): This area lies between Janipur Nallah and Domana Master Plan limits. Total area is 3,142 ha. over undulating land form. Ranbir Canal passes through this area. Substantial portion of this Division has been allotted to paramilitary, such as, BSF and CRPF. Due to availability of significant vacant areas in this region, JDA developed a number of colonies at Bantalab (Phase I & II), Roopnagar, EWS Colony at Roopnagar, Muthi, Paloura (Phase I, II), Bhawani Nagar and Shishu Samadhian under the Jammu Master Plan 1994. Most of these colonies were not patronised due to terrain and scarcity of water. After the large scale immigration from Kashmir Valley, the migrant families settled in this region. Hindu - Kashmiri migrants were allotted EWS plots in colonies of JDA in Roopnagar and Muthi. Due to pressure of population and market forces, demand for land increased in Jammu. Due to comparatively low cost of land in this region, the migrants preferred to settle here. Many unauthorised colonies came up around the localities of Muthi, Talab Tillo, Roopnagar, Hazari Bagh, in recent years engulfing agricultural land. The population of this area was 1,48,896 in 1994. Kashmiri migrants households constitute more than 35% of the total population of the region. The residential area is 1,121 ha. The residential density works out to 133 persons per ha. A lot of construction activity is being undertaken. More than 43% of houses in this area have been constructed during the last ten years. The household survey revealed that 76.95% of total households of the region were owners and 21.23% tenants. With the settlement of Hindu migrant families from the Valley, 89.23% of the total population of households are Hindus. Electricity facility is availed by 96.32% of the total households. Water supply is from tubewells. Potable water is supplied through piped water supply system. 86.70% of households have domestic connections from this water supply system and 12.46% of households draw water from community taps. A few households have hand pumps,

but their percentage is quite less (0.04%). Municipal sewerage system is not available. About 51.42% of total households have latrines with septic tank. There are number of natural drains in this area which carry the storm water.

5.7.3 Gandhinagar & its Extensions (Division-C): The area lies on the left bank of River Tawi upto Bhalol Nallah and was developed after 1950. The total area of this Division is about 5,906 ha. of which 1,213 ha. is residential use. The terrain is plain. Jammu Railway Station, Jammu University, Bahu Fort, Transport Nagar, Fruit & Vegetable Market and Jammu Airport are located in this area. National Highway (NH-1A) connecting Pathankot with Srinagar passes through this area. Gandhinagar colony is well planned with beautiful green belt along the main road. The major functional landuses are residential, commercial, industrial and institutional. Substantial portion of this region is under defence use. The population of the Division in 1994 was 2,65,187. The residential density of the area is 219 persons per ha.

Much of the construction has come up in extensions of Gandhinagar under the Jammu Master Plan 1974-94. Survey results revealed than more than half of the total surveyed houses in the region had got their land documents registered after 1974. On the other hand, 68.77% of households were residing in the area for more than 10 years prior to 1994, 18.96% of household for less than 5 years and remaining 12.15% between 5 to 10 years. Most of the households (88.54%) were self occupied and tenancy was only 10.77%. Due to high cost of land in this area, migrants from Kashmir valley have not preferred to settle here. Only 14.97% of surveyed households were reported migrants. Most of Muslim migrants are settling in Sunjwan and Bhatindi localities of this Division. Survey results revealed that this region is inhabited by comparatively affluent families as monthly expenditure of more than Rs. 4000/- is reported by 20.13% of surveyed families which is significantly higher than 9.33% of such families in Division A and 11.20% in Division B. As regards use of basic amenities, 98.55% of households had regular electricity connections, 92.29% of households had personal taps and only 4.72% of surveyed households availed water facility through community taps. Hand pumps and well as source of drinking water was reported for 1.94% and 0.04% of households. Septic tanks are being used by 50.97% of the households.

5.7.4 Outer Areas : The terrain of this area is comparatively flat. It falls on the left bank of River Tawi beyond Division C. The area lies between Bhalol Nallah and Taror Nallah.Satellite township of Bari Brahman has been developed as industrial estate. The total area is 2566 ha. of which 954 ha. is under residential use. The population of this region in 1994 was 28,543. Much of the area is under defence. The residential density was 30 persons per ha. National Highway to Pathankot passes through this area. Most of the houses in these settlements present partly rural character. Basic amenities like sewerage system and water supply system are yet to be developed. This area was assigned for Satellite Township for industrial development. It was not notified under Master Plan 1994 but Bari Brahmana has virtually now merged with Jammu urban area due to development of industries.

