CONCLUSION: SUMMARY OF FINDINGS

All complex and advanced civilizations have sprung from city and in the contemporary world, urban life is a dynamic basis for most of the activities and processes we associate with modernization and economic development or the cultural development of any society. The three great socio-economic revolutions- the industrial revolutions, the agrarian revolution and the transport revolution-sparked off another great revolution - the urban revolution. As a result of high natural and emigrational growth, the cities have encountered with various problems within their limits to accommodate the increased population and to manage various civic amenities, the crowding, the resultant problems of the contamination of social and natural environments. Moreover, the disparities of the development between rural and urban areas need to be studied and the uniform distribution of central places is required for the uniform and integrated development of the city and its region. In this context, present research work dealing with the ‘Urban Structure and Interaction- A Study of Bulandshahr City Region’ is an attempt to study various aspects of the city and its interaction to its region of influence. The summary of findings of the study may be concluded as under-

Besides various studies of urban settlements and the concerned aspects in the epics of ancient world and India, the literature in the context of the present study has been reviewed to give a compact conceptual base to the
study. It consists of some of the scholarly works of foreign and Indian geographers like Von Theunen (1826) presenting a systematic model of utilization of land in different zones around a city, Jefferson (1911) and Hassert (1907) dealing with various anthropological aspects of urban settlements of Germany, Blanchard (1911) analyzing various aspects of New York city and Fluere (1924) dealing with the urban system of cities of Po Basin, Hoyet Homer (1936–37) highlighting the trends of growth of cities in America, Christaller (1933) formulating the hexagonal plan of regional setting of settlements and central places postulating the theory of central places. Later, Zipf (1949), Reilly (1931), Mather (1944), Rashevsky (1947), Clark and Evans (1954), Nelson (1955), Berry (1958), Decay (1960), King (1962) Hagget (1965), Haggerstarand (1967) etc. having evolved and tested relevant mathematical techniques to analyze the facts and figures of the urban system. followed by Hamilton (1979), Johnson. J.M., (1984) Harvey (1985) J. Breuste (2002) etc. Among the Indian scholars, the initial studies of Sri Niwashchari dealing with the growth pattern of city of Madras in 1927, Subrahmanyam studying the network of communication of the towns of Coimbattore District, Kurian (1930) outlining the distributional patterns of population in Madras, and later, the geographers like Singh, R.L. (1953), Singh Ujagar (1959), Dwivedi (1963), Chetterji (1967), Sarkar, Prakash Rao (1964), Bhatt (1969), Wanmali (1970), Mishra (1972), Deshpande, C.D. et al. (1980),

Bulandshahr, the headquarter of the district, is a medium sized city situated on the right bank of the Kali Nadi in Lat. 28°24’N and Long. 77°52’E at an elevation of 225.5 meters above the level of the sea. The old town of Baran exists on a raised bank bordering in the Khadar of the Kali river, but later, Bulandshahr city has extended more to the west. Bulandshahr city is a representative settlement of Mahabharat or the ancient period often named as Baran or Unchanagar which has been said to be evolved in Mahabharat period and settled at a land known to be Banchhati or land reclaimed by clearing the forests. It has been suggested that Baran is the Varanavata mentioned in the 143rd chapter of the Adi-parva of the Mahabharat and later, it has got its name as Baran after Ahibaran, the Parmal king of Ahar and owing to its high position, having the name of Uchchainagar or Unchanagar, the Hindi form of its present Persian name of Bulandshahr.

