CHAPTER-VIII

SUMMARY AND CONCLUSION
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The profile of the study area displayed great variations of physical and cultural factors within the boundaries of the district.

The study area enjoys a semi-arid monsoon type of climate, owing to a long distance from the seas the region fails to get the full benefits from monsoon currents. It is characterized by a deficiency of rainfall over its greater part, high summer temperature and evaporation. It experiences the usual three seasons - the winter, the summer and the rainy. Both the heat in summer and cold in winter are extreme. Moreover, there are not only considerable differences in the weather from season to season, but also from year to year. These changing weather conditions, through have repercussions on its agriculture.

The mainstay of the study area is agriculture and about 51 per cent (of total workers) persons are engaged in this activity. As per 2003-04 records the N.S.A. in the Rohtak district formed 83.23 per cent of the total reported area. The district alone produces about 3.13 per cent of the total food production of the state. Out of G.C.A. almost 71 per cent is under food crops including wheat, jowar, bajra, rice, barley, pulses etc. Among the commercial crops the only important one is sugarcane.
It is clear from the study that there is no loss in the cultivation of any crop of any size of holdings. And it is also clear that input value decreases with the increase of the size of the holdings. Input-output ratio depicts that wheat is the most profitable crop because the ratio of input-output is the highest (2.99) in comparison to that of other crops pulses is the second ranking crop (input-output ratio 2.61). Rice is the third ranking (ratio 2.15). Jowar is the fourth ranking crop (ratio 1.70) and bajra is the fifth ranking crop in terms of input-output ratio (1.37) in the study area.

It is also clear from the study that the whole district produces 1670165286000 calories while 748746143040 calories are required for the consumption of the total population per annum which is about 44 per cent of the total caloric output, it means that about 56 per cent production is available in the district for sale in the market or marketable surplus.

It is also clear that the district has carrying capacity of 1263 persons per km² while the existing density of population is 539 persons per km² on the basis of the above facts, it is apparent that the study area as a whole is undoubtedly surplus in total caloric output. In the study area, although at present, the agricultural situation is satisfactory yet the area has vast potentiality for further improvement in agricultural development.
(i) With the rapid growth of population and to solve the problems, it becomes necessary that the cultivable waste land (10126 hac. or 7.14 per cent) which is the potential land may be changed into cultivated land with the help of little efforts and little investment. The fast increasing pressure of population on cultivated land resources, people are aware of its significance and are adopting various measures to protect it.

(ii) In the year 2006 about 134789 hec. (81.34 per cent) land of the district is under cultivation. Out of which 60.92 per cent is double cropped area. It is true that, the scope for horizontal expansion of cultivated land in the district is quite limited. Hence, increasing the production in the district is possible, through the vertical development of agriculture. It is the best solution to meet the increased demand of food grains and vegetables. The intensification of agricultural activities is possible only through the increase of double cropped area.

(iii) Since the district Rohtak falls within the N.C.R., any plan for its development is unextricately bound-up with the development strategy. Indeed Rohtak district has a big role to play in the fulfilment of the goals of N.C.R. plan, followed for the Haryana sub-region of the N.C.R. The nearest urban centres namely Delhi, Sonipat, Bahadurgarh, Gurgaon, Faridabad, Jhajjar, Kharkhuda,
Kalanaur, Meham put together have large concentration of population (according to the census of 2001), while their projected population up to 2010 A.D. would be about just double. So far as the implication of such a rapid growth of these urban centres of the district are concerned, these would naturally have to be taken into account and therefore, the district in future would assume greater significance.

As a result of the urban growth the agriculture sector of the district is bound to be diversified and there would be a change in the overall cropping pattern e.g. there would be more land under vegetables, flowers, fruits, fodder besides dairying, poultry farming, pig rearing and fisheries etc.

Study shows that the study area is deficient in mineral resources. Despite having its backwardness in industries Rohtak tops in sugar industries in the state. There is unequal distribution of large scale industries in both tahsils of the district. For example 12 out 14 industries are located in Rohtak tahsil and rest of two are in Maham tahsil.

The growth rate of small-scale industries surprisingly increased. Actually it was due to the favourable policies of the government, development of transport, electricity, modernization of agriculture and other socio-economic infrastructure. But spatial distribution of small-scale industries is very uneven it is fact that about more than 95 per cent industries are
concentrated in urban areas and remaining 5 per cent in rural area.

About 86 per cent persons are employed only four major groups of small scale industries for example employment in metallic/non metallic mineral based industries is the largest (63.60%), followed by wood industries (9.2%), textile (7.09%) and food products (5.77%).

