National Capital Region Planning Board
(Planning Committee)

13th Meeting
4 April 1988

Agenda & Minutes

106

B. N. SINGH
Chief Regional Planner
Tel. 326400

राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION
PLANNING BOARD
7th Floor, 'B' Wing,
I.O.C. Building, Janpath,
शहरी विकास मंत्रालय
(Ministry of Urban Development)

NO.K-14011/2/87-NCRPB(13th)

नई दिल्ली, तारीख 28.3.1988
Dated, New Delhi, the

Subject : 13th meeting of the Planning Committee of the National Capital Region Planning Board to be held on 4.4.1988.

Your attention is invited to the meeting notice of even number dated 16th March, 1988. Notes on the Agenda items proposed to be discussed in the meeting are enclosed.

2. It is proposed to consider the draft of the Final Regional Plan in addition to other items in the meeting. It is, therefore, requested that you may kindly make it convenient to attend the meeting. The meeting is likely to continue till the afternoon on April 4, 1988 in the office of the NCR Planning Board.

(B.N. SINGH)
Chief Regional Planner, &
Member-Convenor.

To,

1. Chairman and all Members of the Planning Committee.
2. All officers of the NCR Planning Board.

Agenda Items for the 13th meeting of the Planning Committee to be held at 11.00 A.M. on April 4, 1988 in the office of the National Capital Region Planning Board.

Item No.1 Confirmation of the minutes of the last meeting held on 16.12.1987.

Item No.2 Review of the action taken on the Agenda items of the 12th meeting of the Planning Committee.

Item No.3 Creation of a separate fund for NCR schemes by Implementing Agencies.

Item No.4 Inclusion of Deeg, Kama and Bharatpur Tehsils of Rajasthan in the National Capital Region.

Item No.5 Note on creation of Electricity Agency for NCR.

Item No.6 Draft Report of the Regional Plan-2001 for National Capital Region.

Any other item with the permission of the Chair.

AGENDA ITEM NO. 1

CONFIRMATION OF THE MINUTES OF THE
12TH MEETING HELD ON 16.12.1987

The 12th meeting of the Planning Committee was held on 16.12.1987 and the minutes of the meeting were circulated on 23.12.87 (copy enclosed for ready reference). The Chief Town Planner, Rajasthan referring to the minutes of the 12th meeting has suggested inclusion of his views in the minutes relating to:

i. Jaipur as Counter-magnet area:

ii. Population projection of the Rajasthan Sub-region; and

iii. Inclusion of Kama, Deeg and Bharatpur tehsils in the NCR.

The position is as under:-

i. Under agenda item No. 2 (Review of the Agenda Items of the 11th Meeting of the Planning Committee under agenda item No. 6- Study of Counter-magnet Areas) a reference was made for Jaipur to be included amongst the Counter-magnet areas under identification, by the Chief Town Planner in the meeting and was not pressed in view of the earlier views of Rajasthan State not to include Metropolitan cities as the Counter-magnet areas.

ii. Under agenda item No. 3 (Consideration of the remaining objections/suggestions received on the Draft Regional Plan 2001-NCR) the Chief Town Planner suggested raising the total population figure projected for Rajasthan Sub-region from 11.9. lakhs to 20.65 lakhs (urban population: 8.95 lakhs and rural population: 11.70 lakhs). It was pointed out in the meeting that population projections were based on the projections made by the Registrar General of India for all the 3 Sub-regions including 11.9 lakhs for the Rajasthan Sub-region and after taking into consideration the increased population assignment of 5 lakhs for urban areas included in the Draft Regional Plan, the total population of the Sub-region was kept higher as 14 lakhs as approved by the Planning Committee.

iii. Under agenda item No.2- Review of the Action Taken on the agenda items of the 11th meeting of the Planning Committee, the Chief Town Planner had mentioned that Kama, Deeg and Bhartpur tehsils of Rajasthan should be included in the NCR based on the study by Rajasthan. Since, this matter was not connected with the finalisation of the Regional Plan, it was agreed that the matter may be taken up later.

The Planning Committee may kindly consider and confirm the minutes.

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AGENDA ITEM NO. 2

REVIEW OF THE ACTION TAKEN ON THE AGENDA ITEMS OF THE 12TH MEETING OF THE PLANNING COMMITTEE

Agenda Items No.1	Confirmation of the minutes of the 12th meeting of the Planning Committee held on 16th December, 1987.	Action to be taken as per Item No. 1 of the 13th Meeting.
Agenda Item No.2	Review of the Action taken on the Agenda items of the 11th Meeting of the Planning Committee.	No action is called for.
Agenda Item No.3	Consideration of the remaining objections/suggestions received on the Draft Regional Plan - 2001 N.C.R.	No action is called for.
Agenda Item No.4	Preparation of Model Urban Development Project for the Informal Sector Activities in the priority towns.	A project for Hath-kargha Nagar in Meerut and Informal Sector activities relating to Handloom and Hosiery at Panipat has been approved by the Project Sanctioning & Monitoring Group. The details of the scheme are being worked out by HUDA and the MDA.
Agenda Item No.5	Staffing Pattern for Planning Cells in the participating States.	The composition of the Staff for the Planning and Monitoring Cell has been communicated to all the participating States.
Agenda Item No.6	Guidelines for Location of Industries in DMA.	The guidelines have been communicated to the concerned Ministry..

AGENDA ITEM NO.3

CREATION OF A SEPARATE FUND FOR N C R SCHEMES BY IMPLEMENTING AGENCIES.

In accordance with the present funding policy, the NCR Planning Board provides financial assistance in the shape of interest bearing loans to the participating State Governments/Implementing Agencies for execution of approved NCR schemes in their sub-regions. This is subject to the stipulation that the State Governments/ Implementing Agencies spend, at least, an equal amount from their own resources. By and large, the NCR schemes are remunerative. Revenue generated by these schemes are credited to the general funds of the concerned Implementing Agencies and these are used for various purposes according to their own policies. Similarly, the payment of interest and the repayment of principal of the loan assistance provided by the Board is paid by the State Government/Implementing Agencies out of their own funds.

2. In order that a separate revolving fund is created and NCR schemes are funded therefrom, it is proposed that each Implementing Agency may create a separate fund for execution of approved NCR schemes. The following items of receipts and expenditure may be booked therein :

RECEIPTS:

(a) Financial assistance provided by the NCR Planning Board in the shape of interest bearing loan or grants-in-aid.

(b) Budgeted funds of the State Government/Implementing Agency, not less than the financial assistance received from the NCR Board.

(c) Revenue generated by the schemes such as sale of plots (commercial/residential), sale of residential flats, sale of shops, sale of advertisement sites, etc. etc.

(d) Miscellaneous receipts such as interest on deposits of the funds kept in Bank or in some other financial institutions.

EXPENDITURE :

(i) Purchase of land and its development.

(ii) Construction of flats, shops, industrial sheds etc.

(iii) Payment of interest and repayment of principal in respect of loans taken from the NCR Planning Board.

(iv) Any other expenditure connected with the sanctioned scheme.

P.T.O.

3. During the initial stages of the operation of the fund, receipts may not be adequate to meet the items of expenditure listed above, especially those relating to payment of interest and repayment of principal to the Board, as revenue receipts become available when the scheme is nearing completion or is completed. To meet such situations, State Governments/Implementing Agencies may use their own funds temporarily and recoup the same out of the revenue generated by the NCR schemes later.

4. The accounts of the above listed transactions may be kept separately, either on actual or proforma basis by the Implementing Agencies. If feasible, a separate bank account with a separate cash book may be maintained for the NCR Funds.

5. The proposal is placed before the Planning Committee for consideration.

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AGENDA ITEM NO.4

INCLUSION OF DEEG,KAMA AND BHARATPUR TEHSILS OF RAJASTHAN IN THE NATIONAL CAPITAL REGION.

The Government of Rajasthan has forwarded the findings of the syrveys and studies undertaken for inclusion of certain areas into the NCR. (Annexed).

2. The Schedule indicating the extent of NCR under Section 2 (f) of the NCR Planning Board Act, 1985 was adtopted by the Government based on the TCPO's earlier study according to which the present area of the NCR was adopted for planning.

3. As per Sectoion 2 (f) of the NCR Planning Board Act, the extent of the NCR can be suitably enlarged or any area can be excluded therefrom by the Central Government with the consent of participating States and in consultation with the Board. Presently, the Regional Plan-2001 NCR is under finalisation for the consideration of the Board for its approval after which, the Regional Plan will become a Statutory Plan. The Planning Committee has already agreed that a decision on this issue will not affect the Draft Regional Plan which is presently under consideration for finalisation.

4. The Planning Committee may kindly consider the item for appropriate recommendations to the Board.

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Rajasthan
JAIPUR

MATHUR I.A.S.
missioner & Secretary to Govt.,
ban Development, Housing &
.S.G. Department

D.O. No. F.10(11) UDH/87 November 13,1987

Dear Shri Bhatnagar,

Kindly refer to your D.O. letter mber K-14011/24/85-NCRPB dated 21st April,1987 garding inclusion of Kama, Deeg and Bharatpur hsils of Bharatpur District in the National apital Region. As suggested, an indepth study as been made and informations on all the 10 riteria have been up-dated by the State Government. he same is being sent in duplicate.

It may be mentioned that the criteria laid down by NCR in this regard were sometimes in the year 1973. A lot of field conditions have since changed. All these changes have been duly reflected in the updated informations being furnished herewith.

The case may now please be considered favourably for a decision in the above regard.

Yours sincerely,

(P.B. Mathur)

Shri K.K. Bhatnagar,
Member Secretary,
N.C.R. Planning Board,
7th Floor, 'B' Wing,
I.D.C. Building, Janpath,
Ministry of Urban Development,
NEW DELHI

Encl: as above

10

A NOTE ON INCLUSION OF DEEG, KAMAN AND BHARATPUR TEHSILS IN THE NATIONAL CAPITAL REGION

National Capital Region was delineated on the basis of a detailed study undertaken by the Town and Country Planning Organisation in 1973, using various indices which came under three broad categories :-

1. Demographic characteristics of the region.
2. Inter-action between Delhi and the surrounding area.
3. An efficient framework for urbanisation and the provision of infrastructure.

The Selected 45 Tehsils including Deeg, Kaman and Bharatpur were studied in respect of the 10 creteria. Out of the 45 tehsils, 15 tehsils satisfied 5 and more of these criterias. However, in the final determination of the boundary of the NCR, It is stated, that certain other factors had also been taken into consideration. These factors were administrative reasons, continuity and contiguity, integrated development of the region in matters of flood controls and prevention of water pollution, supply of water and power, and the influence of other counter magnet cities. The National Capital Region Planning Board Act, 1985 accordingly incorporated the area as National Capital Region delineated by T.C.P.O. with minor variations without including Deeg, Kaman and Bharatpur tehsil.

However, with lapse of time of 14 years, the situation with respect to demographic characteristics of the Region, inter-action between Delhi and surrounding area, level of urbanisation and infrastructure facilities have undergone considerable change.

A primary survey has been recently conducted and relevant results go to amply justify the inclusion of Deeg, Kaman and Bharatpur tehsils in the National Capital Region, Census datas also further confirms the survey results. In the light of 10 criterias, the position of Kaman, Deeg and Bharatpur Tehsils is as follows :

CRITERIAN ONE -

1. Population Growth Rate : 22%(+) Tehsilwise growth rate in the decade 1971-81.

The table below reveals the exact position of the growth pattern :

Table

S.No.	Tehsils	Distance from Teh.HQ.toDelhi KMS.	Decade - growth 1961 - 1971	rate of pop. 1971-1981
1.	Kaman	120	42.87	19.73
2.	Deeg	140	65.89	24.32
3.	Bhatatpur	175	85.93	30.72

Source : Census of India- 1981.

The growth rate of Deeg and Bharatpur is fully met as per criterion. In Kaman tehsil it is only very magginally below the datum line.

CRITERIAN TWO -

2. Migration : 24,000 (+) districtwise migrants to Delhi by 1981 or later.

In accordance with Census migration tables, there were 1,36,413 migrants in Delhi from Rajasthan in census year of 1971 and 1,90,415 migrants in 1981. These migrants were mainly from Alwar, Bharatpur, Jaipur, Sikar and Jhunjhunu districts. Hence it can safely concluded that more or less, 30,000 persons migranted to Delhi from each of these districts by 1981, leaving big margin for other less important districts in terms of migration. Thus criterion of migration is fully met with the margin of 6,000 on plus side..

CRITERIAN THREE -

3. Density : 250 (+) persons per sq. kms. in 1981 or later.

Figures of density and distance from Delhi to Tehsil ... are shown in table below :

Table

S.No.	Tehsil	Distance between tehsil HQ.& Delhi	Density per Sq.km. in 1981
1.	Kaman	120	248
2.	Deeg	140	262
3.	Bharatpur	175	352

Source : Census Handbooks of India, 1981.

Now it is clear that the cut off datum of 250 is fully satisfied except Kaman Tehsil falling short by 2 which is negligible.

CRITERIAN FOUR -

4. Economic activity : 55% (+) Non-agricultural workers to total workers in each tehsil in 1981 or later.

Percentage of non-agricultural workers to total workers in each tehsil in 1981 and distance between Delhi and Tehsil HQ. are given in table below :-

Table

S.No..	Tehsil	Distance between tehsil HQ.& Delhi Kms.	%age of non-agricultura workers to total worker 1981
1.	Kaman	120	21
2.	Deeg	140	30
3.	Bharatpur	175	68.18

Source : Census of India, 1981

This table reveals that it is only Bharatpur tehsil which meets the criterion of 35 % of non-agricultural workers to total workers in 1981 with big margin. But other two tehsils i.e. Deeg and Kaman fall short only by 6 % and 14 % respectively in 1981. The low percentage of non-agriculture workers to total workers in Kaman and Deeg Tehsils is because of the Strong "Backwash effect" or"shadow effect" of Delhi. It is generally seen that in such a situation people tend to move to bigger centres on account of better job opportunaties. Thus these two tehsils have remained poor in terms of secondary and tertiary activities and consquently low percentage of non-agricultural workers to total workers.

In view of these observations the cut off datum of 35 % cannot be achived for Kaman and Deeg tehsils which are closer to Delhi. And therefore Kaman, Deeg and Bharatpur tehsils should be included in N.C.R.-

CRITERIAN FIVE -

5. Milk Supply Zones : The area of supply of milk to the Delhi Milk Supply Scheme in 1981 or later.

A primary survey has been recently undertaken to a scertain the catchment area of milk supply zone to Delhi in case of Kaman, Deeg and Bharatpur tehsils. In this survey, village has been taken as a unit of data collection. Catchment area of milk supply zone has been obtained by aggregating the areas of villages from where milk is collected. Relevant results are shown in table below.

Table

S.No.	Tehsil	Tehsils' area in sq. kms.	Catchment area of milk supply zone in sq.kms.	%age of catchment area of milk supply zone to tehsil area
1.	Kaman	715	625	87.41
2.	Deeg	946	761	80.44
3.	Bharatpur	951	710	74.6[illegible]

Results of table reveal that a little area of Kaman and Deeg tehsils is left out which is not covered under catchment area of milk supply zone to Delhi. [illegible] Kaman [illegible] is supplying an average 10 tankers of milk with a capacity of 1,000 liters each to Delhi. Besides, several groups of private individuals also carry the milk to D.U.T. on regular basis.

In case of Bharatpur tehsil, 75% of area is covered under catchment area. Dalmia dairy Federation Ltd. is a primary Organisation in this field.

It is, therefore, advocated that these three tehsils are highly favourably placed in the light of milk supply zone criterion. Thus these three tehsils all deserve to be included in NCR.

CRITERIAN SIX -

6. Supply Zone of Vegetable and Fruits: Supply area in 1981 or later.

The vegetable produced and supplied from these tehsils to Union Territory are mainly: Tamato, onion, brinjal, cabbage flower, lady fingers, spinach, carrot, radish, cauliflower etc. while fruits are plum, lemon, mango, papaya etc. Figures catchment area are shown in table below:

Table

s.No.	Tehsil x	Tehsil area in sq. kms.	Catchment area of vegetable & Fruit supply zone	Page of catchment are of veg. & fruit supply zone to tehsi area
1.	Kaman	715	630	88
2.	Deeg	946	766	80.97
3.	Bharatpur	951	720	75.70

In the light of relevant results, shown in table above it can be stated that more than 80% area of tehsils falls under the catchment area of vegetables and fruits supplied to Delhi area. This all goes to prove the strong functional relationship and therefore inclusion of these tehsils in the NCR.

CRITERIAN SEVEN -

7. Communication: 75 (+) Telephone calls per day from and to Delhi in 1981 or later.

Presently there are four settlements in Kaman Tehsil having telephone facilities. These are Bilond, Kaman, Pahari and Jurhera. In case of Deeg tehsil, telephone facilities are available in Behtana, Behaj, Nagar, Kho and Deeg towns. While there are five towns namely; Sewar, Basua, Bharatpur, Jaghina and Kumher having telephone facilities in Bharatpur tehsil. Further it may be noted that no STD facilities are available in Kaman and Deeg tehsils. Hence calls have to be routed normally through Bharatpur.

However, it is found that more than 100 calls per day are made from Bharatpur town alone and equal number of calls are received from Delhi per day. If other towns are taken into consideration, calls per day from Bharatpur tehsil to Delhi will shoot up to a much higher figure. Consequently it can be surmised that equal number of calls(morethan 150)per day from Delhi are male to five towns of Bharatpur tehsil.

In case of Kaman and Deeg tehsils, 35-40% calls from these tehsils to Delhi do not mature. Even then not less than 75 calls per day are made from towns of each tehsil and equal number of calls are received from Delhi to the towns of each tehsil. If STD facilities were available at HQ. of Kaman and Deeg tehsils, two-ways calls would have been appreciably higher than present calls. In view of these observations, it can be concluded that these tehsils fully meet the criterian of communication and thus deserve to be included in N.C.R.

CRITERIAN EIGHT -

8. Physiography : The drainage basins of rivers- the Yamuna, the Ganga and lakes Najafgarh-Jahajgarh.

The area lying east of Aravalli Hills and south of Delhi from the part of catchment area of drainage basin of the Yamuna river in the Region. All seasonal reivers and streams like the Ghambir river, the Kaman, Pahari drain passing through these tehsils, join the Yamuna river. This means that these tehsils form part of the complete drainage system in this part of NCR. Thus we can conclude that physiographically these tehsils form part of the Region.

CRITERIAN NINE -

9. Traffic: 1000 (+) Daily passengers by Bus to and from Delhi in 1981 or later.

To ascertain (presently)the magnitude of passengers travelling by bus to and from Delhi, a primary survey was conducted. The various maodes i.e. bus, jeep, trucks etc, have been standardized to arrive as standard passenger bus with capacity of 55 persons. The results are shown in the table below.

Table

S.No.	Tehsil	No. of standard passenger bus originating from various places of tehsil per day to Delhi	No. of passenger from tehsil to Delhi per day	*	**	***
1.	Kaman	13	715	14	770	1485
2.	Deeg	10	550	11	605	1155
3.	Bharatpur	12	660	11	605	1265

* No. of standard passenger bus originating from Delhi to various places of tehsil per day.

** No. of passengers from Delhi to various places per day.

*** Total number of passengers by standard passenger bus to and from Delhi.

Figures of above table conclusively prove that criterian of 1,000 (+) daily passengers by bus to and from Delhi in 1981 or later is fully satisfied with big margins.

CRITERIAN PEN -

10. Traffic: 250 (+) Daily passengers by rail to and from Delhi in 1981 or later.

The railway line passes through Kaman and Deeg tehsils. However, Bharatpur town is connected with railway line. In accordance with survey results, daily about 150 persons go to Delhi by train from Bharatpur and about 160 persons come from Delhi. Thus daily passengers by rail to and from Delhi aggregate to about 310. Therefore, it can be said that this criterian is also met with a big margin on plus side in case of Bharatpur tehsil. However, Kaman and Deeg tehsils should not be considered on this count as tehsils are still deprived of railway line facility.

After examining the position of these three tehsils namely, Kaman, Deeg and Bharatpur in the light of 10 criterians adopted by National Capital Region Planning Board for delineation of Region, what comes out is the conclusive proof of their inclusion in the National Capital Region. Functionally and organically these tehsils are very much a part of National Capital Region as these tehsils are in continuity and contiguity with Region, which is also shown on map. Further these tehsils, constitute a vital spatial expansion of in terms of integrated development of the Region in matters of flood controls and prevention of water pollution, supply of water and power and the influence of other counter magnet cities.

CR: CONSTITUENT AREAS

AGENDA ITEM NO. 5

NOTE ON CREATION OF ELECTRICITY AGENCY FOR NCR

The Planning Committee in its 11th meeting considered the comments of the Department of Power, Ministry of Energy on the proposal of creating an Electricity Agency for the NCR and desired a paper indicating the need for such an Authority and the way it would help the participating States in augmenting the power be prepared and made available to the State Governments for their views. Accordingly, a paper on this subject was sent to all the concerned State Governments on the 15th February, 1988. The representatives of the States may like to offer the views of State Governments in this regard in the meeting for consideration of the Planning Commitee. A copy of the paper curculated is enclosed for ready reference.

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NOTE ON CREATION OF AN ELECTRICITY AGENCY FOR NCR

1. Power Supply Position :

Power is a pre-requisite for any development. The constituents of the NCR except Delhi are facing varying degrees of shortage of power. There have been restrictions imposed on consumption and the demands reflect only suppressed demands. The deficit inthe actual power supply during 1986-87 was as high as 14.9% in Uttar Pradesh, 13.4% in Haryana, 7.9% in Rajasthan and 0.04% in Delhi U.T. In the sub-regions of the NCR, this position was still worse, the deficit being 25% in the U.P. Sub-region and 35% in the Haryana Sub-region while the Rajasthan Sub-region the deficit was more or less as of the entire State. By 1989-90 the deficit is anticipated by the Central Electricity Authority to an extent of 34.9% in Rajasthan and 4.2% in Delhi U.T. whereas in the case of Haryana and Uttar Pradesh, it will be less than 1% (Annexure-I). This is based on the capacity addition and demands for powers as assessed by the 12th Electric Power Survey Committee in the NCR States and Delhi U.T.

2. In the context of the portions of the States under the NCR, the power supply position in terms of the deficit may be worse, as the demand for power willbe much more in viewof the induced and accelerated development envisaged in the NCR development Plan. The actual energy consumption in the NCR during 1985-86 was estimated at 7529 MU. As per the forecast by the Central Electricity Authority for the Sub-regions of the NCR, the energy requirement in the NCR by 1989-1990 would be around 15502 MU, by 1994-95 24554 MU and by 1999-2000 it will be 38898 MU as at the power stations' bus bars with the 20% loss at the consumer ends. Thus, the requirement of electrical energy in the entire region will grow more than 5 times during the 14 years following 1985-86. The corresponding peak-load as estimated by the Central Electricity Authority would be 3027 MW by 1989-90 which would shoot up to 7595 MW by 1999-2000. This explains the magnitude of the problem the NCR would face in terms of power supply if necessary action is not taken well in advance.

II. Need for a separate Electric Agency for NCR :

The region being an inter-State region, the portions in the States under the NCR, in normal course, will not be given special or additional importance for supply of additional power as against the other parts of the States. At the same time, with their own priorities and commitments, the State Governments, may not, on their own, be in a position to treat the parts of the States under the NCR in preferential or special manner for the purpose of power supply vis-a-vis other parts of the States. To overcome these problems, it was felt appropriate to propose setting up of a unified electricity agency for the NCR exclusively vested with powers and necessary resources to generate and distribute power, charge and raise revenues. The Draft Regional Plan accordingly contained this proposal for creating an electricity agency for the NCR and was approved by the Board in its meeting held on 21.7.1987.

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III. Follow Up Action :

In pursuance of this proposalfor an electricity agency for the NCR, the matter was taken up by the Ministry of Urban Development with the Ministry of Energy. The Deptt,. of Power Ministry of Energy observed that it would not be possible to create a separate electricity agency or authority for the NCR under the existing provisions of the Electricity (Supply) Act, 1948. Moreover, in the event of such an agency being set up with necessary modifications in the provisions of the said Act, far reaching organisational and administrative restructuring by way of bringing together the personnel working in different organisations in the new set up is foreseen. There would be need for providing adequate physical transmission facilities to meet the additional power requirements in the parts of the NCR which would be technically quite difficult to provide in isolation under the existing organisational set up. The Minister of Energy also indicated that unallocated power from the Central power stations could be allocated to the constituent States/UT of the NCR but the allocation would be in accordance with the formulae which have been evolved in consultation with the State Governments concerned. In this situation alsoany favourable treatment for allocation to NCR may not be possible by the States.

IV. Provisions of the Electricity (Supply) Act, 1948 :

An examination of the provisions of the Electricity (Supply) Act, 1948 shows thatsome of the sections of the Act provide for coordination between the States and the Electricity Boards in various aspects.

In fact, section 6(1) of the Act provides foran inter-State agreement toextend the Board's jurisdiction toanother State where a Government of any State can enter into an agreement with the Government of a contiguous State to provide that the Board constituted in the latter State shall exercise the function of a Board in the former State. Section 15(a) (i) provides that the Central Government or other State Government or the Central Government and one or more State Governments, or two or more State Governments, jointly form a generating company with such name as may be specified in the Memorandum of Association of the Company. This company will establish, operate and maintain generating stations and tie-lines, sub-stations and main transmission lines as are assigned to it by the Governments concerned.

For all practical purposes, the NTPC, NHPC and Atomic Power Commission are functioning like generating companies. One or more of these Corporations could be directed by the Central Government to generate additional power to be supplied exclusively to the NCR area and, the State Governments and the UT concerned with an agreement or under direction from the Union Government arrange, to make available the additional power meant for the NCR, only in the areas within the NCR. Thus, though there are provisions for coordination among Central Government and State Governments, or among State Governments

themselves, there is no provision under which a separate authority for an inter-State region such as NCR where the parts of the various States are included, could be constituted. It is felt that in view of the above position there is no necessity for constituting a separate common organisation for generation and distribution of power in the NCR and the proposal contained in the DRP 2001 may be dropped.

xxxxx
xxx
x

M.S – no distributing authority possible.
MOE – not agreed.

PBM – no super body is reqd – regions are real

Anil Razdan – equitable distribution of power

M.S. Explain the role of the body – allocation of power / extra allocation of power to NCR States

Annexure

Power Supply position in NR States/UT :-

(IN MU)

	REQUIREMENT		AVAILABILITY		DEFICIT	
	1986-87 (Actual)	1989-90 (Anticip-ated)	1986-87 (Actual)	1989-90 (Anticip-ated)	1986-87 (Actual)	1989- (Anti ated)
DELHI UT	5676	7217	5674	6917	2 (0.04)	300 (4.2)
HARYANA	5945	9266	5147	9203	798 (13.4)	63 (0.7)
RAJASTHAN	8090	13613	7448	8859	642 (7.9)	4754 (34.9)
UTTAR PRADESH	20204	30749	17198	30653	3006 (14.9)	6 (0.8)

NOTE: Figures in brackets are percentages of requirements.

AGENDA ITEM NO. 6

DRAFT REPORT OF THE REGIONAL PLAN - 2001
FOR NATIONAL CAPITAL REGION

The Planning Committee in its meetings held on 19th November, 1987 and 16th December, 1987 had considerd the objectives/suggestions received on the Draft Regional Plan - 2001, National Capital Region. A draft of the Final Regional Plan - 2001 for NCR has been prepared in the light of the decisions of the Planning Committee and is annexed for consideration.

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MINUTES OF THE 13TH MEETING OF THE PLANNING COMMITTEE OF THE NATIONAL CAPITAL REGION PLANNING BOARD HELD AT 11.00 A.M. ON THE 4TH APRIL, 1988 IN THE OFFICE OF THE NATIONAL CAPITAL REGION PLANNING BOARD, NEW DELHI.