The evolution of the city of Bulandshahr comprising the whole of the district may be traced back to the references of Mahabharat and Puranas, the area was known as Khandava inhabited by Bhils, Nagas, Khandus, Khonds etc. tribes and later the areas was allotted to Pandavas in the Mahabharat period. Ahar a settlement near Anupshahr is said to be the land of the snake
sacrifice which was later remove to the present site of Bulandshahr. In the second century B.C., Gomitra, a local Mitra king of Mathura of about the same period, is described on his coins as ‘Baranaye’, interpreted by Cunningham as meaning of Baran and later under the rule of the Kushanas upto the end of first century A.D. as evident from the coins found here. A number of Jain inscription of that period from Mathura speak of an Uchchainagari-Shakha and Ja Varana-gana of Jain ascetics, who appear to have belonged to Bulandshahr, then known as Uchchainagar or Varana. The earliest dated record referred to this district is a copper-plate grant found at Indor (Ancient Indrapuri), in tahsil Anupshahr dating in the 146th year of the Gupta era which may be inferred to the year 465-66 A.D. In the process of historical development of the city of Bulandhshahr, it has past through the kingship of various Hindu dynasties like Tomar, Rajputs, Gurjar Pratiharas (9th and 10th century A.D.), king Bhoj (836-882 A.D.) Hardutt etc.

After the rule of various Hindu kings, the city of Baran suffered the invasions of Mahmood of Ghazini in 1018 A.D. and finally ceded to Muslim rule and the number of colonies near the Balai Kot of the city developed in the Muslim period when the city of Bulandshahr evidenced the rule of various Muslim rulers at Delhi mainly Iltutmish (1210-1236 A.D.), Balban (1266-1287 A.D.), Bahlul Lodhi (1451-1489 A.D.), Akbar (1555-1605 A.D.), Aurangjeb (1707-1767 A.D.) being on the fore front of Jats and Gurjars time
to time. After a defeat of Marathas at Panipat in 1761 and the invasion of Surajmal in 1763 and Jawahar Singh his son, the Nabaw Najib-ud-daulah induced Chhatar Singh another Jat local chieftain to safeguard the city. During the Maratha supremacy, Bulandshahr was administered from Koil which in September 1803 came under the British rule and in 1859 with the inclusion of Jewar and Khurja, the formation of the district completed.

The news of the outbreak of the freedom struggle at Meerut reached Bulandshahr in May 1857. Spate as District Magistrate, called upon all the principal landholders of the district for aid in furnishing troops to preserve order. Since the struggle for freedom the district remained generally undisturbed except for the famines of 1860, 1878 and 1897. During the first world war (1914-18), the district distinguished itself by its recruiting efforts representing a greater number of combatants. In 1919 Bulandshahr came into prominence as a centre of nationalist activities and its participation in notational movements like the The infamous Rowlett Act as protest, In 1921, non-co-operation movement of Mahatma Gandhi, demonstrations and protest meetings against Simon Commission in 1928, Quit India movement of 1942 are remarkable.

On August 15, 1947 by virtue of the Indian Independence Act of 1947, India became independent. The country did not forget its freedom fighters after independence and honoured them in many ways. The total number of
political prisoners in 1972-73 was 103. The Bulandshahr city has developed after independence in the form of various modern colonies occupying the western plain site between Balai Kot and upper Ganga canal inclusive of Awas Vikas, D.M. Colony, Teachers Colony, Hari Enclave, Dharm Enclave, Harish Chandra Nagar, Shanti Niketan and Anupshahr road etc.

The site of any settlement refers to the part of land, which provides the base surface for its development. It is the physical base on which the structure of a town rises horizontally and vertically. The site of the old city of Bulandshahr represents the upheaved land at the right raised bank of river Kali flowing from the eastern part of the present city of Bulandshahr. The site of the city of Bulandshahr at present reveals very typical example of sites as it has extended to the plain land of western side but being limited by Upper Ganga canal in the west of the city. The site of the city appears as resembling to a doll shape. At present it stands partly on level land and partly on raised ground. The eastern and southern part of the city of the Bulandshahr evidences the sharp slop from the upheaved site of old part of the city known as Balai Kot to its east while it is comparatively low slop in the side of western part of the city extending over plain land. Bulandshahr, the headquarter of the district, is a large city situated on the right bank of the Kali nadi and the absolute location of Bulandshahr city is 28°24’ N of latitude and 77°52’E of longitudes having situated at 225.5 M. above mean sea level.
Bulandshahr city is situated in the plain old alluvial fertile land of river Ganga and the newer alluvial plain i.e. Khadar plain of river Kali flowing from north-west to south-east of the city. It has very strong base of regional connectivity as it is situated on G.T. road that is N.H. 91, which links this city to various important places of the country like Delhi, Ghaziabad, Aligarh, Kanpur, Kolkata etc. Moreover, it is linked with other district and state routes connecting the city to Khurja, Anupshahr, Dibai, Narora, Sikandrabad, Siana, Gulaothi the important town of the district as well as to Meerut, Dehradun, Badaun, Faridabad, greater Noida etc. important places out of the district.

