CHAPTER VII
The concept of underdevelopment is very often used by scholars in a limited sense. Its implication is restricted to the analysis of relative performance of different regions or sectors of economy in relation to resource allocation, input-output ratio, choice of techniques and rate of economic growth only. The aspects covered by these considerations are not, however, complete and need to take into account certain other vital aspects such as historical background and socio-political milieu whereby, the concept ensembles a reality which is complex and multi-dimensional. Any effort to comprehend it in terms of a few selected aspects revolving around market forces, would underplay the sum total of factors contributing to the phenomenon of under-development. It becomes all the more difficult when the analysis is attempted for a peripheral region having low level of market relation. Therefore, it requires concerted efforts on the part of the planners and scholars to comprehend all possible dimensions of reality and to harness the potentials for planned development and subsequently to remove regional and social inequalities. Changes in the nature of existing inter-linkages between the developed and underdeveloped regions occupy specific significance in it. Government of India made many attempts to take up these problems through various plans which need to be evaluated in the context of specific situation prevalent.
The year 1985-86 marks the beginning of India's Seventh Five Year Plan. It differs from most of the previous plans in many respects. Particularly, looking at it from the point of view of Spatial Interaction and Regional Development it occupies specific significance. Most of the previous plans were based on Macro-Level or Sectoral Planning. But, continuing poverty, unemployment and social and regional inequalities necessitated the initiation of Micro-Level Planning. It is a planning designed for the development of weaker sections and backward areas of the country. Initially, Micro-Level Planning was introduced at the district level, but, now it has been brought down to block level.¹

The objective of the plan includes maximisation of income and employment at the block level. It was proposed to be possible by taking an inventory of the available natural and human resources and infrastructural facilities. The assessment of under utilised resources was made in relation to the available capital resources, technological know-how and economic feasibility. The need for such plan was realised as the sectoral plans failed to take-up the problems of backward areas.² Moreover, earlier plans did not take into account the regional imbalances which led to development of already developed areas.

². The First Five Year Plan emphasised mainly on Agricultural Development. The Second Five Year Plan on Industrial Development and the Third Five Year Plan tried to establish a balance between the Agriculture and the Industrial Development.
Uttar Pradesh Himalayas is one such peripheral region which has low level of technology and weak market forces. As mentioned earlier, the natural processes of development in the region underwent considerable distortions to meet the demands made by exogenous factors during colonial period. These were the changes which led to "development of underdevelopment" checking and distorting the process of proper development. This benefitted a few pockets of the region at the cost of its other parts leading to marked regional disparities. This colonial structure, thus, inherited, continues to persist even though in a modified form in Uttar Pradesh Himalayas. Inspite of planned efforts the picture has not changed significantly. Apart from this, the rugged mountainous terrain plays important role in the level of development and interaction.

A critical study of the region, therefore, is important to see the nature of development and of interaction after four decades of independence and on the eve of Seventh Five Year Plan. Thus, an attempt has been made to understand the following:

i) The level of development in terms of its different aspects as well as in totality to comprehend the nature and extent of prevailing intra-regional disparities.

ii) The relationship of the levels of development with the spatial interaction to understand and assess the probable causes of the former in the analytical frame.
2. RESOURCE BASE

It is obvious that resources are important for proper and balanced development. Table VI. (1) shows that out of a total of five indicators selected for assessing the levels of resource base for Uttar Pradesh Himalayas 'net sown area', 'density of population' and 'area under irrigation' got positive weight of 0.5611, 0.4674 and 0.4322 in the composite index respectively. Positive weightage for these indicators can largely be explained by higher degree of correlation among these. Thus, these are complimentary to each other. In a self-subsistence economy population is mainly determined by the carrying capacity of land which in turn is affected by the availability of cultivable land and irrigation facilities. Therefore, change in one generality leads to corresponding changes in the other. Often, it is observed that an increase in population in such societies creates demand for more land for agriculture. It generally takes place at the expense of area under forest or culturable wasteland. In this way areas showing higher proportion of the above mentioned variables will have low area under forest and culturable wasteland and fallow land. The argument is corroborated by the fact that two indicators i.e. areas under forest and under culturable waste obtained negative weights i.e. -0.2649 and -0.458 in the index respectively. This is largely due to their negative correlation with the other indicators.

Depending upon the relative importance of each indicator of the resource base different blocks of the region obtained values of the composite index.
Table VII(1) : *Levels of Resource Base*

<table>
<thead>
<tr>
<th>Composite Index Value</th>
<th>Rank</th>
<th>Number of Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>above 4.293</td>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>2.146 to 4.293</td>
<td>II</td>
<td>5</td>
</tr>
<tr>
<td>-0.001 to 2.146</td>
<td>III</td>
<td>23</td>
</tr>
<tr>
<td>-2.148 to -0.001</td>
<td>IV</td>
<td>39</td>
</tr>
<tr>
<td>below -2.148</td>
<td>V</td>
<td>9</td>
</tr>
</tbody>
</table>

The Table VII(1) and Map VII(1) show that the blocks of Uttar Pradesh Himalayas have marked disparities in terms of their resource base. The composite index value ranges between 6.578 for Kashipur block of Nainital district to -3.4547 for Bhatwari block of Uttarkashi district.