The following members were present :

1. Shri K. K. Bhatnagar, Member Secretary, NCR Planning Board - Chairman.

2. Shri R. L. Pardeep, Joint Secretary (UD), Ministry of Urban Development.

3. Shri S.M. Prasad, Dy.Director General (TP), Dept. of Telecommunications.

4. Shri S.M. Mittal, Executive Director (MTP), Ministry of Railways.

5. Shri P.B. Mathur, Commissioner & Secretary, Urban Development, Housing & LSG, Rajasthan.

6. Shri Om Kumar, Vice Chairman, Delhi Development Authority, New Delhi.

7. Shri Anil Razdan, Director, Town & Country Planning and Chief Administrator, HUDA, Government of Haryana.

8. Shri D.P. Gupta, Chief Engineer, Ministry of Surface Transport.

9. Shri J.P.Bhargave, Chief Town & Country Planner, U.P.

10. Shri C.S. Mehta, Chief Town Planner, Government of Rajasthan.

11. Shri B.N.Singh, Chief Regional Planner, NCR Planning Board, New Delhi.

Other participants :

1. Shri Shankar Aggarwal, Joint Secretary, Housing & Urban Development, Government of Uttar Pradesh.

2. Shri B.D. Gulati, Chief Coordinator Planner - NCR, Government of Haryana.

3. Shri G.D.Mathur, Commissioner Planning, Delhi Development Development Authority.

4. Shri J.C. Gambhir, Director (Planning), Delhi Development Authority

5. Shri T. Gupta, Dy. Chief Engineer (C), Norther Railway, New Delhi.

6. Shri D.S.Jain, Officer on Special Duty, NTP, New Delhi.

7. Shri R.S.Bhatia, AEU/NTP (R), Patel Nagar, New Delhi.

8. Shri R.K.Gupta, Director (TPS), Department of Telecommunications, Sanchar Bhawan, New Delhi.

Officers of the Board :

1. Shri S.Arunachalam, Senior Planning Enginner.

2. Shri R.P.Rastogi, Regional Planner.

3. Shri S.B.Verma, Associate Planner.

4. Shri V.K.Thakore, Senior Research Officer.

5. Shri Pran Nath, Deputy Director (Admn).

6. Shri K.L.Sachar, Finance & Accounts Officer.

7. Shri J.N.Barman, Assistant Town Planner.

8. Shri P.Jayapal, Assistant Town Planner.

9. Shri D.Madhu Babu, Assistant Town Planner.

10. Shri Man Mohan Singh, Research Officer.

AGENDA ITEM NO.1

Confirmation of the Minutes of the 12th meeting of the Planning Committee held on 16.12.1987.

The Member Secretary, welcoming the members to the 13th meeting of the Planning Committee said that the Chief Town Planner, Rajasthan had requested for inclusion of his views in the minutes relating to Jaipur as counter magnet area, population projection of the Rajasthan Sub-Region and inclusion of Kama, Deeg and Bharatpur tehsils in the NCR. The Member Secretary clarified that these matters were no doubt discussed in the meeting but since the minutes only contained a gist of the decisions arrived at after discussions, a mention of all the views expressed during the meeting was not possible. Shri P.B.Mathur, Commissioner and Secretary, Urban Development, Housing & LSG, Rajasthan, agreeing with the above views said that in view of the fact that the views of the State Government on these issues had been adequately reflected else where, they did not wish to press the point.

The minutes of the meeting were thereafter confirmed.

AGENDA ITEM NO.2

Review of the action taken on the 12th meeting of the Planning Committee.

The Member Secretary briefly explained the various actions taken on the decisions at the 12th meeting of the Planning Committee. With regard to action on Agenda Item No.5 relating to staffing pattern for Planning Cells in the participating States, the Member Secretary informed the members that a uniform staffing pattern for Planning Cell had been evolved and its composition communicated to the participating States. In this context, Shri Gambhir of DDA observed that the communication had not been received by DDA.The Member Secretary stated that the position in regard to preparation of the Sub-regional Plan for the Delhi UT was not clear, and it was proposed to make a reference to the Chief Secretary, Delhi Administration to ascertain the agency which shall be responsible for preparing the sub-regional plan for Delhi. The Vice-Chairman, DDA felt that the DDA could be the agency to do it and the Delhi Master Plan could be considered as the Sub-regional Plan for the Delhi UT. Shri B.N.Singh, Chief Regional Planner held that the Delhi Master Plan could not be taken as a Sub Regional Plan since it did not cover various aspects required to be included in the Sub-regional plan under the NCR Planning Board Act. The Member Secretary clarified that, the Ministry of Urban Development also held that the Delhi Master Plan could not be considered as the Sub-regional Plan for the Delhi UT as it had been prepared under another Act. He added that he would write to the Chief Secretary, Delhi Administration in this regard.

AGENDA ITEM NO. 3

Creation of a separate fund for NCR Schemes by implementing agencies.

The Member Secretary gave a genesis of the proposals in the Agenda item regarding creation of a Revolving Fund out of the financial assistance being made for implementation of the NCR Projects to the participating States by the NCR Planning Board. He explained that the Planning Commission had often raised the issue of utilisation of the funds released by the NCR Planning Board and wanted that these funds should act as seed funds and the income generated out of them should be ploughed back in other schemes. Shri Anil Razdan, Director, Town & Country Planning and Chief Administrator, HUDA felt that the NCR funds being too meagre would not serve the purpose of creation of a revolving fund. The State Governments were not in a position to know in advance the likely funds to be made available for implementation of NCR Schemes during their Annual Plan exercises. He felt that unless substantial contributions were assured from the NCR Planning Board and that too the amount was declared in advance, it did not appear feasible either for creation of a revolving fund or for maintaining separate account.

Shri Shankar Aggarwal, Joint Secretary, Housing & U.D. Department, Government of U.P. supported the creation of a separate fund. He further advocated that since the funds from the NCR Planning Board were limited, the State Government should set aside funds for the NCR under various development sectors.

The Member Secretary clarified that the proposal in the Agenda Item was restricted only to the maintenance of separate account for Receipts and Expenditure out of the funds sanctioned by the NCR Planning Board. He said that though the amount being sanctioned to the State Government was meagre at present, there was every chance of stepping up the Plan Outlay for the NCR during the Eighth Five Year Plan. He, therefore, felt that a system should be introduced right from the very beginning by all the implementing agencies despite the meagre availability of funds at present.

Shri Om Kumar, Vice Chairman, DDA explained the concept of the revolving fund being operated by the DDA at present. Shri Anil Razdan stated that the HUDA was working on "no profit no loss basis" and he was of the opinion that the system might not lead to creation of revolving fund in Haryana. Shri J.P.Bhargava, Chief Town & Country Planner, U.P. agreed with the need for maintaining separate accounts observing that the modality could be worked out separately, and he could see no difficulty in maintenance of such separate accounts.

Shri C.S.Mehta, Chief Town Planner, Rajasthan cited the example of maintenance of separate accounts for implementation by IDSMT schemes and supported the need for separate accounts.

The Planning Committee, after hearing the views of the participating States approved the proposal in principle. It was further decided that the detailed guidelines should be separabtely prepared in consultation with the participating states.

AGENDA ITEM NO. 4

Inclusion of Kama, Deeg and Bharatpur tehsils of Rajasthan in the National Capital Region

The Member Secretary, giving the background of the proposed Agenda Item, stated that the Rajasthan State had been pressing for inclusion of these areas in the NCR for quite sometime. The State Government had also forwarded this as a suggestion on the Draft Regional Plan - 2001 for consideration by the Board. He stated that after the Planning Committee had deliberated on this proposal, the recommendation of the Planning Committee would be placed before the Planning Board for its consideration, and if agreed to by the Board, the Central Government might take further action under Section 2 (f) of the NCR Planning Board Act.

Shri C.S.Mehta, Chief Town Planner, Rajasthan explained that earlier delineation of the Region based on data of 1961 Census did not hold good as had been demonstrated by the findings of the study carried out now. He explained at length the findings of the study which he said amply justified the inclusion of these tehsils in the NCR. Shri Anil Razdan, reacting on the findings of the study said that if the criteria were based on 1981 data, then as many as 15 tehsils of Haryana State would qualify for inclusion in the NCR and he, therefore, pressed that the additional areas which satisfied the criteria based on the data of 1981 Census be included in the NCR.

Shri S.M.Prasad, Dy. Director General (TP), Department of Communications stated that, by the end of the Seventh Plan, all District Headquarters would have been connected with telecommunication facilities whereas Eighth Plan might have a target of connecting all the Sub-divisional Headquarters with the telecommunication facilities and, therefore, the earlier criteria might have to be drastically revised.

Shri G.D.Mathur, Commissioner Planning, DDA felt that inclusion of some part of a State on the basis of a limited study could not be justified since this was a major planning exercise and, all the constituent States should be considered for this purpose. Shri Mathur also felt that after 20 long years, the Draft Regional Plan with a statutory backing for the NCR had been prepared, put to public objections and was at the stage of finalisation, and if at this stage, the boundaries were revised, the entire exercise would be adversely affected.

Shri Razdan, agreeing with the above views held that the proposal of inclusion of certain areas in the NCR should be deferred also for the reasons of availability ofinadequate funds today Shri Shankar Aggarwal and Shri J.P.Bhargava also endorsed the views of Shri Anil Razdan.

The Member Secretary clarified that there was no proposal of other States except Rajasthan for inclusion of the areas in the NCR before the Board and therefore, the Planning Committee had to make recommendations only with regard to proposals pending before it. He further said that the earlier exercise done by the TCPO had initially taken into consideration Kama, Deeg tehsils but in its final selection, these areas had been left out and as such it had a justification for its consideration for inclusion.

Shri P.B.Mathur, Secretary, Rajasthan felt that inclusion of the above 3 tehsils of Rajasthan would not affect the Plan while Shri J.P.Bhargave strongly felt that it would affect the plan in so far as landuse, population distribution, settlement system and transport linkages etc. were concerned.

Shri R.L.Pardeep, Joint Secretary (UD) giving the background stated that even before the constitution of the Board, the matter had been raised by the Rajasthan Government. He felt

that, at this juncture when the plan was being finalised and there was serious resource crunch for implementation of the NCR Plan, inclusion of a part of the one State would lead to similar claims by the other participating States and therefore, the matter should be deferred and the Regional Plan finalised with the existing boundaries.

The Member Secretary concluded that, this excercise should not in any case be allowed to interfere with the finalisation of the Regional Plan. He concluded by stating that the Committee had discussed at length the various views raised by the members, and the matter would be considered subsequently in the light of those views.

AGENDA ITEM NO.5

Note on creation of an electricity agency for NCR

The Member Secretary gave in brief the views of the Department of Power, Ministry of Energy stating that constitution of a statutory authority would not be possible in the context of the provisions of the Electricity (Supply) Act, 1948. Therefore, in case of an increased allocation of power, there was a need for a coordinating body to ensure allocation of extra power to the NCR States with proper coordination with the State Electricity Boards.

Shri P.B.Mathur felt that since no statutory body could be constituted under the Act, no useful purpose would be served by creation of a super body in the form of a Coordination Committee. However, Shri Anil Razdan was of the view that such a Committee could be justified to ensure equitable distribution of power in the NCR States. The Vice-Chairman , D.D.A was of the same view.

After consideration it was agreed that such a coordinating body would be useful in the case of additional allocation of power so that it was utilised only in the N.C.R.

AGENDA ITEM NO.6

Draft of the Regional Plan 2001 for the National Capital Region

The Member Secretary stated that the present draft included 3 new Chapters on Policy Zones, Rural Development and Shelter and, the arrangements of its presentation had been slightly modified with the tables having been put at the end of the report. It was earlier intended that the NCR Planning Board would consider the comments of the Planning Committee on the objections/suggestions received on the Draft Regional Plan in its 7th meeting held on January 20, 1988 but, unfortunately the

meeting could not deliberate due to the sad demise of Khan Abdul Ghaffar Khan. It was, therefore, thought to prepare the Draft Report for consideration by the Planning Committee to enable the Board to consider the comments on the objections and suggestions received on the Plan along with the revised version of the Draft in its next meeting which might be convened in May or June, 1988. He added that this did not include some of the recommendations which would emerge when the Board would consider them for its decision. The Chapter relating to Counter Magnet areas would be finalisesd after discussion with the States. In fact, the report on the Towns' Profile had already been sent to U.P., Haryana and Madhya Pradesh while the reports to Rajasthan and Punjab would be sent shortly. The Member Secretary also sought the views of the members to print the final report by including Hindi version either by printing both the versions-English and Hindi on the same page in two columes, or Hindi version on one side, and English on the other. The Members appreciating the draft brought out in a short period said that it would be better to print Hindi version on one page and English version on the other page. However, since the time available for them to go through the draft had been limited, they suggested that another meeting should be held in May, 1988,to consider the views of the members. It was accordingly decided that additional five copies would be sent to each of the participating States and DDA/Delhi Administration to enable them to send their views by 25th April,1988 and the meeting might be held to consider the same sometime by mid-May, 1988.

The meeting ended with a Vote of Thanks to the Chair.

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No. K-14011/2/87-NCRPB(13th)
National Capital Region Planning Board
7th Floor, 'B' Wing,
IOC Bhawan, Janpath,
New Delhi-110001.

Dated, the 12th April, 1988

Copy forwarded to all Members of the Planning Committee and all the participants in the meeting for appropriate action.

(B. N Singh)
Chief Regional Planner
and
Member-Convenor

APPROVED IN 13th PLANNING COMMITTEE MEETING HELD ON 4th APRIL, 1988.

DRAFT FOR DISCUSSION

REGIONAL PLAN 2001

NATIONAL CAPITAL REGION

NATIONAL CAPITAL REGION PLANNING BOARD
MINISTRY OF URBAN DEVELOPMENT GOVERNMENT OF INDIA
MARCH 1988

CONTENTS

INTRODUCTION

1. Delhi, the National Capital has been facing unprecedented growth and this unfettered growth has been a cause of serious concern to the Central Government, which has recognised that the planned growth of Delhi is possible only in a regional context. In fact the need for regional approach was felt as early as 1959 when the draft Master Plan for Delhi was prepared. Thereafter, the Master Plan of 1962 recommended that a statutory National Capital Region Planning Board should be set up for ensuring balanced and harmonised development of the Region. The setting up of the statutory Board in 1985 and the publication of the Draft Regional Plan in August, 1987 are the major steps now culminating in coming into the operation of the first statutory Regional Plan - 2001 for the National Capital Region.

2. Delhi is besieged by a host of serious problems today. The gap in availability of essential services like water supply, power, transport and management of solid waste is continuously increasing. The problem is being further aggravated due to increasing inmigration. In our democratic system, migrants do not feel bound by physical boundaries of the States while our administrative, development planning and resource allocation system operates within the limits of territorial boundaries. The operation of this system, therefore, on the one hand has manifested in increasing congestion in Delhi and, on the other, acted as an obstacle in the integrated and balanced development of the Region without any regard to the physical boundaries. The enactment of the National Capital Region Planning Board Act, 1985 with the consent of the participating States and the adoption of the Regional Plan by them is a realisation of this reality. Consequently, the Plan has suggested policies and measures which would help in achieving the objective of the planned development of Delhi in its regional context.

3. The genesis of Delhi's growth lies in its rapid urbanisation and its ability to offer wide opportunities for large scale employment through specialisation and increased productivity in manufacturing and supporting services. Till 1951, Delhi was essentially an administrative centre with a population of 14.5 lakhs but, the expansion of industry, trade and commerce providing opportunities for economic development, in turn, began to transform its character from an administrative city to a multifunctional city and exhibited a significant

functional shift to industrial character in 1981 when its population size became 57.3 lakhs recording a growth of about 300% since 1951. The faster the pace of economic growth, unprecedentedly rapid has been the concentration of population in the metropolis.

4. This pheonomenal growth of population is due to increasing inmigration with about 1.50 lakh migrants a year coming to Delhi in search of employment during 1971-81. Today Delhi acts as a powerful job magnet at the national level. This has drawn job aspirants from far and wide but more particularly from the neighbouring States. Though in the developing world, there are examples of cities growing at faster rate than Delhi, but as Delhi grows, the more complex become its problems of land, housing, transportation and management of essential infrastructure like water and sewerage, insufficient community facilities, woeful inadequacy of public transport, unauthorised and uncontrolled use of land resulting in blight, deterioration of environment and poor quality of life. The inadequacies are manifested in the recent water crisis. The city lacks reliable and adequate sources of water and thus has to depend upon the adjoining States to meet its water supply requirements. Delhi is a Union Territory occupying barely 1483 sq km of land. The physical expansion of Delhi due to spread of urbanisation in the last decade claimed about 40% of the total Territory area in 1981, compared to about 30% in 1971.

5. The Master Plan for Delhi had initially assigned urban Delhi's population as 46 lakhs in 1981 against the trend based projections of 53 lakhs through a policy of diverting 7 lakhs to the 'ring' towns. Subsequently, this figure was revised to 53 lakhs. The 1981 Census, however, revealed a population of 57.3 lakhs. In other words, Delhi's growth has taken place at a much faster rate than anticipated. Worse still, the population of ring towns grew by 567% during this period. Given constraints in water, power and transportation on the one hand and the image of the Capital on the other, 447.77 sq km of urbanisable area of Delhi could accommodate 82 lakhs people against the 46 lakhs for which it was planned. In 1981, the city had 11.3 lakhs more population than what was envisaged at the start of the Plan and, 4.3 lakhs more than the revised capacity of 53 lakhs in 1976.

6. Whether economic and demographic concentration in Delhi has already reached a point at which the social cost of agglomeration exceeds the benefits, cannot be proved conclusively, but it is clear that if this threshold has not yet been reached, it is likely to be reached in a relatively near future.

It is also clear that alternatives to the further growth of Delhi should be identified on a basis which is consistent with the objectives of national economic growth and social development. The solution may lie in making investments in selected settlements outside the metropolis steering in space and time at appropriate distances and also, in impulse sectors to relieve the Notional Capital suffering from the pressures within a reasonable future. Inspite of the awareness of the pressures being exerted in the Capital, for over two decades, we have failed to remodel the pattern of development from a mono-nodal towards a poly-nodal pattern. Today, the Government has an obligation to create a pattern of development on as big a scale as possible and, as soon as possible. Policies must define dynamic action and, be dynamic in content. We need, therefore, development policies, programmes and plans aiming to :

- relieve the Capital city from additional pressures,
- avoid adding new pressures on to the Capital, and
- remodel the pattern of settlements in the National Capital Region to enable them to play their predestined role.

The Regional Plan 2001 incorporates inter-related policy framework for the achievement of these objectives.

Provision of transport and communications infrastructure is crucial to increasing the growth potential of every part of the Region. By improving comparative advantages of the Sub-regions, direct spatial policies can contribute substantially to the process of re-direction of migrants flow away from the Capital city. Great attention must, therefore, be paid to the development of priority towns located in the transport corridors, to channelise the growth in the National Capital Region.

7. The Regional Plan was preceded by the Draft Plan as provided in Section 10 of the NCR Planning Board Act, 1985. The Draft Regional Plan was prepared on the basis of expert studies and with the help of extensive deliberations with the concerned Central agencies and the State Governments. The Draft Regional Plan prepared by the Board on the basis of above findings was approved by the Board in its meeting held on the 21st July, 1987. As per the provisions of the NCR Planning Board Act, a Draft Regional Plan was published for inviting objections and suggestions from the public, Central and State Governments, local bodies and individuals on the 14th August, 1987. In all, 37

objections and suggestions on various aspects of planning including policies contained in the Draft Regional Plan were received. After thorough scrutiny and consideration of the objections and suggestions by the Planning Committee in two meetings on the 19th November, 1987 and the 16th December, 1987, the Committee offered its valuable comments and observations for the consideration of the Board. The Regional Plan 2001 has been approved by the Board on ..... after consideration of objections and suggestions received as a reaction to the Draft Plan.

8. The National Capital Region Planning Board Act envisages, formulation of an hierarchy of plans for the purpose of enforcement of the statutory regional plan for the NCR. These plans include functional plans to elaborate one or more elements by the Board and sub-regional plans for the respective Sub-regions by the participating States within the framework of the Regional Plan. The Board would also cause preparation of project plans by the participating States and also the Central Ministries within the framework of long term investment plan broken up into five years coinciding with the national Five Year Plan periods and annual investment plans. The projects would include comprehensive programmes aimed at induced growth, provision of infrastructure, employment generating activies etc. in the development of priority areas. While physical infrastructure will be an important component of the projects, equal attention will be given also to provision of social facilities such as education and health and, improvement of income distribution. The technical and financial viability of the projects would be analysed to ensure that the projects contribute substantially to meet the development objectives of the NCR.

The functional plans, sub-regional plans and project plans together shall culminate into a set of precise and time bound programmes to ensure a balanced and harmonious development of the National Capital Region.

9. The financing of the NCR Development Plan has attracted considerable attention in the Parliament, press and several non official forums. Serious concern has been expressed at the availability of meagre resources during the 7th Plan. The concern gets aggravated due to the fact that time shall be of great essence if any dent has to be made in the problems being created at Delhi and investments made now may start yielding results only after a few years. At the same time, allocation of major chunk of resources during the currency of a plan, particularly in a situation of alround shortage of resources, was a very

difficult proposition. It is, however, quite clear that unless the Central Government takes the lead in the provision of finances, as it has done in the setting up of the Board and making it functional, there is little hope for the implementation of the Plan. The Central Government also should assume responsibility of providing adequate power to the priority towns of the NCR, as in the case of Delhi, so that they could become alternative sources of substantial employment generating activities.

* * * * *

1

NATIONAL CAPITAL REGION

1.1 Physical Setting

The National Capital Region covers an area of 30,242 sq km and lies between 27 18'and 29 29' north latitude and 76 09'and 78 29' east longitude. The Region includes the Union Territory of Delhi and parts of the States of Haryana, Rajasthan and Uttar Pradesh. The physiography of the Region is characterised by the presence of the Ganga skirting it as its eastern boundary, the Yamuna traversing it north-south forming the boundary between Uttar Pradesh and Haryana, and the sand dunes and barren low hills of the Aravalli chain and its outcrops in the west, flat topped prominent and precipitous hills of the Aravalli range enclosing fertile valleys and high table lands in the south-west, and the rolling plains dominated by rainfed torrents in the south. The rest of the Region is plain with a general slope of north-east to south and south-west.

1.2 Constituents of the NCR

The administrative units and their areal extent are (Fig. 1) :

a. Union Territory of Delhi (1,483 sq km).

b. Haryana Sub-region (13,413 sq km) comprising Faridabad, Gurgaon, Rohtak and Sonepat districts; Rewari and Bawal tehsils of Mahendragarh district, and Panipat tehsil of Karnal district. This accounts for 30.33% of the area of the State.

c. Rajasthan Sub-region (4,493 sq km) comprising six tehsils of Alwar district, namely, Alwar, Ramgarh, Behror, Mandawar, Kishangarh and Tijara. The area is 1.31% of the total area of the State.

d. Uttar Pradesh Sub-region (10,853 sq km) comprising three districts namely, Meerut, Ghaziabad and Bulandshahr. About 3.68% of the area of Uttar Pradesh is under the Region.

Figure – 1:


NCR: CONSTITUENT AREAS
Panipat
Gohana
Ganaur
Sardhana
Mawana
SONIPAT
MEERUT
Baghpat
Maham
ROHTAK
Garhmukteshwar
HARYANA
Hapur
Bahadurgarh
GHAZIABAD
DELHI
UTTAR
Jhajjar
Dadri
PRADESH
Sikandrabad
GURGAON
BULANDSHAHR
FARIDABAD
Anupshahr
Pataudi
Khurja
Rewari
Palwal
Nuh
Bawal
Hattin
Bahror
Mandawar
Tijara
Kishangarh
Ferozepur Jhirka
ALWAR
Ramgarh
RAJASTHAN
NCR BOUNDARY
STATE BOUNDARY
DISTRICT BOUNDARY
TEHSIL BOUNDARY

1.3 Morphology

Morphologically, the National Capital Region can be divided into :

a. The Ganga - Yamuna Doab,,

b. Area West of Yamuna- the alluvial plains and extension of the Aravallis and the sandy region.

a. The Ganga-Yamuna Doab : This seemingly featureless plain lacks topographic prominences and,the monotony of the physical landscape is broken at places by the river channels. The Region is covered by new alluvium (Khader) and older alluvium (Bhangar). Bhangar is found all over the 'doab' while there are finger like extensions of 'Khader' along the main streams. Due to the presence of fertile soil, level land and canal irrigation, the area .is intensively cultivated and, supports a high density of population.

b. Area West of Yamuna : The slope of the alluvial plains from the Siwaliks is towards the south and south west upto the Najafgarh drain, and then towards the north. North of Delhi, the old high bank of the Yamuna forms the summit level of the plain. In the extreme south of these plains are the outliers of the Aravallis which are intensely folded and eroded. One arm of the Aravallis forms a continuous range terminating in Delhi and, in between, there are only low hills to the west of Bawal and Rewari towns. The Aravallis are quartzite rocks, with numerous ravines on the western slope, densely forested in some areas and bare in the other. North of the Aravalli extensions, the whole tract is traversed by a number of sand ridges which mostly run north-south and form higher prominences in the physical landscape.

1.4 Hydrology

The Region in general is a part of the well integrated drainage system of the Ganga. Almost, all streams generally follow north, south, east course concomitant with the slope of the land. The extremely gentle gradient almost all over the Region restricts the degradational activities of the streams. Wide floodplains and high banks are common features in the course of the Ganga and the Yamuna, alongwith silt and clay deposits. The canal system primarily to irrigate the doab area, has been aligned between the four rivers of the area.

The main river of the alluvial plain is the Yamuna. The only major river in the extension of the Aravallis and the sandy region is the Sahibi, which flows in a south-west-north-east direction. It is ephemeral and ends up in the sandy region of Haryana, but sometimes during heavy monsoons, it drains into the Najafgarh depression and joins the Yamuna. The outliers of the Aravallis also have numerous seasonal streams which erode the bare rocks giving rise to ravines, which are more on the western side. In the depressions of the rocky area, water stagnates resulting in the formation of lakes.

1.5 Resources

(i) Human : As of 1981, the Region accommodated a total population of 191.92 lacs in 94 urban settlements and 6677 villages. Of the total population, as much as 36% was in the Uttar Pradesh Sub-region followed by 32% in the Delhi UT,26% in the Haryana Sub-region and 6% in the Rajasthan Sub-region.

The urban component of the population was 91 lacs accounting for 47.4% of the total population and, the rest nearly 101 lacs lived in rural areas. The density of population in the Region was 634 persons per sq km against the all India average of 221 in 1981. Of the constituents, Delhi UT has the highest concentration of 4192 persons per sq km followed but distantly by the U.P. Sub-region with 642. In regard to male-female ratio, Delhi UT is the least balanced with 808 females for 1000 males against the Region's average of 840 and against India's 934. The work force participation ratio in the Region was 28.69% with a maximum of 31.93% in Delhi UT in 1981.

(ii) Water : The Region is endowed with adequate water resources. The main sources of surface water supply in the Region are the rivers, canals and lakes. The rivers Yamuna and Ganga meet bulk of the water requirements. The other important rivers are the Hindon, the Kali and the Sahibi. Various canals which irrigate lands are: the Eastern and Western Yamuna canals, the Upper Ganga canal, the Agra canal and the Jawahar Lal Nehru Canal. The prominent lakes in the Region are the Siliserh,Kaduki, Badkal and Surajkund.

Ground water resource is mainly controlled by geology and precipitation in the area. 85% of the annual precipitation occurs during monsoon months. The rainfall ranges between less than 50 cm in south west to more than 75 cm in the north and north east, it is about 180 cm around Delhi UT.

Geologically, the quarternary alluvium is the most favourable lithology for the aquifer systems. The southern portion of the NCR has precambrian Delhi group of rocks and,the older alluvium increases in general from east to west. The general water table ranges between 6 to 15 metres below the ground level. Most of the borewell water comes from aquifers. Howevers, there are two to five confined aquifer systems with great water potential. These systems go up to a depth of 230 metres and, most of the tubewells are dug into these systems. The recharge of these systems is mainly through rivers and precipitation. The ground water quality varies from place to place depending on the local geological setting.

(iii) Soil : The Region basically has alluvial soils ranging between hard clay-clayey, loam-sandy loam and sandy soils. Based on the morpholocigal setting such as nearness to the riverine track, fertility, etc. there are certain local names given to these soils viz. khadar, dadar, bhur, reh, etc. There are alkaline and saline soils which occur as patches particularly near the canals.