The society is made up of elements drawn from diverse origins and presently form the cultural amalgam of various rural and urban societies. The spatial variation of social groups in the Bulandshahr city at ward levels are examined by the scheduled castes and backward Castes distribution which makes it clear that out of total 26 wards of the city 10 wards mainly occupying the old settled areas like Sekh Sarai, Enta Rodi, Narsal Ghat, Mirchu Tola, Sarai Kazi etc. have recorded low ratio below 5% of scheduled castes while 11 wards mainly comprising the outer areas of the city namely Chandpur Nayagaon, Bhoor, Devipura, Radha Nagar, Tanda, Teachers Colony, Harish Chandra Nagar and some of the internal wards like Munshi Para and Satha have shown high ratio of scheduled castes above 10% in 2001. On the other hand, the concentration index of socially backward castes have revealed
spatial variations which makes it clear that the wards like Teachers Colony, Civil Lines, Devipura I, Bazaar, Enta Rodi, Sekh Sarai, Satha etc. have low concentration below 25% while the wards like Kothiyat, Manihar, Sarai Kaji and Tanda have revealed high concentration of socially backward castes above 50% of the population of the concerned wards in 2001.

The internal structure inclusive of the layout of the city of Bulandshahr with the setting of Buildings, their sized, the patterns and width of various streets and roads forming the circulatory part of the city as well as the large buildings of various industrial units and offices of the Government and private bodies, green belts and open areas have been divided into three zones namely-

1. central or inner zone representing the congested unplanned areas of olden city of Bulandshahr covering Balai Kot and its surroundings, 2. the middle or intermediate zone representing the residential colonies of both low or high socio-economic groups with semi planned and planned colonies like Devipura, Lothiyat, Laxmi Nagar, Prem Nagar, Gandhi Park, Teachers Colony, Sarai Lodhyan, Munshi Para etc. as well as Civil Lines, Adarsh Nagar, Awas Vikas, D.M. Colony etc. and 3. the outer zone characterized by the open spaces, gardens, agricultural land, go-downs, industrial units, cold storages, petrol pumps, railway stations, newly developed colonies as well as the villages included in the municipal limits.
The land use and functional morphology of Bulandshahr city has been traced out by sketching the areas under different urban uses like the residential areas covering 35.85% of the total area of the city with commercial areas developing both the sides of the roads and at the triangles and crossings covering 1.45% of land of the city with a number of 2110 shops of different commodities, the industrial units mainly consisting of sugar mills, agricultural implements and tools, wood products, leather products and automobiles and housing goods etc. covering 3.2% of the total area of the city, the vehicular and non-vehicular routs of the city mainly the Khurja-Meerut railway line, G.T. road and other district level road and streets of the city moving to connect different parts of the city stretching over 15.65% of the area of the city, and the agricultural, parks, gardens, rives and ponds and the other urbanized miscellaneous uses comprising 35.63% of the total area of the city.