The map shows that six blocks from the Tarai zone of Nainital district have accounted highest composite index value in the region. This is natural because terrain in Tarai is favourable for agriculture and habitation. Moreover, this area has been recently colonised mainly after independence and has developed irrigation facilities. Inspite of high population density and better agriculture, it continues to have vast stretches of land under forest which grows luxuriously due to high water table. These include Kashipur, Bajpur, Gadarpur, Khateema, Rudrapur and Sitarganj blocks.
Apart from these most of the blocks having developed urban centres or near them in the Middle Himalayas also show relatively high level of resource base with the composite index value ranging between 1.044 to 2.536. Important blocks included here are Takula, Ranikhet, Pauri, Kot, Lansdown, Nainital, Bhaisiachchana and Pithoragarh. All these blocks either have important pre-British centres like Srinagar or where important administrative centres or cantonment built during colonial time. Development of modern infrastructures and social amenities in these centres have contributed in showing higher density of population, improvement in irrigation and land reclamation technology leading to higher resource base. With an increase in distance from these blocks particularly towards north and north-west in the Middle, Great and Trans-Himalayan zones the resource base tends to decrease. Thus, most of the blocks situated in these higher and remote parts of the region got very low rank. Stringent environmental constraints such as rugged terrain, steep slope, shallow soil cover and extremely cold climatic conditions etc. have kept these places in relative isolation both from the point of view of spatial interaction and spread of modern developmental opportunities. Therefore, it is obvious that these have accounted for low resource base. However, some blocks situated in the border areas of north particularly Joshimath and Munsyari obtained relatively higher composite index value than the surrounding areas mainly because of recent efforts of Government. After Indo-China border dispute of 1962, the strategic significance of these blocks was realised and many facilities were established.
It may be concluded from the above that terrain and technology play important role in the resource base. It is, therefore, not surprising that favourable geomorphic conditions as well as techno-institutional changes in the Tarai-Bhabar zone of Nainital district show higher resource base. These blocks have more than 50 per cent of the total cropped area under irrigation. Similarly, density of population is above 175 persons per sq. km and nearly 62 per cent of the total area is under ploughs which is much higher than the regional average. As opposed to this, the blocks occupying higher and more rugged parts suffer from serious environmental constraints on agriculture and have not been influenced much by modern technology.

Urban centres especially those set up during British period seem to have played important role in the resource base. These led to an increase in density of population and also expansion of agricultural land. Thus, blocks, having such centres got relatively higher index value. Enhanced strategic importance of border blocks seems to have played important role in increasing the resource base.

3. LEVELS OF AGRICULTURAL DEVELOPMENT

As mentioned earlier agriculture is the predominant economic activity in Uttar Pradesh Himalayas. Table VI(1) shows that all the six indicators selected for measuring the levels of agricultural development got positive weightages which, also shows the
nature of association among these, particularly, per hectare yield of wheat, fertiliser consumption, per hectare yield of paddy and cropping intensity have got relatively higher weights than the other variables. Their respective weights are 0.503, 0.495, 0.490 and 0.469 in that order. As against this per hectare yield of potato and loan availability got relatively low weights i.e. 0.185 and 0.088. Higher weights for food crops and cropping intensity is obvious in a self-subsistence economy. Moreover, it seems use of fertiliser in such economy has been taking place mostly to raise food crops. Low weight for commercial crop like potato may be due to the fact that it is a relatively new crop in the region and occupies very limited area. Similarly, capital inputs also do not seem to be closely correlated with other indicators.

Table VII(2) : Levels of Agricultural Development

<table>
<thead>
<tr>
<th>Composite Index Value</th>
<th>Rank</th>
<th>Number of Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>above 7.004</td>
<td>I</td>
<td>8</td>
</tr>
<tr>
<td>3.499 to 7.004</td>
<td>II</td>
<td>1</td>
</tr>
<tr>
<td>-0.006 to 3.499</td>
<td>III</td>
<td>1</td>
</tr>
<tr>
<td>-3.511 to -0.006</td>
<td>IV</td>
<td>28</td>
</tr>
<tr>
<td>below -3.511</td>
<td>V</td>
<td>44</td>
</tr>
</tbody>
</table>

Table VII(2) and Map VII(2) show large intra-regional disparities in agricultural development in Uttarakhand Himalayas. As expected the blocks situated in the south-eastern part of the
VALUE OF THE INDEX

- Above 7.00
- 3.50 to 7.00
- 0.01 to 3.50
- -3.51 to -0.01
- Below -3.51

MAP VII (2)
region obtain very high value in the composite index. Rudrapur block got highest value of 14.327 followed by Kashipur, Khateema, Gadarpur and Sitarganj blocks with composite index value of 12.415, 12.162, 11.876 and 10.905 respectively. Other blocks such as Haldwani, Ramnagar and Bazpur situated in this part also got high value but not as high as attained by blocks mentioned above. Favourable environmental conditions of the Tarai and use of modern agricultural input like irrigation, high yielding variety seeds, fertilisers, wage labourers and mechanical inputs, along with government policy for colonisation of Tarai have been important for agricultural development here.