In Alwar district of Rajasthan Sub-region, there are three different types of soils viz, (a) loam soil- in parts of Alwar and Behror tehsils, (b) sandy soils- in Tijara, Behror, Mandawar and Kishangarh tehsils- these are less fertile owing to their moisture retaining capacity and, (c) clay-loamy in low lying tracks such as beds of tanks in Ramgarh and Alwar tehsils. The Uttar Pradesh Sub-region has rich loamy soils which are very fertile. However, in Bulandshahr and Khurja region, there are certain 'usar'or sandy soils which are barren. The Meerut and Ghaziabad districts are mainly covered by older alluvium with occasional alkaline efforescences. The soils very close to the rivers Yamuna and Ganga are sandy in nature. In the Haryana Sub-region, there are alluvial soils which range between totally sandy to loamy and clayey soils. Hard clays and sandy soils are not very fertile. Hard clay soils are predominant in Gurgaon district. Sandy soils dominate in Jhajjar area. Saline encrustations and water logging are the main problems of the area. The soils in Faridabad, Rohtak, Sonepat and Panipat are fertile sandy loams and light coloured alluvial tracts. However, these soils are deficient in nitrogen and organic matter. In Delhi U.T., the soils are described as (a) Khader (low lying strip alnog the Yamuna) - a fertile silty loam; (b) Bangar (old alluvium) in north western portion of Delhi, fertile soils with high moisture holding capacity; (c) Dabar tract (of low lying areas) mainly

saline and alkaline with low fertility (West of Yamuna) (d) Kohi tract (hilly) - sandy loams which are less fertile.

(iv) Forests : On account of pressure of population and extensive cultivation, very little has been left of the natural vegetation. The study based on satellite imageries reveals that only 1.2% of area of the Region is under forest cover. The forest cover is of "tropical thorn type" ranging from open shunted forests to xerophytic bushes occuring both on plains and hills. The common tree types are acacias, khair, dhak, kikar and babul. The forest in NCR is important more as a source of fuel and fodder than as timber.

In the Rajasthan Sub-region, the forest cover is about 4.3%, mostly accounted by hill forests of Alwar and Behror tehsils. The forests are mainly "dry deciduous type" with dominant tree types being 'Kikar'and 'Dhak'. Other tehsils have only shrub vegetation. The hill forests of Alwar and Behror have been classified as reserved and protected forests. The forest cover on the hills could be described as dense or sparse. The dense forests are confined to narrow valleys in the hills where there is sufficient supply of water. The upper areas of the hills support only thorny shrub type forests (sparse) with occasional big trees. Sariska Wild Life Life Sanctuary covering an area of 492 sq km is located in the dense forest of Alwar tehsil.

In the Uttar Pradesh Sub-region, forests account for only 1% of the area. This again is due to extensive use of land for cultivation. This area has dry deciduous forests. The dominant trees are Sal, Shisam and Teak. In the drier parts, the forests are of thorny type.

The Haryana Sub-region accounts for the least amount of forest cover. Most of this forest cover is concentrated in Gurgaon district. 'Khair' and 'Dhak' form the important tree species in the Aravalli hills. The other forest cover is mainly in the form of orchards in the plains. Sultanpur Bird Sanctuary over an area of about 117 hectares is located near Gurgaon.

In the Delhi U.T., owing to low rainfall and the gravelly substratum, the upper strata of the soil does not support any dense perennial vegetation. The forest cover of 1.8% is mainly due to the forest on the ridge and other recreational areas in Delhi urban area.

(v) Minerals : The mineral wealth in the Region is very limited and is restricted to constructional materials. The major mineral deposits

of the Region are the china clay with a reserve of 7.54 million tonnes occurring mainly in Delhi and Gurgaon; and the quartz with a reserve of 15.32 million tonnes occurring mainly in Faridabad and Gurgaon, copper is occurring in Alwar with a reserve of 0.91 million tonnes. The major mineral deposits in Alwar district are barytes, quartz, calcite, soap stone, copper, china clay and silica sand.

The annual production of all the minerals and mines in the Region in 1986 was of the order of 4.7 lac tonnes. The other minor mineral deposits are asbestos, china clay felspar, fire clay, soap stone and quartz. In the Uttar Pradesh there are no notable mineral deposts. China clay (kaolin), silica sand and fire clay deposits occur in Faridabad district. Gurgaon contributes silica and kaolin. Occurence of slate deposts is reported from Rewari tehsil. Rohtak, Sonepat and Panipat areas do not have any mineral deposits of economic importance. In Delhi UT china clay, silica and quartzite are available.

* * * * *

2

POLICY ZONES

1. Delhi has been experiencing enormous growth of population since Independence. The partition of the country in 1947 brought over-night nearly 5 lakh people to Delhi swelling the population size of Delhi to almost double its size. Though the services were inadequate and strained beyond their capacity, the Government and the local administration sought a large number of options in the form of industries, trade activities and other economic opportunities in order to absorb the additional population to find means of livelihood. This trend emerged into an encouragement from all quarters which continued for years resulting in large scale proliferation of economic activities in petty, retail and wholesale trades, industries of all categories and informal sector activities. These activities over years out of sheer necessity or otherwise started mushrooming all over the city and assumed large proportions. Gradually these economic opportunities became recognised for which all infrastructural facilities were created and encouraged by the Government/local bodies to serve not only the Delhi population but also the regional needs. Since there was no discernable restrictions on their expansion, the entrepreneurs made use of the opportunities to boost them into big trade and industrial establishments which took stable and strong base in Delhi attracting more labour from the adjoining States and also from the far off places. It took years for the Government and Local Bodies to recognise the mounting pressure on the essential services of Delhi leading to a realisation that it would only be proper to restrict its growth lest it would lead to explosive and unmanageable situation in the foreseeable future.

2. With this recognition as back as 1962, the Master Plan for Delhi recommended to divert the potential migrants to Delhi to ring towns around the Delhi UT such as Faridabad, Ballabhgarh, Gurgaon, Bahadurgarh and Ghaziabad and also Narela in Delhi UT creating there adequate employment opportunities with appropriate infrastructural facilities particularly for establishment of industries and related activities. Backed with the support of the concerned State Governments, these "ring towns" grew in leaps and bounds registering much faster growth rate than the National Capital itself. Between 1951-81, Faridabad registered a growth of 774%, Gurgaon 380% and Ghaziabad 567% against the Delhi's 300%. The "ring towns" subsequently became to be known as Delhi Metropolitan Area with Delhi as core and, has become more and more

attractive for development of industries mainly due to nearness to Delhi with marketing and other supportive facilities and the policies of the State Governments. The development has become intensive particularly along the major transport corridors which led to the form of ribbon development all along transport routes lacking in adequate infrastructural facilities and also shelter.

3. Delhi being limited in its territorial extent and as opposed to it the ring towns having relatively extensive areas for expansion, the unabated pouring of migrants into Delhi brought in manifold problems in the form of congestion and inadequacy of the basic services. This was accentuated, as the ring towns were developed for industries and allied activities but not with adequate residential development. During 1961-81, the influx of migrants into Delhi was about 53000 a year which jumped to 1.23 lakhs a year during 1971-81. In addition, daily 3.06 lakh people commute between Delhi and the DMA towns of which nearly 1.5 lakhs commute to Delhi from the DMA towns as of 1987. The green belt around Delhi of the 1962 Master Plan has slowly vanished leading to a contiguous sprawl of the metropolis engulfing the then ring towns which form the present Delhi Metropolitan Area.

4. The inter-action between Delhi and the adjoining towns within the Delhi Metropolitan Area has become more and more intensive resulting in increasing inter-dependence with each other. The services both economic and social and also job opportunities to a great extent serve the floating population from the DMA towns and the migrants. A study of population, density, growth and the problems of services of Delhi and the towns around shows marked characterstics leading to clear identification of Delhi UT and the other towns within Delhi Metropolitan Area as two distinct zones. The areas beyond the DMA upto the NCR boundary which is pre-dominantly rural and relatively industrially backward recording slower growth and depending for higher level facilities on the DMA towns specifically Delhi stands out as the third zone distincti - ly different from the other two.

5. The prime objective of the Regional Plan is to contain Delhi's population size within manageable limits atleast by the turn of the Century. As a strategy, after evaluating various alternative scenarios for development, it has been realised and recognised that, in order to save Delhi from population explosion,it is necessary to moderate growth in the areas around it. At the same time,it is also recognised that any additional population in the DMA towns excluding Delhi will not to any extent moderate

or reduce the problems of Delhi as their inter-dependence is intensive and necessarily mutual. The preliminary studies clearly concluded that economic activities with potential for large scale employment should necessarily be located outside the DMA preferably at a distance which discourages daily interaction with Delhi. Thus on the basis of this criteria, the zones which came out distinctly are the Delhi UT, the DMA excluding Delhi UT and the area beyond DMA within NCR for effective application of the policies and implementation of proposals with a view to achieve a manageable Delhi and an harmoniously developed Region.

These Policy Zones are described briefly as follows (Fig. 2) :

I. Delhi U.T.

Delhi UT covers a total area of 1483 sq km of which 40% had been urbanised and the remaining 60% area was spread over 231(habitated 214) rural settlements. The urban area is spread over in the 6 settlements containing 57.68 lakh population of which Delhi urban agglomeration is the dominant as indicated below:

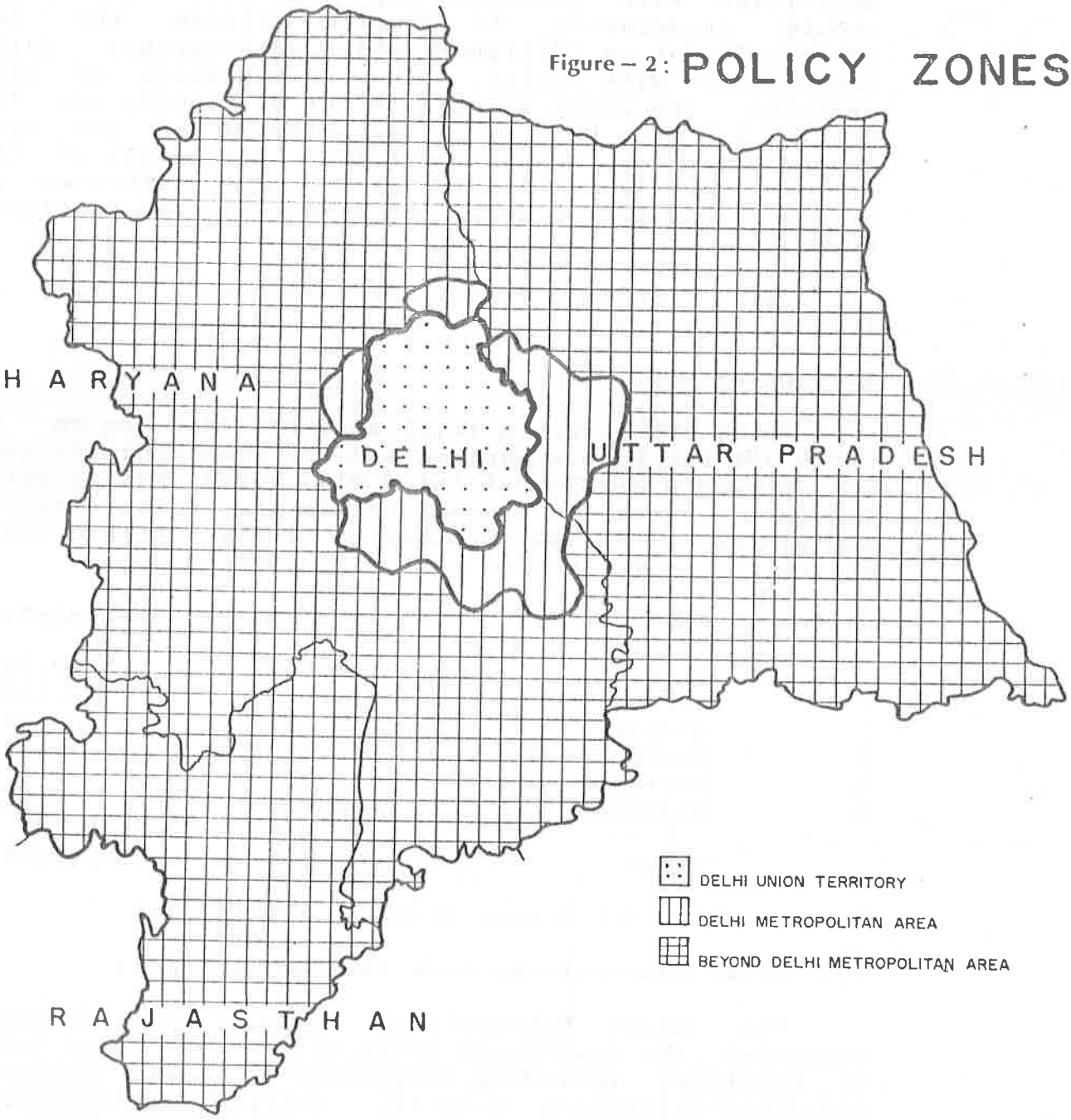
Sl No.	Towns	Area (sq km)	Population
1.	Delhi U.A.	540.74	57,29,283
2.	Bawana	17.00	12,637
3.	Alipur	8.56	6,735
4.	Pooth Khurd	10.00	7,145
5.	Pehladpur Bangar	4.68	5,011
6.	Bijwasan	10.90	7,389
	Total	591.88	57,68,200

Source : District Census Handbook - Delhi 1981

II. Delhi Metropolitan Area (Excluding Delhi)

The Delhi Metropolitan Area, as envisaged comprises the controlled areas of the contiguous towns of Ghaziabad including Loni-NOIDA in Uttar Pradesh, Faridabad-Ballabgarh Complex, Gurgaon, Bahadurgarh, Kundli and the extension of Delhi ridge in Haryana. The total area of DMA excluding Delhi is about 1696 sq.km (Table 2.1) and population of 8.08 lakhs in 1981 with a density of 476 persons per sq km. This is based on the report of the Sub-Group on DMA constituted by the Ministry of Urban Development in 1982 for the co-ordinated development of Delhi and its peripheral areas. The NCR Planning Board is in the process of finalising the exact boundaries of the DMA based on the administrative units i.e. villages or other established

Figure – 2 : POLICY ZONES



features in colloboration with participating States. These boundaries are likely to contain about 400 villages in DMA besides 8 urban centres.

III. Rest of NCR

The rest of the NCR comprises an area of 27061 sq km and is predominantly rural in character and contain 80 urban centres and 6046 villages. The population growth rate of towns in the NCR area beyond DMA has been generally lower than the national urban average during the last decade (1971-81). This zone has seven class-I cities of which 3 each are in U.P. and 3 in Haryana and one in Rajasthan.

3

DEMOGRAPHIC PROFILE 1981 - 2001

3.1 Background

A significant facet of Indian Urbanisation has been greater concentration of population in metropolitan cities, specially in the recent years. The 12 metropolitan cities as of 1981, alone accounted for more than one fourth of the total urban population. Even among metropolitan cities, the growth of Delhi has been unique in that, it has been constantly growing at a decadal growth rate of more than 50% since 1951. During 1971-81, Delhi registered 57% growth while Bombay (38.2%), Madras (35.3%) and Calcutta (30.8%) grew comparatively at a much slower rate.

i) Population distribution

The National Capital Region had a total population of 191.92 lakhs in 1981. The Sub-regions of Delhi UT, Haryana, Rajasthan and Uttar Pradesh accommodated 32.41%, 25.74%, 5.54%, and 36.31% of the total population respectively. Of the total population, 100.94 lakhs (53.60%) was rural, the Sub-region wise rural component being 49.73% in Uttar Pradesh, 36.97% in Haryana, 8.82% in Rajasthan and 4.48% in Delhi UT Sub-regions. The rural population proportion of the NCR has registered a fall from 65.31% in 1961 to 60.72% in 1971 and 52.60% in 1981. Of the 91 lakhs urban population of the Region, Delhi UT had 63.40%, Uttar Pradesh 21.42%, Haryana 23.27% and the Rajasthan Sub-regions 1.91% in 1981.

With its metropolitan core, the Region had a population density of 634 persons/sq.km. against the all India average of 221 in 1981. Of the constituents of the Region, Delhi had the highest density with 4192 followed but distantly by the Uttar Pradesh Sub-region with 642, Haryana Sub-region with 368 and Rajasthan Sub-region 238. Excluding the Delhi UT, the density of the Region was 451 in 1981.

ii) Growth trend of population

a) Total Population : Population of the NCR has swelled to 191.92 lakhs in 1981 from 140.60 lakhs in 1971 and 105.80 lakhs in 1961, thus registering a growth rate of 36.48% during 1971-81 against 32.89% during 1961-71, compared to the national decadal growth rate of 25% during 1971-81. Substantial addition of population to Delhi has been the main reason for the rapid growth of the Region. In fact, the proportion of Delhi's population in the Region was only 25.11% in

1961 which rose to 32.4% in 1981. The net addition of population during 1971-81 was 51.33 lakhs. Of this, Delhi UT accounted for 42.11% followed by Uttar Pradesh (29.82%), Haryana (22.3%) and Rajasthan 6.04%) Sub-regions.

b) Sub-regional growth trends : The constituent areas present varied growth trends. Delhi UT exhibited a growth rate of 53.20% followed by Rajasthan (40.79%), Haryana (29.74%) and Uttar Pradesh (28.12%) Sub-regions during 1971-81. The Uttar Pradesh and Rajasthan Sub-regions have been growing faster in their population counts while the Haryana Sub-region had a reduction of 1.75% during 1971-81 compared to the 1961-71 rate. Growth of population in Delhi is significantly higher since independence. During the four decades preceding 1941, while it gained a modest total of 7 lakhs only during the succeeding four decades, it had an addition of 52 lakhs population. The decadal growth rates since 1941 was 90.18%, 52.46%, 52.91% and 52.98% respectively.

c) Components of growth in Delhi UT : Of the two main components of population growth, namely, the natural growth and in-migration, the share of natural growth has been declining over years. The partition of the country in 1947 resulted in a large influx of population into Delhi. In addition, the attainment of independence and the resultant need to develop Delhi as the National Capital created a huge demand for manpower and, thus, there was a tremendous influx of population into the capital.

According to the 1981 Census, there were 22,99,252 migrants in Delhi constituting about 37% of the total population. Inmigration into Delhi has been a rapid increase especially during the last two decades and, the average annual inmigration has gone up by about three times during this period. Among the 22,99,252 migrants in Delhi upto 1981, 12,29,745 persons, which constitute 53.48% came during 1971-81 alone. Of the net addition of population during 1961-71, proportion of inmigrants was only 37.33% and, it registered a sharp increase constituting as much as 57.07% of the additional population during 1971-81 (Table 3.1). Thus, inmigration has emerged as the main factor for the rapid growth of Delhi.

iii. Trend of Migration

a) Origin of migrants : The inmigration into Delhi has been mainly from the surrounding States. The NCR States together accounted for about 71% of the total inmigrants into Delhi: Uttar Pradesh alone accounted for 48.2% followed by Haryana (15.5%), Punjab

(9.8%) and Rajasthan (7.6%)(T 3.2). Migration to Delhi from Punjab and Haryana has declined from 11.3% to 6.4% and 16.4% to 12.9% respectively during 1961-71 and 1971-81 whereas that from uttar Pradesh and Madhya Pradesh has increased from 49.6% to 50.1% and 1.7 to 3.1% respectively. Rajasthan maintained almost the same share of contribution of inmigrants to Delhi since 1961. In absolute terms, it is Uttar Pradesh from where maximum number of people came to Delhi. All these States have been sending increasing number of people to Delhi over the last two decades as reflected by ratio of migrants to the respective State's population and, about 40% of them are from urban areas. The proportion of flow of inmigrants to Delhi has also gone up from 10.7% in 1961 to about 20% in 1981.

b) **Reasons for migration** : The major reasons for in-migration into Delhi have been the 'employment' and consequent 'family movement'. The large inflow into Delhi in recent times can be attributed to the substantial growth of industries, especially, small scale and, expansion of trade and commerce activities. 'Employment' and 'family movement' accounted for 73% of all the in-migrants in 1981 from the five adjoining States.

c) Occupational characteristics of migrants : Employment structure of migrant workers (1971) shows that tertiary sector engaged the highest proportion (69.17%) of all migrant workers followed by secondary (28.87%) and primary sectors (1.96%). Majority of the inmigrants are absorbed in petty trades, low grade production or processing activities, and in the informal sector activities serving local population. Incidentally, proportions of total workers in Delhi in different sectors too reflect roughly the same proportions as for migrant workers.

iv) Delhi Metropolitan Area

Delhi's growth is not confined to the boundaries of the Union Territory. This urban spatial expansion has spread into the surrounding areas of Uttar Pradesh and Haryana. The contiguous urban sprawl around Delhi which along with Delhi UT constitute the Delhi Metropolitan Area (DMA). Owing to its location, the DMA excluding Delhi has exhibited growth characteristics similar to that of Delhi in recent years. In fact, while Delhi had grown only 53% during 1971-81, Faridabad-Ballabgarh, Ghaziabad and Gurgaon have grown 169.40%, 141.65% and 76.50% respectively.

v) **Population projection :**

Recognising the urban growth dynamics in the Region, projections have been made by the Office of the Registrar General of India, Census Operations, for the constituent units of the Region with urban-rural components. The growth differentials of the areas falling in the NCR and other areas of the NCR States were examined, and these differentials were then projected by which the total population and rural-urban composition of the Sub-regions were arrived at (T 3.3).

The Regional population is expected to grow at a decadal rate of 34.73% during 1981-2001 to reach a figure of 325 lakhs. In case of Delhi UT, in addition of 70 lakhs population during this period is foreseen totalling to about 132 lakhs by 2001. The rural-urban population composition of the Region would undergo a significant change for 53:47 to 48:72 over 1981-2001.

3.2 Issues

i) At the present trend of phenomenal growth rate Delhi will have 132 lakh population by 2001 A.D. Will Delhi remain manageable with this population growth trend in terms of provision of essential services where there is already an increasing backlog since the recent past such as power, water, sewerage facilities, management of solid wastes, transport etc.? In addition, the concentration of economic activities has resulted in soaring prices of developed land, proliferation of slums and squatter settlemtns, adversely affecting the quality of life.

ii) As most migrants emanate mainly from the neighbouring States, what regional development strategy would mitigate the trend of migration to Delhi?

iii) Delhi Metropolitan Area towns around Delhi have been growing faster and would sooner become a huge unmanageable urban agglomeration woefully short of essential services. Could this growth be regulated to relieve the pressure on Delhi's services?

iv) To achieve a manageable Delhi and a harmoniously developed region, what is the judicious distribution of population both in urban and rural areas?

3.3 Strategies

A pragmatic approach and strategy to meet the issues appropriately to achieve the plan objectives would be to formulate a conscious policy of:

i) decelerated and resticted growth in Delhi UT;

ii) controlled moderate growth of the DMA towns excluding Delhi so that the volume and directions of growth are well coordinated; and

iii) giving impetus to the regional centres through provision of adequate infrastructure and services so that they are able not only to dissuade the potential outmigrating population but also attract and absorb the Delhi bound migrants. In fact, the Delhi Master Plan now under revision for 2001 as perspective has specified selected industrial units found incompatible in residential, commercial and non-industrial use zones, to be immediately shifted from such areas within a maximum period of five years. In addition, the Master Plan has also observed that most of the wholesale markets located in the congested central part in old Delhi needs to be decentralised in new wholesale markets to be located in the towns of Delhi Metropolitan Area. As such by suitably developing industrial areas and wholesale markets in the towns beyond Delhi UT, it should be possible to generate additional employment opportunities in the Regional towns.

3.4 Demographic policy and Population assignments

i. Population projection in Delhi UT

Under the assumptions that:

a) the natural growth rate of population with its declining trend may reach 2.0% per annum during 1981-91 and 1.2% per during 1991-2001, and

b) the rate of inmigration to Delhi would continue at the same rate as it would have otherwise registered during 1981-91 and, in view of the contemplated employme nt opportunities in the Region,a 50% fall in the rate of migration to Delhi during 1991-2001 from that of the previous decade

The population of Delhi UT would be 112 lakhs by 2001 AD of which 2 lakhs would be rural (T 3.4).

Accordingly, the rate of inmigration into Delhi will be about 84,000 per annum during 1991-2001 as against the likely 1.79 lakhs during 1981-91. This would contribute a fall of the inmigrants' share in the total decadal addition to a 46.32% by 2001 as against 57.07% observed during 1971-81 and the likely 59.01% during 1981-91.

ii) **Population assignment-DMA :** Recognising the potential of the DMA in relieving the population pressure of Delhi, and also the problems Delhi would face in case of over growth of the DMA, a moderate growth for the DMA towns around Delhi is prescribed. The population forecast on the present trend of growth places the population size of DMA excluding Delhi at 38 lakhs (excluding NOIDA). However, the population size of DMA including NOIDA would be 150 lakhs but excluding Delhi UT - 38 lakhs both urban and rural by 2001.

iii) **Population assignment beyond DMA :** Any strategy to control population growth in Delhi should be linked with the surrounding States as majority of the migrants are from the immediate surrounding States of Delhi. The additional population of 19 lakhs which otherwise would have moved into Delhi from these States during 1981-2001 should be deflected towards or contained in the urban areas beyond the DMA within the National Capital Region. It is proposed to contain and accommodate this additional population in the Sub-regional areas of Haryana, Rajasthan and Uttar Pradesh. Based on the urban growth trends and the projected urban population in the constituent Sub-regions by the year 2001, it is proposed to contain and accommodate respectively about 5.5 lakhs, 1.5 lakhs and 12 lakhs in the urban areas beyond the DMA of Haryana, Rajasthan and Uttar Pradesh Sub-regions and 1 lakh in the rural areas. The projected and assigned population for the Sub-regions and DMA towns are given in T 3.5.

4

SETTLEMENT SYSTEM 1981 - 2001

4.1 Background

The Metropolitan core of the NCR, that is Delhi, is growing fast by attracting activities and consequently population from the surrounding areas; and the sprawling development due to overspill of Delhi's population into the areas adjoining it, has also gained tremendous momentum. The policy of restricting the growth of Delhi and allowing only a moderate growth in the DMA beyond Delhi, require an evaluation of the development potentials and functional importance of the urban centres of the Region.

i) Settlement Distribution : The 191.92 lakhs population of the Region is distributed over 6771 settlements - 94 urban and 6677 villges. Of the total, 220 are in Delhi UT, 2413 in Haryana, 1091 in Rajasthan and 3047 in Uttar Pradesh Sub-regions. The Region has an urban-rural settlement ratio of 1:71.