5.8 Housing and Structural Conditions

Fast growth of population, influx of migrants to the city and diversification of economic activities during the last two decades, has multiplied the housing requirement in Greater Jammu. But the growth of residential dwellings has not been commensurate with the growth of households. Resultantly the congestion in dwellings is steadily increasing as is evident from the following table:

Table 5.6

Growth of Households and Residential dwellings in Jammu 1971-94

Year	Population (in lakh)	No. of Households	No. of residential Houses	HH size
1971 (census)	1.55	27,032	22,797	5.73
1981 (census)	2.23	38,837	29,867	5.74
1994 (SURVEY)	7.28	1,34,940	93,276	5.39

Source: Existing Landuse Survey, 1999 JDA.

The table shows that population of Jammu which was 1.55 lakh in 1971 grew by 4.7 times by 1994. The number of households increased by 4.99 times but residential dwellings increased by 4.09 times, thus the dwelling size had gone up from 6.79 to 7.80 though household size declined from 5.73 to 5.39.

Percentage of household by number of rooms, average number of persons per room and average number of rooms per household are yet another set of variables for ascertaining the housing problems in the city. This aspect has been examined in table 5.7.

Table 5.7

Distribution of Houses by Living Rooms

No. of Rooms per households	Percentage of Households		
	1971	1981	1994
One	44.90	34.42	30.31
Two	26.20	31.87	32.78
Three	13.90	17.05	20.10
Four & More	15.20	16.68	16.81
Total	100.00	100.00	100.00
A. Average No. of Rooms Household	2.02	2,49	2.40
B. Average No. of persons per room	2.63	3.06	3.25

Source:Household Survey, 1994, JDA.

The table reveals that households in Jammu now have better accommodation to live in. The highest percentage of households living in single room in 1971 shifted to two rooms tenements in 1994. The average number of persons per room, however, showed an increasing trend which reflects congestion. If tenurial pattern is taken into consideration it is clear that people prefer to own houses rather than living in rented accommodation as can be seen from table below:

Table 5.8

Tenurial Status in Jammu

Tenurial Status	Percentage of Households		
	1971	**1981**	**1994**
A. Owners	46	64	78.67
B. Tenants	54	36	21.33

Source: Household Survey 1994, JDA.

Protected by stringent regulations against settlement by outsiders, the local residents including migrants from Valley and border areas of Jammu, are living in their own houses in recent years resulting into rise in percentage of such households from 46% in 1971 to 78.67% in 1994. The outsiders who come to Jammu for employment live in rented houses and their percentage has declined from 54% in 1971 to 21.33% in

1994. This appears to be the main reason for development of various colonies. The trend is likely to increase with the increase in prosperity of the households with the diversification of economic activities in near future.

A study of the structural conditions of houses revealed that households prefer better standard of houses as 84.50% of the houses were built in burnt bricks and cement concrete and only 16.40% with other material as per 1981 census data on housing. Classification of roofs indicated that houses to the extent of 32% were covered with Kacha roof and the remaining 68% with concrete (BRC/RCC). This shows improvement in the structural condition of houses when compared with figures of 1971 when 49.3% of houses were covered with Katcha roof and 73.9% of the houses were built in burnt bricks. The structural conditions of houses on the road side of old city improved, as houses turned to commercial use. This phenomena of improvement in housing structure is made in old city as these houses are built back to back and side to side in dense clusters due to topographical and climatological needs. Most of the houses even now have additional barasti floors, hand flush latrines on the top of the roofs and their outlets connected with side drains. Many households have shifted to new houses built in planned colonies.

In the new extensions, the house plans have taken the form of box with verandas and open spaces in front and back. These double or single storeyed houses are built in brick and covered with RCC slabs. The above facts reveal that the bulk of residential development which has occurred in Jammu is low rise and low density. It is essentially plotted type which is responsible for spatial spread and sprawl of the city. This sprawl has given rise to problems relating to transportation, infrastructure, etc.

5.9 Land Prices:

Due to market forces, the land prices are sky rocketing. The data on land prices prevalent in April 1999 collected from private developers and estate managers operating in various localities of Jammu is at Annexure-1. The land prices are rising day by day. Developed plots of development agencies are out of reach of middle class families what to speak of low income group people due to their high cost.

5.10 Squatters

On account of roaring land prices, the possession of a dwelling unit has become beyond the affordable capacity of the poor. The city, has thus, got distinct growth of slum pockets around the work centres. Survey of squatters was conducted in Jammu in five areas. The squatters with their area covered, their number and population is given in table 5.9.