It is also revealed from the study that the study area has large potentials and probabilities for the development of local resources based and read based industries for cottage, small and large scale industries. Now, the question is which kind of industrial pattern we should adopt for the development of the area. In this context, planner should take care of the development of cottage and small-scale industries according to demand based and their potentialities in the region.

To establish any industry planner should think of the market as were as adequate supply of the raw material. The study area has no mineral resource for the establishment of large metallurgical complex. Therefore, efforts have to be made for promoting small cottage and agro based industries.

Industries directly contributing to agricultural development like agricultural implements such as modern ploughshers, thrashers, crushers, tractor parts, tubewell equipments and industries based on agricultural produce can be
advantageously developed in the regional growth centres like, Rohtak, Meham, Kalanaur, Lakhanmajra and Sampla.

The availability of raw material based on livestock also has great potential. Dairy and meat are the most important industries. Small scale leather industry should be set-up in Meham, Kalanaur and Sampla. The government should provide the new technology and improved machines for the advancement of leather industries in these centres. Milk processing plant should be set-up in regional growth centres to improve the economy of the district.

For cottage industries, application of 'intermediate' or 'appropriate' technology is recommended which in this context means making use of machinery taking care of the fact that rural artisans are not thrown-out of employment.

The study of functions reveals the following facts:

(i) In the study area, normally settlements below 500 persons do not have even a single primary school.

(ii) It is also clear from the study that population size, distance from the major clusters of functions and accessibility seem to have influenced the process of clustering of functions.

(iii) Higher functions are found in large size settlements.

(iv) It has been found in the study area, the more concentration a function/sub-function has the less
weightage it gets. As the concentration of the distribution increases, the weightage decreases in the same proportion. For example, the weightage of primary schools which exist in 133 settlements is 1.12, middle schools existing in 118 settlements has a weightage of 1.26.

(v) Settlement population and centrality do not correlate in the study area or in other words the population size of a settlement does not reflect its position as a service centre.

(vi) The application of scalogram technique identifies six hierarchic orders of settlements of the district based on the criterion of the functional gaps in their composite score.

(vii) Factors like direction, district boundaries, frequently bus service, level of market or variability of cost and quality of the services, affected consumers travel distance and space preferences. As a request, service areas of control place do not conform to any theoretical models of central-place geometry.

An efficient system of mass transportation is the backbone of a developing economy. Transportation planning is, therefore, one of the most effective tools for achieving balanced regional development. Socio-economically, it accelerates the inter-reliance of urban and rural areas, facilitating the movement of various commodities and services
and allows development and maintenance of specialized activities in urban centres of a regional complex. The interdependence of producers and consumers may accelerate or de-accelerate depending on the efficiency of network road and rail transportation, which directly defines the mobility of goods, services and passengers within a specific area or region.

The district has a good network of passenger buses which have been interlinked almost every village. At present only 14 villages of the district are away from the facility of Haryana state roadways and private buses (See Table 6.1). Although state Roadways runs many inter-state routes of Punjab, Rajasthan, Delhi, Uttar Pradesh, Uttarakhand and J & K.

The total length of roads within the district is 984 kms. The road length in the district per lakh of population is 104.67 kms. While the state has 109 kms. length of road per lakh of population. But it is important to note that the quality of road surface is not important to note that the quality of road surface is not found satisfactory upon actual examination. In terms of road length per 100 km² area of the district is 59.67 Kms. The district is highly accessible by roads and rail. The width of road has not been a very important consideration in the planning of roads up to the last few years mainly because vehicular traffic on the highways was of a rather small
magnitude. It has been observed that though, most of the roads in the tahsil have metalled track varying between 4 to 30 metres in width without any separation of traffic lanes. Due to heavy volume of traffic on the major roads special attention is needed for proper enlargement of width and provision of separate lanes for fast and slow traffic for at least the Meham-Rohtak-Delhi (NH-10), Panipat to Bhiwani via Rohtak (SH-16). Jind-Rohtak-Jhajjar (SH-15), Meham-Lakhanmajra-Gohana (SH-16A), Rohtak-Sonipat (Major district road), Meham-Jhajjar via Kalanaur. Apart from narrow bridges and frequent closing, closing for longer duration, railway level crossing hindering the flow of traffic on important highways, a large number of settlements are located on both sides.