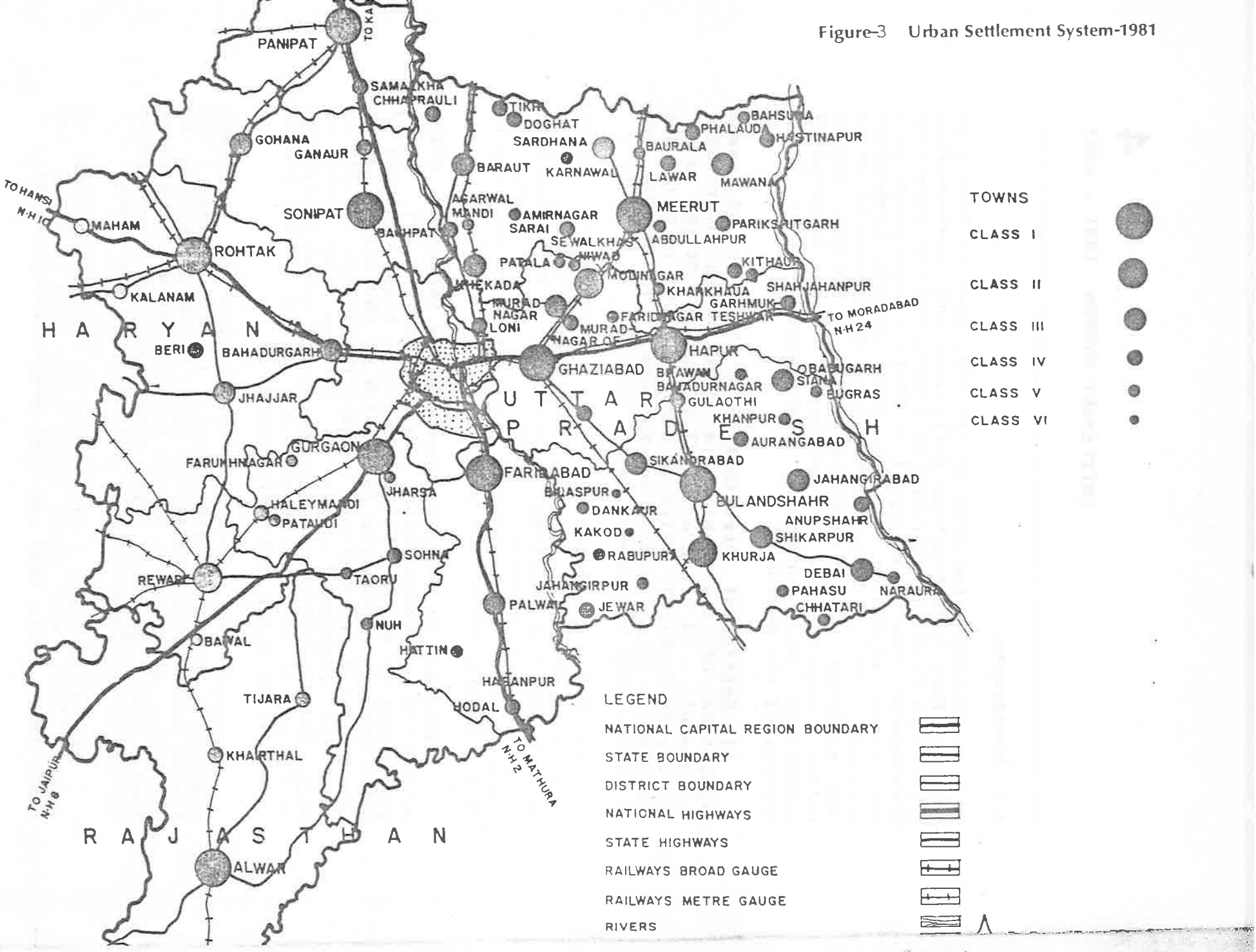
ii) **Urban Settlements :** There are 94 urban centres with 6 in the UT of Delhi, 58 in Uttar Pradesh, 27 in Haryana and 3 in Rajasthan Sub-regions. There has been a spectacular increase from 48 to 94 in the number of urban centres during 1971-81 compared to an addition of only 4 during 1961-71.(Fig. 3).

There are 11 Class-I urban centres including Delhi metropolis accommodating about 70% of the urban population of which Delhi Urban Area alone contains 57 lakh persons accounting for 63.45% of the entire urban population of the Region. Of the remaining, 21.44% is in Uttar Pradesh, 13.19% in Haryana and 1.92% in Rajasthan Sub-regions. Proportions of urban population in Class I to VI urban centres are 85.27%, 2.27%, 5.52%, 3.99%, 2.72% and 0.13% respectively.

Greater concentration of activities and resultant population lead to higher density in urban area. The Region had an urban density of about 6,300 persons/sq km in 1981. An analysis of the density pattern indicates that the process of activity and population concentration followed size and class of the towns.

While the Class I cities had an average density of about 7,488, the other Class towns from II to VI had 6725, 6016, 2764, 1835 and 1260 respectively in 1981.

Figure-3 Urban Settlement System-1981



Urban growth has been extraordinary in the Uttar Pradesh Sub-region. The urban population increased from 10.68 lakhs in 1971 to 19.49 lakhs in 1981, thus registering a growth rate of 82.5% during 1971-81. The Haryana Sub-region also experienced a fast growth of 57.79% during 1971-81 with a population increase of 4.41 lakhs. A growth rate of 56.63% was experienced in the urban population by the Rajasthan Sub-region during 1971-81. Thus, the already highly urbanised NCR will experience faster urbanisation trend in future reaching an urbanisation level of 72% by 2001.

The trend of population growth of a town provides an insight into its latent potentials to absorb economic activities and consequent population. A study of the growth trends of the regional urban centres indicates that most of the urban centres in the Region lack dynamism in growth as they lie in the shadow of a large metropolis. Despite being larger in population size, the economic base of many of them such as Meerut, Hapur, Khurja, Rohtak, Rewari, Alwar etc, is weak to sustain their natural organic growth. This fact is borne by the Census figures of 1981 which has shown that the growth rate of these towns is less than the national average.

iii) **Functional Characteristics** : An analysis of functional specialisation of urban areas of the Region shows the close relationship between population concentration and functional diversification. Diversification in functions has been the phenomenon in the higher order towns. All the towns upto Class-III have shown greater diversification in terms of activity concentration. Industries, trade and commerce and primary activities to a lesser extent in many cases, are equally pronounced in these towns. The Class IV to VI towns had primary activities as either dominant function or equally dominant function amongst other functions in 1981 (T 4.1).

4.2 Issues

With this background, the issues that emerge are:

i) The extraordinary growth of Delhi is to be controlled to 112 lakh population and that of the DMA excluding Delhi UT to be moderated to a population size of 38 lakhs by 2001. The excess 19 lakhs of urban population of Delhi by 2001 would have to be diverted and contained in the urban areas beyond the DMA.

ii) Most of the towns beyond the DMA are showing lack of dynamism and diversification in their functional character. A spatially and functionally articulated settlement system has to be evolved with purposive

development of urban areas of the Region beyond DMA to meet the objective of controlling the growth of Delhi and achieving balanced development of the Region. This assumes additional importance as the study on 'migration pattern in the NCR' by the National Institute of Urban Affairs, New Delhi, clearly indicates that there is a large intra-regional migration taking place at present with the NCR and, about 80% of the potential migrants within the Region would ultimately move into Delhi.

iii) The rural zones of the constituent States contribute greater number of migrants to Delhi mainly for employment and services. This rural out-migration to Delhi should be checked. This requires integration of the settlement system with functional dependence and independence with appropriate services to improve their economy which will dissuade the population to move to other places.

4.3 Strategies

i) **The first strategy** should be to revitalise the economy of the stagnating regional urban centres and to integrate them in a form of a well-knit system of settlements with specific functions that would encourage an orderly development of economic activities that would help settlements complement and supplement each other.

ii) **Secondly,** the development of small urban centres and villages should be integrated in relation to priority towns to achieve the objective of balanced development of the Region. These could be achieved by developing a four tier hierarchical system of settlements consisting of Regional centres, Sub-regional centres, Service centres and Basic villages with functionally specialised organised structure. Their location, population and functions would, however, be objective specific. Desirable population size and probable functions of each tier settlement will be as follows:

	Level of Settlement	Population Size
1.	Regional Centres	3.0 lakhs & above
2.	Sub-Regional Centres	0.5 to 3.0 lakhs
3.	Service Centres	10000 to 50000
4.	Basic Villages	Less than 10000 pop.

The main centres of utmost activity concentration in this hierarchical system are the Regional centres and Sub-regionl centres. The Service centres and Basic villages are mutually dependent upon each other. The regional centres being self-contained, should be capable enough to form an inter-dependent system independent to a great extent on the Delhi Metropolis.

iii) Thirdly, to attract and contain the Delhi bound potential migrants to the extent of 19 lakhs, a few selected centres which may form the regional centres would be identified and developed on an intensified scale with conscious intervention to organise and stimulate economic activities to offer a variety in occupational structure and job opportunities. These regional centres would be developed on priority basis. The regional centres are identified in the Regional Plan while Sub-regional plans will identify Sub-regional centres, Service centres and Basic villages.

i Regional Centres

To identify such settlements which may function as Regional centres, a development hierarchy has been followed. Every settlement depending on its size in terms of population and areal spread, location with reference to transport network, availability of social facilities and concentration of economic activities, places itself among others in a development hierarchy within the Region. In consonance with its size and rank, these centres provide higher order services to the scattered population around them. The selected centres have to be necessarily outside Delhi so that they would attract Delhi bound potential migrants. A study on 'Settlement System in the NCR' by the Physical Research Laboratory, Ahmedabad, based on computer model employed various parameters in selecting the development centres such as revenue and development administration, population size, sex ratio, literacy level, growth trends during 1951-81, participation ratio and industrial work-force, rate of migration, location of various facilities such as educational, health, road, railway, water supply, power, marketing facilities, financial institutions and recreational facilities in relation to population size. A total number of 38 indicators were employed for the computer modelling.

The basic model that has been used to identify relative weightages of each settlement in reference to the 38 indicators is based on composite index. By taking 10% of the higher composite value obtained by any centre, the first order settlements have been identified as under through a computerised model. With proposed moderate growth of the DMA towns excluding Delhi, Regional Centres have been identified from among the centres that rank in the development hierarchy, and are located beyond the DMA. As such, the finally identified Regional Centres by the study are:

1) Meerut
2) Hapur
3) Bulandshahr
4) Khurja
5) Panipat
6) Rohtak
7) Rewari
8) Palwal
9) Alwar

The Regional towns would be developed primarily to accommodate the Delhi-bound potential migrants by creating employment opportunities in secondary and tertiary sectors and they would act as magnet-centres to attract economic activities. In order that various regional centres are planned to accommodate the excess population of Delhi, a rational distribution has to be attempted. To decide the extent to which these centres should be equipped to attract and contain potential migrants, the Central Building Research Institute, Roorkee, in a study on 'Alternative Development models for urban development in the NCR' evaluated the various scenarios of differential population assignments against development costs for residential, commercial, industrial public and semi-public and community facilities, city infra-structure and provision of telecommunication facilities and benefits assessed in terms of employment absorption potentiality of each scenario, acceptable rate of growth, standard of living and an acceptable standard of linkages between Delhi and the scenario settlements. Cost-efficiency ratios indicate desirability of developing all the eight Regional Centres/Complexes with appropriate additional population mix. Growth trends and regional potentials of each of the selected Regional Centres have been assessed. The Regional Centres - Bulandshahr and Khurja would be developed as a complex while Rewari would be planned in relation to Dharuhera and Bhiwadi industrial townships in the form of a complex. The Regional Centres (priority towns) thus identified and their assigned population for 2001 AD are as under:

Sub-region	Regional Centre	Population(in lakhs) 1981	2001
Uttar Pradesh	1. Meerut	5.36	15.50
	2. Hapur	1.02	4.50
	3. Bulandshahr	1.03	5.00
	Khurja Complex	0.67	3.00
Haryana	4. Palwal	0.47	3.00
	5. Panipat	1.38	5.00
	6. Rohtak	1.68	5.00
	7. Rewari	0.52	1.10
	Dharuhera	-	0.75
Rajasthan	Bhiwadi Complex	-	1.15
	8. Alwar	1.47	5.00

The functional composition of different hierarchical centres would be as follows :

The Regional centres would be developed to provide employment opportunities with a bias to secondary and tertiary sector activities to by and large suit the skill levels of the would be migrants to Delhi and also to create a climate that would attract trades and industries outside Delhi, whereas the Sub-regional centres would serve as focal points with development and resume functions as that of Sub-divisional headquarters with corresponding facilities. In addition, they also will serve as a first stage industrial centre with agricultural and marketing facilities. While the service centres would cater to the rural hinter-land as agro-service centres in the collection and distribution of agricultural goods and services with marketing, warehouses and cold storages, the basic villages would be developed to cater to the day today needs of a cluster of villages with co-operatives for distribution of fertiliser, agricultural implements and also for collection of agricultural goods for marketing in higher order centres.

5

RURAL DEVELOPMENT

5.1 Background

The NCR has a vast rural expanse and majority of the population lives today in rural areas. As much as 95% of the geographical area of the Region is constituted by the rural area accommodating about 53% of the Region's population. The Region has agriculture as its occupation. The Region at the same time is one of the highly urbanised zones in the country which has become a job-magent for the population of the rural areas to the urban pockets, specially Delhi metropolis. The 1981 Census shows about 64% of the migration to Delhi originated from the rural areas and, most of them were from the adjoining States.

It is thus evident that development of the Region in a balanced way to mainly sub-serve limiting the Delhi's population size within manageable limits is possible mainly through the development of the rural areas. Though, the immediate surges and waves of the incessant influx of migrants into Delhi is envisaged to be absorbed through deflection into the selected regional urban centres, ultimately the rate of flow of influx from the rural areas into urban centres and finally to the Delhi metropolis could be moderated and reduced only through such developmental activities as raising incomes and diversifying economy of the rural areas, which would disuade the rural population from moving out. Thus development of rural areas of the Region assumes dominating importance in the long run and only this move will lead to achieving the objectives of the NCR Plan in its longer perspective.

i) Rural Settlement System

The rural settlement scene (6677 settlements) is characterised by the pre-dominance of medium size villages with 500 to 1999 persons with a stable economic base mostly of primary sector. Nearly 1/5th of the villages have more than 2000 population of which the 5000 and above population sized villages account for 1/6th. Small settlements with upto 500 population are in the form of clusters and hamlets scattered all over and account for around 1/5th of the total number of villages. The Rajasthan Sub-region is typically characterised by smaller settlements while the Uttar Pradesh and Delhi Sub-regions do have dominance of medium sized settlements. It may also be noted here that the out-migration from the villages of the Haryana Sub-region is minimum as compared to other Sub-regions.

This amply demonstrates the necessity of development of rural areas as complementary to the urban development in the region.

ii) Literacy

Though the Region consists of the best developed parts of the constituent States, the rural literate proportion is only marginally higher (31.05%) than that of the national average of 29.65%. The Uttar Pradesh and Rajasthan Sub-regions are lower in the literacy rate compared to the all India average. Among the rural population, the literacy level of the women tends to be lower than that of the males.

iii) Agriculture and allied activities

The NCR area forms one of the most productive areas of the country. The Region is endowed with extensive fertile land and good irrigation facilities. Of the total area, about 80% is under cultivation out of which 60% is irrigated. In case of Rajasthan Sub-region, however, only 33% of the cultivable area is irrigated. Agriculture suffers from the constraints of low operational holdings and poor operational capacity of farmers in Uttar Pradesh. Majority of landholdings are less than one hectare per unit of holding. Animal husbandry plays an important role in supplementing the income of the rural population in the Region. The nearness of the metropolitan city of Delhi has given a great fillip to the establishments of dairies in the rural areas.

iv) Availability of services

a) Educational facilities

Of the total 6677 inhabited rural settlements in the Region, about 80% are provided with some kind of educational facilities. Villages of Delhi UT and the Haryana Sub-region are better served, as 88% of them are having this facility. In terms of population coverage too, Delhi UT and the Haryana Sub-region are better served. The UP and Rajasthan Sub-region's have 10% of their population uncovered by even basic educational facilities (T 5.2 & 5.3).

b) Health facilities

Availability of health facilities in the rural areas is poor as only 36% of the villages of the Region are served by any kind of health facility. In terms of population coverage, only 53% of the Regional rural population is provided with health facilities in their villages. In this respect too, the Haryana and

Delhi UT Sub-regions are better served as 59% and 58% of their villages and about 78% and 75% of their population respectively by medical and health facilities respectively (T 5.2 & 5.3).

c) **Drinking Water Supply**

All the villages of the Region draw their domestic water needs from one source are the other. But in many villages, the supply is not organised and protected. Moreover, the supply level is also poor in villages tapping ground water sources.

d) **Accessibility**

One of the pre-requisites for the speedy development of the rural areas, is the availability of physical linkages. As regards availability of pucca roads the Delhi Sub-region has 97% of its villages and 99.8% of its population covered with pucca roads, followed by the Haryana Sub-region with 92% and 96% of villages and population covered respectively. In the Region, about 35% of the villages have a bus stand. The villages of Delhi UT are better served followed by the Haryana Sub-region. The Rajasthan and UP Sub-regions lag far behind with only 16% and 26% of their villages and only 29% and 36% of their population having direct access to this facility.

e) **Post and Telegraph facility**

Only 27% of the villages and 51% of the rural population of the Region have either post or post and telegraph facility. Again, villages of Delhi UT and the Haryana Sub-region are better served to an extent of 54% and 32% of the villages and 73% and 56% of their population respectively.

f) **Markets/Hats**

The rural markets encourage interaction and act as centres for innovative diffusion. But in the Region, the number of markets and 'hats' held in the rural areas, is practically negligible and only 4% of the villages and about 9% of the population has immediate access to such markets/hats.

g) **Power Supply**

Availability of power has emerged as one of the most important pre-requisites for agriculture , industrial and in turn overall economic development. All the villages of the Delhi UT and the Haryana Sub-region have power connections, while about 83% of villages and 90% of population of the UP Sub-region and

55% of villages and 71% of population of the Rajasthan Sub-region are provided with power connections.

h) Housing

Estimates indicate that there were 18.23 lakh liveable houses as of 1981 (excluding Delhi UT) both in urban and rural areas and the occupancy rate in 1981 was 7.34 persons. The shortage of dwelling units in the rural areas as of 1981 was 6.18 lakhs and such huge backlog calls for a special programme of rural housing in the Region.

5.2 Problems and Proposals

i) Most of the rural areas of the Region lack in many of the basic services like protected water supply, education, health, accessibility, power and communications. Marketing facilities rarely exist for agricultural products and distribution of agricultural inputs like fertilizer and implements. Both in terms of number of villages and population covered by availability of basic services, the Rajasthan and UP Sub-regions lag far behind. The declining contribution of migrants to Delhi from Haryana State from 22.1% in 1961 to 16% and 12.9% during the successive two decades in 1971 and 1981 while the increasing contribution of Uttar Pradesh to 41.7%, 49.6% and 50.1% during respective periods could be attributed to the lower level of facilities and their access to the population. As compared to Uttar Pradesh and Rajasthan, the villages in Haryana are all electrified and are connected with pucca roads and also have better educational facilities. Thus, there is an urgent need to provide adequate community facilities, health services, recreational, cultural, civic and other amenities in rural areas.

ii) As the rural settlements are spread over a wider area, often quite distant from one another, while the lower order basic facilities could be provided in each village, higher order facilities would need to be provided in service centres and basic villages. This strategy would serve the following objectives of:

- providing more specialised infrastructure and services such as bank, markets etc. to the isolated villages which individually may not have viable population size to support them,

- acting as a node in the transport system linking the smaller villages with higher order settlements,

- providing an environment for marketing to which nearby rural residents may commute to sell their goods and services and also to find non-agricultural employment, and

- providing an immediate alternative for the potential out migrants from the surrounding areas.

iii) The upgradation of skills of workers engaged in non-agricultural pursuits and employment opportunities may decisively influence the rate of outmigration from the rural areas. Therefore, there is a need to undertaking a programme for training of rural artisans and also creating commensurate employment opportunities for them.

iv) There is a huge backlog in rural housing. Government through intermediate and base level housing finance institutions can provide loans and subsidies for construction and improvement of shelter with special emphasis to EWS and LIG households.

v) It is necessary to impart formal functional education to the rural mass to train and equip them to participate in community development, management of rural institutions and formal credit institutions, market crops. Adult education that concentrates on functional literacy and on practical training on subjects like health, nutrition and agriculture should be organised in appropriate places to aid maximam coverage.

vi) To encourage participation of rural population in the regional development, it would be necessary to encourage rural based community voluntary organisations. Several types of community organisations in rural areas enable the people to mobilise resources for different community purposes. Such Organisations help to disseminate agricultural innovations and implement programmes. It would be necessary to identify such organisations and by aiding them improve public participation.

vii) In the provision of water supply and sanitation facilities in the rural areas, suitable low cost technology options need to be adopted.

viii) It may be necessary to identify a group/cluster of villages for which integrated plans be prepared on a pilot basis to ensure participation of people, voluntary organisations and public sector on a wider scale, pending finalisation of a total programme for integrated rural development, fully keeping in view the existing plan schemes as well.

6.1 Region's economic base

i) Background

The vast hinterland of the Region lying in the area beyond DMA, in the three Sub-regions, is characterised by a fairly well developed rural as well as urban economy and represents comparatively some of the best areas of the respective States. The Region's economy is based on agriculture and other primary activities although significant development in industrial and commercial sectors has also taken place. Industrial centres like Meerut, Modinagar, Ghaziabad, NOIDA and Khurja in Uttar Pradesh, Alwar, Bhiwadi and Khairthal in Rajasthan and, Faridabad, Gurgaon, Panipat, Sonepat, Dharuhera and Rewari in Haryana have been playing an important role in the overall economy of the respective Sub-regions. Among the various types of industries textile products, wood and wood products, leather and fur products, rubber, plastic, petroleum and coal products, electric and electronic equipments are some of the industries which have grown faster in the Uttar Pradesh Sub-region, whereas in the Haryana Sub-region, non-metallic mineral products, wood and wood products, machinery and machine tools, basic metals and alloys and food product industries have grown faster than other industries. In the Rajasthan Sub-region, maximum number of industries are related to manufacture of food items, printing, publishing, iron and steel industries and manufacture of wood products.

Trade and commerce forms another important component of the economic base of the Region. Commercial activities have fairly developed in the Meerut, Ghaziabad, Hapur, Khurja and Bulandshahar in Uttar Pradesh, Alwar and Khairthal in Rajasthan and Panipat, Rewari, Gurgaon, Sonepat and Rohtak in Haryana Sub-regions. There are several wholesale mandis in the Sub-regions dealing in commodities like food-grains, pulses, vegetables, fruits, machinery, cloth, timber and woolen.

The employment in Government and semi-Government services is mainly centralised in the District towns viz. Meerut, Bulandshahr and Ghaziabad in Uttar Pradesh Sub-region, Faridabad, Gurgaon, Rohtak and Sonepat in Haryana Sub-region and Alwar in Rajasthan Sub-region. Panipat, Rewari and Bawal towns in the Haryana Sub-region, due to their population size and concentration of other economic

activitites, besides Tehsil and Sub-divisional level administration set up also has other local and professional activities. Rewari is also an important Railway junction.

The Region acts as a vast hinterland and feeder zone for Delhi's population. The concentration of resources and investments in Delhi has been apparently instrumental in dominating the economic scene of the Region attracting majority of rural-urban migrants, after by-passing intervening smaller towns. The total journey time from Delhi to the farthest point in the Region is so short that no big centre of transportation and trading activity has developed in the Region. Thus, the Region rather than aiding or accelerating its own growth has supported the growth and prosperity of the Delhi metrpolis. In this process, a great deal of mutual dependency has also developed between Delhi and the National Capital Region which is now sought to be exploited to the advantage of each other.

The Delhi Metropolitan or more precisely the towns falling in DMA, due to the advantage of their close proximity to Delhi where diseconomies and other problems of metropolitan city exist, have been attracting large number of economic activities in the recent years. The economy of these towns which was mainly agricultural based has swiftly transformed into manufacturing or industrial character. The magnitude of the industrial progress in these towns can be judged from the fact that in the Uttar Pradesh Sub-region, Ghaziabad alone accounted for more than 60% of the total number of registerd factories and about 64% of the factory employment. Similarly, in the Haryana Sub-region, about 45% of the total registered factories employing more than 66% of the total workers are located in Faridabad alone.

ii) Economic structure

The economic structure of last two census clearly shows the diversification from the activities of primary to secondary and tertiary sectors in the Region. Agriculture labourers and cultivators together formed about 43% of the work force in 1971 which declined to about 37% in 1981. The primary sector, leaving aside Delhi Union Territory, in the three Sub-regions, however, still dominates the scene. The diversification and intensification of secondary and tertiary sectors has also occurred in the urban economic structure of the Region though it has not made any perceptible change in the overall structure. The workforce in activities relating to construction, trade and commerce, manufacturing other than household industries, transport, storage and communication, forestry, fishing

and other activities showed a little variance from 93.4% in 1971 to 92.6% in 1981.

In the last three decades preceding 1981, Delhi has experienced a significant functional shift in its economic structure in favour of manufacturing and processing activities. In 1951, only 17% of the workforce was employed in this sector which increased to more than 29% in 1981. This happened mainly at the expense of service sector which declined from 43.7% in 1951 to 31.4% in 1981. There has been no change in the trade and commerce sector, which has uniformly remained around 20-22%.

6.2 Future occupational structure

i) Region

The basic character of the regional economy of the National Capital Region would become more diversified. The fact that more than 70% of the population would be living in urban areas by 2001, would entail the creation of more jobs in non-agricultural occupations than at present. For this purpose, there should not only be creation of additional activities in the existing and new centres outside urban Delhi, but also development of agro-based industries in the rural areas in order to support urbanisation and to stabilise the rural economy.

In the wake of intensified employment opportunities, the participation rate in the Region is likely to be around 31% to 33% by 2001 as against 28.69% in 1981. The urban participation rate is expected to increase to 33% to 35% as against 30.38% in 1981.

ii) Delhi UT

The trend in the functional shift in favour of manufacturing and processing activities over 1951-81 shows that Delhi is likely to have much higher work-force in the industrial sector by 2001. With a view to achieve a more balanced economic base by moderating the tendency of growth of employment in industrial activities, employment in manufacturing activities in Delhi is likely to remain around the present share of 29%. In order to revert to a balance in its functional characteristic, the work force in trade and commerce and other services is estimated to remain at 22% and 31.50% respectively. The participation rate in Delhi is likely to increase to 35% by 2001 as against 32.20% in 1981 (T 6.1).

iii) **Delhi metropolitan area**

Forecast of employment is difficult in case of DMA towns since spurt in activities and rapid population growth have been only a recent phenomenon in this area. However,taking clue from the trends exhibited by these towns in terms of nature and concentration of activities in the recent years, the likely employment structure by 2001 has been worked out (T 6.2). Emphasis has been to derive location specific economic structure. The assumptions made in the forecast are :

a) Owing to the location of the DMA towns adjacent to Delhi, the DMA towns would attract economic activities at a greater scale and hence, the participation rate would be much higher in 2001, than in 1981.

b) These towns initially having specially been planned for industrial development, would continue to generate employment opportunities in industries. However, with a view to restricting the population growth to a moderate scale, only small size industries would be permitted in the DMA towns.

c) All these towns having crossed the initial stages and entered the take-off stage of physical development, would have the potential for employment opportunities in construction, trade and commerce and transport activities.

iv) Priority towns

In the context of the policy of deflecting urban population from Delhi to the priority towns beyond the DMA, it is proposed to develop such activities that are appropriate to the location of priority towns, having due regard to their potential and the growth process that has already set in. It is expected that with positive incentives, such activities shall continue to thrive to provide greater employment opportunities. In view of the fact that the manufacturing activities have greater multiplier effect on the expansion of employment opportunities than employment in other sectors, base - oriented projections such as 'highly industrialised', 'moderately industrialised' and 'less industrialised' have been made. In addition to the past trend, the assigned population sizes of the towns, their participation rates and likely occupations structure have been taken into account to arrive at the workforce in each occupation. For each town, all India average proportions of workers in towns of similar size and character have been taken into consideration for the purposes of assignment of workforce in different occupations (T 6.3).

6.3 Delhi in Region's economy

An examination of the economic structure of the various segments of the Region based on the estimates of the per capita State Domestic Products, reveals that during 1984-85, Delhi with a per capita income of Rs.4191 at current prices tops among all the States and Union Territories of the country let alone the NCR States (Haryana - Rs.3296, Rajasthan - Rs.1838 and Uttar Pradesh - Rs.1764).

Delhi with its well developed linkages with the rest of India, serves as the main intrepot of Northern India. The Region thus depends on it for the movement of goods. There exist strong linkages and interdependency of Delhi with the Region. Delhi besides being a distributive centre is also a big consumption centre which is drawing in commodities from the surrounding rural and urban areas and, distributing commodities and industrial goods among them. The quantum and the range of goods produced in the Region are largely determined by the requirements of the markets in Delhi.

The three main important economic generators which have shown strong tendency of growth in Delhi are: Government and public sector offices, wholesale trade and commerce and, industry. The growth in these sectors, their salient characteristics and issues involved are as follows :

A. Government and Public Sector Offices

i) Growth trends

In Delhi, the employment in the Government Offices and Public Sector Undertakings has been expanding fast. The setting up of a large number of foreign embassies, foreign missions, research and cultural organisations has also had its distinct impact on the growth of the city. The employment in the various types of the Government and Quasi-Government offices has been constantly increasing ever since 1921. The employment in Public Sector Undertakings can be divided under four major categories, viz employment in Central Government Offices, Quasi-Government Undertakings, Delhi Administration and local Bodies.

a) The employment in Central Government Offices which was only 8,000 persons in 1921 grew to 2.30 lakhs in 1985. During 1941 to 1985, more than two lakhs new jobs have been added in this sector (T 6.4). The planned attempts to shift certain offices outside Delhi, have not made any dent in the situation.

b) The employment in Government Undertakings was only 6,000 persons in 1961 which leaped to 1.41 lakhs in 1981, adding nearly 1.35 lakh persons in just two decades. In the decade 1971-81, about one lakh sought jobs in these undertakings, which means a total addition of roughly 5 lakh population during the decade 1971-81 through employment in Public Sector Undertakings. During the period 1981-85, there has been an addition of 42,000 jobs in this sector, meaning that the trend continues to remain as before.