A survey of the rural-urban fringes have been worked out by a researcher in 4 villages of rural-urban continuum where the development of Bulandshahr city is presently taken place like Malak Mahosan Garh between Anupshahr road and Garhmukteshwar road, Suajpur Mirpur along Shikarpur road, Tatarpur along the bye pass road connecting Meerut road to Garhmukteshwar road and Chandpur along G.T. road. The fringe areas surveyed make it clear that the cost of land per yard in these area ranges between Rs. 1000 in Tatarpur to Rs. 2500 in Chandpur while the percentage
of built-up area ranges between 18% in Tatarpur and 28% in Malak Mahosan Garh and the percentage of semi-built-up area varying between 28% in Chandpur and 46% in Tatarpur and Mahosan Garh. Moreover, the percentage of open area in the fringe surveyed areas have been recorded to be a minimum of 26% in Malak Mahosan Garh and a maximum of 48% in Chandpur Nayagaon. Besides these villages in the rural-urban continuum, some of the 26 other villages mainly Dariapur, Nabada, Akbar pur, Mau Khera, Dehlipura, Machkoli, Kaloli, Utrawali, Kajipur, Imilia, Hajipur etc. villages have been identified to form the fringe areas for the future development of the city.

It is bare fact that a demographic structure of any city plays a decisive role in forming the overall urban landscape. So far as the distribution of population in different parts and wards of the city of Bulandshahr is concerned, the old settled wards around the Balai Kot i.e. Bazaar, Sarai Kazi, Narsal Ghat, Rukan Sarai, Enta Rodi, Mirchu Tola etc. are densely populated while the outer wards like Bhoor, Chandpur Nayagaon, Sarai Lodhgan in the west, Awas Vikas, Harish Chandra Nagar, Devipura I in the north, trans-kali ward Tanda in the east and Radha Nagar in the south of the city are sparsely populated. Moreover, the density of population as per 2001 census, is comparatively low below 17500 persons per km$^2$ in the outer areas and recently developed colonies and wards like Bhoor, Nayagaon Chandpur, Awas Vikas, Sarai Lodhgan etc. while the areas of high density above 35000
persons per km² represents the inner wards like Bazaar, Sarai Kazi, Narsal Ghat, Rukan Sarai, Enta Rodi, Mirchu Tola, Sekh Sarai, Gurusganj etc.

Under the process of urban development, the population began to settle in new areas either surroundings the urban centre or moving to the sectoral process of growth. The decadal variations of the population of city between 1901-2001 calculated by mathematical formula, reveal the trends of low growth of population between 1901 and 1921 below 2.2% while it source medium to high growth of population between 1931-1961 ranging from 17.8% to 27.6% in different decades during this period. Moreover, the decadal growth rate is high to extremely high between 1961 and 2001 when it was recorded to be 22.5% during 1981-91 and 73.8% during its previous decades of 1971-81.

The age structure of Bulandshahr city have been analyzed on the basis of the ratio of males and females in different groups of age as the children comprise below 14 years of age comprise above 42% of total population for both the sexes while the youth and matured age group between 14-59 years of age accounts for 41.44% and 42.25% of total population for male and females respectively in 2001. The old age groups above 60 years of age having good ratio is indicated of increasing life expectancy in population of Bulandshahr city. The sex-ratio of any population affects the demographic structure of any population groups inclusive of the population growth, participation rate,
marital status and occupational as well as the social structure. The patterns of
the sex-ratio in the city of Bulandshahr at ward levels make it clear that the
areas of low sex-ratio below 875 females per 1000 of males in 2001 includes
Chandpur, Civil Lines, Devipura, Radha Nagar etc. wards. While the areas of
the high sex-ratio mainly consist of old settled wards like Kothiyat, Sekh
Sarai, Narsal Ghat, Enta Rodi, Sarai Kaji, Gurus Ganj, Maniharan, Mirchu
Tola and an outer ward of Harish Chandra Nagar.

The dependency ratio calculated by involving the mathematical
technique at ward levels reveal that the areas of low dependency ratio below
275 comprise the northern wards like Harish Chandra Nagar, Devipura,
Central wards of Teacher Colony and Munshi Para as well as the old settled
area of the city. While Bhoor, Chandpur Nayagaon, Civil Lines, Radha
Nagar, Tanda i.e. mainly the outer wards have recorded high dependency ratio
above 300 in 2001. The size of labour force, its distribution in various
occupations are fair indices of the physical resources base, the system of
social organization and the nature of economy prevailing in a region. The
participation rate in different parts of the city of Bulandshahr evidences no
remarkable variations as it ranges between 22.5 to 30% in most of the wards
of the city. The occupational structure in the city of Bulandshahr has shown
high ratio of agricultural workers in the wards like Bhoor, Chandpur
Nayagaon, Teacher Colony, Civil Lines, Harish Chandra Nagar etc. having
more than 4% of the workers in agriculture and allied activities while the wards like Harish Chandra Nagar, Enta Rodi, Sekh Sarai, Satha etc. have recorded high ratio of household industrial workers above 7.5% of total workers in 2001. The ratio of workers in other activities like marketing, community services, transport communication, factory industries etc. is considerably high accounting for 98.85% of total workers of the city of Bulandshahr ranging between a minimum of 82.84% in Sarai Kazi and a maximum of 97.25% in Devipura in 2001.

