CHAPTER VII

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Quite explicitly, the present study aims at analysing the inter-relationship between infrastructure and industrial development and identifying the role of the former in making contribution to the latter, using data/information available for different districts constituting the Eastern U.P. at the selected two points of time, i.e. 1990-91 and 2000-01, besides evaluating the extent of adequacy/inadequacy and performance of the created infrastructure. To investigate thoroughly, an analysis of inter-category differentials in performance of infrastructure and identification of factors responsible for the slow process of industrialisation in Eastern U.P. has been one of the major thrust area of the study.

To accomplish the above mentioned task, one of the crucial prerequisite has been mainly concerned with construction of composite indices of economic infrastructure (CEI) and that of industrial development (CII) for various districts constituting the Eastern U.P. To translate it into practice, both CEI and CII, as conceived for pursuing this study, have been represented separately by the total vectors of six and seven indicators respectively. There after an exercise for pooling of the selected indicators, using the ‘index method’ has been carried out to construct the said composite indices at the micro-level in the Eastern region. Besides, the method of ‘Deprivation Index’ has been used to find out the district-wise inadequacies or shortfalls, if any, in levels of economic infrastructure (CEI).

The major findings, thus, arrived at have been described subsequently in this chapter with a view to ascertaining some policy capsules, which could help ensure
strengthening of economic infrastructure and thereby accelerating the pace and the process of industrialisation across the districts in Eastern U.P.

As regards its organizational part, the first two chapters of the dissertation are devoted to mainly describing the preliminaries or background material for making choices of the operational definitions of 'infrastructure' and 'industrial development' on one hand and spelling out the objectives, hypotheses and methodology on the other. Besides, the main conclusions emerging out of the analysis in the Chapters III, IV, V and VI of the dissertation are presented through the following sections.

1. **The Eastern Uttar Pradesh: Current State of Art**

On the whole, it is seen that Eastern region is one of the most backward area of Uttar Pradesh. Soil of the region is rich and better suited to farming. About 72 per cent of the total workforce is engaged in it. But owing to preponderance of small and marginal holdings and lack of finance, the region suffers from low agricultural productivity and growth. Besides, the slower growth of non-agricultural employment adding fuel to the fire has, *inter-alia*, resulted in high incidence of poverty, unemployment and low level of living.

These problems are further exacerbated by the fact that almost 31 per cent of the net area sown in the region is rainfed and is greatly influenced by the vagaries of monsoon. Evidently, the Eastern Uttar Pradesh is subject to recurring of floods and droughts.

The overall structure of the region is still agrarian and rural oriented. Although urban population in absolute terms in this region has shown considerable increases, the level of urbanisation according to the Census of 2001 is found to be as
low as 11.7 per cent as against the State level average of 20.78 per cent. Beside this, a wide variation in levels of urbanisation is noticed between the regions and within the region too.

Nearly half of the population in the Eastern region is still found to be illiterate. And the disparity between the male and female literacy is of alarming nature. Mau is the only district of the region where female literacy has crossed 50 per cent mark in 2001. The sex ratio is also favouring more to males and less to females at the micro-level in this region with an exception of Deoria, Azamgarh and Jaunpur districts.

About 48 per cent of the total forests in the reorganised State are concentrated in the Eastern region. Since the area under forests in the region and the State lies between 7 to 9 per cent against the national level norm of 33 per cent, it deserves utmost priority in afforestation including social forestry. Lack of finance with small and marginal farmers is well recognised phenomenon. Although the schemes like Kisan Credit Cards (KCCs) and Self-Help Groups (SHGs) have been quite helpful in reducing severity of their financial problems, but, ensuring its proper management is needed for modernisation of agriculture and diversification of economy as well. Moreover, considering the substantial proportion of area under pastures and miscellaneous groves in the region combined with well equipped veterinary institutions, there seems to be a wider scope for animal husbandry and dairy development as well as food processing industries like milk and milk products, leather and leather products, carpets and wool and wool products, especially in Sonebhadra and Mirzapur districts.