These offices, inspite of disincentives such as insufficient space, costlier land and inconvenience and costlier supervision of their regional units from Delhi, prefer to cling on to Delhi and as of today, there is no valid reason in sight for them to decide to move out.

c) The employment in Delhi Administration and local bodies largely grew with the size and enhanced responsibilities of the Administration and the local bodies with increasing overheads of servicing of metropolitan city. In 1921, it had a meagre 3,000 persons employment which grew to 1.82 lakh persons in 1983 but the employment declined to 1.49 lakh persons by 1985. It seems that it may register still a higher growth rate in the years to come.

B. Wholesale trade and commerce

i) Growth trends

a) The growth of wholesale trade and commerce in Delhi has been facilitated due to following determining factors which have been favourable to Delhi and given it dominance over the Region :

(i) Delhi as the Capital city is the centre of political as well as administrative power.

(ii) The availability of requisite infrastructure such as banking, warehouseing, transport, communication facilities, marshalling yard etc.

(iii) The low tax rates in Delhi as compared to the neighbouring States and the low transportation costs.

(iv) Lower wholesale prices (exclusive of tax) as compared to the neighbouring States.

(v) Lower Central Sales Tax on re-export of goods in Delhi as compared to the neighbouring States.

b) In 1951, Delhi had 22.8% of its working force in trade and commerce which was second to the services

sector. Though, by 1981, it maintained more or less the same proportion of workforce(22.25%), it occupied the third position next to services and manufacturing other than household goods. In absolute numbers, however, the work force increased from 1.17 lakhs to 4.13 lakhs during 1951 and 1981. During 1971-81 alone, it doubled from 2.4 to 4.13 lakhs (T 6.5).

Most of the wholesale trades in Delhi were established in 19th and 20th centuries and are located in Old Delhi area, in close proximity to one another, and nearer to the railway station. The wholesale activity in the central city has concentrated in an unplanned manner resulting in congestion, encroachment on public land, traffic bottlenecks and parking problems, besides causing excessive noise in the area.

The conventional approach to solve these problems has been the shifting and relocation of wholesale trade activities from the central area, mainly to the peripheral areas of Delhi and, in some cases, even to some regional towns within the National Capital Region. The Delhi Master Plan-1981 had recommended shifting and relocation of some of the wholesale markets viz. vegetable market, grain market, steel market etc. Some of these programmes have been successfully implemented (vegetable market - Loha Mandi); some have been partially successful (cycle market); and some have failed (Food grain market). The revised Master Plan Delhi - 2001 has now again emphasised the need for decentralisation of these wholesale activities from the congested parts of the city. In the revised Master Plan of Delhi, the main emphasis has been laid on the relocation of wholesale markets in the peripheral areas of Delhi. Some of these activities which are hazardous in nature and require extensive space have been recommended to be located in the regional towns mainly, the DMA towns. Keeping in view the fact that the relocation of these activities in Delhi Union Territory would further generate more employment opportunities and create congestion in the peripheral areas whereby creating a contiguous expansion, it would be appropriate that alternative sites for wholesale markets, presently located in the congested areas of Delhi and which are proposed to be shifted from the existing sites, should not be relocated in the Delhi Union Territory, they should be developed in DMA & Priority Towns of the Region. Studies to carry out surveys and to identify such locations have now been initiated.

The major part of the commodities which are brought to Delhi are distributed outside Delhi. The percentages of exports outside Delhi, in some of the commodities like textiles and textile products, radio, T.V. parts, fruits and spices, surgical and scientific

instruments are as high as 80. Due to the concentration of trade and commerce activities in Delhi, a regional imbalance has been created. The other towns of the Region are lacking in economic activities with weak economic base. It is, therefore, in the larger interest of regional development that consideration has to be given to the shifting of some of these distributive trades.

C. Industry

i) Growth Trends

Industrial progress in Delhi in the last two decades has been phenomenal. The growth of industries in Delhi followed a typical trend, with slow progress upto 1970-71 and rapid one from 1976 onwards. There was a sharp increase in the number of units from 26,000 in 1970-71 to 62,000 in 1984-85 i.e. an increase of 9.89% per annum. The industrial employment increased from 2.15 lakhs in 1970-71 to 5.58 lakhs in 1984-85 registering a growth rate of 11.37% per annum.

The number of registered industries, which constitute the organised sector has increased from 2984 in 1979 to 4652 in 1985 in Delhi. The number of daily workers in these factories increased from 1.41 lakhs in 1979 to 1.85 lakhs in 1984-85 (T 6.6)

Delhi which in 1951 and 1961 had administrative character is now very fast becoming a city of industrial character. The first Master Plan of Delhi recognised the need to put a curb on the industrial activities of Delhi and prohibited certain types in industries, mainly large scale and obnoxious industries from being set up in Delhi. The increase in the industrial employment in the intervening period shows that the curbs prescribed by the Master Plan were not sufficient to check the industrial growth in Delhi.

The revised Master Plan of Delhi - 2001 has also recognised the need of restricting the industrial growth of Delhi for achieving the balanced regional development and has recommended location of only small scale industries in Delhi with stress on units which require more skill, but less of man power and energy, are non-nuisance creating and largely sub-serve Delhi's economy. Recommendations for shifting certain hazardous units and units located in non-conforming areas, have also been made both in the existing as well as the proposed Master Plan for Delhi. At one stage, a huge area in Bahadurgarh was specifically developed and earmarked for location of such industries, which failed to materialise. Shifting of industries from Delhi requires decisions on various related issues along with

a consensus about such shifting among the various interests which are involved in the process. It is feared that unless all these issues are tied up, these recommendations may remain only on paper.

With the current aggressive entrepreneurship and local administration's promotional support, the share of industrial sector employment could well increase even beyond 30% by the turn of the century. For a city of national importance, the fact that industrial sector is growing the faster of all the economic sectors, needs serious consideration.

6.4 DMA in Region's economy

As a result of the policies of the Master Plan for Delhi and encouragement by the adjoining State Governments to take advantage of the developed infrastructure of Delhi, the industrial activities started taking place in DMA towns and, it registered a phenomenal growth in the last two decades. It has been felt that with the pace of industrial development in these towns, matching level of residential, commercial, telecommunications and other facilities have not been developed simultaneously, due to which higher and middle level executives employed in industries prefer to live in Delhi and the workers have found shelters around Delhi, giving rise to proliferation of large scale slums. The further growth of industrial activities in these towns at such a pace, with no check on the establishment of obnoxious and polluting large and heavy industries, may prove a serious deterrent for the healthy development of Delhi. Besides controlling the industrial development in the DMA to this extent, some of the offices of the Government and Public Sector Undertakings and the wholesale trades which are essentially to be located in Delhi can be suitably located in these towns.

6.5 Role of informal sector in Region's economy

There are certain economic activities which are generally overlooked in the planning exercise as these do not fall in the category of organised or well defined sectors of economy. Consequently, the needs of such activities and also those people carrying out such activities, generally fall outside the purview of the normal planning and investment exercises. This un-anticipated demand results in additional pressure on the existing infrastructure and services thereby deteriorating them.

These activities collectively known as 'informal sector' are present in all the towns and cities in some form or the other. They range from

production of engineering goods, electronic and electrical goods, transport and various other industrial activities to retail and wholesale trading activities, servicing of various equipment, domestic services etc. These activities are further characterised by some salient features viz small scale of operations, reliance on indigenous resources, low level skill requirements, low level of income, labour intensive technology, non-availability of adequate infrastructure facilities etc.

A study on informal sector in the National Capital Region conducted through the Society for Development Studies, New Delhi for the NCR Planning Board had taken into consideration the informal sector activities in the towns of Alwar, Ghaziabad, Khurja, Faridabad and Sonepat. Similar studies are in progress for Meerut and Panipat towns. The study while emphasising the dynamic role of the informal sector in the development process, has recommended that a phased programme for the development of informal sector activities should be prepared. The study also emphasised the need for accessibility to institutional finance, skill upgradation programmes for the workers engaged in such activities and the better organisation of the informal sector entrepreneurship.

In the towns of the National Capital Region where induced development has been envisaged by developing economic activities intensively, alongwith the development of organised sector of economy, the growth of informal sector would be carefully nurtured. This would than play the role of a vibrant component of the urban economy and provide gainful employment to the potential migrants to urban areas.

In the priority towns which have been selected for induced development, there are certain economic activities traditionally being carried out since long and are also well recognised from the point of view of specialisation and their export potentials. Since in the past, no efforts have been made with regard to provision of adequate infrastructure facilities for these activities in an organised way, they are being carried out in substandard conditions, in congested areas of the towns, in lanes and bylanes. An improvement in the working conditions by suitably locating them with provision of appropriate infrastructure and improvement in the technology will enhance the prospects of these activities and, attract migrants.

6.6 Policies and proposals

Major employment generators in Delhi which need to be dispersed within the National Capital Region fall under three categories : Government and Public Sector Offices, Wholesale Trade and Commerce and, Industry. For the dispersal and development of economic activities in the Region, a three tier policy approach has been envisaged in the Plan. A policy of strict control for creation of employment opportunities within the Union Territory of Delhi, moderate control outside Delhi within the Delhi Metropolitan Area and, encouragement with incentives, in the areas outside Delhi Metropolitan Area within the NCR.

A. Government and public sector offices

a) Strict control within the Union Territory of Delhi

With regard to Government offices, the present policy and mechanism for screening the location of new Government offices and expansion of existing Government offices should be continued. The main criterion for location of offices in the Capital should be that they perform ministerial functions, protocol functions or liaison functions which by their nature, cannot be performed anywhere else except in the National Capital. The existing offices which do not perform any of the above functions should be identified and shifted from Delhi. In the case of Public Sector offices, there is an urgent need to scrutinise the list of existing offices and allow them to retain only very small establishments to cater for ministerial and liaison functions. The rest of the establishments should be shifted out of Delhi. The accommodation which may thus become available could be used to cater to the needs of the essential growth of Central Government offices.

A study of decisions taken by the Committee set up to scruitinise requests for fresh locations in Delhi shows that in 17 out of 27 cases,the offices have been located in Delhi itself.

b) Control outside Delhi but within the DMA

A similar control on the opening of new Central Government and Public Sector offices in the DMA towns should be exercised. Relocation or expansion of Government offices which have ministerial, protocol or liaison functions which make it incumbent upon them to be located in Delhi alone should be allowed to be located in the DMA towns. In so far as Public Sector Undertakings are concerned, the restrictions on their opening new offices or expanding the existing ones

should apply equally to the DMA also. Rest of them have to go out to the priority towns to be developed in the NCR or in the Counter-magnet areas identified by the Board.

c) Incentives outside DMA but within NCR

The Central Government offices which are considered for being shifted from Delhi and the DMA towns should be located in other towns of the NCR and incentives in the form of CCA, HRA etc , as given to employees working in Delhi, should be given to employees who may be affected by this shifting for a limited period. Other incentives like providing Government accommodation, allowances for study of their children also be given to act as an incentive.For locating the new Central Government and Public sector offices in the DMA and/or the priority towns, alternative sites should be identified and developed by the development agencies in consultation with the Board's secretariat.

B. Wholesale trade and commerce

a) Disincentives within Delhi

An approach of disincentives to the wholesale trades which do not directly serve Delhi is proposed to be adopted. Only those wholesale trades which directly serve Delhi and are not hazardous in nature and do not require extensive space should be allowed to continue in Delhi. For the rest, alternative locations should be developed outside Delhi.

b) Controlled development outside Delhi- within DMA

The policy of checks and disincentives is also to be followed in case of the DMA towns, but with some relaxations. Only those wholesale trades which directly serve Delhi and the DMA towns should be allowed. There are certain wholesale trades in Delhi which are hazardous because of their location in congested areas and also due to bulk handling activities such as plastic and PVC goods, chemical, timber, food grains, iron and steel and building materials. These wholesale trades should be encouraged to develop in the DMA towns.

The possibility of developing modern Super Markets should be explored in the Delhi Metropolitan towns.

c) Outside DMA within NCR

Incentives, concessions and infrastructure should be made available in the regional towns to

encourage and accelerate the growth of trade. The establishments of wholesale trades proposed in the DMP for shifting should not be located in the Delhi UT.

C. Industries

a) Strict Control within the Union Territory of Delhi

While continuing the present policy of not promoting location of medium and large scale industries within Delhi, location of even small scale industries is to be restricted to those which employ 20 or less persons and, are required either for providing or servicing the consumer needs of Delhi's population. The NCR Planning Board should be represented in the statutory licencing committee for new industries in the Delhi Union Territory, so that strict compliance of these policies is ensured.

b) Control outside Delhi but within the DMA

No large scale or medium scale industries should be permitted to be set up in the DMA. Only small scale units should be permitted. For relocation or new location of of non-conforming, polluting and obnoxious industries , specific areas are to be earmarked in the areas outside in DMA by the State Governments in consultation with the Board and Delhi Administration.

c) Incentives for industries outside the DMA but within the NCR

The towns selected for priority development should have a strong industrial content, and incentives should be given for location of large, medium and small scale industries by developing industrial estates in these towns. In addition to these towns, there should be no restrictions on the growth of industries in the Region except in the areas reserved for conservation.

7

FISCAL MEASURES

The differentials in fiscal measures and the local tax structure in the participating States of National Capital Region and Union Territory of Delhi has been identified as one of the most imporbtant factors which causes diversion of trade, commerce and other economic activities to Delhi. This is also in a way responsible for the stagnating nature of economic activities in the priority towns of the NCR. The availability of highly developed transportation system, social and physical infrastructure including warehousing facilities and improved telecommunications only helps in increasing the magnetic effect of Delhi with all its attendant consequences in the shape of increasing congestion in the city.

7.1 i) Among the various fiscal measures, Sales Tax is one of the most important taxes. The Sales Tax is governed by two sets of tax laws; on the one hand, there is local Sales Tax law in each State/Union Territory which is applicable to local dealings and, on the other, there is Central Sales Tax governed by provisions of Central Act, 1956. While in Rajasthan and Uttar Pradesh, this tax follows predominantly the first point levy, Delhi and Haryana, by and large, rely on last point levy, although in Haryana, a substantial amount of Sales Tax yield comes from first point tax also. Like the points of levy, rates of Sales Tax too vary from one commodity to another. Sales Tax rates in Delhi are relatively lower for most of the commodities. In addition, Delhi has no surcharge or additional Sales Tax whereas Uttar Pradesh levies an additional Sales Tax of 5% and, Haryana and Rajasthan levy a surcharge at the rate of 2% and 10% respectively. The effective rate of tax in all the neighbouring States of Delhi is, therefore, greater than that prevailing in Delhi. Apart from those commodities which are taxed, there are several which enjoy exemption in some States, while they are taxed in others. For instance, all cereals and pulses are taxed in Haryana, Rajasthan and Uttar Pradesh, whereas these are exempted in Delhi. Bread is exempted from tax in Delhi and Haryana, while Rajasthan and Uttar Pradesh tax this item at the rate of 2% and 4%, respectively.

ii) There are wide variations also in the matter of tax treatment of raw materials and inputs used in industrial production. Whereas Delhi and Haryana allow tax-free purchases by manufacturers, Uttar Pradesh provides for exemption on only some raw materials, and a concessional rate of 4% on certain

specific ras materials. Rajasthan exempts purchase of raw material for a few select industries but, in general, provides for a concessional rate of 1% for the purchase or raw materials by manufacturers.

iii) In the case of Central Sales Tax, variations exist on account of the provisions under Section 8(5) of the Central Sales Tax Act, which permits variations in rates to suit the specific requirements of a particular States. To illustrate, whereas the rate of tax on the re-export of goods from Delhi is 2%, in all the other NCR constitutent States, this rate is 4%.

iv) Taxation of road transport is another important issue which might be a contributing factor in sub-optimal decisions regarding location of economic activities. In fact, variation in the annual combined tax burden of both motor vehicle tax and the passengers and the goods tax among different constitutent States of the NCR might cause diversion of vehicles for registration in low-tax State. Consequently, the cost of transporting goods could be much more in low-tax area.

v) The prevailing practice of stock transfers and consignment despatches has also been considered as one of the most important factors which has resulted in concentration of wholesale distributive trades resulting into unbalanced development of trades in the Region.

vi) Incentives in Sales Tax are given in all the constitutent States of the NCR to attract new industries. These concessions are in the form of: (a) complete and un-conditional exemption from payment of Sales Tax for a limited period of time, (b) conditional exemption, depending upon the type of the industry, and (c) deferment of Sales Tax payment on finished goods as an interest-free loan for a limited number of years upto a specified limit related to the size of capital or assets of the manufacturer. Those concessions have wide variations in the constituent State of the NCR.

vii) Among the local taxes, Octroi is the most important sources of local finance. The rates of this tax vary widely from one constituent State to another. Besides the variations in the rates, there is a general feeling that this tax has several de-marits, such as hinderance to smooth traffic flow, corruption in its administration, high cost of collection, regressivity of incidence, collection of large revenue from inputs and producer's goods leading to cascading and perfunctory assessment of the tax,

7.2 For the balanced development of the NCR, it is necessary to look at the NCR as a unified area in economic terms. That is, inspite of its constituent parts belonging to different States, for a proper development of the Region, there is need for rationalisation of the fiscal policies to be adopted by the constitutent States/UT.

7.3 **Future action**

An expert study was commissioned by the Board through the National Institute of Public Finance and Policy (NIPFP) to examine the tax structure of the States comprising the National Capital Region and to suggest rationalisation of tax structure keeping in view the objectives of National Capital Region Plan certain important recommendation were also made in the Interim Development Plan, approved by the Board in February, 1987 after considering the proposals contained, in these. two documents, the Central Government, on the recommendation of the Board decided to refer the issue for indepth study to a Committee under Chairmanship of Secretary (U.D.). The Finance Secretaries of the participating States and the Delhi UT, along with the representatives of the Ministries of Home, Finance and Planning Commission were the other Members.

(Remaining text yet to come)

8

TRANSPORT

8.1 Background

The NCR Plan is based on the concept of developing the Region in a balanced manner with optimum growth. It would be multi-sectoral in its nature and scope, ensuring inter and intra sectoral integration. An integrated transportation system in this strategy would rather 'lead' than 'follow' development.

Existing Characteristics :

i) Transport Network Development

The existing primary transport network in the NCR exhibits a pattern of "radial corridor" development. There are nine major corridors in the transport network system. In addition, there are seven orbitals which provide the linkage among important urban centres of the Region. There has been a substantial increase in the volume of activities, work force and population along these corridors over the period, and as such, it is only logical that these activities and population attracting corridors are utilised to gain the prime objective of the NCR Plan of controlling the growth of Delhi through induced development of the regional towns by deflection of economic activities towards them.

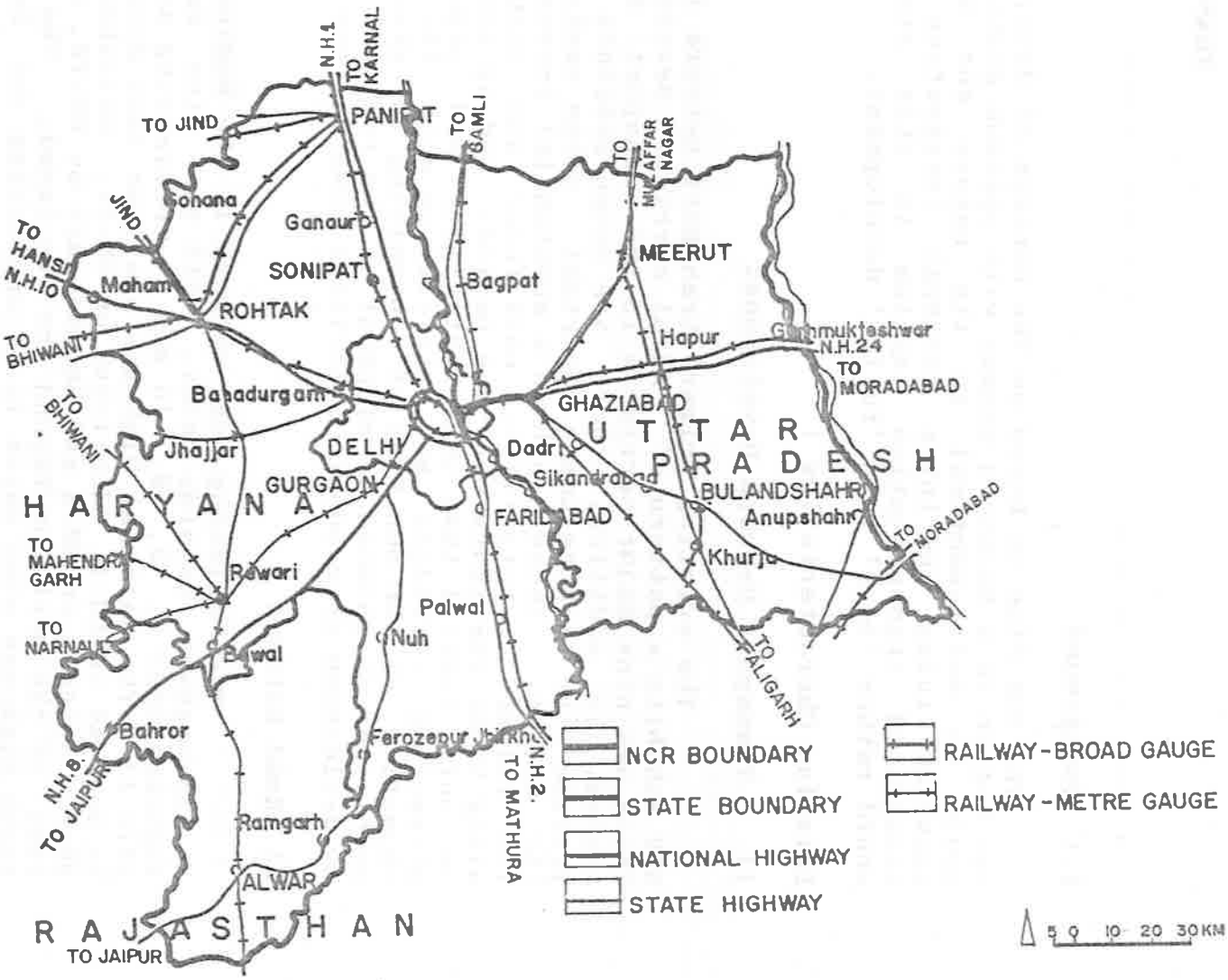
a) Road Network

The existing road network in the Region shows a convergence towards Delhi, with the five National Highways (NH) 1, 2, 8, 10 and 24 terminating at Delhi (Fig 4). The National Highways are four lane divided up to Sonepat on NH-1, Ghaziabad on NH-24, Ballabgarh on NH-2, Gurgaon on NH-8 and Bahadurgarh on NH-10, and the rest of the portions beyond are two laned. The twelve State Highways also serve in strengthening the Regional network. Most of the State Highways are single or intermediate laned except for very busy streches like Ghaziabad-Meerut and Ghaziabad-Bulandshahar which are two to four lanes.

b) Rail Network

The NCR rail network covers three zonal railways (Northern, Western and Central) and 5 divisions. The rail network in the Region consists of both broad and metre gauges, (Fig 4) and 5 railway lines converge at Delhi. The rail network has two specially identified lines known as the Goods Avoiding

Figure- 4 Existing Transport Network



Line (GAL) and the Delhi Avoiding Line (DAL). The GAL provides a direct entry from Ghaziabad into New Delhi, bypassing the congested Delhi Railway Station complex. The DAL provides a direct passage from the major yards-Tughlakabad and Ghaziabad directly into the Delhi-Ambala-Kalka section, and the sections through Lajpatnagar, Patel Nagar, Dayabasti, Azadpur link.

ii) Traffic volume : 1987

The transport development would be highly capital intensive and of long gestation period. It is therefore necessary to base the planning of regional transport system appropriate to different policy scenarios on a set of sound and reliable data . For this purpose, various traffic and transportation studies were got conducted through M/S Operations Research Group,Baroda. These studies threw up the under mentioned present and future characteistics of traffic flow in the Region.

(a) Road

Traffic volume count surveys to estimate the traffic intensity on different road links connecting all important centres in NCR show that the heaviest interactions take place on Ghaziabad-Delhi section (T. 8.1) followed by Delhi-Faridabad and Delhi-NOIDA. The composition of vehicular traffic on Delhi corridors of 5 National Highways is of 67.3% of passenger vehicles, 7.7% of buses and 25% of goods vehicles. Delhi emerges as a major point of attraction and generation in the Region, with relatively less interaction among the other towns.

(b) Rail

The line capacity in and around Delhi is heavily strained. The area around Delhi, within Delhi Division of the Northern Railway distinguishes itself from the rest of the Region and is commonly known as the "Delhi Area". 75% of the goods traffic and 65% of the passenger traffic are handled in this intensively worked Delhi Area through 65 goods trains and 230 passenger trains. Presently the inflow and outflow of commuter traffic which has a peaking character is not catered to effectively by rail transport. The 79 sub-urban trains on the 8 rail corridors are insufficient to cater to this load and the commuters have to often utilise the 29 long distance trains available to them during the peak periods. This usage has in turn affected the punctuality and departures of the long distance trains.

A pecularity of Delhi Area is that it also works as distributive centre for the areas in the Region due to convergence of major regional trains at Delhi and, lack of loading and unloading facilities at other railway stations in the Region. Train loads of freight traffic are also received into the Delhi Area, but no back bulk loading takes place.

iii) Passenger Movement -Road and Rail

The generation of total daily passenger movement by all modes in the Region is estimated at 8,84,000 (T 7.2). Share of rail to the total traffic generated is 23.7% and of public transport, about 32%.

Share of Delhi UT in the total passenger movement generated in the Region by all modes is the highest. There are quite a few urban areas such as Ghaziabad, Meerut, Faridabad, Rohtak, NOIDA and Bulandshahr which contribute to the Regional traffic generation but their share is comparatively smaller than that of Delhi.

(a) Per Capita Trip Rate

The per capita inter-urban trip rate for bus passengers varies from 0.021 for Delhi to 0.142 for NOIDA, that of vehicle passengers, from 0.007 for Delhi to 0.65 for Rohtak, and that of rail passengers from 0.011 to 0.085 (T. 8.2). These variations are found to be a result of both size and characteristics of an urban area. The general trend observed is that increase in population size and diversification of economic base result in decline in the per capita trip rate, whereas, increase in per-capita trip is an indicator of lesser degree of self containment of a town.

(b) Movement Pattern

Of the total passenger traffic by buses and that by private vehicles, the share of intra-regional passenger traffic by buses is 65% and by private vehicles 85% and the share of through traffic (both ends of the trips outside the Region) is very small. This shows that the bypassable traffic in the Region is insignificant (T 8.3).

In the case of urban nodes, the component of through traffic by bus via Delhi UT is only 8% whereas through traffic via Ghaziabad, Hapur, Panipat, Sonepat and Modinagar is as large as 60%. The bypassable passenger traffic by other vehicles varies between 20-80%. As such, it is apparent that the smaller the urban node for attraction and generation of the traffic, the

higher is the proportion of bypassable traffic, if the urban node lies on the main trunk route. Location of the towns vis-a-vis the routes being followed is also a factor which contributes significantly to the bypassable traffic. To quote an example, Ghaziabad, which is located at the confluence of three main corridors of movement is having the highest bypassable traffic.

iv) Goods Movement -Road and Rail

The total volume of goods moved on the regional road network of the NCR is about 1.92 lakh tonnes (1.84 lakh tonnes excluding through traffic) of which the share of Delhi bound traffic is about one-third while that of the other urban centres in relation to the DUT is very small.

Daily Goods Movement in tonnes

Mode	NCR	DUT
Road	191816	59980 (32.5%)
Rail	21585	12940 (60.0%)

In the case of railway goods traffic, the importance of Delhi is more overwhelming (60%) as compared to that of road. However, there are quite a few urban centres of significance namely Ghaziabad, Panipat and Meerut. Share of railways in total goods traffic attracted by the NCR (excluding through traffic) is only about 14%.

a) Movement Pattern

About 63.4% of the goods movement by road is inter-regional and 33% is intra-regional in nature while railways goods movement is inter-regional. The through traffic of goods movement by road is a mere 4%.

