Spatial Analysis on the provision of Urban Amenities and their Deficiencies -

A Case Study of Srinagar City, Jammu and Kashmir, India

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Abstract

The paper examined inequality in the distribution of urban amenities in Srinagar City. Inequality in the study area is manifested in the form of unequal provision of social amenities within the wards (municipal units) of the City. The spatial distribution and concentration of two social amenities, viz, educational institutions and fire service stations was studied. The study mainly relied on the secondary sources of data. The Z-score variate has been used to determine the spatial concentration pattern in the provision of these amenities. However, Lorenz Curve proved to be a useful tool in accessing and quantifying the spatial disparity. The results of the analysis indicate that inequalities exist in the provision of accessibility of these amenities among different wards in Srinagar city. The reasons for the uneven distribution of urban amenities are spurt urban growth in the last three decades and poor management planning. The paper suggests that planning body must keep pace with the urban sprawl in order to ensure the equitable distribution of urban amenities in the city.

Keywords: Amenities, Wards, Srinagar City, Well-being, Accessibility, Lorenz Curve

1. Introduction

Urban amenities comprise the goods, infrastructure and services that are collectively needed for the urban society. These are central to the urban society without which urban society cannot emerge and sustain (Adekunle *et al.*, 2011). The essence of urban planning is to provide adequate

and equitable services to all groups. They have influence and impact on regional patterns of development, environmental impacts, and on maintaining socially acceptable levels of quality of life (Murray et al. 1988). Geographical and political research on urban service delivery—who benefits and why—within the context of territorial justice (the relationship between provision and need) has proliferated during the past two decades (see Davies, 1968; Hay, 1995; Pinch, 1984; Smith, 1994). Some scholars have investigated what factors account for higher levels of service in certain neighborhoods (Cingranelli, 1981; Mladenka, 1989), and focused in particular on the role of distributive politics (Miranda and Tunyavong, 1994). Others have examined patterns of accessibility to certain services and the geographic relationship between service deprivation and area deprivation (Knox, 1978; Pacione, 1989). Until recently, this was predominantly explained by the notion of *unpatterned inequality* (Cingranelli, 1981; Mladenka, 1980; Mladenka and Hill, 1977). The access to basic amenities like electricity, drinking water, sanitation, health care facilities and solid waste management are critical determinants of urban quality of life (Bhagat, 2010). In order to fulfill these and other needs, man requires access to certain facilities such as market, housing, water supply, electricity etc (Adekunle et al, 2011). Though these infrastructures form an important and integral part of life of any community, either rural or urban but they are unequally distributed over space (Eyles, 1996; Oyerinde, 2006). Inequalities in access to social infrastructures may be as a result of inefficiency in the distribution and allocation of facilities between areas or as a result of social barriers like ethnicity, religion or status (Stevenson, 2004). Inequalities exist between spatial units as they do between individuals (Anderson and Pomfret, 2004; Henderson, Shalizi and Venables, 2001; Kanbur and Venables, 2005). Knowledge of the nature and pattern of distribution of existing amenities in any region is needed before we make any attempt to project and plan their future development. The spatial structure of cities in developing countries is highly variegated. In some areas, amenities are adequately provided while in others, there is inadequate arrangement (Pred, 1977). Srinagar City, nestled in the western Himalayas is famous for its tourist attraction and in fact the city has very fragile ecosystem. The

city has received a spurt urban growth in the last thirty years which put tremendous pressure on the social amenities of the city. The planning body of the city failed to keep pace with the urban sprawl of the city, thus leading to uneven distribution of civic amenities in the city (Master Plan, 2001).

2. Objectives

- To analyze the spatial distributional pattern and disparity of educational institutions and fire service stations in Srinagar City.
- To identify the over served and underserved wards for future planning of these amenities in the city.

3. Data base and Methodology

The Survey of India toposheets (1971) on scale 1:50000 (J12, J16 and K13) were used in the present study to generate base map. The data on selected urban amenities has been gathered from various public and private departments.

Software's used: i) ERDAS IMAGINE 9.0   ii) Arc View GIS 3.2a

3.1 Methodology Adopted

Step I: The data collected from different sources has been treated statistically and for the determination of spatial variation, Z-variate has been used. The important property of Z-score is that it gives standardized scores which are more appropriate and bias less (Oyebanji, 1986). The mathematical formula for calculating Z-variate is given below;

$$Z_i = \frac{X - \bar{X}}{S_x}$$

Where   *Zi is the Z-score for observation 'i'*   *Xi is the value of X for the ith observation*

X is the mean of all the values of X   *Sx is the standard deviation of the X values*

S_x is derived by the formula

$$Sx = \frac{\sqrt{\sum_{i=1}^{n}(Xi - \overline{X})^2}}{N}$$

Where N is the number of observations

 Step II: Lorenz Curve

In order to have an idea about the degree of spatial disparity with respect to various public amenities, a special type of cumulative frequency graph, known as *Lorenz Curve* commonly used for measuring inequality in income has been used. The Lorenz curve shows the actual quantitative relationship between the percentage of income recipients and the percentage of total income they receive. In the present study percentage of an amenity instead of income and percentage of population belonging to a group of wards instead of income recipients has been taken in order to gauge the magnitude of inequality in the provision of different amenities.

Step III: Gini's Cofficient

Using the Lorenz Curve, an index of inequality known as Gini's coefficient has been calculated for each selected amenity. Gini coefficients are aggregate inequality measures and can vary anywhere from 0 (perfect equality) to 1 (perfect inequality). The Gini coefficient (or "Gini index" or "Gini ratio") G is calculated from the Lorenz curve as the ratio,

G = Area A/ (Area A + Area B)

Note that (Area A + Area B) is the area of a triangle, given by 100*100/2=5000 (See Fig. 1.1)
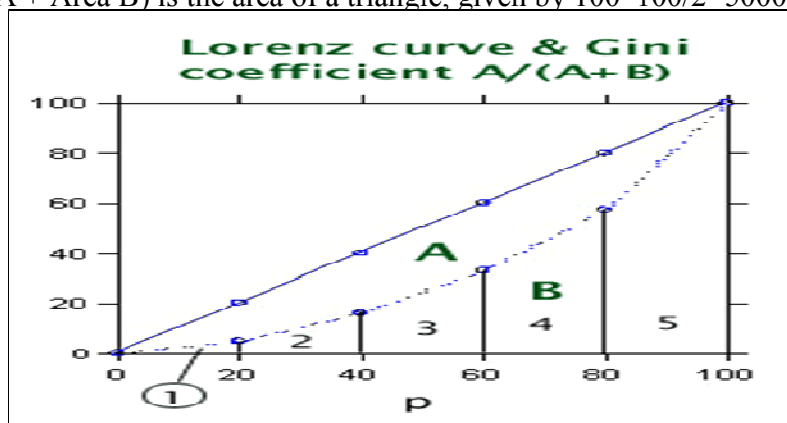
Fig 1.1

The Flow Chart of methodology is given below (Fig. 1.2).