The region also suffers from inadequacies as well as the poor quality of both economic and social infrastructure. Poor quality of roads and erratic power supply
are ubiquitous features of the region. Besides, inadequacy of financial institutions and their low level of credit advancement are reflected in the low credit-deposit ratio, which is found to be the lowest amongst all the economic regions of the State. This is a major bottleneck, suppressing private initiative, enterprise and spirit and thereby reducing scope of opportunities for speedier process of overall development. Besides, human capabilities, so essential for risk taking, and, for efficient availment of opportunities are generally lacking in the region, mainly due to inadequacy of educational infrastructure even at the basic level, what to say of secondary and tertiary levels. Moreover, a stressing network of health institutions is there at the micro-level but services rendered by these institutions are found to be inefficient and utter failure for catering to the needs of the population. Based on the aforesaid, there seems to be an urgent need of modernisation and diversification of the economy of this region, particularly through agriculture and its allied sector programmes like animal husbandry and dairy development having likelihood of strong inter-linkages with development of the non-farm sector in general and industries in particular. Wherein to meet the credit needs of the enterprising community through guaranteed micro-financing of key sectors of the economy in general and industry in particular would be *sine-qua-non*.

2. **Changes in Status of Manufacturing Industries in Eastern U.P. During the Reference Period: A Disaggregative Analysis**

An analysis of the sectoral pattern of development at the State level indicates that a deceleration in contribution of primary sector to net district domestic product (NDDP during the period 1993-94 to 1998-99) has been compensated by acceleration in gains of the tertiary sector more and secondary sector less.
Interestingly, its North-Eastern part, comprising Basti, Gorakhpur and Azamgarh divisions has witnessed significant increases in the industrial sector's share in NDDP during the same period.

Moreover, it needs to be appreciated that in the State and the Eastern region and all its divisions, there has been resurgence in employment share of the secondary sector during the post-reform period as against the deceleration in it during the pre-reform period of 1981-91.

A majority of industrial units in the State and its four economic regions fall in the SSI sector and their employment share is also appreciable, but the size of investment made has gone in favour of the large scale industries. However, the SSIs have also been witnessing a significant increase in their investment during the recent past probably due to speedier process of technological upgradation and modernisation effected by the execution of economic reforms of 1991.

The more developed Western region qualifies for the largest concentration of industrial activities in terms of units, investment and employment in small scale as well as large scale sector in 1991 as well as 2002. In the SSI sector the Eastern region occupies the second place, whereas in case of the large scale sector, the second position is held by the Central region. Moreover, during 1991 to 2001, the Western and Central regions have experienced a significant fall in the percentage share of employment in the SSI sector. However, contrary to this, the backward regions, particularly the Eastern one has witnessed a significant increase in this aspect during the same period.

Within the Eastern region, a larger concentration of both SSIs and large scale industries during 2002 is found to be in Allahabad, Faizabad, Gorakhpur and Varanasi divisions. Allahabad and Varanasi divisions account for 40 per cent of the
total units and employment in the SSI sector. Azamgarh division with only 9 per cent of the SSIs accounts for the highest share of 28 per cent in total employment. The growth rates reveal that during 1991 to 1998, Allahabad and Vindhyachal divisions have recorded the highest growth rates of units and employment in the SSI sector. Besides, Basti and Gorakhpur divisions have recorded significant growth in SSIs in terms of both units and employment during 1998-2002.

At the micro-level, Allahabad, Sultanpur, Basti, Mau and Varanasi are found to be relatively better industrialised districts of the Eastern region with a larger concentration of both SSIs and large scale industries.

