Summary and Conclusions
In this chapter all the salient features which emerge from the study have been put down in brief. From the analytical framework what significant results are obtained have been interpreted in nutshell in order to give a cursory profile of the facts related to the problem of study undertaken. An attempt has also been made to conclude the essence of the study.

The present study aims at describing and interpreting the regional disparities in the levels of socio-economic development in Haryana. The analysis has been carried out by taking the components separately i.e. economic (in terms of agricultural and industrial development) and social development (in terms of infrastructural and demographic development). Lastly, the study tries to examine the combined analysis of both of these components in terms of socio-economic development.

The data used in this study is secondary in nature. It has been collected from:

(i) Census of India (2001), Primary Census Abstract, Series-7, Haryana.

(ii) Statistical Abstract of Haryana, various issues furnished by Economic and Statistical Adviser, Planning Department, Government of Haryana.

Processing of data has been carried out for tabular and cartographic representation. The number of categories has been kept in accordance with accepted cartographic techniques. During tabulation, the size of class interval has been obtained by modified Sturge's rule (Gupta, 1993). However, in case of levels of development, to maintain comparability between different dimensions of development the class limits have been adjusted to some extent. Principal Component Analysis Method (Johnston, 1978) have been used to identify the levels of development. The technique involves transformation of the original data set into a new set consisting of general components, the...
number of which equals to the number of variables in the original data set. The eigen values corresponding to each of the components indicates the explanatory power of the respective components. It is generally seen that the first few components explain a greater part of the total variance in the original data set. Further, the correlation coefficient of each of the component with the variables in the original data set – i.e., the component loadings can be meaningful interpreted only in the case of first few components. Generally, the components having eigen value less than 1 are usually skipped over in the analysis.

Socio-economic dimensions of development have been brought out with the help of a basket of indicators consisting of 10 indicators of agricultural development, 11 indicators of industrial development, 19 indicators of infrastructural development, and 12 indicators of demographic development. Major findings of the study are given below:

Regarding levels of agricultural development, for the enquiry into regional disparities, only two components have been retained for the analysis. In all both of these components explain 61.05 percent of the total variance in the original data set. As is noted, except percentage of gross area sown under commercial crops to total cultivated area the first component is positively related with all the selected indicators of development. Of particular significance are the very high loadings on fertilizer consumption, net irrigated area as percentage of net area sown, tractors per thousand hectares of net area sown, agricultural produce per hectare of net area sown and tubewells and pumping sets per thousand hectares of net area sown. Commercialization is negatively related with the first component. On the whole, the first component represents that fertilizer consumption, irrigation facilities, tractorisation and land productivity are very significantly affecting agricultural development. Second component reveals high positive loadings with per capita agricultural produce and cropping intensity. A moderate level of correlation has also been
seen with irrigation intensity and commercialization of agriculture. The other loadings are either negatively correlated or insignificant. Thus, component two is representative of high cropping intensity and per capita agricultural produce. On the whole, it can be said that this area has intensive agriculture products also available for market.

In terms of regional disparities only two indicators i.e. percentage of gross area sown under commercial crops to total cultivated area (72.28%) and regulated markets per lakh hectare of net area sown (57.97%) show highest disparity. This percentage ranges between 20-40 percent in case of agricultural product produce per hectare of net area sown in rupees (at current prices), rural per capita agricultural produce in rupees (at current prices), net irrigated area as percentage to net area sown, tubewells and pumping sets per thousand hectares of net area sown and tractors per thousand hectare of net area sown. In case of cropping intensity and irrigation intensity regional disparities are below 20 percent.

The regional disparities in the level of agricultural development of Haryana are clearly reflected in regional differences in soil cover and irrigation facilities. These two factors are ultimately responsible for differences in adoption of mechanization and fertilizer consumption. It also affects the agricultural productivity, cropping intensity and ultimately the levels of agricultural development.