Apart from these, the blocks showing high level of agricultural development are Kotabag and Dhari of Nainital district. These two blocks have accounted 2.071 and 0.483 composite index value respectively. Diffusion of agricultural extension services from the neighbouring urban centre i.e. Nainital and availability of developed market centres seem to have contributed in agricultural development in these blocks. Unlike the Tarai areas the environmental factors are relatively less favourable in these blocks. Therefore, these blocks have recorded positive but relatively low value in the composite index.

Level of agricultural development is generally very low in the remaining blocks of the region. It accounts for less than -0.269 value of the composite index. The Map and the Table also show that it is particularly so in the blocks situated in the
central and eastern parts. Low amount of rainfall received and inadequate irrigation facilities are important for it. Compared to these the condition is slightly better in the blocks situated in the north, north-western and southern parts of the region where precipitation received particularly during the winter months is relatively higher than other areas. The situation is also similar in a few blocks situated outside the area mentioned above mainly in the valleys of important rivers. These include Garud-Baijnath, Chaukhatia, Dwarahat, Pauri, Kanalichchina, Berinag and Lohaghat blocks. River terraces and Kul irrigation are common in these areas, which have contributed in their agricultural development. The composite index value for these blocks varies between -0.269 to -1.073 as opposed to -2.415 value for the blocks situated in the central and eastern parts.

These variations in the levels of agricultural development can be explained mostly in terms of hostile environmental conditions and low levels of available technology. It is, therefore, not surprising that Tarai-Bhabar zone shows high level of agricultural development due to its favourable environment as well as the availability of modern technological inputs. For example above 110 kg per hectare consumption of chemical fertiliser which is highest in the region was observed in Rudrapur, Gadarpur, Khateema and Ramnagar blocks. Relatively low precipitation particularly during the winter months in the central and eastern parts of the region is very detrimental for rabi crops in these blocks and these have very low yield of wheat per hectare. Some development is seen only in a few blocks
having better environmental conditions. It is particularly true for areas encompassing the river valleys as is observed in Lohaghat, Dwarahat, Garud-Baiznath and Chaukhutia blocks.

It was mentioned earlier that the western part of the region receives more rainfall during the winter months and it is highly beneficial to the rabi crops, particularly wheat. Moreover, high yield of potato and availability of agricultural loan in the tribal areas of north seems to be responsible for relatively better agricultural development.

4. LEVELS OF INDUSTRIAL DEVELOPMENT

As is obvious that industrial development is the backbone of modernisation. Areas and regions with well developed industrial sector tend to attract other economic activities and act as foci for development. Industrially backward areas generally suffer from draining out of resources leading to underdevelopment. Uttar Pradesh Himalayas was subjected to such a process. This started in the colonial period but is still continuing in a modified form and the region continues to have very weak industrial base. Table VI(1) shows that all the three indicators of industrial development are positively correlated. The percentage of workers in the non-household industrial and construction sectors to total workers in the secondary sector is more significant than the other two as it get the highest weightage of 0.750. It was followed by availability of power and of loan for the development of industries with weightage of 0.487 and 0.449 respectively. High weightage for the first indica-
tor seems to be largely due to its correlation with other variables of the set.

Table VII(3): Levels of Industrial Development

<table>
<thead>
<tr>
<th>Composite Index Value</th>
<th>Rank</th>
<th>Number of Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>above 2.09</td>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>1.045 to 2.09</td>
<td>II</td>
<td>8</td>
</tr>
<tr>
<td>0.000 to 1.045</td>
<td>III</td>
<td>16</td>
</tr>
<tr>
<td>-1.045 to 0.000</td>
<td>IV</td>
<td>45</td>
</tr>
<tr>
<td>-2.09 to -1.045</td>
<td>V</td>
<td>7</td>
</tr>
</tbody>
</table>

Map VII(3) and Table VII(3) show that nearly 55 blocks get composite index value of less than zero. There are only a few pockets mostly in the south-eastern and western part of the region where blocks get composite index value of above 2.00. Gadarpur, Rudrapur and Kashipur blocks of Nainital district scored first, second and third position with the index value of 2.8238, 2.8057 and 2.7992 respectively. Development of agro-forest based industries like sugar, rice and flour milling, furniture and paper in these agriculturally developed blocks is important for showing high level of industrial development. Moreover, availability of power from Sarada Sagar and Kalagarh Dams have also played important role.