Table 5.9

Squatters in Jammu City

Locality	Year of Settlement	Area Covered (in Ha.)	No. of squatters	Population
1. Rajiv Nagar - Narwal	1985	1.00	950	5700
2. Qasim Nagar - Jewel	1960	1.00	100	450
3. B.C.Road Near Model Academy	1965	0.50	125	625
4. Panjtirthi - Tawi	1960	0.50	150	750
5. Goda Bakshinagar on Nallah	1983	0.50	500	2,500
Total		**3.50**	**1825**	**7,825**

Source: Survey of Squatter, 1995, JDA.

The settlements have developed on the low lying areas near Nallahs, river bed, etc. About 29% of the houses are pacca, 42% are semi pacca and rest 29% are thatched single room tenanents. Water is available to 80% of colonies while all of them are electrified. None of the squatters colonies are having drainage and public toilet facilities. These settlements have approach roads or bus stand within 1/2 km. The dispensary/health clinic is not available in the squatter colonies. Schools have been provided in 2/3rd of the settlements. 20% squatters have social and cultural places. There is no police booth and post office in any squatter colony. Squatters in Jammu are manifestation of mushroom development which characterise the fast growing towns in North India.

5.11 Economic Base :

5.11.1 Industry : Rainfed subsistence agriculture has limited scope of development in Jammu district. Only alternative is to absorb the growing labour force by industrial development. At present, there are seven industrial estates functioning in and around Jammu. The location and area covered by each Industrial Estate is given in the table below (5.10).

Table 5.10

Details of Industrial Estates in and around Jammu

Sl.No.	Location of Industrial Estate	Area (in ha.)
1.	Digyana	11.74
2.	Bari Brahman Phase I	130.91
3.	Bari Brahman Phase II	132.26
4.	Gangyal	48.07
5.	Birpur	15.37
6.	Akhnoor	1.46
7.	Samba	1.00

Source: SISI, Jammu.

Out of these seven Industrial Estates, Five Industrial Estates i.e., Digiana; Bari Brahman Phase-I and Phase-II; Gangyal and Birpur fall under the limits of Jammu Urban agglomeration. Industrial Estate of Samba has been identified as industrial growth centre and is situated at a distance of 40 km. from Jammu city towards south-east on NH-1A. Bari Brahman is 22 km. from Samba. Industrial Estate of Aknoor is 28 km. from Jammu city towards North-West.

Jammu Master Plan 1994, proposed 676.89 ha. of land for Industrial use. A big area of 442.89 ha. was in Bari Brahman, followed by area of 80 ha. each in development zone C2 and C20 in Rail Head Complex and Mathi - Dhamal localities; 44.51 ha. for extension of Digyana Industrial Estate' 12,72 ha. in Gandhinagar and 8 ha. in Development Zone A-13. As per rough estimates, less than 350 ha. of land in Jammu UA was under industrial use in 1996. Out of this 263.17 ha. fall under Industrial Estate of Bari Brahman, 11.74 ha. in Digiana and 48.07 ha. in Gangyal. Within the Municipal Area of Jammu, area under existing SSI units was much less than area proposed under the Jammu Master Plan 1994. This clearly shows that the proposed industrial area under Master Plan 1994 has not been fully developed. Small Industries Service Institute (SISI), Jammu conducted a survey on the "Industrial Development Potentialities of Jammu District" in 1996 and observed that except Digyana, Bari Brahman Phase-I and Phase-II and Gangyal, no other industrial area had made any headway in the industrial field.

There are a number of small and medium scale industrial units located in Digiana, Gangyal, Birpur and Bari Brahmana. The major units deal in manufacturing resins, vegetable ghee, textiles, paper, detergent powders, iron works, cold drink bottling plants and plastics. These industries are regulated and controlled by Development Corporation (SIDCO) at Bari Brahman and small Industries Corporation (SICOP) at Digiana, Gangyal and Birpur. Besides these established units, there are number of domestic units dealing with Kashmir handicrafts/handlooms, small

electrical/electronic goods, weaving, enbroidery, and card board, etc. These small units are found in localities such as Roop Nagar, Bantalab and Talab Tillo. Due to the rapid industrialisation and support from Government, the industrial units are growing in terms of investment and employment as is evident from the table below:

Table 5.11

Growth of SSI Units in Jammu District (1985-86 to 1995-96)

Year	No. of Units (commulative)	Employment (cumulative)	Investment in Plants & Machinery (in Lakhs)
1985-86	3207	22,720	492.15
1986-87	3758	24,703	991.05
1987-88	4315	27,882	
1988-89	4871	30,320	217,36
1989-90	5310	32,760	378.66
1990-91	5849	35,307	441.87
1991-92	6389	38,332	527.65
1992-93	6621	39,182	266.91
1993-94	6836	40,350	262.36
1994-95	7020	42,001	407.64
1995-96	7282	44,189	834.04

Source: GM, DIC Jammu.