Goods Flow	Road(%)	Rail(%)
Intra-regional	32.4	0.4
Inter-regional	63.4	99.6
Through	4.2	N.A.

In intra-regional traffic movement by road, DUT followed by the other DMA towns are the important centres and, in the inter-regional movement, vicinity states of the NCR account for a sizeable share. For railway movement, the largest contributor to inward movement is the Eastern Railway followed by the Northern Railway.

b) Commodity Movement

Commodity composition of inward traffic in the shape of industrial raw materials- is more through rail traffic and less through road. In case of building materials, the share of both the modes are equal. Foodgrains account for a sizeable portion of road and rail traffic whereas vegetables and fruits are catered mainly through road transport. There are however large variations in the type of flow from one group to another.

Commodity	Road(%)	Rail(%)
Food grains	12.0	13.6
Vegetables & fruits	8.7	0.2
Manufactured food items	9.7	1.8
Industrial inputs	19.1	46.8
Manufactured household products	15.7	5.0
Building materials	20.4	18.6
Other industrial products	6.7	0.4
Petroleum Products	1.0	4.0
Miscellaneous items	6.7	9.6
Total	**100.0**	**100.0**

8.2 Traffic Projection-2001

The projection of traffic volumes, both of goods and passengers is to be necessarily based on the likely population size and economic base of the towns in the Region in order to accomplish the core objectives of a manageable Delhi subserved by a harmoniously developed Region by 2001.

DMA towns are to be contained in terms of location of large and medium industries allowing moderate growth in their population. These cities will have a balanced population-employment ratio.

The traffic forecast also takes into account balanced participation rates of the towns and the development of Panipat, Hapur and Alwar to grow as important industrial centres and Meerut, Rohtak and Bulandshahr to have higher growth of trade, services and industry.

i) Passenger trip projections

Besides behavioural and operational aspects of future travel demand pattern, the forecast of future passenger traffic assumes that:

(i) trip rate (inter-urban) by each mode is a function of the population size of an urban area, its socio-economic base and also locational factors, particularly the relation between the resident workers and jobs. These factors are, in a sense, reflected in what may be called the degree of self-containment of an urban area. The higher the degree of self-containment the less is the per ca- pita trip rate (inter-urban)as in the case of DUT. Other factors like per capita income and behavioural parameters, though important in some cases, have not been explicitly taken into account
and,

(ii) the trip rate for railway is both a function of the variables noted above and also the availability of the facility itself.

Accordingly the volume of trip generations through the total vehicle passenger and public transport for Region as a whole are forecast at 7.84 lakhs and 19 lakhs respectively (T. 8.4). On the basis of assigned population, economic base and trip rate, the lowest growth rate of passenger trip will be for DUA and Ghaziabad, (though the projected absolute volume of increase for DUA is much larger compared to other areas), whereas a higher growth rate is forecast for towns with expected high degree of industrialisation and trading activity such as Alwar, Panipat and Gurgaon .

a) Projected traffic Flows : Road

The total traffic projected to move by bus and passenger vehicles are 13.99 lakh trips and 4.77 lakh trips respectively. The present distinct concentration in Delhi of about one-third of the trips currently being generated and attracted by it, is however projected to decline to about 19%. But in absolute terms, there would be an increase in the generated and attracted traffic of Delhi due to increase in population size by 2001.

Mode	1987		2001	
	Generated %	Attracted %	Generated %	Attracted %
Bus	32.2	32.6	19.5	19.3
Passenger	23.7	26.1	19.4	19.9
Truck	22.0	32.6	13.8	19.1

b) O-D Flows - 2001

Vehicle Passenger : An important change is predicted in the gain in movement to and from DMA towns exception being NOIDA which will continue to have a limited interaction (only with Delhi). Among the priority towns, interaction with Meerut, Gurgaon, Panipat and Alwar gains significantly so also rest of the NCR in UP with Hapur as centroid. The other important change in the redistribution of flows is the likely reduced importance of Delhi based flows.

Bus : currently, the bus passenger flow originating from or terminating at Delhi shows that about one-third of the total trips made within or through the NCR have one end of their trip at Delhi. This is estimated to be about 19% by 2001. However, in absolute number of Delhi based trips the increase will be about 1 lakh after taking into account the impact of improvements in rail system. The intra-regional share of public transport is projected at 54% which is less as compared to the present share due to larger railway share in intra-regional public transport. Major movements follow similar pattern as that of vehicle passenger but the proportion of larger distance trips will be more. A significant forecast is of larger number of flows between the priority towns and the DMA towns.

ii) Goods traffic projections

The goods traffic generation is explained more by economic activity base than population size. Accordingly, projections of goods traffic are based on employment in large, basic and small scale industry and indices of volumes of wholesale and retail trades.(T. 8.5)

The share of intra-regional traffic will remain less (36%) compared to the bulk of inter-regional traffic. The share of Delhi will fall from 25% to about 15% by 2001. The goods traffic flows between the priority towns and DMA towns will go up in future. Major traffic flows are expected with outside the region. However, Ghaziabad, Faridabad and Panipat show an increasing trend.

8.3 Objectives

The objective of the transport plan is to promote and support the economic development of the Region and, relieve the Capital of traffic congestion. It is to provide accessibility to all the parts of the Region and discourage the transit of passengers and goods

through the core area - Delhi by providing bypasses and there by opening areas for economic development of the rest of the Region.

8.4 Policies and Strategies

Transport is essentially looked upon as a service. It has all its economic by-products. A sound transport policy will be a catalyst for the growth and economic development of the identified (priority) areas and also influence the direction of growth. The development strategy includes:

i) interconnection of regional centres among each other, and with the Capital by efficient and effective network system for free movement;

ii) provision of shortest and free movement network to inter connect the maximum traffic attracting and generating urban nodes in the Region to diminish the centrality of Delhi;

iii) decongestion of Delhi roads and terminals by diverting the bypassable long distance through traffic;

iv) provision of suitable fast sub-urban operating system for efficient and effective movement of commuters and for boosting of the development of economic activities in the urban nodes of the Region ; and

v) integration of road and rail network system in Delhi, DMA and rest of the Region with appropriate inter-facing facilities.

8.5 Programmes and Proposals

The transport plan study concludes that existing transport system will be highly inadequate & ineffective to cope with the projected flow of traffic in the Region by 2001. To supplement the present transport network the Plan proposes the following:

i) Proposals for the Road Network

On the basis of evaluation of alternative road networks and also, expected role that railway system would play in carrying additional passenger traffic, the road network will include (Fig 5):

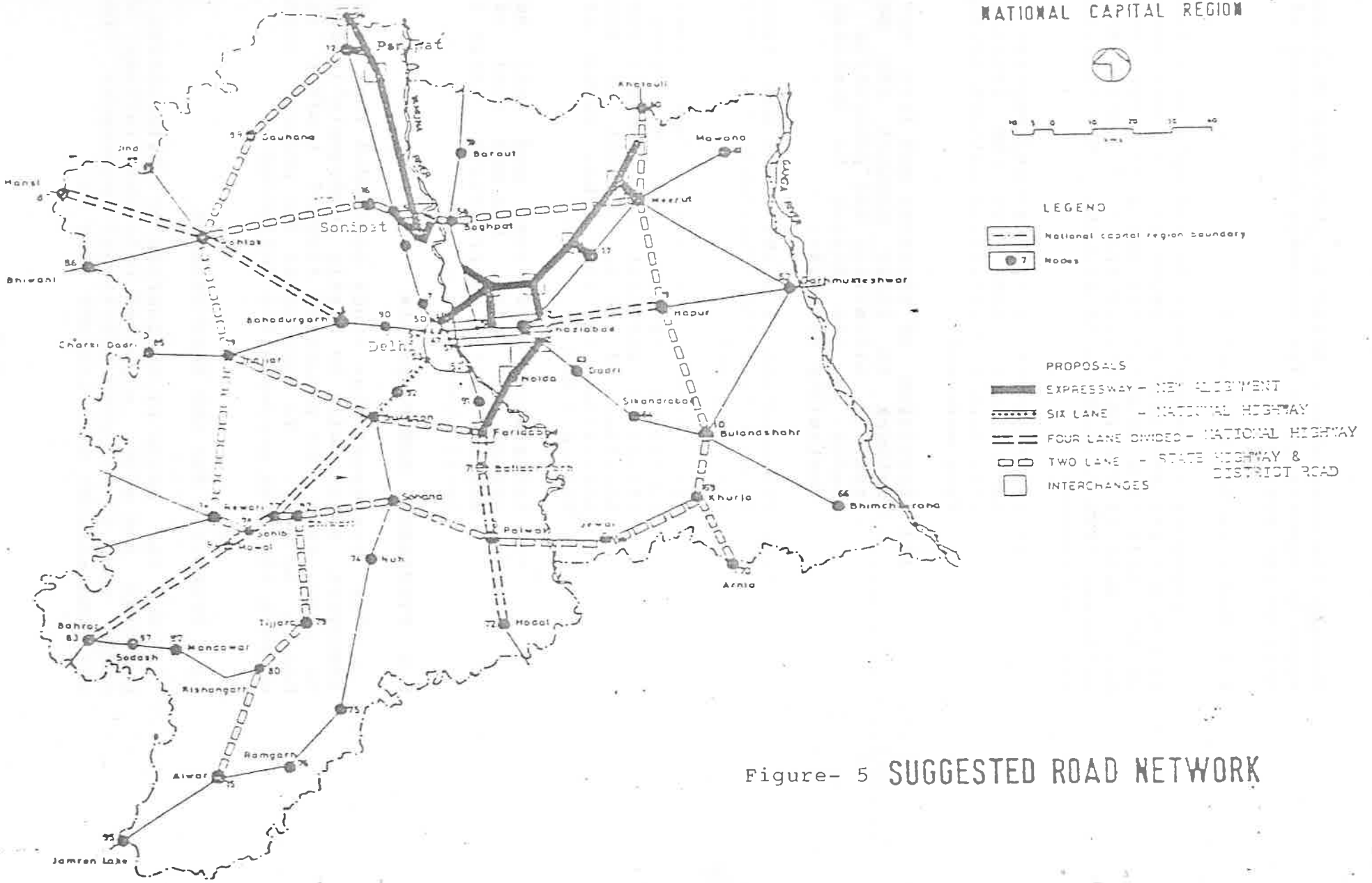


Figure- 5 SUGGESTED ROAD NETWORK

a) Expressways on new/parallel alignments,
b) Upgradation of existing National Highways,
c) Development of inner and outer grids, and
d) Sub-regional road network.

a) Since the conversion of existing National and State Highways to Expressways will face several constraints in terms of clearing the large built-up areas within the right of way and, also a very large number of junctions/crossings, particularly on the Delhi - Meerut and Delhi - Panipat cooridors, development of Expressways (4-lane divided initially with full access control and all intersections grade seperated) on entirely new/parallel alignments have been proposed. The Expressway on a new alignment shall lead to sizable savings in travel time, fuel cost and increased convenience of free and faster travel leading to an overall monetary savings of about 100% over and above the savings by improvement of existing road network. The three expressways have been proposed as below :

Upto 2001 :

On parallel alignment i) between Delhi-Ghaziabad-Modinagar-Meerut, and ii) between Sonepat-Panipat, and on new alignment iii) connection between Faridabad-NOIDA-Ghaziabad.

Beyond 2001 :

On parallel alignments i) connecting Delhi-Gurgaon-Rewari-Alwar/Behror ii) between Delhi-Sonepat connecting the Sonepat-Panipat Expressway, and iii) connecting Delhi-Faridabad-Palwal-Hodal, with a link to Faridabad-Ghaziabad Expressway and creation of additional capacity for traffic between Delhi and Faridabad.

b) Upgradation/widening of existing National Highways by 2001:

i) Development of Delhi-Gurgaon stretch to 6 lanes,
ii) Development of Ghaziabad-Hapur stretch to 4 lanes,
iii) Development of Gurgaon-Behror to 4 lanes,
iv) Development of Bahadurgarh-Rohtak-NCR Boundary to 4 lanes, and
v) Development of Faridabad-Hodal to 4 lanes.

c) Development of an inner grid and an outer grid (2 lane initially with ultimate capacity of 4 lane divided

highway).

Inner Grid :

i) On new alignments to connect Jhajjar-Gurgaon-Faridabad and Murthal-Baghpat, and
ii) Strengthening and widening of existing alignments on Rohtak-Sonepat-Murthal and Baghpat-Meerut.

Outer Grid :

i) Strengthening and widening of existing alignment on Palwal-Sohana-Rewari-Jhajjar, Rohtak-Gohana-Panipat, Meerut-Hapur-Bulandshahr-Khurja-Palwal, Khurja - NCR boundary (South) and Meerut-NCR boundary (North).

d) Sub-regional road network

Smaller towns of the National Capital Region have been stagnating mainly because of their location in the shadow of bigger urban centres. However, their economy could be revitalised by providing suitable infrastructure facilities so that they act as link between the rural areas and the bigger urban centres besides acting as service centres for the rural population. Transport network would be able to provide the initial momentum for their regeneration. Efforts would be to inter-connect the same order centres directly and the lower order centres with their nearest higher order centres. A system of feeder roads of higher standard would be evolved to connect the work centres, industrial estates with the nearest regional or sub-regional centres. This will be dealt in Sub-regional Plans in detail.

ii) Proposals for the Railway Network

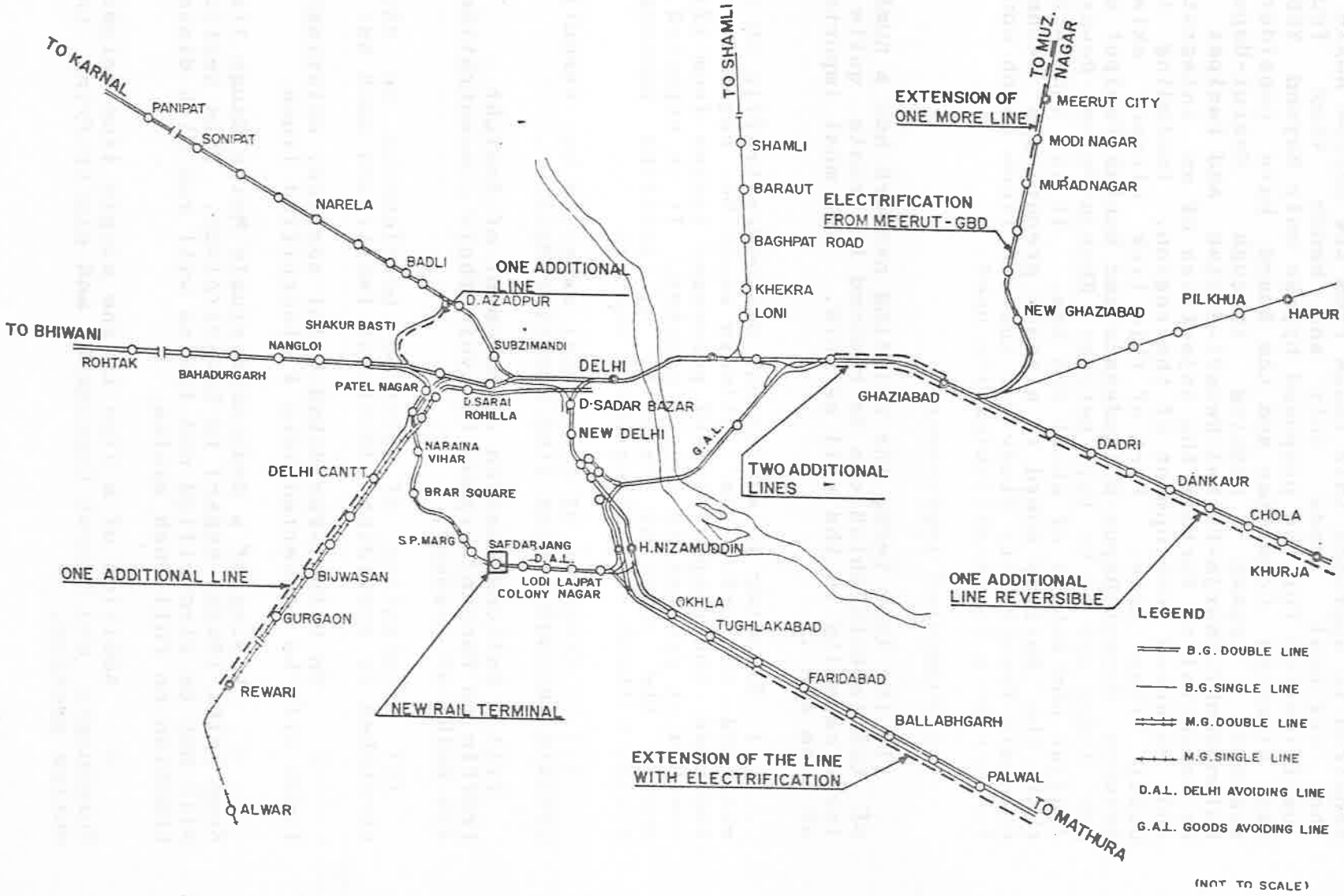
The projected total passenger traffic suggests a need to improve railway system. Accordingly a regional rail bypass and several improvements (Fig 6) are envisaged:

a) Regional rail bypass

Studies on Transportation Network for the Delhi Urban Area have established the need of creating new railway lines to bypass through traffic from Delhi Area. This has also been found necessary in those studies in order to release the existing capacity for the needs of sub-urban and daily commuters' traffic in the Delhi Urban Area. Such a Regional Bypass would further give a tremendous boost to the economy of the region by opening of new areas and help in fulfilling

Figure - 6 PROPOSED RAIL NET...

Figure – 6 **PROPOSALS FOR RAIL NETWORK**



the national objectives of movement of bulk goods. The study conducted by Operations Research Group was required to approach this issue from the narrow angle of the regional needs only and hence they found justification for the proposed bypass only beyond 2001. The Planning Committee and the Board have considered regional bypass passing through Meerut-Hapur-Bulandshahr-Khurja-Palwal-Rewari-Rohtak and Panipat to be essential to further the objectives of an integrated and balanced development of the region, including the Delhi Urban Area. Part of this link already exists between Meerut-Hapur-Bulandshahr and Rohtak-Panipat and new lines are to be laid between Khurja-Palwal-Rewari-Jhajjar and Rohtak of about 205 kms. It is understood that the Railway Board is already preparing a Techno-Economic Feasibility Study for the new lines which would further help in establishing its need.

b) Suggested improvements

In the long term, the existing network has a number of bottlenecks which can be removed to create quite a large capacity in the rail network. The most important of them are :

i) To cater to additional passenger traffic in the existing network, the railways would be required to increase the composition of passenger trains from 12/13 coaches at present to twenty coaches. It is expected to double the carrying capacity of existing passenger trains without increasing their number.

ii) Creation of additional capacity by rerouting certain through trains like Frontier Mail,

iii) Rationalisation of movement of freight traffic to Punjab/Haryana to avoid their concentration via Delhi at present,

iv) Elimination of existing bottlenecks on short stretches by providing additional facilities such as:

- On Palwal-Faridabad-Delhi section, existing 3 lines will be converted into 4 electrified lines,

- Laying of a dedicated single Metre Gauge line from Delhi (Patel Nagar) to Rewari/Alwar. This section will not be electrified and trains will run with diesel traction on Pull-Push system,

- Addition of a line to the single line between Muradnagar and Meerut Contonment and electrifying the entire section,

- Quadrupling of Ghaziabad-Sahibabad section, with electrification,

- Provision of an additional third line (reversible) and, a fly over at Khurja to enable traffic to move from Bulandshahar to Ghaziabad.

v) In addition, it would be necessary to develop an operating complex at Patel Nagar/Brar Square and station facilities at Safdarjung Railway Station.

iii) Proposal for Air Ways

Regional Centres are to be developed on a priority basis by inducing their growth through economic activities. It is necessary to study the possibilities of extending air services to these towns through short distance carriers.

iv) Inter-Facing

The foregoing proposals are primarily based on the inter-urban movement requirements in the Region. Another important component of transport flows is intra-urban movement. The synthesis which would be required between the two can only be achieved through a proper planning of inter-facing facilities. The two major points for consideration are:

a) the effects of the inter-urban movements on intra-urban circulation pattern, and
b) the consequent need for new terminals, if any.

The problem of circulation is mainly expected to be felt in Delhi rather than in other centres of the Region, because most of the other towns would be served through a bypass road (as proposed) which would mitigate the problem of through traffic. The projected daily traffic by 2001 which would use Delhi's network will be 144% more than the existing traffic:

Year	Passenger Vehicles	Buses	Goods Vehicles	Total
1987	53890	25370	77320	156580(100%)
2001	92270	42400	149500	284170(144%)

The existing outer ring and ring road in Delhi which are the main arteries for dispersal of regional traffic will not be able to effectively cope with collection and dispersal of inter-urban traffic in the future. Similar will be the problem in rail network in catering to the needs of the future passenger and goods

movement. This suggests the need for another concentric ring of a limited access type and preferably not having any major points of origin/destination for the regional traffic along it.

The integration of the regional network with that of urban area network specially for Delhi should be examined from the point of view of accessability to the four integrated metropolitan passenger terminals and freight complexes proposed in Delhi Master Plan 2001, which will also serve DMA.

These terminals and complexes should be along the proposed concentric ring and also connect the existing outer ring road so that the inter urban traffic would flow either through these regional roads or proposed expressways and, follow the proposed ring upto its metropolitan passenger terminals/freight complexes. It would branch off using the existing connections nearest to the proposed terminals/complexes and to the proposed ring. Similarly, in other important urban nodes of the Region, the terminal facilities would need to either drastically expand their existing facilities or go in for suitably located terminals.

v) Integration of transport services

The problems of Regional transport in the NCR are of a varied nature. At present various transport Authorities/Agencies are responsible for planning, development and managing transportation facilities and services. They operate, in large parts of this Region independently of each other. This results in avoidable long journey, time, expediting of more money. The responsibilities for providing transport facilities and enforcement of rules and regulations are often fragemented and vague. The agencies charged with such responsibilities need to be strengthened and a coordinating agency needs to be constituted with representation of various transport authorities, which would coordinate and take an overall and integrated view of the total transportation system in the Region. This agency will be for the entire Region, having a long term goal of planning and development of a co-ordinated network of tranport services.

The recommendations contained in the Draft Regional Plan-2001 and the Interim Development Plan for setting up of a unified Regional Transport Authority for the NCR was referred to, by the Ministry of Urban Development, to the Task Force which went into the question of a MRTS and similar Authority for Delhi. However, no recommendation in this regard has been made in the report of the Task Force. An earlier attempt by the Ministry of Surface Transport to achieve, effective

co-ordination through inter-State Transport Commission under Section 63-A of the Motor Vehicles Act, 1939 on a much bigger scale has also not met with much success. There is no other provision in the Motor Vehicles Act which could enable the setting up of such Authority. Nor does NCRPB Act has any such provision. An Authority for the Region could therefore be set up either through fresh Legislation under clause (1) of Article 252 of the Constitution with the consent of of the participating States or through a Resolution of the Board itselfwhich obviously would be of a non-statutory nature. It is felt that in the present situation only this course of action of setting up of an Authority or any other co-ordinating Body through a Resolution of the Board would be achievable.

9

TELECOMMUNICATIONS

Telecommunication is a vital and essential infrastructure for socio-economic development. It can replace to a large extent the personal travel and as such, can become very cost effective. Telecommunication services could be complementary to other investments in the development process which enhances the productivity and efficiency in other sectors.

Provision of telecommunications facilities assumes a special importance in the context of the NCR, where not only decentralisation of economic activities is envisaged from the metropolis to areas outside but also induced development of the priority towns. These towns are proposed to be developed with a diversified economic base where secondary and tertitary sectors will form the dominant economic activities. These sectors are much more dependent on telecommunication services. More over Delhi, the mother city will continue to remain as the centre of decision making and a window to the outside world and, telecommunications links shall provide the means of information so necessary for business decisions.

In the 8 priority towns/complexes identified for priority development, the existing telecommunication facilities are inadequate in terms of their capacity and sophistication of technology. Some of the existing facilities have out-lived their design life and have become inefficient. The telecom services especially in the Region between the National Capital and the towns around are highly unreliable and inadequate. An overview of the existing telecom facilities in the DMA and priority towns shows that the existing capacity varies from 100 to 7600 lines whereas the wait listed demand ranges from 3 to 7585, the maximum being in Faridabad as of 1987. (T 9.1)

The telex facilities are available only in a very limited number of towns such as Faridabad, Gurgaon, Panipat, Alwar, Meerut, Ghaziabad and Loni and their capacities are expected to be augmented by the end of the Seventh Plan by when a few more DMA and priority towns of the Region like Bahadurgarh, Dharuhera, Kundli and Khurja are also envisaged to be covered. (T 9.2)

The priority towns are to be developed faster so as to absorb more economic activities and thus to attract the Delhi bound potential migrants to an extent of 19 lakhs by 2001 A.D. For an effective realisation

of this goal, and development of economic activities especially relating to industries, trades and commerce telecommunication facilities would be essential.

Moreover, in order to make the priority and DMA towns as attractive as Delhi in respect of provision of employment opportunities and standard of living, the facilities in these towns should be made comparable to that of Delhi.

In order to achieve the objectives, the proposals are :

i) full automatisation of telephone services,
ii) replacement of all life expired exchanges and related accessories,
iii) provision of telephone and telex facilities practically on demand,
iv) extension of subscribers dialling facilities between Delhi and priority towns and also the other DMA towns to start with,
v) connection of priority and DMA towns with Delhi by reliable cable and radio media,
vi) provision of reliable trunk services either by direct dialling or through demand services among the priority towns and DMA towns,
vii) extension of telegraph office facilities to all the towns as may be justified,
viii) as the telecommunication facilities are as important as other community facilities and the land use Plans of towns, the planning and development agencies should take note of the proposals so as to provide adequate land in appropriate locations for provision of these facilities right at the planning stage;
ix) provision of a separate electricity feeder to the telephone exchanges for the smooth and undisrupted services,
x) provision of underground ducts in Delhi and other big towns of the region for telephone cables for their safety and better maintenance,
xi) replacement of all the manual and mechanical exchanges in Delhi as well as other towns of the Region by electronic exchanges, and
xii) as the National objective, provision by the Department of Telecommunications of connections between all State capitals and Delhi, District headquarters and State capitals, smaller settlements and District headquarters and, also clearences of the waiting list for telephone

connections upto March, 1987 with in the Seventh Plan itself.

On the basis of likely level of economic activities in the priority towns and the DMA towns, the telecom demand has been projected by the Ministry of Telecommunications and targetted to be achieved in 3 successive phases namely by 1990, 1995 and 2001 AD coinciding with national Five Year Plans (T. 9.3). However, necessary adjustments should be made in the Plan provisions wherever possible, to accelerate the achievement of these objectives.