1. It may be pointed out that the minus values do not mean absence of the activity but only of their lower position. It is a limitation of the method that all blocks having less than mean value get negative score.
UTTAR PRADESH HIMALAYAS

INDUSTRIAL DEVELOPMENT
(Data by Block)

VALUE OF THE INDEX

- Above 2.09
- 1.05 to 2.09
- 0.00 to 1.05
- -1.05 to 0.00
- -2.09 to -1.05

MAP VII (3)
in it while capital requirements are met through banks and co-operatives. Other blocks accounting for more than 2.00 composite index value are Haldwani and Bazpur blocks of Nainital district, and Hawalbag block of Almora district. Hawalbag is one of the oldest industrial and agro-horticultural training centre of the region. Most of the industrial activities have come up here due to well developed extension service network and easy power supply from Masi hydel power plant. While Haldwani and Bazpur share common experiences with other blocks of the Tarai zone of Nainital district for their industrial development.

The other areas showing relatively high industrial development include the blocks having industrial training centres or those from the border areas of north. The bordering blocks experienced large scale immigration of construction workers for the construction of border roads, army establishment/nydel power projects. The level of industrial development is very low in the remoter parts of the region particularly where modern amenities, like electricity, transport, communication and credit facilities are not available.

The pattern of industrial development in the region show that:
(a) it is concentrated in the Tarai-Bhabar zone of the region. Here industry is largely agro-based like sugar and food processing. It shows that industrial development has been possible through its complimentary relationship with the agricultural sector.
(b) its level is higher in blocks having urban centres with industrial infra-structures like training centres etc. These centres provide much needed man power by giving incentives like free training etc. Hawalbag and Pauri blocks have oldest industrial training centres of the region;

(c) high level of industrial development has also come up in blocks where hydel power projects have been set up as in border areas where this has led to a large scale immigration of construction workers. Construction activity is going on a large scale for Vishnuprayag hydel power project, for border road construction and for Auli-tourist complex in Joshimath block;

(d) easy availability of power in the important urban centres like Pithoragarh, Nainital, Pauri, Lansdown, Almora and Ranikhet also explain higher score of the blocks in industrial development.

5. LEVELS OF SOCIO-CULTURAL DEVELOPMENT AND MODERNISATION

It has been mentioned repeatedly that development is a complex multi-faced phenomenon. Socio-cultural development is an important aspect of it. Without corresponding development in this sphere, economic prosperity either can not be sustained in the long run or its role gets restricted in the overall upliftment of society. Uttar Pradesh Himalayas has rich cultural heritage. Survival and future of which is closely linked with the present directions in which development is taking place. This development
in a way can be seen by looking at the role of the locals in decision making bodies, their level of awareness and the presence of basic amenities.

Table VI(1) shows that out of seven indicators selected for measuring the levels of socio-cultural development and modernisation percentage of girl students, literacy and number of doctors got positive weightages. The value of weights received by these indicators was 0.8832, 0.7941 and 0.7183 in that order. Positive weights show that these are positively correlated.

Membership of co-operatives, gram panchayats, electrification of scheduled caste and scheduled tribe villages obtained negative weights. This may be due to slow pace of development because of which their correlations with other indicators is still negative. Similarly hospitals in a sparcely populated mountainous region are available to only a few villages as a result accounts for low i.e. -0.0882 weight as well as is negatively correlated.

Table VII(4): Levels of Socio-Cultural Development and Modernisation

<table>
<thead>
<tr>
<th>Composite Index Value</th>
<th>Rank</th>
<th>Number of Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.887 to 3.761</td>
<td>I</td>
<td>11</td>
</tr>
<tr>
<td>0.012 to 1.887</td>
<td>II</td>
<td>38</td>
</tr>
<tr>
<td>-1.862 to 0.012</td>
<td>III</td>
<td>18</td>
</tr>
<tr>
<td>-3.677 to -1.862</td>
<td>IV</td>
<td>11</td>
</tr>
<tr>
<td>below -3.677</td>
<td>V</td>
<td>4</td>
</tr>
</tbody>
</table>
Map VII(4) and table VII(4) reveal that the blocks situated in the south and south-eastern part of the region like Haldwani Pauri, Kaljikhal, Dugadda, Dhangu, Lansdown, Chaundkot and Pokhra scored higher composite index value showing higher level of socio-cultural development. It may be mentioned that these blocks secured special attention of the government under Integrated Rural Development Programmes. The composite index value for these varies from 3.7614 to 1.8869. The other blocks included in higher category are those having developed urban centre like Takula and Pithorgarh or those which received special attention such as Joshimath where tribal population account for more than 2 per cent. This is an important factor for attracting government's attention under Tribal Area Development Programme. This is the only block so far in the region covered under this programme. The levels of development tend to decrease with the increase in the distance from these except in the case of higher parts in the Middle Himalayas. Majority of the blocks getting index value below -3.6766 are situated in the western part of the region. These form part of the former principality of Tehri. Important among these are Mori, Pratapnagar, Jakhinidhar, Jakholi, Devprayag and Narendranagar blocks. It is believed that the local rulers were indifferent towards the development of modern social amenities. There were only three educational institutions in the entire principality at Tehri, Pratapnagar and Narendranagar. Moreover, the economic distress of the people under

the princely rule also kept people at low level of socio-
cultural development.