The table reveals that total number of SSI units of 3207 in 1985-86 has grown to 7282 in 1995-96, thereby, showing that only 4075 units were set up during the last 10 years in whole of Jammu district. These registered SSI units are mostly concentrated in the Industrial Estate of Bari-Brahman, Digiana and Gangyal as 82% of the total SSI units were established in these Industrial Estates. But the total volume of investment of Rs. 4798 crores vis-a-vis total number of units (7282) and employment (44819 persons) till 1995-96 reveals that these SSI units are mostly very small industrial units. Average investment per unit work out to 0.66 lakh, and employment of 11 persons. The area covered by most of these units is small. There is no large scale industrial units. 467 medium scale units had been registered as factories with the Labour Commissioner, J & K Government, which fall within limits of Jammu. Out of these, 438 factories were functioning and 29 factories were closed down as on 31.3.1996. All these industrial units fall under private sector. There are six State Government Undertakings functioning in Jammu as detailed in the following table:

Table 5.12

Public Sector Undertakings in Jammu

S. No	Industrial Group	Name of Unit	Location as on 31.3.96	Employment	Value of Production 1993-94 (in Rs.)
1.	Drug & Chemical	1.Modern Rosin & Turpentine	Miran Sahib	200	222.52
2.	Leather Industry	2.Sole Leather Plant	Muthi	40	Not functioning
3.	Textile	3.Govt. Knitting factory	Jogi Gate Reshamgarh	33	21.28
		4.Govt. Silk	(B.C.Road) factory	245	Not functioning
4.	Wood Industry	5. Govt. Joinery Mill	Bari Brahmana	316	144.38
		6. Govt. Sports Factory	Miran Sahib	41	15.67

Source: Labour Commissioner, J & K Govt. Jammu & SISI, Jammu.

Construction activity in Jammu has rapidly picked up. The demand is being met from 87 brick kilns, 31 saw mills and 2 timber depots spread over various parts of the city. Saw mills and timber depots are mostly concentrated along Jammu - Akhnoor Road in the urban areas of the city. Brick kilns (42 No.) are spread over along Jammu - Akhnoor Road and (31 No.) around Bari Brahmana along the National Highway. Besides, occupying valuable land, they add to the pollution and impede traffic movement.

5.11.2 Trade and Commerce : Tertiary sector is the most employment oriented sector of economy as it absorbs more than 2/3rd of total work force of Jammu. Share of participation of total work force in trade and commerce was highest (32.02%) in 1994. Both Trade and Commerce and its allied economic activity viz. transport, storage and communication employed 50.97% of workers engaged in 1994. Trade and commerce is thus the most flourishing sector of economy in Jammu as it is evident from the growing number of registered shops and employment and establishments in Municipal Area of Jammu and Notified Area of Bari Brahmana as given in table 5.13.

Table 5.13

Registered Shops and Establishment in Jammu

Sl. No.	Type of Establishment	Reporting Year					
		1995		1996		1997	
		No.	Employment	No.	Employment	No.	Employment
1.	Shops	22148 (NA)	7954 (NA)	24066 (331)	8338 (13)	25358 (420)	8740 (19)
2.	Commercial Establishments	1632 (NA)	3773 (NA)	1894 (894)	4361 (-)	204 (41)	4661 (-)
3.	Hotels and Restaurants	2582 (-)	2206 (-)	2741 (23)	2581 (17)	2884 (31)	2571 (22)
4.	Cinema	9 (-)	201 (-)	9 (-)	201 (-)	9 (-)	201 (-)
	Total	**26371**	**14307**	**28696 (351)**	**15280 (33)**	**30293 (455)**	**16173 (41)**

Source: Labour Commissioners Office, Jammu.
Note: Figures in bracket relate to Bari Brahmana.