Overall, it can be said that the level of agricultural development is more affected by physical factors. Although successful attempts have been made to reduce the role of physical factors with the application of modern agricultural technology, yet one cannot ignore the aspects of investment involved in such exercises. The role of physical factors has been reduced but not eliminated. It seems that the fruitfulness of all other factors is based on the availability of favourable physical resource base.
Regarding agricultural development, Haryana can be regionalized into two broad regions: (i) Upper (Northern Region) and (ii) the lower (Southern Region). The Northern part is again comprised of two types of areas (i) having high level of agriculturally highly developed areas covering Kurukshetra, Karnal and Panipat Districts. The overall score value in all these districts is above 5; (ii) moderately developed areas covering eight districts namely – Ambala, Yamuna Nagar, Kaithal, Jind, Sonepat, Hisar, Fatehabad and Sirsa. The overall score values in these districts ranges between 0 to 5. Similarly, the southern region is also having two types of areas: (i) areas with low level of development covering five districts i.e. Rohtak, Jhajjar, Mahendragarh. The overall score value in this area lies between -5 to 0; (ii) areas having very low level of development. Only two districts namely Bhiwani and Gurgaon are included in this category. The overall score value in these districts is below -5. Broadly speaking, agricultural development is partially successful particularly in northern parts of the state.

One thing should be clear here the inspite of considerable similarity, the pattern of level of agricultural development do not coincide with the patterns of agricultural productivity per hectare of net area sown. Indeed agricultural productivity is only one dimension of agricultural development. Agricultural development is the manifestation of the combined effects of many factors viz. physical, technological, institutional and socio-cultural factors.

In case of industrial development, only two components have been extracted explaining 89.12 percent of total variance collectively. The first component (C₁) is positively related with all the selected indicators of development. This is indicative of the fact that all the indicators co-vary in the same direction with the first component. The second component reveals high positive loadings with large and medium scale industries per lakh of population and per capita value added by registered manufacturing sector. Both of these
had high positive loadings with C also. Principal Component Analysis enables us to sub-divide a variable into several independent parts in terms of its association with other variables. This explains the commonality in the occurrence of variables in different components. Other indicators are either negatively related or have insignificant loadings. Overall, it can be said that areas having large number of registered working factories, large and medium scale industries and small scale industries are highly developed. By giving opportunity to workforce in secondary sector. These areas exhibit high income which ultimately affects the levels of development.

Regional disparities are more pronounced (very high) in this case. Three indicators i.e. net value added by registered manufacturing sector in rupees (at current prices), workers employed in registered working factories per thousand sq. kms. of area, large and medium scale industries per thousand sq. kms. of area have regional disparities above 140 percent. It ranges between 100-130 percent in case of per capita value added by registered manufacturing sector in rupees (at current prices), large and medium scale industries per lakh of population, number of registered working factories per thousand sq. kms. of area, number of registered working factories as percentage of total and workers employed in registered working factories per lakh of population. In case of small scale industries per thousand sq. kms. of area (67.22%), number of registered working factories per lakh of population (86.68%) and small scale industries per lakh of population (44.14%) regional disparities are below 100 percent.

On the basis of overall score value, Gurgaon and Faridabad are the highly developed districts (overall score value 5+). These districts have strong industrial base. Hence, net output is also high in these areas, which affect the overall levels of industrial development. The industrial sector is highly diversified in these districts. Both of these districts have most advantageous
location i.e. proximity to national capital Delhi. District Gurgaon occupies the top most position. By its very nature, it is a sub-region of national level of planning region. This district has many advantages on this account which provides a well developed market both for procurement of raw material and disposal of finished goods. This district is famous for transport equipment, machinery and machine tools. District Faridabad is on the second position in this regard. This city is virtually a physical extension of Delhi. Its location on Delhi-Bombay and Delhi-Calcutta routes gives it an additional advantage. This highly diversified industrial complex includes famous houses like Escorts, Goodyear, Kelvinator, Gedore, Metal Box and Bata Shoes.

Moderately developed (overall score value: 0-5) districts are situated in a belt from Rewari to Panipat covering four districts namely Rewari, Jhajjar, Sonepat and Panipat and district Yamuna Nagar in north-east part of the state. These districts are famous for utensils (Rewari) un glazed pottery (Jhajjar), woolen goods/blankets, brass metal wares and pottery (Panipat) and sugar industries (Yamuna Nagar). Major rail and road routes pass through these districts. For instance, National Highway -71 through Rewari (also have largest Railway junction in Haryana), NH-10 and NH-71 through Jhajjar, NH-1 and NH-71A through Panipat and NH-73 through district Yamuna Nagar.