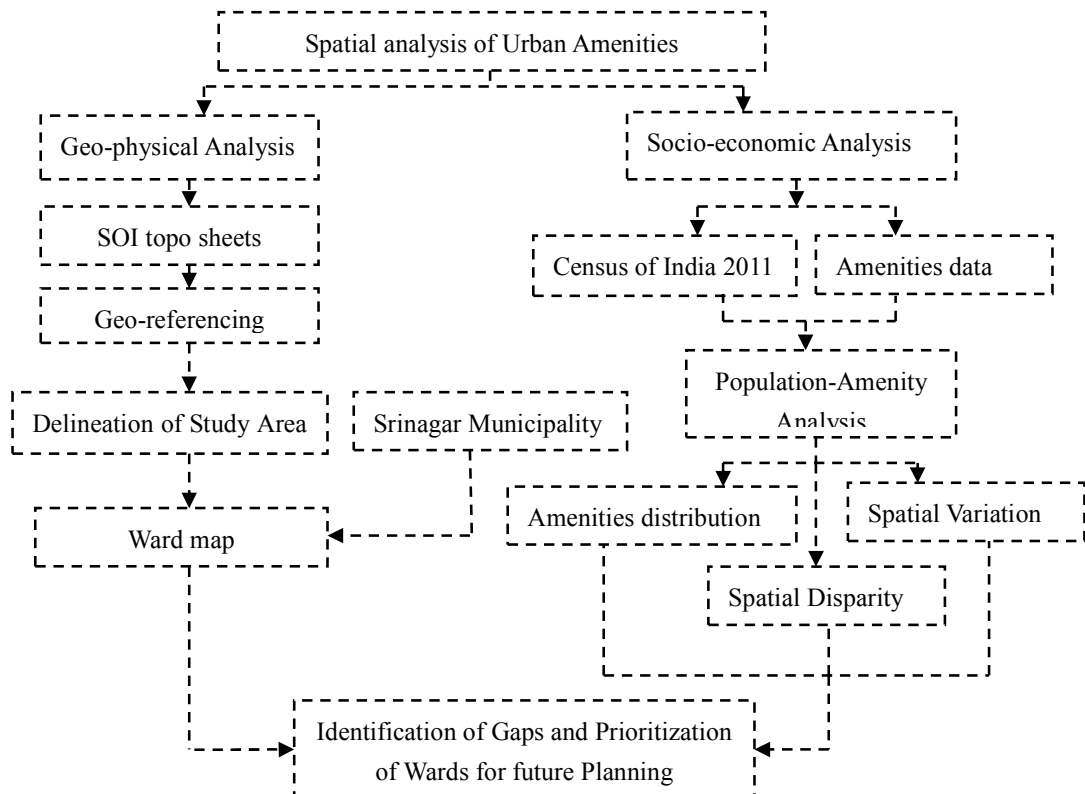**Fig. 1.2**

4. Study Area

Srinagar city is located between 33º53´ - 34º17´ N and 74º36´ - 75º01´E (Fig. 1.3) (Hussain, 2006). It is situated at an altitude of 5200 feet above the mean sea level and has grown over the past about eleven hundred years on either banks of river Jhelum of Kashmir valley, so vast and so level that the people living here have forgotten that they live in Himalayas. The total area of the

city at present is 278.1km^2 excluding cantonment area under Defense use (Bhat, 2007). Srinagar city is divided into sixty eight municipal wards with the total population of 1147617 persons (Census, 2011).
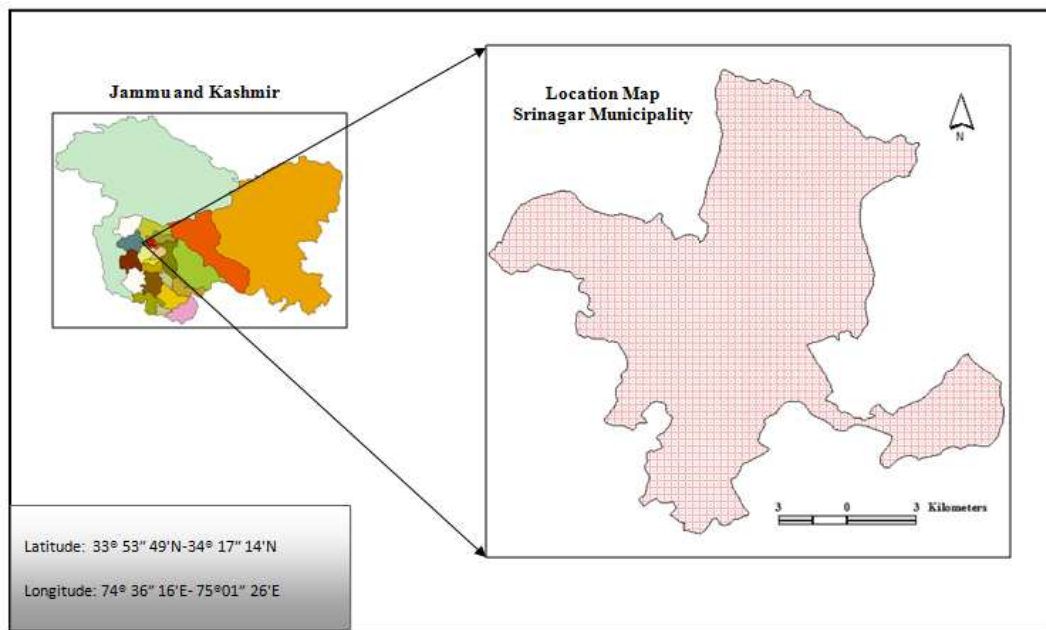
Source: Generated from SOI topo sheets 1971   **Fig. 1.3**

5. Results and Discussion

5.1 Spatial Variation

Spatial variation refers to the variation of different phenomena's across the landscape. Spatial variation is most commonly used in geographical research to investigate the variation of different physical and socio-economic phenomena over the space. The spatial locational analysis of urban amenities holds an important place in the formulation of locational planning strategy and development of urban amenities in any geographical region. This type of analysis serves as a vital input for planning the establishment of these amenities. The spatial variation in availability and access to infrastructures result in spatial disparities in living standards both within and between regions and localities (Madu, 2007). Access to infrastructure inspires life and well-being (Oyebanji, 1978). Provision of such amenities discourages