From records it revealed that out of 22148 registered shops in Jammu during 1995, 19986 were run by self owners without employing any employee and remaining 2162 shops were employing 7954 workers. One shop caters about 25 persons which is on higher side than prevailing pattern of establishments in cities of northern India. Higher shop population ratio is obvious because Jammu, besides, having its inherent potentials, serves floating population of tourists and pilgrims as well.Detailed field surveys in respect of 10433 commercial establishments spread over the local area have been conducted in 1994. 39.47% of the shops were not registered and remaining 60.53% shops were registered. Out of these shops 10.63% were dealing in wholesale trade; 66.16% in retail trade and 23.21% both in retail and wholesale trade. Whole sale trade is mainly concentrated in the old city. Some of whole sale traders have also recently opened up their establishments in newly developed localities adjoining National Highway due to easy availability of transportation facility. The study revealed that more than 73% of the wholesale trading establishments are now functioning from newly developed localities like Trikuta Nagar, Sainik Colony, Channi Himmat and left of the bye-pass. The remaining (27%) are still operating from old city of Jammu. About 80% of shops were found operating for less than 20 years, out of which 65.13% of establishments had period of operation less than 10 years. About 34% of total shops were operating for more than 10 years and were concentrated in the old city. 69% were operating in rented premises and only 31% had their own premises. Of these

shops, 98.59% shops had covered area of 25 meters and only 1.41% of shops occupied covered area between 25 to 50 meters. Almost all shops are located on the narrow roads. The right of way of access roads varied between 9 to 12 meters in the old city and 12 to 18 meters in the new localities. Moreover, almost all shops had frontage less than two meters., Only 1.44% of shops had frontage between 2 to 5 meters. Though most of the establishments had their godowns but space is very limited. Study revealed that traders and shopkeepers have sufficient investible funds which they are ready to utilise for more space for their shops and storage. There is need for better storage facility which can be provided by planned warehousing facility.

5.11.3 Mixed Landuse : Residential buildings located on the road side adjoining the shopping centres or in distant localities from market, have an economic advantage when some part (generally ground floor) of the residential building is converted into a shop. This is a general practice found in all localities of urban areas in India. Jammu is not an exception. With rapid increase in commercialisation, the problem of mixed landuse is increasing day by day in Jammu. To study this type of mixed landuse in planned residential colonies of Jammu, a detailed survey of 965 sample units of mixed landuse was conducted. The study revealed that 30.26% of sampled units were operated by the owners of the residential buildings and the remaining (68.81%) by tenants. Study of the period of running the activity by shopkeepers, revealed that the trend of converting part of the residential into mixed landuse is a recent development in the planned residential colonies of the city. As high as 85.39% of these units were found running their activity for the period less than 5 years and only 14.61% were existing between 5-10 years. 20 surveyed units (2.07% of total sample) were functioning in government buildings, 3.21% in trust properties, 45.39% in leasehold and 40.62% in freehold properties. Such enterprises generally cater to daily needs of the local residents. Study of type of activity of sampled enterprises revealed that 14.82% units were dealing in general mechanise, 6.11% in cloth/readymade garments; 5.91% as saloons, 4.25% chemists, 3.83% eatables, 2.49% of cosmetics; 1.48% confectionery and 2.18% for vegetable and fruits and the remaining 58.97% were miscellaneous. 61.97% of these shops were registered and remaining 38.03% were unregistered. Most of these shops were petty shops, as more than 50% of sampled shops had covered area between 0-10 sq.mt., 21.87% on 10-15 sq.mt. while 20.21% on 15-30 sq.mt. 82.52% of these shops were built up on plot area of 0-50 sq.mt. and 11.30% of 150-300 sq.mt. and only about 8% on area more than 300 sq. mt. As regards their monthly sales, 46.32% had monthly sales less than Rs. 5000/- and 25.70% less than Rs. 10,000/- while remaining had their monthly sales varying between Rs. 10,000 to Rs. 50,000. Most of these shopkeepers (80.52%) were not interested in further investment on expansion of shops. Hardly 19.50% were interested in such investment. 10.26% of sampled shop keepers were ready to invest between Rs. 10000/- to Rs. 50,000 and 9.24% less than Rs.1 lakh. More than 50.98% were ready for payment for general maintenance and upkeep of the area around their shops. Most of them did not have easy access. Road width to the shops was less than 12 meters in case of 83.72% of sampled units. 85% of surveyed units did not face any problem of traffic/parking infront of shops during evening hours. Those shops which were operating adjoining to shopping centres faced traffic/parking problem in front of their shops during evening hours and constituted 12.25% of the total sample.