Low level of development (overall score value: -5 to 0) has been observed in central, north-east and western Haryana. The north-east Haryana particularly has predominant agricultural base and possesses vast potential for setting up agro-based industries. Very low level of industrial development (overall score value: below -5) is concentrated in districts having very low level of infrastructural facilities (middle north and north-west Haryana and southern-west Haryana covering district Mahendragarh and Bhiwani. Overall, it seems that the main focus of industrialization is on the areas peripheral to the national capital and on the national highways and the major rail routes.
Regarding infrastructural development, five components have been extracted. The cumulative percentage of variance explained by all the five components is 82.53 per cent. The first component shows very highly positive loadings with medical institutions per thousand kilometres of area, percentage households having telephone facility, toilet facility, bathroom facility and metalled roads per hundred sq. kms. of area. Thus, the first component is representative of health facilities, amenities and transport facilities. The second component shows high positive loadings with high/sr. sec. schools per lakh of population, number of colleges per lakh of population, medial institutions per lakh of population, hospitals per five per lakh of population, percent households using electricity as source of lighting. Overall, it shows importance of health and energy facilities. Component three shows that educational facilities like number of primary schools according to area and population, high/sr. sec. schools per thousand sq. kms. of area and percent households having banking facility are the more affecting factors. It is representative of education and banking facilities. Component four has significant loadings with number of primary schools per lakh of population and percent households having tap water facility. The former has high positive loadings with component three also. Component five has significant positive loadings with only one indicator i.e. percent households using electricity and source of lighting. This indicator has positive loading with component two also. All other indicators, either have negative loadings or insignificantly correlated with this component. On the whole, it has been observed that areas having better health, education, transport & telephone facilities and basic amenities are comparatively more developed.

In terms of regional disparity, only one indicator i.e., beds available in medical institutions per lakh of population (78.37%) shows high level of disparity. It ranges between 20-40 percent in case of population-wise and area-wise primary schools, Sr. Sec. Schools and population-wise colleges, medical
onstitutions, per lakh of population, number of post-offices per lakh of population, percent households having tap water facility and toilet facility. Regarding area-wise colleges, hospitals per five lakh of population, area-wise medical institutions and percent households having telephone facility, regional disparities are ranging between 40-60 percent.

On the basis of overall scores it has been observed that district Rohtak with the overall score value 15.47 is the most developed district, while Fatehabad (-11.25) is the least developed. The gap is visible and too large to be overlooked. North-eastern part of the state covering districts of Panchkula, Ambala, Yamuna Nagar and district Rohtak is the most developed part of the state. The former three districts are situated near state capital Chandigarh. Education and health facilities, banking, transport, communication, waste water drainage facility and basic amenities available in these districts are favourably placed. These are responsible for overall infrastructural development of these districts. In case of Rohtak, highly developed health and education facility, waste water drainage facility, electricity and moderate developed amenities like bathroom and toilet facilities are contributing more for infrastructural development.

Regarding levels of infrastructural development in Haryana four types of regions emerges out: (i) highly developed areas covering four districts namely Rohtak, Ambala, Panchkula and Yamuna Nagar. The overall score value in all these districts is above 5; (ii) moderately developed areas covering three districts i.e. Kurukshetra, Rewari and Sonepat. The overall score value in these districts ranges between 0 to 5; (iii) areas having low level of development covering six districts namely Bhiwani, Mahendragarh, Faridabad, Panipat, Hisar and Jhajjar. The overall score value in these districts lies between -5 to 0; and (iv) areas having very low level of development. Six districts have been
included in this category. These are Kaithal, Karnal, Gurgaon, Jind, Sirsa and Fatehabad.

In case of demographic development, only two components have been extracted. In all, both of these components explain 84.14 percent of total variance collectively. It has been observed that except three variables i.e. population in 20000+ towns as percent of total, rural literacy rate, sex-ratio, the first component is highly positively correlated with all the selected indicators. On the whole, the first component represents that diversification of rural economy, urbanization and literacy are the leading factors affecting demographic development. Rural literacy has moderate correlation while population in 20000+ towns as percent of total and sex-ratio are highly correlated with component 1. Component 2 reveals the importance of literacy, rural literacy in particular. It had a moderate correlation with component 1 also. It can be said that being affected by literacy and urbanization the state's rural economy is diversified in development area.

In terms of the regional disparity, rural female non-agricultural workers as percent of total female population (46.23%), population in 20,000+ towns as percent of total (45.17%) and urban population as percent of total population (38.83%) show highest disparity. It ranges between 20-30 percent in case of rural non-agricultural workers as percent of total workers (27.88%) and rural male non-agricultural workers as percent of total male workers (23.07%). This percent in case of female literacy is 11.6. The remaining indicators have been observed for having regional disparity below 10 percent.