The following could be inferred from the above discussion:

(a) majority of the blocks of District Pauri falling in
higher category proves that the government effort played important
role in the process of socio-cultural development and moderni-
sation. As mentioned earlier Pauri district was selected under
Integrated Rural Development Programme and Joshimath block under
Tribal Area Development Programme;

(b) higher levels of socio-cultural development and moderni-
sation is seen in the blocks having developed colonial centres.
It shows that the colonial regional structure inherited still
persist to some extent;

(c) low levels of socio-cultural development in the blocks of
Tehri and Uttarkashi are probably because of feudal structure
till 1947 and remnants of which still survive. It is, therefore,
not surprising that co-operative movement and other social and
political movements are still very weak. Consequently, probably
people could not assert themselves to get modern facilities located
in these areas;

(d) prevalence of certain social practices such as polyandry
etc. in Puraula, Rajgarhi, Mori and parts of Dunda blocks may have
kept areas insulated from modern influences leading to their low
level of socio-cultural development.
6. LEVELS OF OVERALL DEVELOPMENT

After having seen the levels of development in terms of the four aspects it is important to comprehend development in totality. It, therefore, becomes essential to measure the levels of each block of Uttar Pradesh Himalayas with respect to Overall Development. Table VI(1) shows that all the four aspects identified for assessing development of the blocks have accounted positive weightage in the Final Composite Index. So it can be inferred from this that all four sets are positively correlated. However, their significance gets differentiated on the basis of their relative weights. Agricultural set got maximum weightage followed by resource base and industrial development with values of 0.938, 0.843 and 0.775 in the Final Composite Index respectively. Highest weightage for agricultural set in a subsistence economy is self explanatory considering its importance in the economy of the region. Subsistence agriculture largely depends upon availability of cultivable land and irrigation facilities which in turn results in higher population concentration and ultimately higher resource base. At the same time modernisation of agriculture is closely linked with industrial development because, it provides raw material for the industries on the one hand and many of the latter's products become inputs in the former.

Positive weightage of the set of socio-cultural development and modernisation reflects its importance in the Overall Development of the region. But, its low value of 0.051 could be mainly due to low economic development of Uttar Pradesh Himalayas. It is
seen that generally economic development is prerequisite for socio-cultural development.

Table VII(5): Levels of Overall Development

<table>
<thead>
<tr>
<th>Composite Index Value</th>
<th>Rank</th>
<th>Number of Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.528 and above</td>
<td>I</td>
<td>7</td>
</tr>
<tr>
<td>2.766 to 5.528</td>
<td>II</td>
<td>1</td>
</tr>
<tr>
<td>0.004 to 2.766</td>
<td>III</td>
<td>22</td>
</tr>
<tr>
<td>-2.758 to 0.004</td>
<td>IV</td>
<td>49</td>
</tr>
<tr>
<td>-5.520 to -2.758</td>
<td>V</td>
<td>3</td>
</tr>
</tbody>
</table>

The above table and Map VII(5) show that only seven blocks recorded Final Composite Index value of above 5.5 showing higher level of Overall Development. All these blocks are situated in the south-eastern part. These include Rudrapur, Gadarpur, Kashipur, Khateema, Bazpur, Sitarganj and Haldwani blocks. The Final Composite Index value for these varies between 10.032 for Rudrapur to 5.543 for Haldwani. Development of agriculture, agro-based industries and modern infrastructure in the Tarai areas of Nainital district are some of the important factors behind higher level of Overall Development. Dhari was the only block occupying second rank. Apart from these some other blocks having developed urban centres like Pauri, Almora, Ranikhet, Pithoragarh and Nainital also show relatively higher level of development with the Final Composite Index value ranging between 0.004 to 2.77. Other blocks falling in this category include those
UTTAR PRADESH HIMALAYAS

OVERALL DEVELOPMENT
(Data by Block)

0 - 25 KM.

VALUE OF THE COMPOSITE INDEX

- Above 5.53
- 2.77 to 5.53
- 0.00 to 2.77
- -2.76 to 0.00
- -5.52 to -2.76

MAP VII (S)
through which important routes are passing or are situated in the immediate vicinity of the developed centres as can be seen in the case of Kot, Chaundkot, Pokhra, Takula, Hawalbag, Garud-Bajnath, Chaukhutia, Tarikhet, Dwarahat, Bageshwar, Kanalichichina and Berinag blocks etc. Joshimath is the only block from the bordering area of the north falling in this category. The reason for this, as stated earlier, are its strategic significance on the one hand and its special tribal status on the other.