5.11.4 Informal Sector : A big segment of workers under trade and commerce activity in Jammu fall under informal sector as they are operating petty enterprises to earn their livelihood. To study their socio-economic conditions a survey of 2508 sampled units was conducted. The study revealed that about one third of these sampled units of informal sector were engaged in selling of vegetables/fruits; 14.75% were running dhaba or petty shops of eatables; 8.21% were dealers of cloth/ready made garments; 5.94% were running tea stalls, 5.50% selling cold drink/juice; 4.59% selling cigarette pan and bidi, 3.91% as cobblers; 2.31% as barbers and remaining were engaged in all secondary occupations like, book/newspaper sellers, cycle repair; repair of household item and others. All of them had their enterprise as their main activity. Out of total surveyed units, 31.06% were having some shelter to run their enterprises, hence were immobile and others were moving here and there to sell their goods. Among the mobile units 45.45% used cycle; 20.06% thela/rehari and 3.42 were on foot. Amongst the immobile units, 7.38% occupied area less than 1 sq. mt; 48.32% on 1 to 2 sq. mt. 36.65% on 2-4 sq.mt. and 7.65% on more than 4 sq.mt. Those who had fixed stalls, had to pay some government taxes (Tehbazari) for running their enterprise and constituted 15.75% of the total sampled units and the rest were not paying any tax. It was revealed that owners of fixed stalls paid taxes ranging from Rs. 50 to Rs. 300 per year so that their establishments are not demolished. Daily sale of 10.13% enterprises were less than Rs. 100, for 50.40% and more than Rs. 500/- for 39.47% less than Rs. 500/-. Those who had less sales, naturally earned less profit, therefore, daily profits for more than 83% of units were less than Rs. 150/-. Most of the immobile units had electric connections. More than 58% of units claimed that they earn adequate income to meet needs of their families and remaining (42%) were not able to meet both ends. Almost all were running their enterprise without taking loan from any agency. Less than 55% saved upto Rs. 50, 30% upto Rs.250/- and only 25% claimed to save between Rs. 250 to Rs. 1000/- per month for better future of their children. More than 60% of workers sought regular employment for their children and remaining desired to employ their children in their own activity. Depending on their paying capacity, 70.89% were ready to invest upto Rs. 10,000, about 20% between Rs. 10,000-15,000 and the remaining about 10% above Rs. 15,000 for owing a regular shop. If above data is analysed of daily sales, profits vis-a-vis monthly income and saving capacity, it can be observed that only 40.16% of these informal units will be able to invest for owing a shop. Daily savings of these units can be mobilised by propagating small saving schemes among them. They can be induced to pay some amount for a regular petty shop and the remaining on instalments varying from Rs. 800 to Rs. 1500 pm. which will be within their capacity to pay.

5.11.5 Bulk Handling of Merchandise :

Jammu is the only major urban centre in J & K State which is connected with rest of India by both rail and road. It is well connected with Srinagar, the summer capital of the State and rest of places of the State by road. These factors have made Jammu the most important collection and distribution centre of the State. Major part of the transactions of the State with the rest of India are channelised through Jammu. Importance of Jammu as a commercial centre is increasing with the increase of consumer demand due to increase in the total population and number of tourists in the city. Wholesale trade is also fast expanding with increase in industrial production and commercial enterprises. According to excise department of J & K State, the value of merchandise exported from State through Jammu during 1994-95 was about Rs. 56084.36 lakh. In quantative terms the total exports was of the order of 8317160 M

Tons during 1994-95 and fruits was the major component. In the year 1994-95, 5649500 m. tons of fresh fruit, 332200 tons of dry fruit and 1466740 m. tons of miscellaneous goods were exported from the State. About 1/3rd of these total exports was share of Jammu specially in dry fruits and general merchandise. Imports out matched the exports of the State. The value of total merchandised imported to the State during 1994-95 was about Rs. 253653.95 lakh in which Jammu contributed 1/3rd of total imports. In quantative terms it was of the order of 31427760 m. tons. The major imported items were food grains & pulses (12209420 m. tons); sugar and allied items (2415740 m tons); Machinery and Iron (1245270 m. tons); urea (884490 m. tons), LPG (597540 m. tons) and Miscellaneous goods (253000 m. tons) besides 2415740 m. tons of military load. This analysis shows that Jammu is under great pressure of goods traffic and needs more storage facilities.

5.11.6 Tourism : Jammu is linked with other parts of the country by rail, road and air. It is the most important entry-point to J & K State and city serves as a transit camp for the tourists of the valley and yatris of Vaishno Devi and Amarnath. The tourist traffic to Valley during past years had suffered due to disturbances in the Valley. On the other hand with renovation of Vaishno Devi Shrine and development of road to Katra, number of tourists to shrine had touched the peak of 45.0 lakh during the year 1999. It is increasing every year. It is noticed that there has been increase of 8-10% annually in the number of Yatris to Vaishno Devi during the years 1994, 1995 and 1996. Similarly yatris to Amarnath cave have also recorded increase 0.60 lakh in 1995 to 1.20 lakh in 1996. Though influx of Yatris to Vaishno Devi continues in all months of the years, however, the peak season for tourist traffic to Vaishno Devi is during Navaratas which fall in the months of April and October every year. For Amarnath Yatra, peak season is during July to September. During peak period, Jammu accommodates about 40,000 to 50,000 yatries per day at present.