10

POWER DEVELOPMENT

10.1 Background

Electricity, one of the most important forms of energy, is the life-blood of modern society. It is indispensable for any development whether industry or agriculture, and for improving the living standards of the people.

i) Power generation

a) Existing : The National Capital Region falls in the Northern Power Zone and has in operation six power generating stations five thermal and one gas fired. Three stations are in Delhi UT run by the Delhi Electricity Supply Undertaking (DESU) and the rest three in the Haryana portion of the NCR, two run by the Haryana State Electricity Board (HSEB) and one by the National Thermal Power Corporation (NTPC). The aggregate installed capacity of these generating stations is 1834.1 MW.

b) Under construction : Of the five power plants with a total installed capacity of 1665.3 MW under construction, three are thermal, one micro hydel and, one nuclear type (T 10.1). 815 MW of power would become available from four plants with in the Eighth Plan. Thus, the total installed generating capacity by the end of 1995 in the NCR would be around 2644 MW.

ii) Power supply position : 1986-87

a) Delhi UT : The maximum demand for power in Delhi has already reached 968 MW (August, 1986). The present availability of power to the DESU from its own sources is limited to about 200-250 MW from I.P. station. A gas turbine generator with an installed capacity of 180 MW has already been commissioned in November, 1986, which will take care of the peak load requirement of Delhi. The Badarpur Thermal Power Station (BTPS) supplies 400-450 MW to Delhi. The DESU has also a share in the Centrally sponsored schemes like Singarauli Super Thermal Power Station, Bairasiul Hydro Power Station and Salal Hydro Power Station. During 1986-87, Delhi UT required 5676MU against which the supply was 5674 MU-a shortage of only 2 MU or 0.04%.

b)Haryana : Haryana, in addition to receiving power from its own generating stations, receives power from Bhakra Nangal complex, Dehar and Pong power houses under Bhakra Beas Management Board (BBMB), Bairasiul Hydel station and I.P.Station (Delhi) to meet its

demand. In Haryana, during 1986-87, against the requirement of 5945 MU of energy, only 5147 MU was available and thus there was a shortage of 13.4% which reflects the power position of the Sub-region also.

c) Rajasthan : Rajasthan's power demand is met by the generating stations owned by the Rajasthan State Electricity Board, the BBMB system, Singarauli Super Thermal system and the neighbouring states. In Rajasthan, aganist the requirement of 8090 MU of energy, 7448 MU was available during 1986-87, and thus, there was a shortage of 7.9%. However, due to some preferential treatment to the industrial areas of Alwar and Bhiwadi, shortage of electricity has been a minor constraint.

d) Uttar Pradesh : Uttar Pradesh receives power from the integrated grid of the Uttar Pradesh Power System and the Northern Regional Grid. The Uttar Pradesh Power System is being operated in synchronisation with the Northern Region Grid comprising Jammu and Kashmir, Punjab, Himachal Pradesh, Haryana, Delhi, Rajasthan and part of Madhya Pradesh. Against the requirement of 20204 MU, the supply was only 17198 MU during 1986-87. Thus, there was a shortage of 14.9% in the State. Once again, the towns and industrial areas at Ghaziabad and NOIDA have been getting a preferential treatment in respect of power supply.

Month-wise energy shortage during the period April, 1986 to March, 1987 shows that except Delhi, the other States of Haryana, Rajasthan and Uttar Pradesh faced energy shortages throughout the year. However, the position of Rajasthan was comparatively better than that of Haryana and Uttar Pradesh.

iii) Pattern of energy consumption

During 1985-86, the total energy consumption was of the order of 7530 MU of which more than one-third was by the industrial sector, nearly one-fourth by domestic use and one-seventh by agricultural use.

In all the participant States, the energy figures refer to restricted supply only. The Rajasthan Sub-region relatively tops in industrial use accounting for 80% of the energy consumed in the Sub-region followed by the Haryana Sub-region with 51% and the Uttar Pradesh Sub-region with 40%. In Delhi, domestic sector consumes the maximum, accounting for one-third of the total consumption. Agriculture ranks second in energy consumption in the Haryana, Rajasthan and Uttar Pradesh Sub-regions. In the Delhi UT, domestic use leads in energy consumption with one-third, followed by industrial and commercial sectors (T 10.2).

iv) Per capita consumption

Per capita energy consumption is a barometer of the status of economic development. As of 1985-86, the per capita consumption for the Region as a whole was about 340 units against the Delhi's 580. All the NCR States consumed less than the regional per capita consumpption and, the Uttar Pradesh Sub-region is the least with 236 units. Among the various loads, the industrial load leads with a per capita consumption of 127 units compared to 78 by domestic use and 48 by agricultural sector. Commercial sector accounts for the least of 42 units.

v) Rural Electrification

Electrification of villages and energisation of pump sets is indispensable for improving the living standards of rural population. In the Region as a whole, about 80% of the villages are electrified. All the villages in the Union Territory of Delhi and in the Haryana Sub-region are electrified. In the UP and the Rajasthan Sub-regions, only about 60% and 90% of the villages had been provided with electricity respectively till the end of March, 1987. About 2.12 lakh pumpsets have been energised in the Region. The figure is expected to reach a minimum of 2.37 lakhs by the end of the Seventh Plan. (T 10-3)

10.2 Load forecast - 2001 AD

The demand for power has been generally rising at a rapid rate in the constituents of the Region. The demand has invariably outstripped the availability of power causing wide spread shortages of power all over the Region except Delhi. To manage the situation, the State Electricity Boards have imposed varied restrictions, from time to time during the last decade, both on the demand and energy requirements. The increase in electricity consumption reflects the increase in availability rather than the demand for it. Adjustments have, therefore, to be made in the forecast to take care of the suppressed demand on account of restrictions imposed on the consumption.

In forecasting the load for the NCR, the intended economic structure in terms of dispersal and informal occupation biased composition of the industrial and other economic activities, including the tertiary occupations, need specific attention.

At present, the broad indications are that the rural-urban population ratio will undergo a substantial change by 2001, the induced development in the selected towns for development on priority basis

will be mostly in the form of industrial and commercial activities and, also as per the policy directives, the norms and standards of civic services including power supply in the DMA and priority towns will be comparable to that of the Delhi UT. The categorywise percapita consumption as of Delhi can be taken as the targets to be achieved in stages. In certain sectors, however like commerce, the participating States cannot match with Delhi as is evident from the energy consumption pattern of the States : it is less than 5% in the participating States against the 21% consumption in Delhi.

The State Electricity Boards and the DESU have forecast the unrestricted load/energy demands upto 2001 and the Central Electricity Authority has, in view of the development proposals adjusted the forecast upwards.

i) Upto the Seventh Plan and 2001

The regional demand for power will be 3077 MW by the end of the Seventh Plan which will shoot upto 12032 MW by 2001 with the corresponding energy forecast of 15871 MU and 61624 MU (T10.4).

a) Delhi UT : The maximum demand of power in Delhi has already reached a figure of 968 MW (August, 1986) and, as per projections made by the 13th Electric Power Survey Committee of the Central Electricity Authority, the demand is expected to go upto 1423 MW by the end of the Seventh Five Year Plan and 5871 MW by 1999-2000 against the expected peak availability of 839 MW from 1989-90 to 1999-2000 excluding shares from other Central sector projects. In terms of energy, the corresponding requirement is forecast at 7586 MU and 28233 MU which gives a growth rate of 9.50% per annum.

b) Haryana Sub-region : The peakload is estimated at 825 MW by the end of Seventh Plan which will go upto 3678 MW by 2001 with the corresponding energy requirements of 4046 MU and 18024 MU. The average growth rate is 9.61% per annum.

c) Rajasthan Sub-region : The peakload is projected at 154 MW 1989-90 and 706 MW by 2001, the corresponding energy being 811 MU and 3716 MU. The growth rate is 10.68% per annum.

d) Uttar Pradesh Sub-region : The peakload by the end of the Seventh Plan will be in the order of 675 MW and this will build upto 2883 MW by 2001, the corresponding energy demand being 3428 MU and 13651 MU which gives a rate of growth of 9.65% per annum.

10.3 Policies

i) To help develop the regional and sub-regional centres in particular and the Region in general, uninterrupted power supply in adequate quantity should be made available in the entire NCR.

ii) Preference and priority in making available the additional power to the NCR should be given utmost attention.

10.4 Issues and proposals

i) The constituents of the Region have been continuously experiencing shortage of power for quite some time and, their actual demands have thus always been the suppressed ones. The tentative assessment of power position by the 13th Electric Power Survey of India shows that the energy shortages would be to an extent of 16.6% in Delhi UT and 28.1% in the State of Rajasthan by the end of the 7th Plan. It may be noted that in the Sub-regions of the NCR, as of 1986-87, the deficit varied from 25% to 35% except in Delhi U.T.

ii) The envisaged induced development of the selected urban areas at the Regional and Sub-regional levels would require more power. The rural areas where accelerated development programmes are to be taken up would also require more power than at present. Thus, the proportions of the States under the NCR would demand substantial additional power as against the other parts of the States. State Governments with their own preferences and priorities will not be in a position to treat areas of the NCR under their States in a special and preferential manner for the purpose of supply of additional power. Department of Power, Ministry of Energy is of the view that the allocation of additional power particularly from the Central power stations is to meet competing claims from different sectors including central core industries and services and thus it would be difficult for allocation of additional power for the NCR. But in order to meet the objectives of the NCR which is time bound, it is an imperative necessity to provide by any means additional power to the Region. The Central Government, on the recognition of the fact that it was its rsponsibility to save the National Capital, created the National Capital Region Planning Board to prepare a Plan to achieve the objective of a manageable Delhi in the foreseeable future, and as per the Plan strategy if adequate power is not made available to the NCR, it would never be possible to realise the objectives. It is, therefore, incumbent on the Government of India to provide additional power to the Region through any arrangement considered appropriate to the Government.

It is also for the Central Government to provide for generation of additional power through the Central sector projects, if required, and thus it should lead in finding additional power from its own sources.

iii) Under the provisions of the Central Electricity (Supply) Act, 1948 and also in view of the problems and difficulties envisaged in organising generation and distribution of additional power for the NCR in isolation, it is proposed to set up a Coordinating body which will mainly arrange and coordinate distribution of power, if additional power is made available from the Central/State sources for the NCR. Such a Committee would be set up under a resolution of the NCR Planning Board. The Committee will be headed by the Member Secretary of the NCR Planning Board and will include representatives of the State Power Departments, State Electricity Boards and representatives of the Department of Power and Central Electricity Authority.

iv) The additional power, once made available, should reach all points of consumption through optimum transmission and distribution network. The State Electnicity Boards and the Central Electricity Authority have indicated that the present system of distribution network would not suffice to cope with any additional power distribution. The constituent electricity authorities have, therefore, worked out the distribution network requirements in the respective portions and the network comprises sub-stations, tie-lines, transmission and distribution network etc. According to the Ministry of Energy, to implement an additional transmission network within the parts of the NCR States, the prevailing power management structure in the States would ce technical difficulties to deal with the NCR in isolation. Here again the Central Government should lead in finding suitable solution for creation of an appropriate network for the distribution of power within the NCR.

11.1 Background

i. Water Supply

The Region is endowded with three perennial rivers namely the Yamuna, the Hindon, both traversing through and, the Ganga skirting its eastern boundary. A good network of water canals benefit the districts of Karnal, Rohtak, Faridabad, Bulandshahr and Ghaziabad providing water for irrigation and domestic consumption. Other districts draw water from sub-surface sources through handpumps, wells/tubewells and, in Delhi, Ranny wells also. The sub-surface water resources to the west of the Yamuna are however, insufficient, and often brackish in quality rendering it difficult for domestic consumption. Scanty rainfall in this area leaves the groundwater resources limited and, the tubewells go dry as the water table sinks deep in the summer months. There is generally shortage of water supply in the areas west of the Yamuna and, the problems assume acute proportions in dry months.

a) Urban : All the 94 urban centres except 20 urban centres have organised water supply systems of drawing water from tubewells, wells and canals. The per capita supply ranges from 17 to 240 lpcd. Only in 20% of the urban centres, the water treatment is complete and in others, it is partial (T 11.1).

b) Rural : Rural water supply position in the Region presents a very dismal picture. Many villages do not have adequate sources of water supply. Only one in every eight villages has some form of protected or organised water supply. The main sources of water supply are canals and wells in Haryana Sub-region whereas, handpumps are invariably restricted to the Uttar Pradesh Sub-region (T-11.2).

ii. Sanitation

a) Sewerage : Poor sanitation gives rise to high incidence of water-borne and, water and sanitation related diseases. The percentage of high infant mortalities in the NCR is indicative of the poor state of sanitation measures available in the Region. Sewerage system, that too partly exists only in one fifth of the number of towns. The system is mostly water-borne often supplemented by septic tanks and sanitary latrines. A number of urban centres have only

sanitary latrines. The sewage is treated partly in four towns. In all the others, the raw sewage is let off into the drains, rivers and in many cases, the sewage stagnates in the depressions or in drains that create an unhygienic environment (T 11.1).

b) **Storm water drainage :** In nearly 60% of the towns, the storm water drainage system exists, but in all, only in two towns the coverage is full. Almost in all cases, the drains are open. In many towns, the system is combined where storm water and the sewage flow together. The disposal of the storm water is invariably unplanned and is allowed to flow its natural way on land,into depressions, ponds and drains (T 11.1)

c) **Solid waste disposal :** A system exists to dispose of the solid waste in nearly 60% of the towns. Unscientific land refill and open dumping are the methods prevalent in the towns in disposing the wastes. (T 11.1).

d) **Rural Sanitation :** In none of the villages, a system to take care of its sanitation is reported to exist.

11.2 Issues

i) The Region on the whole does not receive adequate rainfall. In order to attract the Delhi bound potential migrants to the regional towns identified for development on priority basis, and also to discourage out-migration from the rural and urban areas of the Region to Delhi, one of the strategies is that the essential services such as water supply, sewage and sanitation are provided at desirable norms and standards comparable to that of Delhi. Presently, the supply standards are far below the desired norms in the towns and, in the rural areas organised, or protected water supply is rarely provided for want of institutional and financial arrangements.

ii) Sanitation in the Region is very poor resulting in high incidence of water borne diseases. The environmental degradation and insanitary conditions need proper and immediate attention with the conscious efforts of the local bodies and the State Governments concerned.

iii) Storm waters are invariably allowed to flow its natural way on land into depressions, ponds and drains. More often, it is combined with sewage. Unregulated flow of storm water erodes as well as silts agricultural fields and stagnates creating environmental problems. This needs a planned and integrated approach alongwith sewage disposal.

iv) Disposal of garbage in general is given the least attention. Scientific management of solid wastes would help in recycling it partly and through sanitary refilling that would render the environment hygeinic and clean. This requires proper education and training of the people in general and institutional arrangement in particular.

v) Rural zone which greatly lacks sanitation measures needs adequate attention to be given so that healthy living environment is ensured which will help the rural population live healthier which would also avoid possible out-migrantion to urban areas.

11.3 Policies and Proposals

i) Urban Water Supply : The water supply norms and standards of the urban areas particularly of the DMA towns (excluding Delhi UT) and priority towns should be comparable to that of Delhi.

In view of the target of achieving a balanced and harmoniously developed Region, the standards and norms of water supply should be uniform for the entire Region whether urban or rural areas.

Accordingly keeping in view the minimum level of water supply that should be expected to be achieved, and the minimum in the accepted range of norms which should be possible depending on the local conditions and resources, the following norms are proposed:

Urban Centres with population	lpcd
- 5 lakhs and above	275
- 2 to 5 lakhs	225
- 1 to 2 lakhs	100 minimum

- For the DMA towns and priority towns, the starting point should be 225 lpcd with the target of achieving 360 lpcd by 2001. The requirements should be graded according to the size of the projected population of the concerned urban centre. In four towns viz. Rewari, Palwal, Dharuhera and Bhiwadi, where water scarcity is experienced as a chronic problem, minimum of 225 lpcd may be taken as the target to be achieved.

- In no urban centre, the supply should be lower than 100 lpcd which is the minimum technical requirement.

ii) Rural Water Supply : The sources of water supply to the rural areas should be identified and the water supply should be organised to supply water at

the levels commensurate with the functional character of the rural areas.

A minimum of 70 lpcd including a supply of 30 lpcd for cattle is proposed for rural areas. It independent connections are given, a minimum of 100 lpcd is advised. Spot sources may supply a minimum of 40 lpcd which can supplement the piped supply.

iii) Targets for water supply : In view of the low levels of coverage in water supply, the targets which have been agreed to by the Government of India under the International Drinking Water Supply and Sanitation Decade 1981-1990 programmes to be achieved by March, 1991 may be adopted for the NCR:

	Coverage	Level of Service
Urban Water Supply	100%	Piped water supplies in all communities, where feasible; Demand range 70-250 lpcd; average 140 lpcd.
		Stand posts in fringe areas, if necessary at strategic localities; average 40 lpcd.
Rural Water Supply	100%	Piped water supplies for 30% of the population; demand range 25-70 lpcd; spot source water supplies for 70% of the population in the form of dug or tubewells with handpumps and/or power pumps; average demand 40 lpcd.

It is proposed that in all towns other than DMA and priority towns, and all rural areas, the foregoing targets to be achieved by 1991.

iv) Urban Sanitation : Sewerage system, to start with, in the DMA and priority towns, should have sewage treatment facilities before it is let-off into water courses or on land or for irrigation.. The other towns where it is not possible to provide a proper system due to topography and for want of resources, low cost sanitation measures may have to be adopted but only to be replaced by regular sewage system subsequently as the conditions improve.

Open drains, which are by and large the sources of nuisance and pollution, should be discouraged and discontinued. Sewage should be treated to bring the pollution level to permissible limits as stipulated by the Indian Standards Institution, and Pollution Control Boards irrespective of the type of disposal of the sewage. As far as possible, areas where the annual rainfall exceeds 75 cm, separate systems for sewage and storm water are reccommented.

v) **Rural sanitation :** The rural areas, where piped water supply system exists should be provided with sewerage system with treatment facilities. Low cost sanitation measures such as sanitary latrines, septic tanks and pit privis should be resorted to in villages with hand-pumps for water supply. Where possible, the sewage should be recycled after treatment for watering gardens, parks and lawns, fire-fighting, street washing, cooling etc. Publicity and demonstration on the necessity for hygienic sanitation should be frequently arranged to make the rural population aware of the imperative need of the clean and healthy environment.

vi) **Targets for sanitation :** The proposed targets of the International Drinking Water Supply and Sanitation Decade 1981-1990, could be taken as targets of the NCR Plan. The targets are :

	Coverage	Level of Service
Urban Sanitation	80%	100% coverage for Class-I cities with sewage and sewage treatment facilities, low cost sanitation methods in other towns. Overall coverage of 80% in all cities and towns.
Rural Sanitation	25%	Low Cost sanitary methods of disposal.

vii) Water supply and sanitation should be taken together as an integrated project. A combined sewerage system including drainage may be economical if the average annual rainfall does not exceed 75 cm. All the drains should be covered as far as possible. The sewage treatment process should include units to obtain best by-products like cooking gas and the sludge manure. The solid waste should be properly managed and recycled for a healthy and hygeinic living environment.

viii) Solid Waste Management

Solid waste disposal and management should be planned for a minimum of 20 years and, at least controlled tipping should be adopted in the disposal of the solid wastes. Compost is a solid stabiliser. Incineration of the garbage is not advisable. Areas should be identified in all the towns for sanitary refill and all the towns above one lakh population should have arrangements to properly manage the waste disposal.

The areas for dumping of solid waste/garbage have to be identified while preparing the development plans for each urban centre in advance, so that the Municipal Authorities responsible for solid waste management could utilise such pre-identified locations for disposal of garbage. The derelict lands, on account of brick kilns and quarrying may be suitable locations for such operations.

12.1 Background

The equitable distribution of educational and medical facilities at convenient locations in the Region, especially those which serve the primary needs, is far more important than the location of any other facility. Education shall provide the vital input for provision of a trained manpower for running the social and economic fabric of the Region.

i) Sub-regional disparities

a) Educational Facilities : According to the 1981 Census, the literacy rate in the Region (43.94%) is higher than that of all India (36.23%). When compared among the Sub-regions, Delhi UT (61.54%) has the highest literacy rate followed by the Haryana (33.58%), Uttar Pradesh (33.31%) and Rajasthan (30.24%) Sub-regions. The literacy rates in all the three Sub-regions are also higher than the literacy rates of the States of which they form the parts. The literary rates in the urban areas also follow the same trend except in the case of Uttar Pradesh Sub-region. Though the rural literacy rate in the Region as a whole (32.35%) is higher than that of all India (29.65%), it is less than the country's figure in Uttar Pradesh (29.02%), and Rajasthan (25.22%) Sub-regions. On the basis of the availability of educational facilities in the rural areas in terms of proportion of villages having one or more of the educational facilities and the proportion of rural population served by educational facilities, Haryana's rural population is better served with educational facilities, as 90.38% villages have one or more of the educational facilities and 97.26% of the rural population are served by education facilities. The corresponding proportions in the Uttar Pradesh and Rajasthan Sub-regions are 73%, 91.3% and 70%, 90%.

In the National Capital Region, Delhi, mother city, has almost all types of higher educational and research facilities, perhaps the best available in the country. Meerut in the Uttar Pradesh Sub-region is the second city after Delhi with a University which has jurisdiction over a large portion of the U.P. Sub-region. At present, Meerut has facilities for higher education including a Medical College. There are large number of post-graduate colleges at Meerut and Ghaziabad which are also patronised by student population from Delhi and Haryana. In Haryana Sub-region, Rohtak town has a University of its own. It has large number of State level institutions such as a Medical College and

two Ayurvedic Colleges, two Polytechnics, Industrial Training Institute etc. As regards the Rajasthan Sub-region, Alwar town is the main centre of educational activities. It has a number of colleges which mainly cater to the local students and to some extent those from nearby areas.

b) Medical Facilities : The availability of medical facilities in terms of number of beds per thousand population in the urban areas of the districts of the three Sub-regions, is substantially better in Rohtak district (5) of the Haryana Sub-region, Meerut district (1.50) of the Uttar Pradesh Sub-region and Alwar district (2.59) of the Rajasthan Sub-region, compared to other areas of the Region. In Delhi, the number of beds per thousand population is 2.50.

As regards availability of medical facilities in the rural areas, the Haryana Sub-region interms of proportions of population and villages served being respectively 77.62% and 61.00%, ranks higher than the other Sub-regions.

Delhi being the National Capital and the third largest city of India, has an advantage of possessing large number of medical institutions with best specialisation in almost all the fields available in the Country. The medical facilities in the three Sub-regions of Haryana, Rajasthan and Uttar Pradesh lack in specialisations and, also looking at the vast hinterland served by them, they lack in availability of general medical facilities. Meerut in the Uttar Pradesh Sub-region, Rohtak in the Haryana Sub-region and Alwar in the Rajasthan Sub-region are the main centres of medical facilities which attract people from large part of their hinterland.

12.2 Proposals

i) An assessment of the availability of the education and health facilities in the three Sub-regions indicates that the level of these facilities in terms of accessibility and equitable distribution is far from satisfactory. Some of the regional centres namely, Meerut, Rohtak and Alwar being fairly large sized urban centres in the respective Sub-regions are having some higher order educational and medical facilities which at present cater to the needs of both the local population as well as the neighbouring areas. The priority towns and complexes identified for faster development and also the DMA towns excluding Delhi will contain more population in addition to their natural increase through the deflection of the Delhi bound potential migrants to them and they will need, over the perspective plan period, more education and health facilities. In

addition, some of them may have to cater to the regional requirements with institutions of specialisations both for education and health care.

ii) Provision of these facilities in adequate measures in the regional centres away from Delhi would not only improve the quality of life but may attract population seeking migration to Delhi. This will thus meet ultimately the objectives of provision of infrastructural facilities at desirable norms and standards to improve the standard of living in the areas of the Region.

iii) The distribution of social infrastructure, not only on the basis of population size but also on the catchment areas for each level institution in the Sub-regional centres, Service centres, and Basic Villages will help to remove the imbalances in the provision of social infrasttructure of the Sub-regions.

iv) The norms for education and health facilities suggested are as follows :

Type of facility	Norms	
	Rural	Urban
A. Education		
1) Nursery School	One in each village	One for 2,500 Pop.
2) Primary School (including classes upto VIII standard)	One in each village with'	One for 5,000 population.
3) Higher Secondary	One in each village with population 10000-15000	One for each town with 10000-15000 population
4) College	-	One for each town with 80,000-1,00,000 population.
B. Medical	**Rural/Urban**	
1) Sub-Centre	One for 5,000 population	
2) Primary Health Centre	One for 30,000 population	
3) Community Health Centre with four basic specialisations.	One for 1,00,000 population	

13

SHELTER

Housing is a basic human need and rank next only to food and clothing in importance. One of the primary aims of any policy plan of a welfare state like India has, therefore, to be to improve the quality of living of its people. Seventh Five Year Plan document holds that a certain minimum standard of housing is essential for healthy and civilised existence. The development of housing, therefore, deserves an overwhelming priority in the NCR, where housing amenities are below the minimum standards. The NCR Plan inter-alia aims to provide healthy living conditions in priority and D.M.A. towns, at standards comparable to that obtaining in Delhi. Most of the migrants seeking employment in informal sector activities need priority attention in providing shelter for them. The objectives of Draft National Housing Policy are in fact in consonance with the objectives of the National Capital Region Plan which seeks to'encourage people to build and improve their own houses; to promote repair, renovation, expansion and up-gradation of the existing housing stocks, and to preserve India's rich and ancient heritage in the field of human settlement planning and architecture and, conserve buildings of historic, cultural and aesthetic significance'.

13.1 Background

Demand for shelter increases with the population. Provision of housing does not keep pace with the population increase. At present about 30% to 40% of the urban population in the NCR live in unhygienic and insanitary conditions.

Occupied residential houses in the Region excluding Delhi UT, with an allowance of 10% either as non-liveable or vacant or non-residential, totalled to 13.83 lakhs for a population of 101.14 lakhs in 1971 with an occupancy rate of 7.31 persons per unit. In 1981, there were 18.23 lakhs liveable houses (except in Delhi UT) for a population of 129.72 lakhs with an occupancy rate of 7.12 persons per unit (Table 13.1). The marginal fall in the occupancy rate during 1971-81 indicates a slight improvement in the living conditions.

The 2.576 lakhs liveable residential units in the urban areas of the NCR housed a population of 18.88 lakhs in 1971 with an occupancy rate 7.33 persons per unit and the housing stock doubled to 5.099 lakhs in 1981 to house 33.29 lakhs people at an occupancy rate of 6.53 persons per unit. Though the decline in the occupancy rate in urban areas is a consolence, it is

offset by the increase in occupancy rate from 7.30 to 7.34 during 1971-81 in the rural zones of the Region. If quality of houses is also taken into consideration, the number of houses fit for living might be much less.

13.2 Demand by 2001

On the assumptions that the occupancy rate shall be five persons a residential unit, the 1971-81 trend of growth shall continue and a 10% allowance to compensate 'non-liveable or vacant or non-residential housing units, the total demand for housing by 2001 AD, except for Delhi UT, is estimated at 42.6 lakh residential units in the NCR; of these 24.8 lakh units (58.22%) will be in the urban area and 17.8 lakh units (41.78%) in the rural area; U.P. Sub-region will have a demand of 24.2 lakh units (56.81%), followed by Haryana Sub-region with a 15.6 lakh units (36.62%) and Rajasthan Sub-region with 2.8 lakh units (6.57%). In 1987, the net liveable residential houses have been estimated at 20.868 lakh units; of these U.P. Sub-region has 11.417 lakhs, Haryana Sub-region 7.766 lakhs and Rajasthan Sub-region 1.685 lakh units.

Thus, the additional demand (including the existing backlog) between 1988-2001, will be (42.6-20.868)21.732 lakh units in the Region excluding Delhi UT and, of these 18.188 lakh units (83.69%) will be in the urban sector and 3.544 lakh untis (16.31%) in the rural sector. Of the total demand, 12.783 lakh units (58.82%) will be in U.P. Sub-region, 7.834 lakh units (36.05%) in Haryan Sub-region and 1.115 lakh units (5.13%) in Rajasthan Sub-region (T 13.2). The towns/complexes identified for priority development will have an additional demand of 7.19 lakh units (39.56%) while the D.M.A. towns will have 5.70 lakh units (31.34%) and other towns 5.29 lakh units (29.10%) (T 13.3).

13.3 Informal Sector Housing

About one-third of the urban population lives in slums. Most of them are engaged in informal sector economic activities. Informal sector has thus to be viewed as an integral part in the process of spatial planning. In the context of Delhi, the migrants constituting more than one-third of the city's population, are primarily occupied in informal sector activities and, the potential Delhi-bound migrants to be deflected away from Delhi to other NCR towns would also be engaged mainly in the informal sector activities. During 1988-2001, the economically weaker sections of the society constituting mainly the informal sector workers, would require about 8 lakhs

dwelling units (44%[1] of 18.19 lakh additional units) in the urban centres of the Region excluding Delhi Urban Area.

The informal sector housing faces more stresses and strains in mobilising resources as it has no easy access to the housing finance market. The informal sector housing would haue to exclusively depend on institutional support for loans. Thus, in planning informal sector housing, the points for consideration would be :

i) making available developed land at affordable prices;

ii) introduction of minimum need programme to ensure an environment of minimum urban normative levels; and

iii) provision of an easy access to institutional finance.