The level of development is generally very low in the remaining blocks of the region. Less developed blocks are in the north, east and western parts. It may be noted that all the blocks of Tehri and Uttarkashi districts recorded less than 0.004 Final Composite Index value. Lowest value of the Final Composite Index recorded by Dewal (-3.325), Mori (-2.864) and Ghat (-2.837) blocks. All these three blocks are situated in the Great Himalayas and are still largely inaccessible. Economy in these areas is largely based on pastoralism. Moreover, people still lead a very primitive life. It may be of interest to know that the life of the inhabitants of these blocks is very similar to that of the tribals but they have not been scheduled as in some other parts of the Himalayas. Consequently, in spite of extreme backwardness, these have not been able to benefit from any special government programme like Tribal Area Development Programme etc.

On the basis of above discussion it can be concluded that physiographic and historical factors are very important in influencing development in the region. Favourable topography in the
Tarai-Bhabar zone of Nainital district has contributed to development of the blocks situated therein. The blocks having centres established by the Britishers as hill stations and cantonment towns are also relatively more developed. With the increase in the distance from these developed centres the levels of Overall Development tends to decrease. Most of the interior and higher parts of the region suffering from hostile climatic conditions are at very low level of development.

Most of the backward blocks are concentrated in the Garhwal division. It is probably because of earlier feudal structure which hampered the spread of literacy and awareness. Moreover, most of the colonial centres also came up in the Kumaon division which continue to attract most of the facilities. As against this Kumaon had better facilities. Therefore, it could develop its political culture right from the colonial days. This resulted in acceptance of Panchayat Raj, co-operative movements and raised general as well as female literacy. The analysis shows that even today Garhwal is still lagging far behind.

6. SPATIAL INTERACTION AND LEVELS OF DEVELOPMENT

After having seen the processes and levels of development in Uttar Pradesh Himalayas it becomes clear that the region has marked regional disparities resulting into developmental imbalances. It has been noted that these are not exclusively a result of local factors. On the contrary "the development" scenario is
an outcome of factors induced from outside more so during colonial period. Particularly the processes of interaction evolved to meet the exogenous demands have played crucial role in it. Thus, the centres developed by the Britishers had better interaction with the world outside. These developed strong forward but weak backward linkages. Apart from these, a few centres mostly situated in the Tarai-Bhabar zone emerged as important trade centres. These also had higher level of interaction. In the remaining parts of the region the interaction was either very low or was one-sided i.e., mainly to exploit the resources without providing anything in return. As a result, the colonial centres had better interaction as well as higher levels of development while, the hinterland remained poor and backward.

Preceding analysis shows that the picture has not changed significantly excepting in a few parts of the region. Areas developed during the colonial period continue to attract large chunk of resources, thereby leads to regional disparities. Since, most of the developmental activities are concentrated around these centres and tend to decrease with the increase in distance, areas situated in the remote parts are at the low levels of development. An attempt has been made in this section to analyse the relationship between spatial interaction and levels of development.

It is believed that the levels of development and spatial interaction are positively correlated. It means that higher interaction leads to high levels of development and vice-versa. This has been shown with the help of canonical correlation for all the
Table VII(6)

Indicators of Levels of Development and Indicators of Spatial Interaction

I. Indicators of Levels of Development (Block Level)

<table>
<thead>
<tr>
<th>Indicator Description</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Indicators of Resource Base</td>
<td>(0.8425)</td>
</tr>
<tr>
<td>(i) Percentage of net sown area to total geographical area</td>
<td>(0.5611)</td>
</tr>
<tr>
<td>(ii) Ratio of culturable waste land and fallow land to net sown area</td>
<td>(-2.649)</td>
</tr>
<tr>
<td>(iii) Percentage of area under forest to total geographical area</td>
<td>(-0.458)</td>
</tr>
<tr>
<td>(iv) Percentage of gross irrigated area to gross cropped area</td>
<td>(0.4322)</td>
</tr>
<tr>
<td>(v) Density of population per sq.km.</td>
<td>(0.4674)</td>
</tr>
<tr>
<td>(b) Indicators of Agricultural Development</td>
<td>(0.9383)</td>
</tr>
<tr>
<td>(i) Per hectare rice production in kg.</td>
<td>(0.4901)</td>
</tr>
<tr>
<td>(ii) Per hectare wheat production in kg.</td>
<td>(0.5029)</td>
</tr>
<tr>
<td>(iii) Per hectare production of potato in kg.</td>
<td>(0.1854)</td>
</tr>
<tr>
<td>(iv) Per hectare fertiliser consumption in kg.</td>
<td>(0.4950)</td>
</tr>
<tr>
<td>(v) Per agricultural co-operative member availability of money for loan</td>
<td>(0.0876)</td>
</tr>
<tr>
<td>(vi) Cropping intensity</td>
<td>(0.4688)</td>
</tr>
<tr>
<td>(c) Indicators of Industrial Development</td>
<td>(0.7715)</td>
</tr>
<tr>
<td>(i) Percentage of workers in non-household secondary workers to total workers in the secondary sector</td>
<td>(0.7493)</td>
</tr>
<tr>
<td>(ii) Percentage of electrified villages to total number of villages</td>
<td>(0.4870)</td>
</tr>
<tr>
<td>(iii) Amount of loan available in Rs for each co-operative member for industrial development</td>
<td>(0.4488)</td>
</tr>
</tbody>
</table>
(d) Indicators of Socio Cultural Development and Modernisation