With increase of number of Yatries/tourists, hotels have mushroomed in Jammu. At present, there are 301 number of various categories of hotels and lodges operating in Jammu city. Besides, these hotels, there are three Dharamsalas. These hotels, lodges and Dharamsalas in the old city and railway station, provide accommodation of 33,991 beds for peak daily traffic of 40,000 tourists in Jammu at present. To cope with the increasing influx of tourists in Jammu, infrastructure development assumes significance. These include addition of accommodation facilities for tourists of different income categories; improvement of transportation; provision of organised recreational facilities for tourists and efficient tourist information, including, advance booking facilities for transport and accommodation.

5.11.7 Social Infrastructure : Compared to other cities of J & K State, Jammu has the maximum concentration of community facilities and services viz., educational, health, cultural and recreational facilities which cater not only the local demand but also the demand of the population of Jammu region. Jammu being the second largest city of the State at present, the town has been receiving a special attention of the government in regard to community facilities and services. A brief account of such existing social infrastructure in Jammu is given below:

Education : Jammu has a number of academic, technical and medical institutions. As on record, 364 primary schools, 114 middle level schools, 71 high/higher secondary schools, 5 colleges for academic studies; one teachers training college; two medical colleges (one Govt. owned and other private - Batra Medical college), one engineering college, two polytechnic and three industrial training institutes were reported for providing general and technical education in Jammu in 1994-95. These institutions included 140 primary, 45 middle, 26 high/higher secondary schools and two colleges of general education exclusively for women. It shows that special efforts have been made for overall improvement of female literacy in Jammu. Number of female literate to every 1000 male literates was 683 in 1994. Besides these institutions, Jammu University and J & K Agricultural University are also functioning in Jammu. The total number of students in these institutions excluding colleges and universities in 1994 were 79283 of which 39529 were females. One school covers 1.80 sq.km. of area. There were 10620 students enrolled with colleges and universities during the year 1994-95. In all, there were 89903 students studying in various educational institution in 1994-95. This works out to 124 students per thousand population of Jammu in 1994. With influx of migration from Valley, demand for more schools has arisen. To meet the demand, a large number of private institutions have been opened during recent years. The private institution are functioning in private rented buildings. The awareness of masses towards education has resulted in rise of literacy rate to 65.79% in 1994 against 57.34% in 1981. There is disparity of space standards of various institutions. Out of five academic colleges, women colleges at Parade and Gandhinagar cover an area of 2.4 ha. and 1.3 ha. respectively, whereas, G.G.M. Science college and M.A.M. college occupy areas of 14.8 ha. and 4.8 ha. respectively. The floor space index of colleges varies between 0.04 to 0.58. Jammu University Complex is covering an area of about 52 ha. Government primary schools have area of 1 kanal or less on an average. Government high schools have area of 12 kanals of land and middle schools not more than 2.5 kanals. The space standard for Government schools in cantonment area are, however, liberal, whereas, Government High schools in old city are devoid of playfields. Private institutions are functioning in private buildings and are devoid of playground.

Medical Facilities : Provision of medical facilities to the people in Jammu is on the increase. A number of hospitals and dispensaries have been added both in the Government and private sector to extend medical facilities in order to preserve and promote the health standard of people in the city. The age expectancy has reached the level of 65 years. The number of Government medical institutions which were 30 in 1971 has now gone upto 123. With the increase of population, influx of migration from Valley and development of many posh localities in the city, many medical institutions have come up. There was

only one nursing home in 1971. In 1994 survey, 58 private medical institutions which include hospitals, eye clinics, nursing homes, etc.; were found functioning in the city. The bed capacity in government medical institutions has increased from 1085 in 1971 to 2605 in 1994. Private institutions also added to the bed capacity by 1410. In all, total bed capacity available in Jammu in 1994 was 4015 beds for 7.28 lakh population of Jammu. This works out to 55 beds per 10,000 population. The Government medical institutions in Jammu in 1997-1998 were as under:

		Nos.
1.	Hospitals (excluding military hospitals)	9
2.	Primary Health centres (at chatha, Gardigarh, Bishna, Bari Brahmana Sarwal and extended areas of Jammu.)	13
3.	Dispensaries (allopathic, unani and ayurvedic).	44
4.	LCU (at Digiyana)	1
5.	LRPU (at Diggana)	1
6.	Evening clinics	13
7.	Medical aid centres	3
8.	Primary sub centres (in villages of extended area).	62
9.	Leprosy set centre	1
10.	STD clinics	2
	Total	149

Source: Medical Health Department, J & K Govt. Jammu.