'Food products' is found to be the most important industry group of the region in respect of small scale and large scale sectors at both the selected points of time (i.e., 1991 and 2002). Almost having a 70 per cent share in SSI units and employment, the important industry groups in 1991 are identified as food products, wood and wood products, metal products, machinery and parts except electrical, non-metallic mineral products, paper and paper products. Apart from food products and wood and wood products, some other industry groups have also gained currency in 2002. These are miscellaneous industries, hosiery and garments, wool, silk and synthetic fibre textiles. In the large scale sector, food products, paper and paper products, rubber and rubber products, chemical and chemical products and electrical machinery are found to be important in 2002.

Industries qualifying for a higher share in investment in the SSI sector have experienced a significant growth in employment as well. It seems that modernisation and technological upgradation has brought about a favourable impact on these industry groups.
Uttar Pradesh and all its economic regions have demonstrated an increased consumerism during the period of 1991 to 2002. This is largely supported by the higher values of the ratios between consumer and capital goods industries in the SSI sector of the Eastern region as experienced during 2002 over 1991. Almost two-thirds of the units and employment originating from this sector also substantiate this finding. Due to their high employment potential and capacity to curb inflation by providing goods of mass-consumption for a vibrant and growing middle class, this trend is desirable, particularly for the densely populated Eastern region. At both the points of time 'food products' is found to be the most dominant industry group among the consumer's goods industries and 'metal products' among those of the capital goods industries.

Although there has been a spreading expansion of SSI units in the State inclusive of the Eastern region, infrastructural constraints and a thin downing of protective measures have caused the whole sector to an intense competition since 1991. As a result, there have been bloc-closure of SSIs. So much so, nearly 13 per cent of the closed units of the country are falling in Uttar Pradesh itself. Especially in case of Eastern region, 40 per cent of the SSI units were found to be non-working in 1999, mainly due to closed down, non-existent and disappeared units. Irregular power supply, shortage of adequate and timely finance for working capital, cumbersome procedure of registration, leading to a menace of bogus entrepreneurs seem to be chiefly responsible for this unwanted vulnerable state of affairs. Out of the eight divisions of the Eastern region, the three, namely, Azamgarh, Basti and Varanasi are found to be severely affected divisions owing to the said incidence. This increased competition calls for an immediate initiation of necessary steps for rejuvenation, modernisation and upgradation of the SSI sector.
It is to be appreciated that about 20 to 24 per cent of the SSI units in the State as well as the Eastern region are institutionally financed and roughly 40 per cent of the total working units are electricity operated. In spite, this much adequacy of infrastructure has failed to bring about significant impact on exports of manufactured goods from this division. With the result, it is seen that within the Eastern region, concentration of export units is confining to its South-Eastern part, i.e. Varanasi and Vindhyachal only. In view of this, it is, therefore, suggested that considering the overwhelming importance of foreign trade in economic development, the State Export Promotion Corporation, Lucknow should come forward and establish at least three Export Promotion Centres (EPCs) at appropriate locations in Eastern U.P. after proper examination of the manufacturing sector data/information available at the micro-level.

The Eastern region of the State still continues to remain primary sector oriented and the industrialisation seems to be at a nascent stage. To face the music of the domestic and international competition and enjoy advantages of free trade, this sector will have to modernise and gain in strength. For this, public-private partnership (PPP) will have to be elicited, which will go a long way in creating a congenial environment, in which these industries can thrive and help in achieving the targeted growth rate of the State and its economic regions including Eastern Uttar Pradesh.

3. **Infrastructure and Industrial Development in Eastern U.P.: A Functional Analysis**

Based on multiple regression analysis, urbanisation is identified as the most powerful instrument for accelerating the process of industrial development
in the Eastern U.P. This calls for pursuing a policy, which aims at promoting urbanisation in terms of the development of rural towns or agropolis, providing an urban environs within a rural setting in terms of infrastructural, marketing and institutional arrangements. For this purpose, a massive public investment will be needed at the micro-level in order to transform the said rural towns into full-fledged propulsive growth centres, stimulating the growth in the surrounding periphery through provision of services and social infrastructure. Rural urbanisation, therefore, seems to be the need of hour for accelerating the process of industrialisation not only in the Eastern region, but also all the backward districts falling in other economic regions of the State.