In this regard Panchkula is the most developed district followed by district Ambala and Yamuna Nagar. On the other hand, district Fatehabad is the least developed district. In this regard, four types of regions emerges out, i.e. :

(i) Highly developed region covering extreme north-eastern part of the state near state capital Chandigarh is comprised of four districts i.e. Panchkula,
Ambala, Yamuna Nagar. The overall score value is above 5 in these districts. These are highly urbanised, literate and economically diversified districts; (ii) The moderately developed region covering almost the entire Eastern Haryana including district Panipat, Sonipat, Faridabad, Rohtak, Jhajjar, Karnal, Kurukshetra and Rewari in south. The overall score value in these districts ranges between 0-5. Panipat, Sonipat and Faridabad are industrially advanced areas which affects literacy and diversification of economy. The position of Rohtak district in this category is due to literacy and urban population. District Rewari has recruitment centre for armed forces. A large male folk is employed in these services which ultimately increases awareness among people. District Jhajjar is situated in National Capital Region. District Panipat, Karnal and Kurukshetra are agriculturally developed and have vast potential for agro-based industries. All these things ultimately results in overall development of these districts; (iii) Region having low level of development including four districts namely Mahendragarh, Gurgaon, Bhiwani and Hisar. In this regard, two broad belts are emerging out: (a) The western counterpart of the state and (b) Nearby areas of region having moderate level of development. The overall score value in these districts lies between -5 to 0; (iv) Very low level of development has been observed in the middle-north part of Haryana and extreme north-west covering districts Jind, Kaithal, Sirsa and Fatehabad has been observed for very low level of development. The overall score value in these districts is below -5. Overall western Haryana is comparatively less developed than its eastern counterpart.

It is very interesting to note that levels of infrastructural development shows a great similarity with levels of demographic development. Demographically, the least developed part (middle-north Haryana) of the state has been observed the most deficient part infrastructurally also. In the same way, other categories i.e. high, moderate and low also shows almost same pattern of development.
In case of socio-economic development, nine components have been extracted. The cumulative percentage of variance explained by all the nine components is 92.44 percent. It has been observed that component 1 is highly positively correlated with rural male non-agricultural workers as percent of total male workers, rural non-agricultural workers as percent of total workers, population in 20,000 + towns as percent of total population, urban population as percent of total population, medical institutions per thousand sq. kms. of area, workers employed in registered working factories per thousand sq. kms. of area, workers employed in registered working factories per lakh of population, small scale industries per thousand sq. kms. of area, number of registered working factories per thousand sq. kms. of area, number of registered working factories per lakh of population, number of registered working factories as percent of total, rural female non-agricultural workers as percent of total female population, female literates as percent of total female population, percent households having telephone facility, number of colleges per thousand sq. kms. of area, number of primary schools per thousand sq. kms. of area, per capita value added by registered manufacturing sector in rupees (at current prices), workers employed in registered working factories per thousand sq. kms. of area, small scale industries per lakh of population, large and medium scale industries per thousand sq. kms. of area and large and medium scale industries per lakh of population. On the whole, the first components represents that diversification of rural economy, urbanization, health facilities, large number of small scale and large scale industries, larger number of registered factories, female literacy rate, communication, educational facilities, per capita value added by registered manufacturing sector are the leading indicators affecting socio-economic development. The remaining indicators have a feeble correlation or negatively correlated with the first component. The second component has significant positive loadings with agricultural produce per hectare of net area sown in rupees (at current prices), percent households
having telephone facility, percent household using electricity as source of lighting, percent households having connectivity to waste water drainage facility, female literacy rate and literacy rate. In case of female literacy rate and percent households having telephone facility, the loadings are significantly correlated with component one also showing commonality. Percent households having connectivity to wastewater drainage facility has a feeble correlation with component one. On the whole, the second component represent the importance of education, communication, electrification, drainage facility and rural literacy. The third component has significant positive loadings with number of high/sr. sec. school per thousand sq. kms. of area, medical institutions per lakh of population, percent households having bank account, literacy rate and rural literacy rate. Thus, it is representative of health, education & banking facilities and literacy particularly in rural areas. The fourth component has high positive loadings with only two variables i.e. numbers of high/sr. sec. school per thousand sq. kms. of area and availability of tube-wells and pumping sets per thousand hectare of net area sown. This component shows importance of education and irrigation facility. The fifth components show importance of regional markets, educational facilities at lower level and tap water facility. Rest of the components do not have any significant loading.