(i) Members of co-operative societies per hundred households (.0120)

(ii) Gram panchayats per hundred villages (.1051)

(iii) Percentage of literates to total population (.0084)

(iv) Percentage of girls student to the total students upto 12th class (-0.186)

(v) Percentage of schedule caste and schedule tribes electrified villages to total SC and ST villages (.0843)

(vi) Number of hospitals per hundred villages (.7792)

(vii) Number of doctors per 10 hospital (.1025)

I. Indicators of Spatial Interaction

(a) Resource Base

(i) Percentage of villages within a distance of 3 km from Pucca road to total number of villages (.5991)

(ii) Length of road per thousand sq.km (.7933)

(iii) Percentage of villages within a distance of 3 km from market centres to total number of villages (.1089)

(b) Indicators of Agricultural Development

(i) Percentage of villages within a distance of 3 km from Pucca Road to total number of villages (.7812)

(ii) Length of road per thousand sq km (.2477)

(iii) Percentage of village within 5 km distance from agricultural co-operatives to total villages (-.3232)

(iv) Percentage of village within 5 km distance from seed and fertiliser store to total villages (-.2706)

(v) Percentage of villages within 3 km distance from market (.5096)

(vi) Percentage of village within 3 km distance from V.D.O. office (-.2342)
(c) **Indicators of Industrial Development**

(i) Percentage of villages within a distance of 3 km from Pucca Road to total villages (.8589)

(ii) Length of road per thousand sq. km. (.2885)

(iii) Percentage of villages within 5 km distance from co-operative banks to total villages in a block (-.3389)

(iv) Distance of market centres (.015)

(d) **Indicators of Socio-Cultural Development and Modernisation**

(i) Percentage of villages within 3 km distance from pucca road (.072)

(ii) Density of road per thousand sq. km. (-0.0886)

(iii) Percentage of villages within 5 km distance from co-operative bank (.1319)

(iv) Percentage of villages within 3 km distance from Market centre (-.1111)

(v) Percentage of village having primary schools within 2 km distance (.9092)

(vi) Percentage of villages having high school within 5 km distance to total villages (-0.3614)
four sets of variables of development for Uttar Pradesh Himalayas with corresponding sets those of interaction. The agricultural sector emerged as the most important followed by resource base and socio-cultural development and modernisation with the canonical correlation values of 0.8081, 0.7325 and 0.7162 respectively. Industrial development and spatial interaction obtained fourth position with 0.6988 correlation value. It means that development in terms of all the above mentioned four sets is relatively more near the centres where spatial interaction is maximum and it tends to decrease with the increasing distance. However, differences in the nature of response shown by different elements in each set shows large diversity.

The canonical correlation value of 0.7325 for the first set reveals significant correlation between resource base and the indicators of interaction. Distance from metalled road and road density emerged as most significant indicators of interaction in terms of their relationship with resource base. These two indicators account for highest weightages of 0.59 and 0.793 in the canonical correlation respectively. Low weightage of 0.109 obtained by distance from market centres highlights weak market forces in the region. This is expected in a subsistence society, correspondingly highest weightage of 0.693 and 0.716 obtained by density of population and percentage of area under irrigation could mainly be in response to the fact that higher interaction due to road network opens up new opportunities for employment.

1. For detail understanding of Canonical Correlation see Chapter VI under section canonical correlation.
2. For test of significance of the correlation values see Annexure II.
leading to higher density of population and provides incentives for the utilisation of resources like water for irrigation etc. It may also be mentioned that higher density of population and better irrigation facilities are found in areas having better terrain which also favours road development. But, low weightages got by other indicators of resource base is explained by unfavourable environmental conditions in large part of the region.

Similarly high canonical correlation value of 0.8080 between the indicators of agricultural development and spatial interaction shows higher interrelation between the former and the latter in Uttar Pradesh Himalayas. Positive i.e. 0.781 and 0.310 and 0.248 weightages received by distance from metalled road, market centres and density of road in Table VII(6) shows their significance in agricultural development. It means that blocks situated near these facilities are better off in terms of agriculture. It is mainly due to the modern agricultural inputs which have become more easily accessible in blocks having more roads and market places. However, negative weightages obtained by distance from agricultural co-operatives seed and fertiliser store and from village development office reveal their no direct relationship. It means that these do not play significant role in agricultural development. Their restricted importance could be because of ignorance, very weak economic status of people and unfavourable environmental condition to the use of modern agricultural inputs.