Though, it is neither possible to make accurate projections of traffic flow without making detailed surveys on gravity type models, nor it appears necessary to do so in view of the rather extensive and general nature of the district plan, an assessment of the future pattern of growth of traffic can provide. Useful guidelines for detailed designing of the road traffic network in future. The 'Report of Chief Engineer's on road Development plan for India (1961-81)', popularly known as the 'Bombay plan' has recommended an increase in average road density from 185 to 370 Kms. per thousand square Kms. in the country and 500 Kms. per thousand square Kms. for developed and agricultural areas.
In comparison with the requirement of 500 Kms. of road length per 1000 sq. Km. for developed and agricultural areas 1981, the Rohtak district at present has only a little more than 596.73 sq. Kms. of road length per 1000 sq. Kms.

Therefore, it may be said that the study area has adequate transport facilities. For example, at present, the total length of roads per thousand sq. km. in Meham tahsil and Rohtak tahsil 626.22 and 583.48 Kms. respectively. It is obvious, that the length of roads per 1000 sq. Kms. in the study area is more than the length proposed by Bombay Plan.

**REQUIREMENTS:**

1. As Rohtak district has special importance in the N.C.R. Plan. People from surrounding around Delhi do their trade or service in Delhi. Due to it the pressure of population on Delhi is excessively increasing. If this pressure of population is to be reduced, then the setting up of cheaper and faster transport system becomes an urgent necessity. If a person working in Delhi get the convenience of easy and fast transport facility, he will be able to go to Delhi from his native place instead of residing in Delhi and in this way the pressure of population on Delhi will be reduced.

2. The study of movement of passengers within the study area reveals that the frequency of buses on the Rohtak-
Delhi route is the greatest. Inspite of this the rush of passengers increases in the morning and in the evening.

3. Due to poor road network and poor bus service there is always a great rush on the bus stands. This problem gives impetus to improve the quality of roads and increase the frequency of buses and open up new rail service on the route from Meham to Rohtak.

4. The opening up of new rail service will result in quick development of the hidden resources in these areas and it will lead to the socio-economic development of the people there.

POTENTIALS FOR TRANSPORT DEVELOPMENT

The study area is mainly agricultural and it is known mainly for agricultural produce (wheat, rice, pulses, oil seeds and sugarcane etc.). The map showing major land use pattern and transport network, it may be seen that there is a marked concentration of transport network in an area under cultivation. This indicates that transport works as catalyst in bringing about agricultural development of the area.

Formerly the self-sufficient village economy did not warrant much exchange, thus there was least development of transport. But at present due to increased consumption of fertilizer, HYVs high intensity of irrigation, per acre yield has been increased. So every villager would like to send his agricultural commodities as far as possible to a better
competitive market so as to get more profit. The profit of the cultivator is determined by the difference between the cost of production plus transport and the selling price of the goods. The cultivator now prefers to produce such things as can be easily sold and as may fetch him handsome return for his labour.

This naturally involves his decision for selecting an appropriate market place, may be a distant place but connected with available means of transportation.

PROPOSALS FOR TRANSPORT DEVELOPMENT

The following proposals have been determined on the basis of its potentials and requirements:

1. 14 rural settlements (9.59 per cent of the total rural settlements) which are away from the bus service should be considered.

2. Some of the roads within the district are proposed to be upgraded some of them should be given express way and state highway standard in accordance with N.C.R. plan. For example National Highway No.-10 should be upgraded as express way and major district road should be upgraded as state highway.

3. Width and condition of roads are not satisfactory in the study area, hence, due to heavy volume of traffic on the major roads special attention is greatly needed for proper enlargement of width and provision of separate lanes for
fast and slow traffic of at least the Meham-Rohtak-Delhi (National Highway), Jind-Rohtak-Jhajjar, Bhiwani to Panipat via Rohtak (State Highway).

4. Railway over bridge and byepass road should be provided at Rohtak.

5. Remaining 10 villages of the district should be connected with the metalled roads.

After upgradation of roads into a State highway standard will help to achieve a rectangular pattern of highways directly linking with Delhi, Sonipat, Panipat, Bhiwani and Jind.

In the identification of growth centres or central places, the distance factor has been considered first. Only those settlements have been proposed which have their central location in an accessible area. In this way, the proposed five tier functional hierarchy of central places will be able to fill up the gap of functions and will make complete spatial functional system.

Study shows the existing and proposed growth centres or central places with their functions with hierarchic orders. For example, Rohtak is the regional capital and will have all the high level of functions. Four regional service centres namely Meham, Kalanaur, Lakhan Majra and Sampla are required 11 service centres are needed. 3 of them are exist and
8 additional ones are required i.e., Farmanakhas, Tetoli, Nindana, Hasangarh, Bhalot, Dhamar, Sanghi, Ismila (11-B) and Sunarikalan. 71 central villages have been proposed and 62 villages will be dependent villages in the study area. All those centres are listed in table 7.2.