Regarding regional disparities in agricultural dimension only two indicators i.e. percentage of gross area sown under commercial crops to total cultivated area (72.28%) and regulated markets per lakh hectare of net area sown (57.97%) show highest disparity. This percentage ranges between 20-40 percent in case of agricultural product produce per hectare of net area sown in rupees (at current prices), rural per capita agricultural produce in rupees (at current prices), net irrigated area as percentage to net area sown, tubewells and pumping sets per thousand hectares of net area sown and tractors per thousand hectare of net area sown. In case of cropping intensity and irrigation intensity
Regional disparities are below 20 percent.

Regional disparities are more pronounced (very high) in case of industrial dimension of development. Three indicators i.e. net value added by registered manufacturing sector in rupees (at current prices), workers employed in registered working factories per thousand sq. kms. of area, large and medium scale industries per thousand sq. kms. of area have regional disparities above 140 percent. It ranges between 100-130 percent in case of per capita value added by registered manufacturing sector in rupees (at current prices), large and medium scale industries per lakh of population, number of registered working factories per thousand sq. kms. of area, number of registered working factories as percentage of total and workers employed in registered working factories per lakh of population. In case of small scale industries per thousand sq. kms. of area (67.22%), number of registered working factories per lakh of population (86.68%) and small scale industries per lakh of population (44.14%) regional disparities are below 100 percent.

In case of infrastructural dimension of development, one indicator i.e., beds available in medical institutions per lakh of population (78.37%) shows high level of disparity. It ranges between 20-40 percent in case of population-wise and area-wise primary schools, Sr. Sec. Schools and population-wise colleges, medical institutions, per lakh of population, number of post-offices per lakh of population, percent households having tap water facility and toilet facility. Regarding area-wise colleges, hospitals per five lakh of population, area-wise medical institutions and percent households having telephone facility, regional disparities are ranging between 40-60 percent.

Regarding regional disparity in demographic dimension of development, rural female non-agricultural workers as percent of total female population (46.23%), population in 20,000+ towns as percent of total (45.17%) and urban population as percent of total population (38.83%) show highest disparity. It
ranges between 20-30 percent in case of rural non-agricultural workers as percent of total workers (27.88%) and rural male non-agricultural workers as percent of total male workers (23.07%). This percent in case of female literacy is 11.6. The remaining indicators have been observed for having regional disparity below 10 percent.

It has been observed that extreme north-east Haryana comprised of Ambala, Panchkula and Yamuna Nagar districts and district Gurgaon and Rewari in southern Haryana and district Panipat are highly developed. Overall score values, in case of Ambala and Panchkula very high contribution of demographic and infrastructural development is responsible for this position of these districts. In case of Yamuna Nagar demographic and infrastructural development are affecting more. But contribution of industry and agriculture is also equally important. District Gurgaon is also highly developed only on the basis of industrial development, otherwise this district would be least developed. In case of district Rewari except agriculture, all the remaining three components are responsible for this position. District Panipat is highly developed agriculturally, moderately developed demographically industrially. However, the state has to work hard to provide infrastructural facilities. The overall score value of these districts is more than 22. Four districts namely Rohtak, Kurukshetra, Sonipat and Karnal are moderately developed. In case of Rohtak and Karnal only one component of development i.e. Demographic development is in moderate category. In case of Kurukshetra infrastructural and demography components are in moderate position. In case of Sonepat, all the four components of development i.e. industrial, infrastructural, agriculture and demographic development are in moderate category. All these Districts occupy eastern and central position in the state. The overall score values of these districts ranges between 0-22. Five districts namely Kaithal, Jhajjar, Faridabad and Bhiwani have low level of development with overall score ranging between -22 to 0. Four districts namely Jind, Mahendragarh, Fatehabad
and Sirsa covering southern-west, north-western and middle-north parts of Haryana shows very low level of socio-economic development. Almost all the component values of development in these districts come under this category. The overall score values of these districts are below -22. Overall, it can be said that there are conspicuous regional disparities in the levels of socio-economic development in Haryana. These disparities are attributable to the factors of the initial advantages which different parts of the state enjoyed in terms of their administrative history, infrastructural base, physical resources and relative location. Broadly speaking western Haryana is far behind than its eastern counterpart. These are the areas, where water table is quite low and reducing further too. Scarcity of rain makes agriculture rather difficult. Thus, emphasis regarding development schemes in these areas should be on industrial dimension. It will increase the pace of development and also help in decreasing regional disparities.