rural-urban migration which means that these amenities have to be provided to both urban and rural communities (Mabogunje, 1997). The present study focused to analyze the spatial distributional pattern of selected amenities provided by the government to the city inmates. The results of the study indicate that there is uneven distribution of educational institutions and fire service stations in the Srinagar city. The educational institutions have been classified into the various categories as per their standard and number. The ward wise distribution of these amenities is presented in figures 1.4 and 1.5 respectively. The analysis of the figures reveal that in context of educational institution services, ward *Harwan* has maximum number of schools (23) followed by *Nishat* (22), *Palpora* (21) and *Dara* (21), while as three wards in the city posses no school at all. Similarly, in case of higher secondary schools, *Lalchowk* leads the hierarchy with three higher secondary schools, followed by *Khanyar,* and *Soura.* On contrary, forty eight wards in the city have no higher secondary institution and rest of the wards posses one each. There are nine degree colleges in the city amongst which three are located in *Lalchowk* and six are located in six wards namely *Jawahar Nagar, Nundreshi colony, Malik Angan, Safakadal, Tarabal* and *Jogilangar*. Similarly, the fire service stations are more in *Karan Nagar* followed by *Nishat* and *Ganpathyar*. Thirteen wards have one fire service station each, while as fifty two wards do not possess a single fire service station.
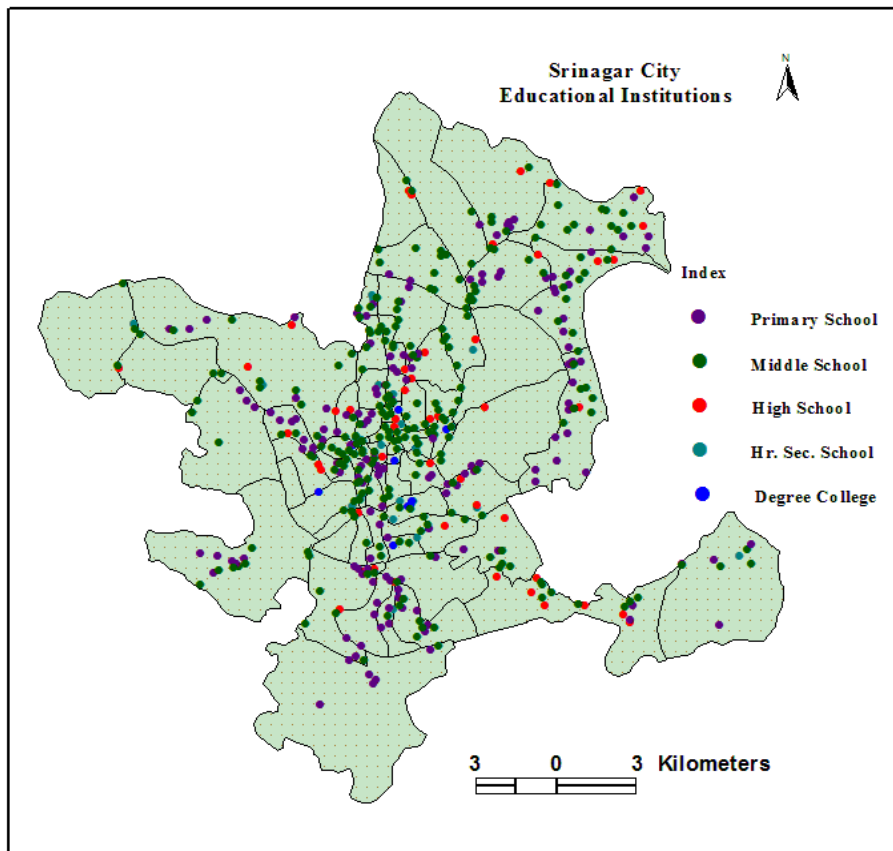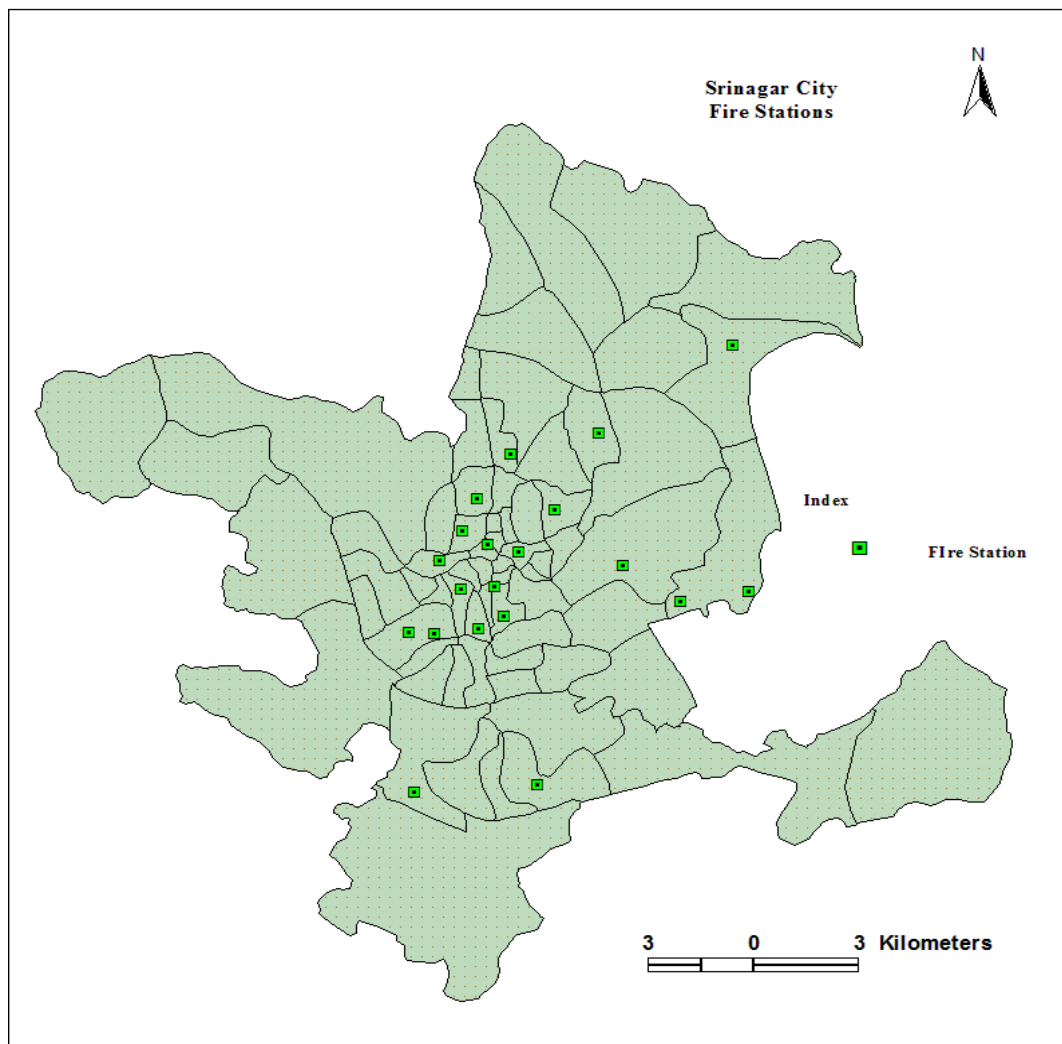
Fig. 1.4

Fig. 1.5

5.2   Spatial Pattern of Inequalities in the Distribution of Amenities

The knowledge and understanding of the degree of spatial inequality in the provision of the
amenities in the city is preliminary for the identification of underserved wards and thus this type
of study is vital input for the planning and management of the amenities in future. The Z-score
variate has been used to analyze the degree of spatial variation in the distribution of social
amenities in Srinagar City. Z-score variate has been used extensively in geographic research (see
Johnston, 1980; Oyebanji, 1986). Table 1.1 shows the standardized scores on spatial pattern of
amenities in Srinagar City using educational institutions and fire service stations as criteria. The

standardized scores of amenities have been divided into various groups to determine the relative

concentration of amenities across the wards (see fig. 1.6 to 1.9). The standardized scores of each

Table 1.1: Standardized Scores on two criteria of Amenities provision and one composite indicator for wards in Srinagar City of J&K State of India

Ward Name	Fire Service Station	Educational Institution			Composite Indicator
		School	HSS	College	
Harwan	1.20	3.02	1.06	-0.30	4.98
Nishat	2.89	2.83	1.06	-0.30	6.49
Dalgate	-0.50	1.35	1.06	-0.30	1.61
Lalchowk	-0.50	-0.33	4.34	6.52	10.04
Rajbagh	-0.50	-0.33	-0.58	-0.30	-1.70
Jawahar Nagar	-0.50	-0.70	1.06	1.97	1.84
Wazir Bagh	-0.50	-0.70	-0.58	-0.30	-2.07
Mehjoor Nagar	-0.50	-0.14	-0.58	-0.30	-1.51
Natipora	1.20	0.98	-0.58	-0.30	1.30
Channapora	-0.50	-0.33	1.06	-0.30	-0.06
Bhagat Barzulla	1.20	1.53	-0.58	-0.30	1.85
Rawalpora	-0.50	-0.14	-0.58	-0.30	-1.51
Sheikh Dawood Coloney	-0.50	-1.07	-0.58	-0.30	-2.44
Batamaloo	-0.50	-0.88	-0.58	-0.30	-2.26
Aloochi Bagh	-0.50	-1.07	-0.58	-0.30	-2.44
Magarmal Bagh	-0.50	-0.33	-0.58	-0.30	-1.70
Nundreshi Colony	-0.50	-0.70	1.06	1.97	1.84
Qamarwari	-0.50	-0.33	-0.58	-0.30	-1.70
Parimpora	-0.50	0.79	-0.58	-0.30	-0.59
Zainakot	-0.50	-0.14	-0.58	-0.30	-1.51
Bemina East	-0.50	-0.51	-0.58	-0.30	-1.89
Bemina West	-0.50	-1.25	-0.58	-0.30	-2.63
Shaheed Gunj	1.20	-0.70	-0.58	-0.30	-0.38
Karan Nagar	4.59	0.60	1.06	-0.30	5.95
Chattabal	-0.50	-1.07	-0.58	-0.30	-2.44