As per the data collected from State Medical Health Department, the private institutions functioning in Jammu on 31.3.1998 consisted of five big or small hospitals (including Batra Hospital in Sidhra), 10 maternity homes and child care centres, 28 nursing homes, 9 ENT hospitals and nursing homes and 6 clinics. The analysis of location wise distribution of private medical facilities available in the city shows that Gandhi Nagar area is highly equipped with medical facilities as 10 out of 58 private institutions were functioning in this locality, 3 each in Talab Tillo, New Rehari colony, Shastri Nagar, 2 each in Rehari, Sarwal and Exchange Road and atleast one in each developed colonies. All these private institutions cover more than 5000 sq. mt. land (except Batra Hospital).

Cultural Facilities : Patronised by Dogra Rulers, Jammu is the nerve centre of all cultural activities. Dogra Art Gallery located in Gandhi Bhawan is a symbol of art of Jammu. Ranbir Library located in Kachi Chawni and two reading rooms in Hans Raj Park and Bakshinagar meets the need of readers. One stadium of an international standard with seating capacity of 51400 spectators is available in Old Company Bagh. It has three pavilions with a seating capacity of 300 in each. The exhibition ground with 209 stalls, one dinning hall, one canteen and one tuck shop is of seasonal nature and located opposite to stadium at the right bank of River Tawi. Out of these stalls only 18 stalls are of a standard size of 30'x30'; 64 of 10'x12' and 127 of 10'x14'. The Academy of Art, Language and Culture is

located on the Canal Road. Gulab Bhawan located in Shalimar Area provides cultural activities like drama activities and lectures etc. Sometime, it is used for marriage ceremonies also. There are three clubs i.e. Jammu Club, Amar Singh Club and Rotary Club. All these cultural activities are by and large located in old part of the city. As per study of JDA, cinema halls have a floor space index of 0.30 to 0.70. Library has floor space index of 0.37, whereas two reading rooms have floor space index of 1.00 each. Art Galleries also lie within the lowest space index of 0.11 and have scope to expand.

Recreational Facilities : Old City with population of 1.46 lakh in 1994 had 11 parks located in Central Jail area, Kucha Nehar Singh, Panjthirthi, Narayanian Mohalla, Zanana Park, Karan Park at Parade, Hanging Garden of Gumat, Mubarak - Mandi, Rehari, Chogan Salathian and Hans Raj Park. They cover an area of 10.76 acres which works out to 0.07 acre/1000 population. It has reduced from 0.1 acre/1000 population in 1971. This shows that the condition of Old City area in respect of lung space is deteriorating. From planning point of view, this area should have at least 1 to 2 acres of open space per 1000 of population. On west side of B.C. road, 11.0 acres of area is covered by five parks viz. Rajindra Park, Shirwani park, Gandhi Park, Christian colony park and Stadium park. The park area per 1000 population works out as 0.08 acres. Bakshinagar colony has two developed parks, Rajinder Park and Gandhi Park, covering an area of 4.32 ha. which are most important recreational spots in the city due to their location on the Ranbir Canal. In Gandhinagar area, there are eight parks with an area of 20.3 acres. Bahu Fort Park has been developed as picnic spot. There are five playgrounds at Parade ground, University ground, G.G.M. Science college, Jogi Gate and Higher Educational Institution. Parks and playfields in the city including open spaces earmarked in housing colonies for such uses covered an area of 72.16 ha., which works out to 0.1 ha. per 1000 population and is quite small.

Cinemas : There are 7 cinema halls in the city and one cinema hall in cantonment area. The total seating capacity in these cinema halls is 7059 persons. This gives a ratio of 1 seat for about every 103 persons. Almost all the cinema halls are situated within the municipal limits of Jammu. The peripheral localities of the city depend upon cinema in the city centre but new developed colonies need recreational facilities also. Almost all cinemas in old city face parking problems.

Postal, Telegraphic and tele-communication facilities: In Jammu, 247 posts and telegraph units functioned during the year 1995-96. The population coverage per post office was 2948 as against 4000 in the state. The average area covered per post office/Head Post office/sub post office/branch post office was 9.7 sq. mt. The total number of telephone connections in 1995-96 were 11725. Average area coverage per telephone connection was 0.16 sq.mt. and coverage of population was 62 persons as against 245 in the state. Only four post offices viz. Darbar garh, Gandhi Nagar HPO, Bari Brahmana are functioning in Government buildings and the remaining are in rented buildings.