Literacy of Bulandshahr city in 2001 has been accounted for 71.97% which below 70% in eastern and olden part of the city inclusive of Sarai Kaji, Mirchu Tola, Narsal Ghat, Rukan Sarai, Satha etc. wards while the literacy is high above 80% in 12 wards of the city mainly consisting of the newly developed colonies of the city like Chandpur Nayagaon, Civil Lines, Harish Chandra Nagar, Teachers Colony, Radha Nagar, Devipura II and some old urbanized wards like Kothiyat, Munshi Para, Sekh Sarai inhabited by the business class of higher social groups of Hindus and Muslims. The religious composition of the city of Bulandshahr has been examined by involving the primary information of filed work survey which makes it clear that the areas of Hindu dominance cover the three-fourth part of the city mainly including the western and newly developed areas with Munshi Para and Kothiyat where Hindus have more than 60% of total households. The areas of Muslim
dominance mainly represents the Balai Kot and its surroundings like Mirchu Tola and Sarai Kaji while the areas of Hindu-Muslim dominance include Devipura, Shekh Sarai, Enta Rodi, Satha, Narsal Ghat, Radha Nagar etc. wards. The areas of Hindu-Muslim and other religious groups like Buddhists and Jains includes the only ward of Devipura II.

India is passing through a transitional phase where the urban centers are the focal points of change. Many functions of the towns or cities are common in similar sized cities as the population determines the centrality and diversity of central functions as required to meet the need of similar sizes of population clusters at any centre. Bulandshahr city having a population of 176425 in 2001 stands at 24 rank selected to be 76 in the whole of the country having population between 150,000 – 200,000 in 2001. The sex-ratio as per 2001 census of 76 similar size cities of India ranges between maximum of 1066 females per thousand of males of Karari Suleman Nagar of Delhi and with a minimum of 801 females per thousand of males in Malkaj Giri city of Andhra Pradesh and the city of Bulandshahr city stands at 17th rank in 2001. The mean of child sex-ratio has been accounted for 913 female children /1000 of male children in these cities in 2001. The low CSR has been recorded to be below 900 in most of the cities between population of 150000 and 200000 persons pertaining to the cities of Raibareli, Sitapur, Bulandshahr etc. (U.P.), Bhivani, Yamuna Nagar, Sirsa, Gurgaon (Haryana), Nangloi Jat, Sultanpuri, Mirza etc.
(Delhi), Morena Bhind, Reva Singrauli (M.P.) Junagarh, Surendra Nagar etc. (Gujrat) and a city Malkajgiri in Andhra Pradesh only. Only three cities of M.P., A.P. and W. Bengal namely Nala Sopra, Elura and Bidhan Nagar qualifies to the high levels of CSR above 1000 as per 2001 census.