Syed Ali Akbar	**-0.50**	**-0.70**	**-0.58**	**-0.30**	**-2.07**
Nawab Bazar	**-0.50**	**0.23**	**-0.58**	**-0.30**	**-1.14**
Islamyarbal	**-0.50**	**-0.51**	**1.06**	**-0.30**	**-0.25**
Aali Kadal	**1.20**	**-0.88**	**-0.58**	**-0.30**	**-0.56**
Ganpathyar	**2.89**	**-0.88**	**-0.58**	**-0.30**	**1.13**
Malik Aangan	**-0.50**	**-1.25**	**-0.58**	**1.97**	**-0.36**
Barbarshas	**-0.50**	**-0.33**	**-0.58**	**-0.30**	**-1.70**
Khankhai Mohalla	**-0.50**	**-0.88**	**-0.58**	**-0.30**	**-2.26**
S.R.Gunj	**-0.50**	**-0.70**	**-0.58**	**-0.30**	**-2.07**
Aqil-Mir Khanyar	**-0.50**	**-0.70**	**2.70**	**-0.30**	**1.21**
Khawja Bazar	**1.20**	**-0.14**	**-0.58**	**-0.30**	**0.18**
Safakadal	**1.20**	**0.23**	**1.06**	**1.97**	**4.46**
Idd Gah	**-0.50**	**0.05**	**-0.58**	**-0.30**	**-1.33**
Tarabal	**-0.50**	**-0.88**	**1.06**	**1.97**	**1.65**
Jogilangar	**-0.50**	**-0.33**	**-0.58**	**1.97**	**0.57**
Zind Shah sahab	**-0.50**	**-1.07**	**-0.58**	**-0.30**	**-2.44**
Hassanabad	**1.20**	**0.42**	**-0.58**	**-0.30**	**0.74**
Jamia Masjid	**-0.50**	**-0.70**	**-0.58**	**-0.30**	**-2.07**
Mukhdoom Sahab	**-0.50**	**-0.51**	**-0.58**	**-0.30**	**-1.89**
Kawdara	**1.20**	**0.05**	**1.06**	**-0.30**	**2.01**
Zadibal	**1.20**	**-0.14**	**1.06**	**-0.30**	**1.82**
Madin Sahab	**-0.50**	**-0.14**	**1.06**	**-0.30**	**0.12**
Now Shehra	**1.20**	**0.42**	**-0.58**	**-0.30**	**0.74**
Zoonimar	**-0.50**	**0.42**	**-0.58**	**-0.30**	**-0.96**
Lal Bazar	**-0.50**	**0.05**	**-0.58**	**-0.30**	**-1.33**
Umer Conony	**-0.50**	**0.42**	**-0.58**	**-0.30**	**-0.96**
Soura	**-0.50**	**-0.14**	**2.70**	**-0.30**	**1.76**
Buchpora	**-0.50**	**1.16**	**-0.58**	**-0.30**	**-0.21**
Ahmad Nagar	**-0.50**	**-0.51**	**-0.58**	**-0.30**	**-1.89**
Zakura	**-0.50**	**-0.70**	**-0.58**	**-0.30**	**-2.07**
Hazratbal	**1.20**	**0.05**	**1.06**	**-0.30**	**2.01**
Teal bal	**-0.50**	**1.35**	**-0.58**	**-0.30**	**-0.03**

Bud dal	-0.50	-1.25	-0.58	-0.30	-2.63
Lokut Dal	1.20	-0.51	-0.58	-0.30	-0.19
Dara	-0.50	2.65	-0.58	-0.30	1.27
Alesteng	-0.50	0.98	-0.58	-0.30	-0.40
Palpora	-0.50	2.65	1.06	-0.30	2.91
Maloora	-0.50	-0.33	-0.58	-0.30	-1.70
Laweypora	-0.50	-0.88	1.06	-0.30	-0.62
Khumani Chowk	-0.50	1.16	-0.58	-0.30	-0.21
Humhama	-0.50	0.05	-0.58	-0.30	-1.33
Pandrathen	-0.50	1.91	-0.58	-0.30	0.53
Khanmoh	-0.50	0.42	1.06	-0.30	0.68
Total					

Source: *Authors*

amenity have been added to get the composite indicator of the amenities to reflect overall degree of inequality in the provision of the selected amenities (fig. 1.10)

The figure 1.5 reveals that four wards in the city namely *Harwan, Nishat, Palpora* and *Dara* have high concentration of schools, followed by eleven wards which posses medium concentration. Twenty eight wards have low concentration, and remaining twenty five wards are disadvantaged in context of this amenity.

From the figure 1.6, it is evident that only one ward in the city namely *Harwan* posses high concentration of higher secondary schools, followed by two wards *(Aqil-Mir Kahanyar and Soura)* which posses medium concentration of these institutions. Sixteen wards have low concentration, and remaining forty nine wards are very poorly served in context of this amenity.
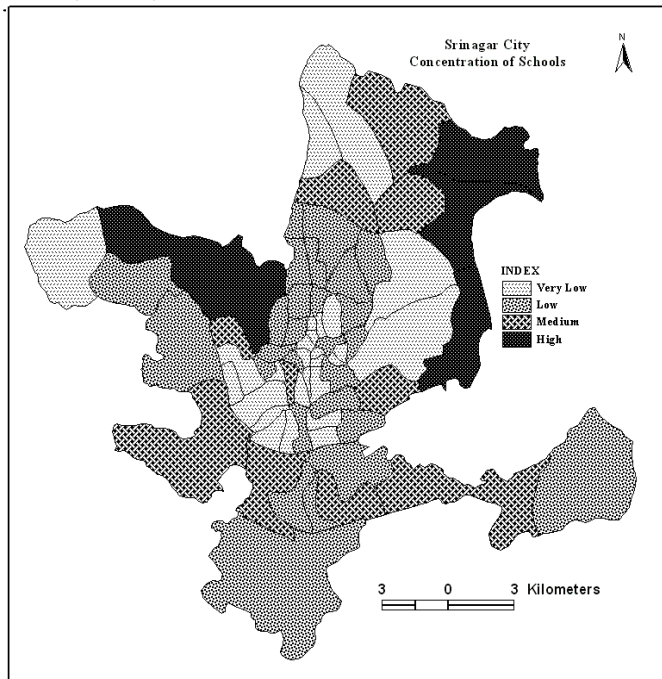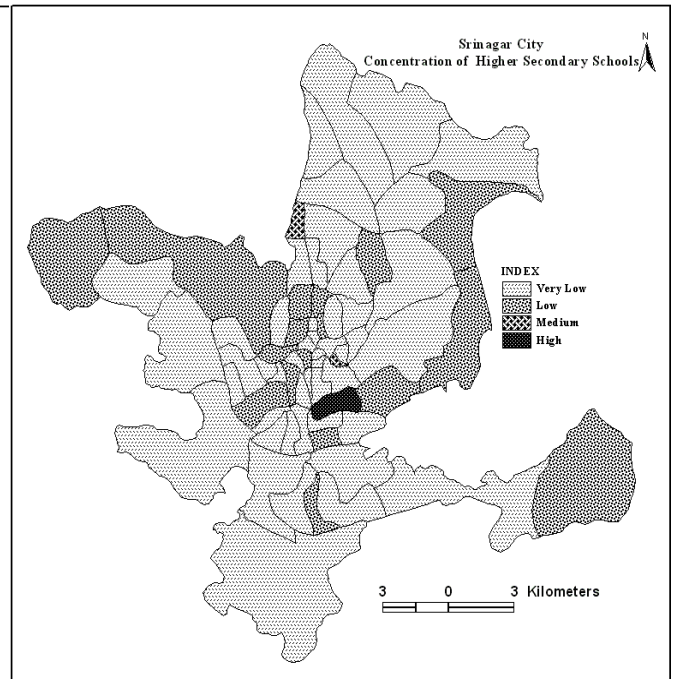
Fig. 1.6   **Fig.1.7**