Wheat which is also the first ranking crop in the region, shows favourable response to spatial interaction mainly due to availa-
bility of winter rainfall in the region. Moreover, it is grown in all parts of the region more so in lower areas. Use of chemical fertilizer is also high for wheat cultivation as it leads to its higher yield per hectare in the region. These two indicators of wheat yield and consumption of fertilizer got weightages of 0.549 and 0.272 in the correlation. Similarly, co-operative as well as financial institutions in the region show strong bias in favour of market centre as well as basic infrastructure resulting in getting positive weightage of 0.551.

The canonical correlation value of 0.70 between the indicators of: spatial interaction and levels of industrial development shows the important role of interaction in industrial development in a bidirectional ways. Meaning thereby, higher interaction leads to higher level of industrial development and vice-versa. Areas situated near the metalled road and market centres have relatively higher levels of industrialisation than those situated far from these.

As seen earlier industry falls among the least developed sectors in the region. It can be inferred from the table that availability of power is the single most significant factor for industrial development in Uttar Pradesh Himalayas. It received highest weightage of 0.983 in the canonical correlation. Higher concentration of electrified villages near the metalled road and important urban centres are some of the important factors those contribute to the canonical correlation value. Positive values of
0.86, 0.289 and 0.254 obtained by indicators of distance from metalled road, market centre and road length show their significance in industrial development. Negative weightage of -0.339 for distance from co-operative reveals that it does not play significant role in industrial development. It may be due to illiteracy and ignorance resulting little acceptance of co-operatives.

High cannonical correlation value of 0.716 for the socio-cultural development and interaction shows high association between the two. High weightage of 0.909 received by distance from primary school shows its great correlation with socio-cultural development. Positive weightages received by indicators of distance from primary school, co-operative and metalled road show their interrelationship on the one hand as well as that with general level of socio-cultural development on the other. Similarly higher weightage obtained by hospital facilities and electrified scheduled caste and scheduled tribe villages reveal their close relationship with interaction. Thus, it can be stated that areas situated in the remoter parts of the region have low level of socio-cultural development.

Finally, it is important to assess relationship between spatial interaction on the level of Overall Development in the region. Cannonical correlation has been worked out for this purpose taking First Principal Components of each set with three indicators of interaction namely distance from metalled road,
density of road and distance from market centres. It is generally believed that development and interaction are related in a bidirectional manner. It means change in one leads that in the other. Canonical correlation between these two sets of indicators has been worked to see whether development in Uttar Pradesh Himalayas is influenced by spatial interaction and vice-versa. It means higher spatial interaction leads to higher level of development and the latter also contributes to the former. But, it would be quite safe to assume that in Uttar Pradesh Himalayas interaction has led to development because of certain specific historical factors. It has been seen that the British conquest of the region led to enhanced interaction in its certain parts and these subsequently started attracting most of developmental resources. The emergence of centres as major nodes of interaction reveals intimate relationship between the two and the former appears to be dependent on the latter. It is seen that development is taking place in and around already developed places more so around those which came up during colonial period in the Middle and Outer Himalayas.

On the basis of foregoing discussion it can be concluded that physical factors played important role in the development patterns in the region. It is particularly so in case of agricultural development and of resource base. Favourable environmental conditions accompanied by compatible techno-institutional changes
in the Tarai-Bhabar zone have played significant role in the Overall Development of these areas.

Apart from these areas, centres developed during colonial period in the Middle Himalayas have also accounted for high levels of development. It is probably mainly due to favours received by these centres and these continue to maintain their position even after forty years of independence and planning. Such concentration of developmental activities at a few centres is an important factor creating large scale intra-regional disparities. Blocks situated along the major routes connecting these developed centres show marginal improvement in their levels of development. Levels of development tend to go down with an increase in distance from these centres.

Enhanced importance received by the bordering blocks in the northern parts due to strategic reasons as well as under Tribal Development Programme seem to have contributed to their development. Higher concentration of blocks showing low levels of development in the former principality of Tehri can be attributed to the continuation of feudal structure for a longer period. As opposed to this, relatively higher levels of development in most of the blocks of Kumaon division owes a lot to an earlier spread and growth of political culture and awareness among the people compared to other parts of the region.
Finally, development in the region shows positive correlation with spatial interaction. That is to say, higher interaction has led to high levels of development and vice-versa.

Since, spatial interaction pattern in the region was developed by the Britishers to meet their own needs and thereby, it got confined only a few centres. These areas continue to attract most of the amenities, infrastructural facilities and other developmental opportunities. Whereas large parts of the region continue to suffer from lack of facilities. Such a pattern is largely responsible for large scale intra-regional disparities resulting in imbalanced development.