After an analysis of facts and figures only three cities namely Yamuna Nagar (Haryana), Pathan Kot (Punjab), Sitapur (U.P.) of northern plain have revealed low fertility rate below 42.5 while this category includes 6 cities of W. Bangal, 3 cities of Gujarat and all others 27 cities pertaining to eastern and southern part of India. It is quite interesting to note that the high fertility rate above 50.0 comprises 19 cities of the states of northern plain namely Delhi, Uttar Pradesh, M.P., Rajasthan and Bihar and only 2 cities of Bihar and Karnataka have shown high fertility rates. It evidences the lesser affectivity of family planning programs even in the cities of northern India. Bulandshahr stands 24 in rank of this demography urban attribute. The cities having comparatively low literacy below 70% have been recorded to be 35 in number inclusive of 25 cities of northern plain and only 10 cities of coastal and southern India. Agartala, the capital city of Tripura has fisrt rank in case of literacy recording 85.05 followed by Alappuzha (Kerala) with 83.67% and Hugali (W.B.) with 80.73 standing at second and third rank in India and achieving the goal of complete literacy. Moreover the functional classification of the selected 76 cities has been examined and the other workers group
generally hold above 80% of main workers in most of the cities only except a few industrial and mainly manufacturing cities like Sikar, Sambhal, Sitapur, Malkajgiri Purnia, Kaliyar Sultanpur Mirza, Junagarh Nadiad, Gurgaon, Mango, Dhanbad Bhalsavali, Singrauli, Burshanpur, Sambalpur, Sikar, Erode, Amroha, Hugli chinsura, Haldia, Jaunpur etc. cities where household industrial workers accounted for more than 7.50 % of main workers in 2001. After an analysis of the multi-variate correlation matrix of the selected attributes of 76 cities of India. Sex-ratio and fertility rate has undergone highly negative score of -0.55, which makes it clear that high the sex-ratio, lower is then fertility rate. Fertility rate has fair positive correlation to child sex-ratio i.e. 0.52. Fertility rate has shown highly negative correlation to literacy and female literacy i.e. -0.59 and -0.72. There is fair positive correlation between participation rate and other tertiary workers of these cities calculated to be 0.77

The city is a centre of various services and supplies of specific nature, the functions of non-agricultural basis and it is related to its surrounding region. The extent of the supplies from in to the city is known as city region delineated by various Indian scholars by applying qualitative and mathematical techniques namely Dr. R.L. Singh (1955), Dwivedi (1963), Sen (1969) Singh O.P. (1973), Pawar, C.T. and Lakhamde, T.N.(1988), Sharma (2002) etc.
The city region of Bulandshahr has been the delineated by mathematical technique evolved by Converse on the basis of the population of the city and its surroundings towns by calculating break point between the towns and the city. On the other hand, the commodities and services supplied to and from the city of Bulandshahr are selected by adopting imperial approach to delimitate the city region of Bulandshahr inclusive of the service areas of district level services like Collectorate, Civil Court, Police administration and other various district level services, tahsil level services, block level services as well as the civic service and facilities consisting of education, health, marketing, banking etc. On the other hand the supplies areal extent from rural areas to the city of Bulandshahr inclusive of grain and agricultural products, milk and its products, daily labourers and commuters etc. have surveyed and their zonal extent have been traced out which include the whole of the district of Bulandshahr finally delaminated as its city region extending over an area of $3741.19 \text{ km}^2$ inhabited by a number of 2913122 persons in 2001 in its 1142 rural and urban settlements out of which 23.45% are small settlements below a population of 1000 and 37.74% of settlements having fair size above 2000 persons in 2001. Moreover, the geographical settings of the city region of Bulandshahr in terms of natural and cultural settings have been briefly noted. It has got a strong base of the resources both natural and human resources.
It is an open fact that today, transformation of rural habitat is highly linked with the innovatory waves of new techniques and ideas which is performed by the settlements serving the surrounding areas by providing some infrastructural services and generally signified as service centre. These service centre in the context of the study have been identified by involving 5 parameters as a permanently inhabited settlement, having above 2500 population in 2001 i.e. nearer the mean population of 2417 persons per settlements, performing 3 of the five important functions or sub-functions like educational institution upto inter college, child care & maternity and family welfare sub-centre, a Nyay panchayat, having linked with a metalled road or having weekly or regular market, as well as having at least the half of the percentage of the regional mean of i.e. 39.54% workers in other activities.