The Fig. 1.7 reveals that only one ward *(Lalchowk)* in the city posses' maximum concentration of colleges (three out of nine), followed by six wards which have medium concentration and remaining sixty one wards in the city have no college.

From the figure 1.8, it is clearly visible that only one ward in the city namely *Karan Nagar* has high concentration of fire service stations, followed *Nishat* and *Ganpathyar* which posses medium concentration of this amenity. Thirteen wards have low concentration, while as fifty two wards are under served in context of this amenity.

Table 1.2: Gini's Coefficient

Gini's Coefficient		
05.	**Fire Service Stations**	**0.673**
09.	**Colleges**	**0.752**
10.	**Higher Secondary Schools**	**0.619**
11.	**Schools (Ist-10th Class)**	**0.212**

The figure 1.9, indicates that five wards in the city namely *Lal chowk, Nishat, Karan Nagar, Harwan* and *Safakadal* have very high concentration of the selected social amenities under study, followed by ten wards which posses high concentration. Nine wards have medium concentration; while as seventeen wards have low concentration and remaining twenty seven wards are very poorly served in context of these amenities.

Table 1.3: Weightage of each unit of different Amenities

Number of Amenities				Total Number of all Kinds Amenities in the City	Weighted Score			
Fire Service Station	School	Hr. Sec. School	College		Fire Station (W_1)	School (W_2)	Hr. Sec. School (W_3)	College (W_4)
20	459	24	9	1609	80.45	3.51	67.04	178.78

Source: Modified from Dr. Apichat Sopadang and Craig Borysowich, "Constructing a weighted Matrix", 1988.

5.3 Spatial Disparity

The spatial locational pattern analysis carried out in the preceding paras has revealed that the level of concentration with respect to the two selected amenities vary significantly across different wards of the Srinagar city. This imbalance in spatial concentration has led to various degree of spatial disparity of these amenities. In order to have an idea about the degree of spatial disparity with respect to these selected amenities, *Lorenz Curve* commonly used for measuring inequality in income has been used to represent the magnitude of disparity graphically. The Lorenz curve, first expounded in 1905 A.D, has long been used to measure the inequality in the distribution of wealth or income (Lorenz, 1905). The line of equality shows the equal distribution of the amenities. The deviation of Lorenz curve depicts the degree of spatial disparity. If the curve is close to the Line of equality, it indicates least disparity and the more it deviates from it,

the more is the disparity. The magnitude of disparity as represented through Lorenz curves of the urban amenities under study in Srinagar city is presented below (Fig.1.7, 1.8, 1.9 and 1.10).

The Fig 1.11 shows that there exists disparity in the provision of degree colleges in Srinagar City among different wards. Ninety percent population of the city have only 33 percent share of the amenity, while as the rest ten percent enjoy the remaining 67 percent of the amenity which is an indication of the inequality in the provision of this amenity.

The figure 1.12 depicts that disparity exists in the provision of adequate higher secondary schools in the wards of Srinagar City as seventy percent population of the city have easy access to only 25 percent share of the amenity, while as the rest thirty percent enjoy the remaining 75 percent of the amenity.
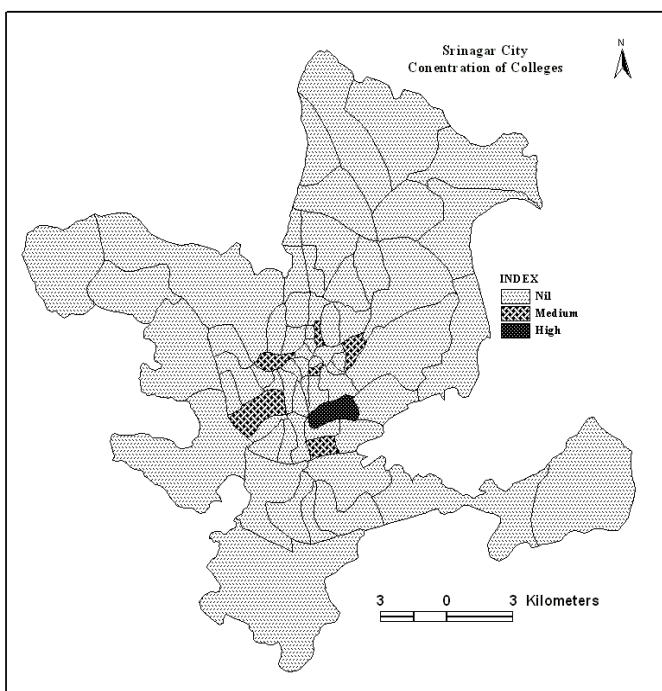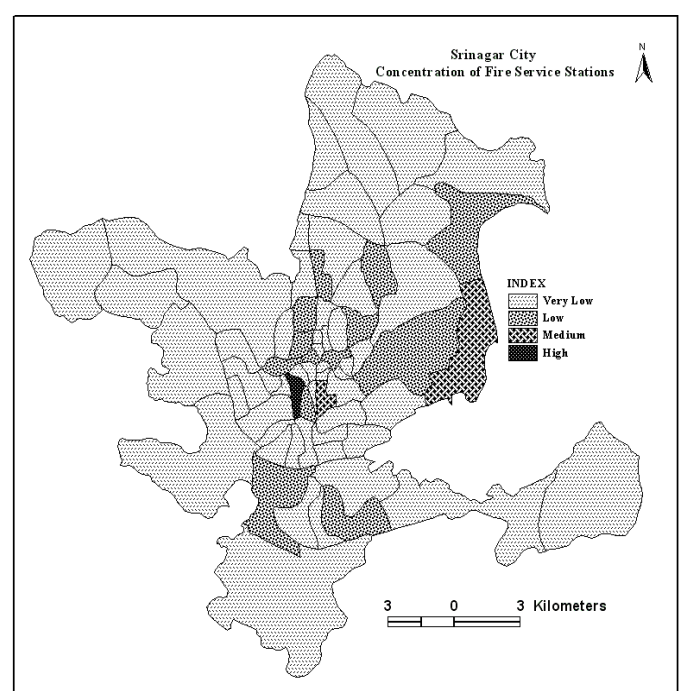