In spite, there will be fundamental distortions in the path of industrial development, if the Eastern region is lacking in human capability. Even if government ensures adequacy of infrastructure and financial resources, ill-equipped human capability and lack of entrepreneurship (i.e., the active factor of growth) will, no doubt, retard the progress of industrialisation in the industrially backward districts. Due to its inadequacy, backward districts will not be in a position to make use of the modern technology, and commercial application of new innovations will then become the remotest possibility. To encounter it, enabling factors, such as, high quality technical education and better health care services will be *sin-qua-non*. Also, the workforce equipped with high capabilities and competencies will be able to participate effectively in manufacturing activities. In the Eastern region, a silver lining is discernible in terms of improved level of human capability and its favourable impact on industrial development at the selected latter point of time.

Besides, for a predominantly agrarian structure of economy like Eastern U.P., the importance of commercialisation of agriculture for industrial development cannot
be undermined. As agro-based industries form a sizeable strength especially in the
less industrialised category districts of the region, efforts should be made to
maximize the area and yield under commercial crops through crop-diversification
and field demonstrations. This will pave the way for ensuring regular supply of raw
materials to agro-based industries and thereby enhancing the pace and the process of
industrial development in the Eastern Uttar Pradesh.

Finally, as emerges from the linear and log-linear regression analysis, the
contribution of infrastructure (CI) to industrial development (CII) at the regional
level during the selected two points of time was, no doubt, positive but insignificant
and not much encouraging. So much so the value of its coefficients experienced a
significant deceleration during the reference period. Moreover, looking to the status
of recently developed infrastructure resulting from a massive investment made on it
during the reference period, it's contribution to industrial development seems to be
less rewarding.

Since we notice meaningful differences in availability of infrastructure from
one district to another within the Eastern U.P., there is likelihood that a minimum
level of infrastructure required for accelerated industrial development is generally
lacking in most of the districts falling in this region and many of them grossly suffer
from its inadequacy.

Besides, the lower order of efficiency use of investment made on
infrastructural development at the micro-level might be another equally important
factor mainly responsible for its insignificant contribution to industrial development
in the region. Viewing this, in case of low operating efficiency, development of
infrastructure will be necessary but not the sufficient condition for augmenting the
level of industrialisation.
4. **Infrastructure: Availability, Inadequacy and Prioritisation in Eastern U.P.**

To begin with, in all 13 out of 27 districts of Eastern U.P. are identified as industrially so poor that their levels of CII have stayed below the regional level average. Of these districts, the six namely Balrampur, Sant Kabir Nagar, Siddharth Nagar, Kaushambi, Ambedkar Nagar and Shrawasti fall in ‘Low’ category of industrial development (CII), whereas the remaining 7 districts constituting ‘Medium Low’ category of CII comprise Faizabad, Bahraich, Ghazipur, Gonda, Azamgarh, Kushi Nagar and Pratapgarh. These districts deserve the top most priority in any strategy of industrial development.

On the other hand, as many as 13 out of the total 27 districts in Eastern U.P. having their economic infrastructure (CEIs) below the regional level average are identified as experiencing relatively more inadequacies or shortfalls in CEIs. Besides, the more cursing point is that none of the districts in Eastern U.P. are found to be completely free from deprivation or inadequacy of economic infrastructure and the range of its inadequacy lies between the lowest (0.39) in Sultanpur and the highest (0.86) in Sant Kabir Nagar as against the regional level average of 0.65. This might, inter-alia, be one of the important reasons that based on the multiple regression analysis, infrastructure contributed to industrial development positively but not significantly in the Eastern region. All this shows that inadequacy of CEI is one of the major obstacle to growth and expansion of the industrial sector. This calls for special treatment with a view to minimising inequalities in economic infrastructure in a time-bound manner.