Besides the 16 urban centres inclusive of Bulandshahr city and other towns and Nagar Palikas, namely Sikandrabad, Aurangabad, Gulaothi, B.B. Nagar, Siana, Bugrasi, Khanpur, Anupshahr, Jahangirabad, Debai, Narora, Shikarpur, Pahasu, Chhatari and Khurja, a number of 209 service centers consisting of large rural settlements and have been identified by involving the above mentioned criteria. The distribution of service centre in the city region have been examined by envolving mathematical formula to test the randomness of service centers. It is noted that the service centres in Sikandrabad tahsil are distributed nearer to nucleated patterns with a
minimum Rn value of 0.66. The service centres reveal random pattern of dispersion in the tahsils of Bulandshahr (1.12), Siana (1.09), Shikarpur (0.98) and Khurja having 1.05 Rn value. The tahsils of Anupshahr and Dibai have evidenced a pattern of dispersion towards uniform with Rn values of 1.63 and 1.54 respectively in the two tahsils. On the other hand, the size of the service centers have been put in terms of average population of the centre at tahsil levels which accounts for low sized centers below 3500 persons in 2001 in the tahsils of Anupshahr and Shikarpur, while the large size service centres with mean central population above 4000 persons occupy the tahsils of Siana and Dibai. The spacing of the centres is calculated by using the Mather’s formula at tahsil levels. It is the pattern of spacing of the service centers showing low spacing with less than 1.75 km of inter centre distance in Anupshahr and Bulandshahr tahsil as well as with high spacing of above 1.85 km inter centre distance in the tahsils of Siana and Sikandrabad.

The primary function of a central place is to perform some special activities consisting of commerce and industry. The efficiency of the central place whether big or small in its size is the base to decide the rank and hierarchy or the significance of the central place in terms of the number of functions and its capacity to serve the surrounding area with its internal population too. The nesting of central places follows the conceptual rule of \( K = 3, K = 4 \) and \( K = 7 \), hexagonal geometry, treating hinterlands of central
places as closed areas as postulated by Christaller in 1933. The hierarchy of 225 central places in the city region of Bulandshahr have been decided on the basis of population of the centers as the population of a town or a city is major and a most effective indicator of a regional importance and its value and capacity to serve as a central place rightly adopted by Jefferson when he introduced the law of primate city. The order of hierarchy based on population of 2001 of the central places in the city region of the Bulandshahr has been ranked from first 6th order in which the number of central places runs as 1, 3, 7, 4, 49, 161. On the other hand the hierarchy of central places has been determined by involving mathematical technique based on the percentage of other workers out of the total workers to calculate the centrality index of 225 central places. The order of rank based on centrality from first to the 8th order follows as 1, 1, 3, 4, 5, 2, 62, 147. Bulandshahr, the primate city stands at apex in order of hierarchy and the central places of rural areas with low size of population and non-agricultural workers have been decided to be in the lower ranks.

The varied nature of urban functions renders the study and grouping of urban centres into functional types an interesting subject. The functional structure of 225 central places in the region of Bulandshahr, have been classified on the basis of their percentage of workers in agriculture, households industries and other activities by applying mathematical technique
of functional combination with 100%, 50% and 33.33% of the highest functional percentage to be qualified to the functional combination by a centre. A number of 20 and 44 centers have been identified having mono-functions mainly dominated by other workers and agricultural workers respectively, 45 and 108 centers being Bi-functional centers dominated by other workers – Agricultural workers in changing combinations while 8 central places have got Tri-functional basis inclusive of household industrial workers with other two categories of workers.

The urban planning is in a way an effort to control, to guide and accomplish the physical development of towns and cities and thereby provides for the people who are living and working in them the best possible environment. Keeping in view the objectives and strategies, a multi-faceted planning for the development of Bulandshahr city and its city region up to 2021 with projection of population to be estimated to 277121 and 3911115 respectively, the synthesis of rural urban development have been worked out by suggesting future industrial, transport, spatio-functional planning as well as the central place planning by applying the hexagonal arrangements fit to the region of Bulandshahr to mark the gap areas to suggest new location of central places. It is the expectation of the researcher that the findings of the present study may be the guidelines for the future development of Bulandshahr city and its region integration.