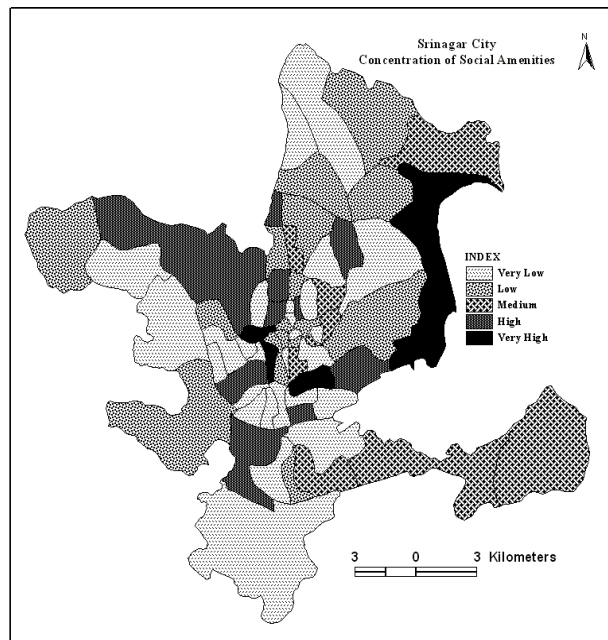
Fig. 1.8   **Fig. 1.9**

Fig. 1.10 Standardized Composite Scores on Social Amenities

Though the schools are present in every ward of the city, but due to their varying concentration among the wards there exists spatial disparity.
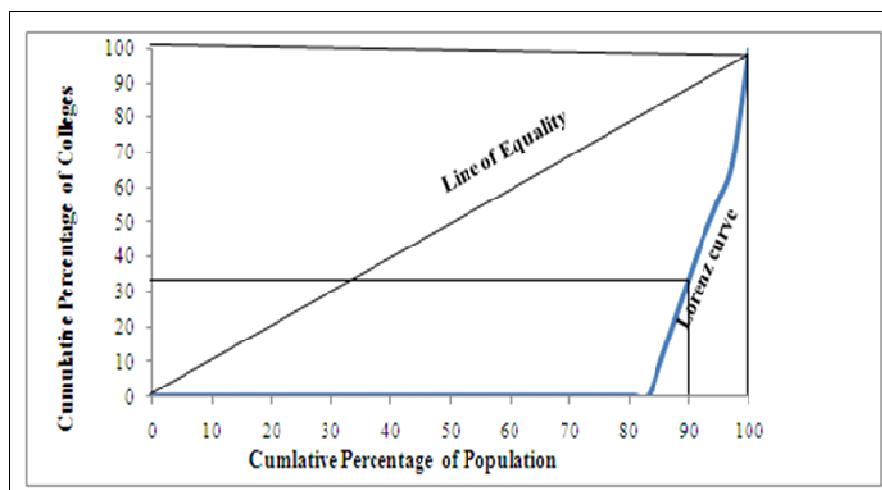

Fig. 1.11

The figure 1.13 indicates that there exists disparity in the provision of adequate schools among the different wards in Srinagar City. Fifty percent population of the city get benefit from 35 percent of the concerned amenity, while as the rest fifty percent population have easy access to the remaining 65 percent of the amenity which is an eye-opener so far as the inequality in the provision of this amenity is concerned.
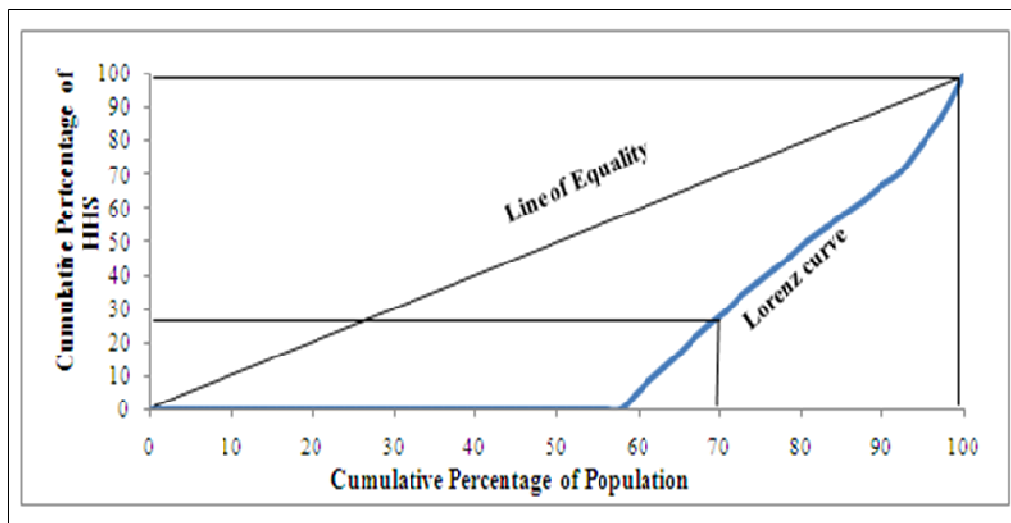

Fig. 1.12

The inequality in the provision of fire service stations to the city population ward wise is evident from the figure 1.10. From the fig 1.14, it is clear that eighty percent population of the city have access to only 39 percent share of the amenity, while as the rest twenty percent enjoy the remaining 61 percent of the amenity.
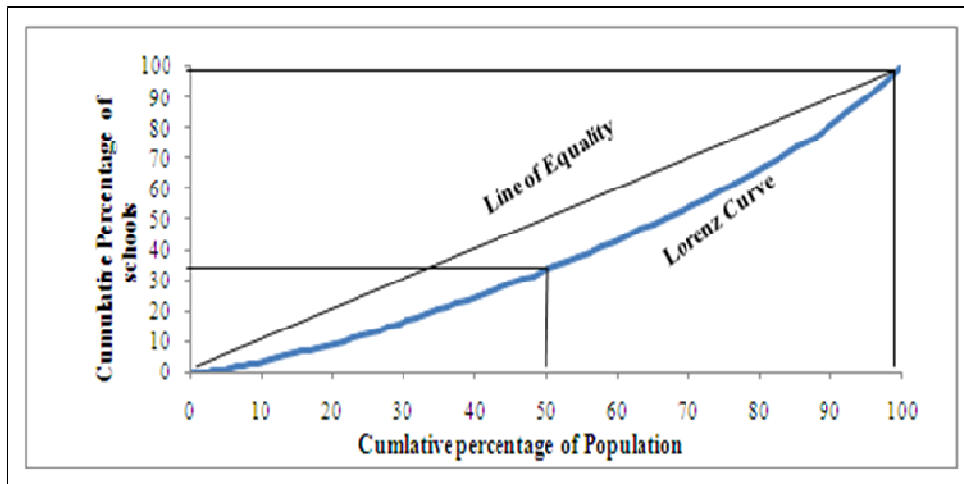
Fig. 1.13

5.3.1 Inequality Index

Using the Lorenz Curve, an index of inequality known as *Gini's coefficient* has been calculated for the urban amenities under study. Gini coefficients are aggregate inequality measures and can vary anywhere from 0 (perfect equality) to 1 (perfect inequality) (Duncan, 1957). The Gini coefficients calculated for the urban amenities under consideration are presented below (Table 1.2).

The degree of spatial disparity in the city is thus quite significant. The degree of spatial disparity is highest for Colleges followed by, fire service stations and higher Secondary Schools. Lowest level of disparity is observed in case of schools, Thus from the above discussion, it can be concluded that high level of inter-ward disparity exists in terms of provision of most of the urban services to the city inmates.