Inter-district disparity in levels of industrial development (CII) is so high, as witnessed by the coefficient of variation (C.V.) valued at 0.46, that shows glimpse of its polarisation in Eastern U.P. whereas the corresponding disparity in levels of economic
infrastructure (CEI) is found to be comparatively low, i.e., 0.20, which shows signs of depolarisation. Hence, both the spreading nature of CEI and agglomerated nature of CII indirectly suggest that already developed potential of economic infrastructure (CEI) in majority of the districts of Eastern U.P. remains under-utilised. More specifically, based on the study of inter-category relationship between the two, it is noticed that 9 districts occupying their places in higher categories of CEI have been able to occupy their places in lower categories of CII. This also indirectly suggests that the existing potential of economic infrastructure (CEI) is not being fully utilised.

Further, while testing the hypothesis that 'there exists an inverse relationship between CII and ADI', it is noticed that one-third of the total districts of the region have favoured the hypothesis, whereas the remaining two-thirds have gone against it. More specifically, the coefficient of correlation between the two valued at (—)0.37 provides a clear-cut indication that an inverse relationship between them is operative but partially only and not in totality (i.e., 'one-to-one' or 'equi-proportional'). This indirectly suggests that besides inadequacy of CEI, the other probable factors like low productivity, low level of technology, lack of entrepreneurship and low efficiency use of investment on economic infrastructure have also been obstacles in the path of progress of industrial sector in Eastern U.P.

According to Table 6.6, as many as 17 out of the 27 districts of Eastern U.P. have occupied their places in diagonally set boxes (DBS), which have demonstrated 'equi-proportional' or 'high degree of inter-dependency' relationship between CII and IEUI. Besides, the coefficient of correlation 'γ' between the two is found to be as high as 0.91. Meaning thereby, it appears that IEUI carries meaning to industrial development. It is, however, daunting to paint an unrosy scene that according to Table 6.5 there are 13 districts having their IEUIs below the regional level average,
which provides a clear-cut indication that infrastructural potential in these districts remains considerably under-utilised. One can also argue that pressure of productive sector activities in low IEUI districts might be low and owing to that, existing potential of CEI is not proving to be demand generating. Viewing this, it appears that besides inadequacy of CEI, low IEUI on infrastructure has been equally responsible for the low pace and the slow process of industrialisation in Eastern U.P. This calls for effective measures to be undertaken for maximum possible utilisation of infrastructural potential available at the micro-level in Eastern U.P.

As a matter of fact, utilisation of infrastructure is, inter-alia, greatly influenced by people's awareness, willingness and participation, which appears to be generally lacking among the masses especially in extremely backward districts of the Eastern U.P. This is a matter of serious concern, which needs to be given due consideration while planning for bring about significant improvement in EUI on economic infrastructure.

At the end, following the principle of 'higher the value of deprivation (ADI), higher would be the priority for infrastructural development (CEI) and vice-versa', it is suggested that all the 7 districts falling in 'High' category of ADI should be accorded the 'special priority', whereas those of the five constituting the 'Low' category of ADI should be assigned the least priority. Besides, the remaining 8 and 7 districts falling in 'Medium Low' and 'Medium High' categories of ADI be given the 'less' and 'general priority' respectively. However, an execution of the suggested prioritisation would require greater public as well as private efforts in terms of increased investment on infrastructure in the region. But private investment on it is subject to good investment climate and better scope of enhanced profitability. Hence, the role of public investment assumes greater significance for accelerated development of infrastructure in Eastern Uttar Pradesh.
Finally, a provision of infrastructure in accordance with the suggested prioritisation is, truly speaking, one aspect of its adequacy. Its another aspect, which relates to its quality, reliability and performance, matters more and that can be better ensured by following the reversal of the existing mode of allocation of infrastructure investment, i.e., 'too much to new investment' and 'not enough to maintenance', besides improving efficiency of implementing agency for its better performance in future.