5.4 Identification of Gaps in the Provision of Amenities

In order to identify gaps in the provision of urban amenities in the Srinagar city, a weighted index score has been worked out. The weightage has been given to different amenities as per their standard and number (Kundu, 1975 and Borysowich, 1988). The weighted score of each amenity has been obtained by dividing the total number of amenities in the city by the number of each amenity (Table 1.3). The individual weighted scores of various amenities have been aggregated in order to derive the composite score of each ward (Table 1.4). The composite scores have been accordingly categorized to prepare the spatial concentration map (Fig. 7.1).
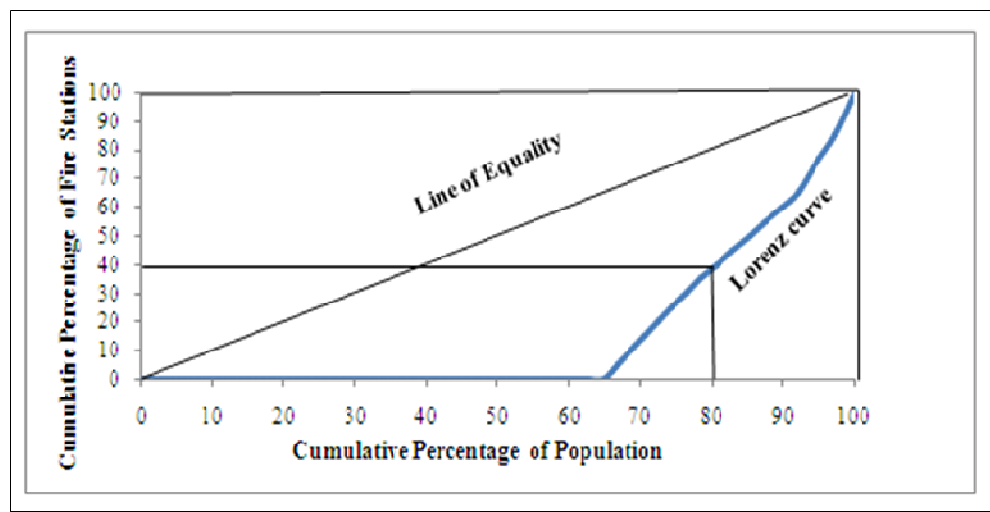

Fig. 1.14

Table 1.4: Weighted Index Score of Amenities

Ward Names	F.S (N$_1$)	S (N$_2$)	HHS (N$_3$)	C (N$_4$)	C.W.S
Harwan	1	23	1	0	228
Nishat	2	22	1	0	305
Dalgate	0	14	1	0	116
Lalchowk	0	5	3	3	755
Rajbagh	0	5	0	0	18
Jawahar Nagar	0	3	1	1	256
Wazir Bagh	0	3	0	0	11
Mehjoor Nagar	0	6	0	0	21
Natipora	1	12	0	0	123
Channapora	0	5	1	0	85
Bhagat Barzulla	1	15	0	0	133

Rawalpora	0	6	0	0	21
S. Dawood Colney	0	1	0	0	4
Batamaloo	0	2	0	0	7
Aloochi Bagh	0	1	0	0	4
Magarmal Bagh	0	5	0	0	18
Nundreshi Colony	0	3	1	1	256
Qamarwari	0	5	0	0	18
Parimpora	0	11	0	0	39
Zainakot	0	6	0	0	21
Bemina East	0	4	0	0	14
Bemina West	0	0	0	0	0
Shaheed Gunj	1	3	0	0	91
Karan Nagar	3	10	1	0	343
Chattabal	0	1	0	0	4
Syed Ali Akbar	0	3	0	0	11
Nawab Bazar	0	8	0	0	28
Islamyarbal	0	4	1	0	81
Aali Kadal	1	2	0	0	87
Ganpathyar	2	2	0	0	168
Malik Aangan	0	0	0	1	179
Barbarshas	0	5	0	0	18
Khankhai Mohalla	0	2	0	0	7
S.R.Gunj	0	3	0	0	11
Aqil-Mir Khanyar	0	3	2	0	145
Khawja Bazar	1	6	0	0	102
Safakadal	1	8	1	1	354
Idd Gah	0	7	0	0	25
Tarabal	0	2	1	1	253
Jogilangar	0	5	0	1	196
Zind Shah sahab	0	1	0	0	4
Hassanabad	1	9	0	0	112
Jamia Masjid	0	3	0	0	11
Mukhdoom Sahab	0	4	0	0	14

Kawdara	1	7	1	0	172
Zadibal	1	6	1	0	169
Madin Sahab	0	6	1	0	88
Now Shehra	1	9	0	0	112
Zoonimar	0	9	0	0	32
Lal Bazar	0	7	0	0	25
Umer Conony	0	9	0	0	32
Soura	0	6	2	0	155
Buchpora	0	13	0	0	46
Ahmad Nagar	0	4	0	0	14
Zakura	0	3	0	0	11
Hazratbal	1	7	1	0	172
Teal bal	0	14	0	0	49
Bud dal	0	0	0	0	0
Lokut Dal	1	4	0	0	94
Dara	0	21	0	0	74
Alesteng	0	12	0	0	42
Palpora	0	21	1	0	141
Maloora	0	5	0	0	18
Laweypora	0	2	1	0	74
Khumani Chowk	0	13	0	0	46
Humhama	0	7	0	0	25
Pandrathen	0	17	0	0	60
Khanmoh	0	9	1	0	99
Total	20	459	24	9	

Where, F.S… Fire Service Station, S… Schools, HHS…Higher Secondary Schools, C…Colleges and

C.W.S… Composite Weighted Score

Now in order to determine the place or position of each ward in terms of the amenities provided to it, weighted score was obtained by multiplying the existing number of different amenities in each ward and the corresponding weightage of each amenity present in it. Mathematically,

Composite Score of a Ward = $(W_1 * N_1 + W_2 * N_2 + W_3 * N_3 + \ldots + W_n * N_n)$

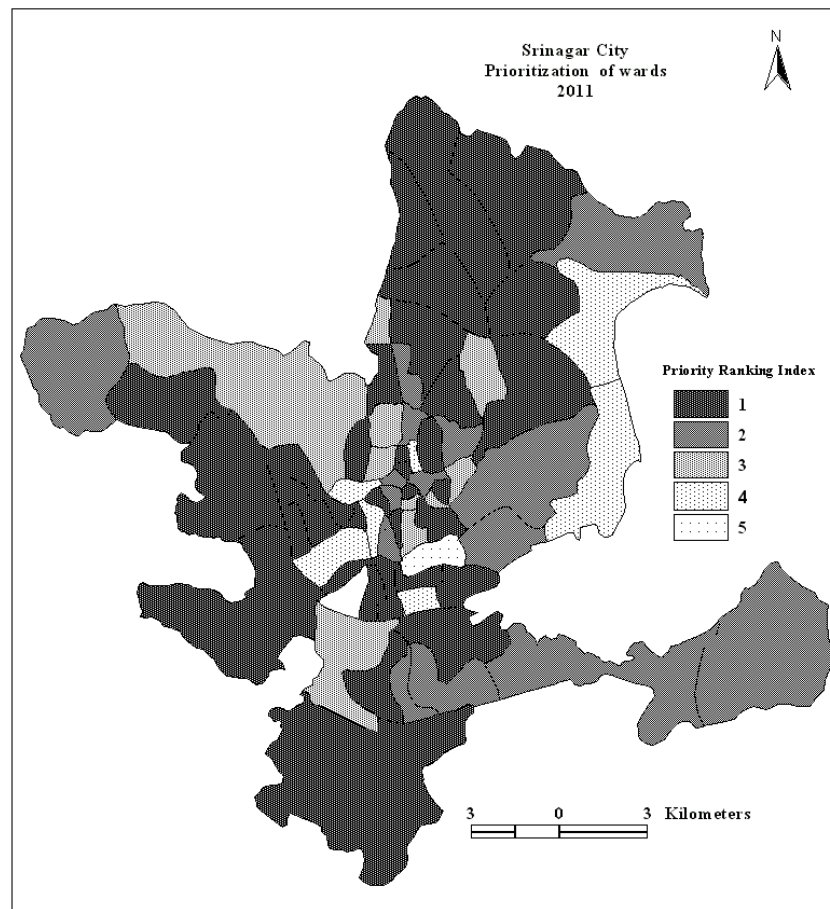Where $W_{1 \text{ to } n}$ = Weightage of Variables, $N_{1 \text{ to } n}$ = Number of Amenities

Fig. 1.15

The composite weighted score has been projected on ward map to obtain a prioritization map (Fig. 1.15) which could highlight the wards which have acute shortage of the amenities under study. The first priority index indicates the acute shortage of some wards which need special consideration in planning than the wards which fall in last priority.

It is clear from the figure 1.15 that three wards namely *Lalchowk, Nishat* and *Karan Nagar* enjoy highest share of different amenities, while as on contrary twenty three wards face shortage of civic amenities. The acute shortage among them in decreasing order are *Bemina West, Khankhai Mohalla, Bud dal, S.R. Gunj, Syed Ali Akbar, Bemina East, Iddgah, Chattabal, Batamaloo* and *Maloora*. Moreover, the concentration of civic amenities decreases from core of the city to the peripheries especially in the western and north-western side of the city.

5.5 Comparison of Population Threshold of amenities under study in Srinagar city with

Urban Development Plans Formulation and Implementation (UDPFI) Standards

Population threshold may be defined as the number of people required supporting a public amenity. There are various methods for the determination of population thresholds for public amenities. In the present study, the Population thresholds of selected services in Srinagar given by UDPFI (Table 1.5) were correlated with the existing thresholds of the public amenities in Srinagar City. The existing threshold for each public amenity was determined by dividing the total population of Srinagar city by the total number of each amenity (Table 1.6).

Table 1.5: Population thresholds of Amenities given by UDPFI

Urban Amenities	Population Threshold
Fire Station	46153
School	2164
Higher Secondary School	38700
College	120000

Source: Master Plan of Srinagar City, 2000

Thus from comparison it is quite clear that Srinagar city is facing shortage of the services under study. Though in Srinagar city all types of amenities are provided to people but the problem is either they are concentrated in only few wards or they are inadequate. The Planning body does not keep pace with the urban sprawl of the city which results in the deficiency of amenities especially in the wards falling on the peripheries of the city.

Table 1.6: Existing Threshold of Urban Amenities in Srinagar City

Urban Amenities	Existing Threshold
Fire station	57380
School	2614
Higher Secondary school	47817
College	127513

According to the standard laid down by Urban Development Plans Formulation and Implementation (UDPFI) guidelines, requirements of the schools from pre-primary to senior secondary school level are estimated to be of the order of 554 schools for 12 lakh population against which 459 are available. So, shortfall of 95 schools is needed to be filled up in future. Similarly in case of higher secondary institutions, there is need of seven higher secondary schools to overcome the problem of deficiency. There is deficiency of only one college to meet the requirements of 12 lakh population as per UDPFI standards.

Srinagar City has existing population threshold of 57380 in case of fire service stations while as the UDPFI standard keeps it 46153, therefore six fire service stations are to be established to meet the current population demands.

6. Conclusion

Social amenities such as schools, health centres, post offices, markets, police stations are generally not uniform in their spatial incidence. This is common in developing countries where apart from uneven population distribution, many other extraneous factors such as political consideration go into locational decisions. However, consideration for the well-being of the people should be a paramount factor in provision of amenities so that the people will have a sense of belonging and the orientation of the people towards the use of these amenities will also change positively. The study on the provision of two social amenities (educational and fire service) in Srinagar city indicate that these amenities are not evenly distributed among different wards of the city. The acute shortage of amenities is felt by the people residing in the peripheral northern, southern and south-western wards of the city as urban sprawl is continue along these directions. On contrary, the wards on the eastern side of the city have adequate amenities because of the least urban sprawl effects.
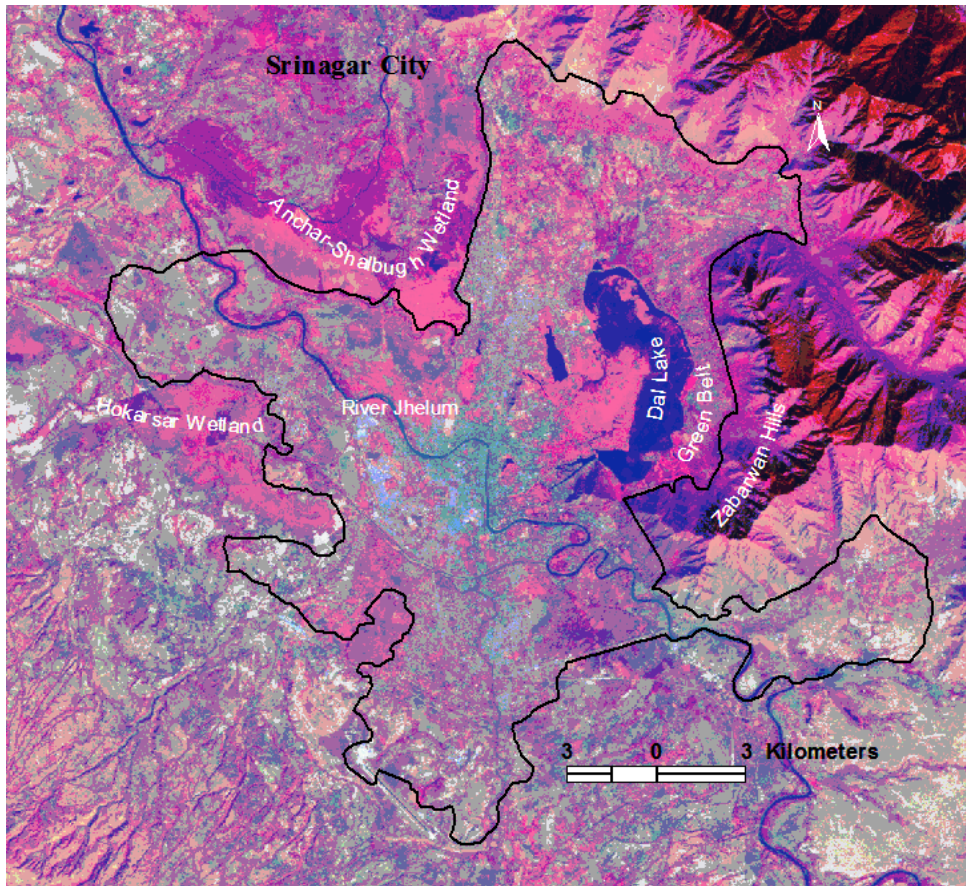
Fig. 1.16

The least urban sprawl effects in these wards are explained by the physiographic set up and politico-tourist importance of these wards. Besides the presence of *'Dal Lake'* (a water body) and *'Zabarwan hills'* which limit the city expansion in these wards as they come under the '*green belt'* zone in which construction is prohibited, the residences of political leaders are also playing an important role to limit the city expansion in that direction. Moreover, this part of the study area is a natural landscape with little human intervention and is the home of an important tourist '*hot spot'* of Kashmir valley (*Mughal Gardens* and *Tulip Garden* are located) which also limit the city expansion in the area (Fig. 1.16). The unjust distribution of amenities led to various problems like alienation of people towards local governance, interpersonal disparities in standards of life

and deterioration of city environment. The participatory approach is needed for ensuring the even distribution of public amenities in Srinagar city.

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