13.4 Issues

i. Need for adequate planning and identification of sources to raise the required funds to meet the housing demand arising out of additional population due to natural increase, as well as through inmigration into the NCR generally and also the component of the population that would be deflected from coming into Delhi to the NCR towns.

ii. A special treatment to the informal sector housing, as most of the deflected Delhi-bound migrants with their semi and unskilled levels will get occupied in informal sector activities in the NCR towns away from Delhi. In addition to making available adequate incentives, a major component will be that of shelter to suit their needs and affordability. The problem of informal sector housing may have to be met through making available developed land, and finding ways and means for an easy access to finance institutions.

iii. The standards and norms of the civic services should conform to the desirable norms and almost comparable to that of Delhi as a part of the strategies in developing the region harmoniously to sub-serve restricting the population size of Delhi to a manageable limit.

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1. Proportion of single room tenements to total as of 1971.

13.5 Strategy

The strategy to meet the housing needs in the NCR would be :

(i) To fix priorities in dealing with different segments of the population.

(a) The 20 lakh Delhi-bound migrants should be given top most priority in providing shelter. They would be requiring about 4 lakh units, most of them in informal sector.

(b) The potential migrants from the urban centres of the NCR to Delhi should be provided with gainful employment - most of whom will join the pool of the weaker sections of the urban population and may be provided with reasonable hygienic and sanitary conditions. Under the slum upgradation scheme, 100% of the beneficiaries of 1.99 lakh units[2] may be provided with financial assistance for improving their homes (T 13.4).

(c) Under Sites and Services schemes, all the beneficiaries of 5.99 lakh units[3] may be provided with institutional finance to provide incremental shelter on self help basis(T 13.4).

(d) There will be a demand of 5.57 lakh LIG dwelling units[4] during the Plan period, 50% of beneficiaries of which may be provided with institutional finance

(e) 25% of the beneficiaries of MIG dwelling units may also be provided with institutional finance.

(f) HIG dwelling units may be provided with only developed land at market price.

(ii) To identify areas of development in order of priority.

The Regional Plan envisages to develop a four tier hierarchical system of settlements consisting of Regional centres, Sub-regional Centres, Service Centres and Basic Villages. Shelter programmes would also follow the same priorities and pattern of development. Accordingly, the identified eight towns/complexes to be developed as Regional centres should be accorded the first priority followed by the Sub-regional Centres in the second priority, Service Centres the third priority and so on.

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2. 25% of the EWS dwelling units
3. 75% of the EWS dwelling units
4. On the basis of proportion of two room tenements as of 1971.

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14 REGIONAL LANDUSE

14.1 Background

The landuse Plan depicts the exposition of various broad land uses designed for a balanced and harmonious development of the Region by 2001. The Plan will serve as a guide and provide direction for the use of land in the NCR in both the short and long term towards accomplishment of the goals of the Plan. This broad land use Plan will be supplemented by Sub-regional Plans dealing with respective Sub-regions in greater depth to provide more specific policy guidance.

Land is a vital but limited and non-renewable resource. With the tremendous increase in population, the pressure on land has gone up rapidly. Particularly, there is an increasing concern over the loss of primary agricultural land and the consequent environmental degradation. This is indicative of the utmost need to optimise the use of land resources in the Region through rational uses of urban land, conservation of areas sensitive to development activities and evolving policies for the effective control of landuses.

14.2 Existing regional landuse pattern

Agriculture is the predominant user of land in the Region. The cultivated area constitutes about 80% of the total reporting area. Of the Region's total cultivated area, about 46% is concentrated in the Haryana Sub-region followed by the U.P. Sub-region (37.3%), while Delhi UT has the least of 3.7%. The land put to non-agricultural uses which comprise area under settlements, transport network, rivers and canals covers 9.9% of the total area. The Haryana Sub-region has the highest area of 128431 hectares under non-agricultural uses which form 43.3% of that of the Region followed by the UP Sub-region (38.7%) and the Delhi UT (24.2%) and the Rajasthan Sub-region (5.9%). The occupation of highest area under this category in the Haryana and UP Sub-regions is mainly due to the large area occupied by the Ganga and Yamuna rivers and their tributaries and, concentration of non-agricultural uses whereas in Delhi, it is owing to large-scale urbanisation and industrial expansion (T 14.1).

The third important category is the barren land which includes rocky area, saline patches, gullied land, derelict land and covers an area of 141677

hectares or 4.7% of the total reporting area of the Region. The highest concentration is in the Rajasthan Sub-region (39.8%) followed by the Haryana Sub-region (24.7%), the U P, Sub-region (22.3%) and Delhi UT (13.2%). According to land records, forest covers a total area of 65222 hectares which forms 2.1% of the total area of the Region, with the highest concentration in the Haryana Sub-region (52.2%), followed by the U.P. Sub-region (30.5%) and the Rajasthan Sub-region (15.2%). The Forest Departments of the NCR States place the total area under forest at 153474 hectares, with a break up of 55544 hectares under reserve forests, 31640 hectares under protected forests, 56202 hectares under unclassified forests and 10088 hectares under social forests (T 14.2). The satellite imageries, however, show only 35557 hectares i.e. 1.2% of the reported area under forests. The satellite imageries include only the compact forests under tree cover while records give the area under protected category also.

Culturable waste land constitutes 57484 hectares of land which is 1.8% of the total Regional area. The U.P. Sub-region has the highest of 44.5% of the total area followed by the Haryana Sub-region (41.8%) under culturable wastes. Delhi has the least area of 1.5% of the total culturable waste land in the NCR. The area under 'permanent pastures and other grazing land' which forms 1.2% of the total area of the Region is mainly concentrated in the Haryana (45.0%) and the Rajasthan Sub-regions (42.0%), while the land under 'miscellaneous trees and groves' is concentrated in the U.P. Sub-region. The area under water bodies include lakes, reservoirs, tanks and forms 0.28% of the total area.

14.3 Status of landuse-categorywise - 1987

a) Agriculture : Agriculture occupies 23.92 lakh hectares or 79.9% of the area of the Region. In Delhi, only 59.9% of the area is under cultivation.

b) Forest : A comparative analysis of forest area, through landsat satellite imageries and land records reveals that 45% of the total forest area is devoid of forest. This vast area has been denuded by encroachment or by other uses and indiscriminate deforestation. In the Haryana Sub-region, 31,925 hectares (T14.4) of the forest area is reported as tree less area. There is a loss of huge forest area of 59,558 hectares in the Rajasthan Sub-region, due to the encroachment and indiscriminate felling of trees. In the U.P. Sub-region, an area of 29,455 hectares (T 14.3) should be under forests which includes reserved, protected, unclassified and social forests against

11,601 hectares of land under actual tree cover and thus there is a loss of 17,854 hectares of forests. Bulandshahar district, in fact, has the highest share of such denuded area.

c) Barren Land : This category of land includes quartzite rocks, sandy and saline patches, gullied land and derelict lands. According to the satellite imageries, 6.5% of the total area is under barren lands against 4.7% as per the land records. Most of the gullied lands are concentrated in Rajasthan, Haryana and Delhi Sub-regions around the Aravalli ranges. In other parts, it occurs along the river and stream courses whereas saline patches are concentrated in the Haryana and Uttar Pradesh Sub-regions especially in the excessively irrigated area. Sandy patches exist in abondoned river courses in the Uttar Pradesh and Rajasthan Sub-regions.

The land actually under the category 'Barren land' as interpreted from the Satellite imageries shows that more area has become barren for one reason or the other in addition to the area designated under this particular category.

The analysis reveals that as much as 53,044 hectares (T 14.4) of land has become barren over and above the barren land as per the land records in the Haryana Sub-region, whereas it is to an extent of 6,672 hectares in the U.P. Sub-region and 2,114 in the case of Rajasthan Sub-region. Interestingly, an area of 7,269 hectares in Delhi UT is found reduced compared to the land records which may be mainly due to the reasons of urban expansion and proliferation of secondary and tertiary activities.

d) Culturable Waste : Rohtak (13,000 hectares) and Bulandshahr districts (12975 hectares) have extensive area under culturable waste lands. Other districts of concentration of culturable waste lands are Sonepat, Ghaziabad, Meerut and Alwar.

e) Land put to Non-Agricultural Uses : In Delhi Sub-region, this category forms maximum 24.2% of the total reporting area compared to nearly 10.0% in the Haryana Sub-region as well as U.P. Sub-region. The concentration of this use is significant apart from Delhi in Gurgaon, Faridabad and Mahendragarh districts of Haryana Sub-region.

f) Others : Land under permanent pasture and other grazing lands which meets the fodder requirements of the cattle occupy 1.2% of the total area of the NCR. The Rajasthan and Haryana Sub-regions have the highest

concentration (2.7%) of the reporting area. Land under miscellaneous tree crops and groves constitutes a meagre proportion of 0.2% of the NCR.

14.4 Changing Characteristics of Land uses

The landuse characteristics in the NCR are influenced mainly by two factors. The first has been the continuous and rapid increase of the economic activities particularly in the Delhi Urban Area (DUA) and the consequential rise in population within the DUA mostly due to inflow of migrants to seek employment opportunities created by the economic activities. In 1981, about two-thirds of the total urbanites of the NCR were concentrated only in Delhi.

The second factor has been the rapid increase in the development of industrial activities on the traffic arteries radiating from Delhi and the consequent pre-mature and speculative sub-division of land for residential and industrial uses along the corridors outside Delhi. The development activities in the secondary and tertiary sectors in the DMA towns have leap frogged leaving widening gap in the development of physical and social infrastructure. The other towns in the Region beyond the Delhi Metropolitan Area (DMA) have been growing slowly with normal activities and natural increase. The landuse demands in the three distinct area, namely, the Delhi UT, the DMA excluding Delhi UT and the area beyond the DMA, are influenced by the aforesaid developmental activities.

The convergence of road and rail routes in Delhi has favoured flourishing whole-sale trade activities and the wholesale market in Delhi has become one of the biggest distributive centres in the Country. The present disposition of landuses within main urban centres and also the mushrooming industrial agglomeration along the transport corridors have amply been reflected in varied economic activities. The change in landuse characteristics particularly the conversion of agricultural land for non-agricultural uses has been at a big scale during the last two decades. This has brought in with it the attendant degradation and deterioration in the environment and eco-system. Vast tracts of fertile agricultural land have been converted for industrial and economic uses. However, the primary sector and agricultural economy will continue to dominate as the mainstay of the Region though the urban structure might play a significant role in shaping the future landuses of the Region.

Moreover, the proposed transport and communication system based on the radial corridor pattern would warrant a rationalisation of landuse in

the Region. The urban centres along the traffic corridors also, by creating more employment opportunities in the secondary and tertiary sectors would bring about a shift in the land requirement from non-urban to urban uses. The anticipated urban population of 234 lakhs by 2001 as against a mere 91 lakhs in 1981 in the Region would also warrant adequate economic opportunities mostly in the non-agricultural occupations to be created by the turn of the century. However, as a major aspect for the regional development policy, most of these activities with employment opportunities are to be developed in the selected urban centres for development on priority basis.

14.5 Issues

1. The process of urbanisation in the region is comparatively faster than other areas. With the policy of inducing development in the regional and sub-regional centres, the urbanisation will be much faster which implies additional land for urban expansion. Delhi will require large chunk of land to accommodate the envisaged population. All this will need necessary conversion of agricultural land into urban or non-agricultural use. A rational land use pattern would need to worked to protect and preserve good agricultural land and utilising unproductive land for urban uses.

2. The Region, for all practical purposes is devoid of forest cover worth its name. Against the National Forest Policy stipulation,an average coverage of 33% - 20% in plains and 60% in hills, the region has only 1.2% of forest cover. Thus the entire region has become environmentally sensitive and the eco-system is already disturbed. Means and measures are to be identified to improve the situation to save the region environmentally in the long run.

3. More and more land patches become barren either due to increase in salinity or indiscriminate abuse through destruction of vegetative cover. This land in fact, is potential for productive use either for afforestation or agricultural use after proper reclamation and replenishing of its lost fertility.

14.6 Proposals

i) Land for Urban Development

Out of the assigned population of 325 lakhs by 2001 AD for the NCR, about 234 lakhs would be accommodated in the urban areas which accounts for 72% of the total population. The population assignments for Delhi urban area is 112 lakhs, for the DMA towns

excluding Delhi 37 lakhs, the eight priority tonws/complexes 49 lakhs and the rest of the towns, 40 lakhs by 2001.

To accommodate this population additional urban land would be necessary. The additional land, by and large will be met by conversion of agriculture land. A study of the distribution of urban settlements and their spread reveals indiscriminate use of land for urban uses. It is, therefore, only reasonable that both urban and rural settlements should be developed in future in as compact manner as possible and, on lands unfit for agricultural use. With this in view, especially for the urban settlements, the following density norms are suggested:

a) For urban centres upto 1.0 lakh population, a density of 80 persons per hectare.

b) For urban centres of 1.0 lakh to 5.0 lakh population, a density of 110 persons per hectare, and

c) For urban centres of more than 5.0 lakh population a density of 125 persons per hectare.

Whenever these norms are not readily obtained in the existing urban centres, an appropriate redensification is suggested to be taken up to attain the density norms. Accordingly, the total area under urban use for the DMA (excluding DUT), priority towns and other towns in the NCR will be of the order of 1,23,561 hactare (T 14.2) by 2001. This would mean an additional area of 45291 hectares would be required for urban expansion between 1981-2001.

ii) **Land for Forest**

Development of forest resources is of vital importance in preserving the environment and eco-system which greatly influences the climate pattern for better. Their presence is also essential as a safeguard against flood and erosion.

Forests occupy a meagre proportion of 1.2% of the NCR area and are under constant danger of encroachment and denudation and as such, the day is not far off when the Region may be devoid of forests altogether. Viewing the situation of the forest in the Region with reference to the National Forest Policy, the Region's forest cover should be increased in any form such as protected, reserved, community and social forestry in all those areas which are not fit mainly

for agricultural use. The main targets of operation will be :

a) to afforest and vegetate barren lands, rocky areas, culturable waste land etc, so that the forest or vegetative cover is raised atleast to 10% of the land area.

b) to intensify the forest cover by planting suitable species in the sparsely forested zones and denuded areas, and

c) to identify alternate sources of energy for fuel and also to find methods of increasing the efficiency in the use of the forest fuel especially from the social community forests. These should be taken up in a phased and planned manner so that afforestation and vegetation sustain and stablise over time.

iii) Land for Agriculture

For meeting the growing demand for food and food products, the existing cultivated land of 23.92 lakh hectares should be kept reserved for agricultural use. Efforts should be made to increase the production through intensive cultivation by providing irrigation facilities and other necesary infrastructure.

In view of the anticipated changes in landuse, there would be a major impact on land requirement of agricultural sector. To the extent that new employment opportunities are proposed in non-agricultural sector and consequent concentration of population, the urban expansions would have to be largely met from the agricultural and other non-urban uses. It is however, necessary to institute measures for the protection of prime agricultural land and to ensure against its needless conversion. This necessitates a rational policy as to the utilisation of less and least valuable land for urban expansion/new urban centres.

iv) Conservation area

The un-planned urbanisation and industrialisation and intensive exploitation of resources with little regard to environment, affect the environment and ecology adversely. An intimate and in-separable relationship exists between the environment and development and that sustained development may not be achieved by ignoring the environmental causes.

To achieve the overall development of the NCR without destruction of its natural environment, all economic activities need to be rationally planned. Special attention should be given to check the damage to natural features and environment by man's interference for development purposes.

In the NCR, the major natural features are the Ridge, an extended part of the Aravalli range, the forest areas, the rivers Yamuna and Ganga. Apart from these, the NCR has two wild life sanctuaries namely, Sariska wild life Sanctuarary in the Rajasthan Sub-region and Sultanpur Bird Sanctuary in the Haryana Sub-region harbouring a large number of wild animals and birds. The ridge areas should be conserved with utmost care and should be afforested with suitable species.

The rivers Yamuna and Ganga have a high level of water pollution mainly from the un-treated sewage and waste from industrial areas. While measures have been taken to make the river Ganga pollution free under 'Ganga Action Plan', similar action is needed to check pollution of the river Yamuna too.

v) Landuse Control : Zoning Regulations

In order to avoid haphazard development and ensure orderly development of the rapidly developing urban sector in the National Capital Region, a legislative tool in the form of Zoning Regulation is a necessity. Keeping in view the anticipated rapid urban expansion of the NCR towns and also the rate of environmental degradation in the Region, the following four distinct zones have been identified for application of strict landuse control and development. An attempt has been made to identify the likely major economic activities in the following use zones/areas:

a) Urbanisable area
b) Green belt/green wedge
c) Areas along the major transport routes
d) Remaining rural land

a) Urbanisable area - 2001

Within the urbanisable area - 2001, which is proposed in the Master Plans of the respective towns, the functions and uses designated as under could be continued :

1) Residential
2) Commercial
3) Industrial
4) Government offices
5) Recreational

6) Public and semi-public
7) Circulation
8) Open spaces, parks and playgrounds
9) Grave yards/cemeteries and burning ghats.

The detailed uses within the urbanisable area will be governed by the local authority according to the prescribed uses in the Master Plans. However, master plans for Delhi Metropolitan Area and Priority towns should be prepared under the existing rules and act of the participating States/UT. In order to avoid the landuse conflicts especially in the Delhi Metropolitan Area Towns, the master plans of all the towns within the National Capital Region should be prepared in consultation with the National Capital Region Planning Board and approval obtained before it is finally approved by the respective State Governments.

b) Green belt/green wedge

The peripheral agricultural zone in the immediate vicinity of the urbanisable area is very vulnerable to encroachment by development. To arrest undesirable growth in this zone and to ensure orderly and compact urban development, a control belt is proposed all around the expected developable area. The development will be restricted or strictly controlled in this gree belt. The activities compatible with open character of land will be permitted. The major landuses that could be permitted in these zones are as under:

1) Agriculture, particularly high value cash crops
2) Gardening
3) Dairying
4) Social forestry/plantation
5) Quarrying
6) Cemetries
7) Social institutions-such as school, hospital
8) Recreation or leisure

The detailed boundaries of the green belt/green wedge will be defined in the Sub-regional and master plans.

In the cases of settlements particularly those which are in close vicinity to each other either along the roads or interior, the intervening space between the settlements should be kept green which can be designated as green wedge. This will prevent not only any development other than permitted taking place around the settlement but also from merging with each other. The green wedge should be forested partly and,

whereever it is not possible for pressing reasons it could be in the other forms of greens.

c) Green Buffer along the major transport corridors

The un-desirable industrial development in the areas beyond the urbanisable area limits of the towns along the 5 National Highways would become a serious problem in the near future. There will be a continous ribbon development along the major transportation routes. The large scale development beyond urbanisable limits of any town should be strictly controlled. A width of 100 metres on either side along the National Highways and the proposed Expressways and 60 metres on either side along the State Highways should be kept as green buffer. Those should be afforested under the control of the forest department. Only activities permitted in the green belt as indicated earlier would be allowed.

d) Remaining rural land

The remaining rural zone include mainly the vast agricultural land, forest, ridge areas and rural settlements. This zone-virgin agricultural land at present, is being threatened by the spotted industrial/urban encorachments especially along the 5 National Highways and State Highways. The lower cost of land in the rural areas, excellent transportation system and marketing for the products have accelerated the development of industries along the roadsides. The following major landuses can be designated in the rural lands. Strict prohibition and control on the large scale and hazardous industries, has to be exercised in the rural zone:

1) Intensive agriculture and allied activities
2) Afforestation especially on the hills, rocky lands,gullied land and barren lands.
3) Regional recreational facilities such as regional parks, wild life sanctuary.
4) Cemetries, schools, institutions, like hospitals may be permitted. However, the proposed development, should not involve the use of high yielding agricultural land not should it adversely affect a site of special scenic beauty of ecological interest.
5) Quarrying
6) Brick kilns
7) Existing village mandies
8) Rural industries etc.

15

ENVIRONMENT AND ECO-DEVELOPMENT

15.1 Background

Environmental changes are inevitable consequences of developmental process. In NCR, damage to the environment by man's interference for development purposes or otherwise has taken place mainly in the form of denudation of its scanty forests. Unless necessary steps are simultaneously taken to preserve it, the environmental health of the Ndational Capital Region may start deteriorating.

There is also a gradual decline in the quality of environment in the industrial area of, particularly, the Delhi Urban area and other industrial towns of the Region. The undesirable environmental effects of industries are noise, smoke, dust and dirt, odour, emission of toxic gases, glare, vibrations, effluents, and aesthetic and psychological factors and many more.

i) Present environmental status of the Region

a) Delhi UT

Air : "Utter disregard to environment has placed Delhi in the unenviable position of being the world's third grubbiest and unhealthy city". Delhi records 12 times the national average for respiratory ailments mainly due to the unchecked pollution or the thick clouds of smoke that hang over the city. An estimated one million motor vehicles, thousands of industrial units in conforming and non-conforming use zones, some of them hazardous and hundreds of stone crushers located in different parts of the Union Territory, are responsible for this situation.

The power plants in Delhi account for as much as 82% of the total industrial pollution in Delhi. Though the Electro Static Precipitators (ESP) to trap the flyash are fitted, the Kalpavish Environmental Action Group has found that these ESPs are working at less efficiencies than intended. The mushrooming industrial units not only pollute the environs but also pose safety hazards as a large number of them are located in the thickly populated areas of the walled city and in the residential complexes in the north and west Delhi. Of the 15000 polluting industries, nearly 5000 of the industrial units including hazardous units such as chemicals electro & nickel plating and plastics are in the non-conforming areas. Each 500 tonnes crusher throws 3 tonnes of suspended particulate matters

daily and, the dust concentration around them varies from 3000 to 8000 micro grains per cubicmetre of air. This is 15 to 40 times the limit prescribed by the Central Pollution Control Board.

Fifty percent of the total atmospheric pollution in the Capital however, comes from the emission of nearly a million vehicles. A study by the Indian Institute of Technology, Delhi, at the behest of the Delhi Administration found only 18% of the Delhi Transport Corporation buses and 10% of the trucks that ply on the Delhi roads having the standard smoke intensity of 65% on the Hartridge scale. Nearly, 41% of the DTC buses and 50% of the trucks and all tempos monitored by the IIT have a smoke intensity over 90% on the Hartridge scale. The Railways are also contributing to the air and noise pollution in the city.

Water : The major share of Delhi's water is from the Yamuna. Nearly 1200 million litres of domestic and industrial wastes, containing about 100 tonnes of BOD (Bio-chemical oxygen Demand) load are let into the Yamuna every day. In fact, the entire stretch from Delhi to Agra is unfit for bathing and drinking. Ninteen major storm water drains meet the river in Delhi. A survey by the Pollution Controal Board in 1984 revealed that five drains namely, Najafgarh, Civil Mill, Power House, Sen Nursing Home and one from Okhla Sewage Plant contribute more than 95% of the Yamuna's total BOD load. The thermal plants discharge waste oils and chemicals into the drains that threaten subsoil waters that will seep into the river. Some of the industries discharge dangerous pollutants like cadmium, zinc, chromium, cyanide, oil, grease and colour into the river. Major part of the solid wastes of the city are dumped at many places in the open in the city which pollute the air, subsoil water and land too.

According to a study on environmental impact Assessment and Guidelines for Industries Development in NCR by the School of Planning and Architecture, New Delhi the status of environment of the industrial towns of NCR is in brief as under :

b) Haryana Sub-region

Sonepat

Large scale pollution of land and water from the effluents of large industries is prevalent in Sonepat. Roads adjacent to Atlas Industries are polluted with solidwastes and sullage water causing insanitation and health hazards. The Shanti Paper Mills, Engineering industries, Seafarm Roller Tanner, Gedore Tools and Hindustan Everest Foods and units in the Kundli Industrial Estate cause both air and water pollution.

Panipat

This textile town has a number of handloom & powerloom industries dealing with woollen fabrics. The effluents from these industries are allowed into an open drain. A large and highly polluted drain through the middle of the city outfalls into the Yamuna polluting it to dangerous proportions.

Bahadurgarh

Bahadurgarh has extensive areas under industries. The industrial area near railway station with about 100 small and large industries, private industries north of the road cause air and water pollution. Though HUDA has constructed sewage treatment plant, major part of the sullage is disposed off on land as the plant is not yet completed.

Faridabad - Ballabgarh Complex

There are around 1800 polluting industries and amongst them 337 industries including electro-plating processors are more polluting. There are a number of private owned electroplating units in the residential areas seriously endangering the health of the residents. Traces of zinc have been found in the water drawn from the borewells and, this poses an alarming health hazard to many in the city. Moreover, in the absence of sewage treatment not being in use, the raw sewage is let into the drains damaging the environment.

Dharuhera

The solid and land wastes of the industrial Estate are dumped on the Jaipur road side causing water stagnation and insanitation. There is pollution of air, water and land in an extensive way in the Estate. The paper mills throw out liquid wastes on to the road and also the gaseous wastes (sulphuric acid) which has damaged the agricultural crops as well as trees in the area. The solid wastes from the paper and chemical industries being dumped on land will spoil the land as well as the water resources. The Oriental Carbons and Chemicals Ltd. and the Multi Technical Chemical Industries are particularly the two that cause heavy pollution of land, water and air.

Gurgaon

Among the many industries in the city, polluting industries are the ceramics, rubber and iron works etc. For want of adequate power supply, even the large industries are using diesel generators which aggravate the smoke pollution hazards.

c) Rajasthan Sub-region

Bhiwadi

Bhiwadi Industrial Estate located on the Rajasthan Haryana border accommodates number of large industrial units besides a number of small scale industries. There is no arrangement to deal with the solid and liquid wastes. The sullage water is carried untreated through the natural drainage channels towards Haryana causing a great hazard of water pollution. The Cardboard Factory and the two paper mills are the most polluting units and, their solid and liquid wastes are dumped on land. The coal ash is not properly disposed off.

Alwar

Alwar has two industrial areas, one in the town is of medicine and chemical industries which create pollution hazard. The other one is outside the town consisting of chemical gases and glass industries which give rise to large scale pollution. There are chances of gas leakages which has occurred at minor levels causing eye irritation to the residents nearby.

d) Uttar Pradesh Sub-region

Khurja

This is a unique case where a large number of ceramic industries have been developed close to each other with a kiln and a chimney for each. The kilns are mostly coal fed. The smoke from many chimneys heavily pollutes the atmosphere and sometimes, choking sensation has been reported by the people around. The proposed expansion of ceramic industries may add more to the pollution level and suitable measures to minimise the pollution should be taken.

Meerut

Meerut city has three industrial areas - one at Partapur, one at Modipuram and the other at Daurala. In Partapur, presently only water pollution by the distillery is reported. Modipuram industrial complex is reported to have no significant pollution problem so far. The small industrial units within the city are causing air, water and land pollution.

Modi Nagar

A large number of industries which have been located on road side as well as inside the city have no provision for any treatment and the liquid waste is

discharged into the Kalinadi. This endangers the inhabitants of the area as well as the ground water sources. The chimneys of various plants are causing air pollution.

Ghaziabad

There are a number of industrial complexes comprising forging units, rolling mills, paper plants, metallurgy plants, pharmaceuticals, rubber industries and electro - plating. All of these cause serious water and air pollution. The wastes pollute the Hindon River. The calendering and dyeing plants at Pilakhuwa, though small in size, cause water pollution in a big way.

Mohan Nagar

The food processing plant, engineering shops located on the border of Delhi cause air and water pollution.

Sahibabad

There are a number of industries manufacturing textiles, paper, chemical and rubber products. Besides, there are a number of printing and electroplating industries. These are causing air and water pollution. The water pollution covered by these industries may also affect the waters of the Yamuna.

ii) Environmental sensitivity

a) Industrial

This is a tool to assess the overall impact of various types of pollutants generated by different kinds of industries on various landuse zones, infrastructure, flora and fauna and man - made structures.

The Envioronmental Sensitivity Index (ESI) for industrial complexes in the NCR are as under :

Sub-region/Industrial Complex	ESI	Environmental condition
a) Haryana Sub-region		
1) Sonepat	778	Adverse
2) Panipat	798	Adverse
3) Gurgaon	757	Adverse
4) Rohtak	758	Adverse
5) Bahadurgarh	679	Bad
6) Faridabad	675	Bad
7) Rewari	715	Adverse
8) Dharuhere	730	Adverse

b) Rajasthan Sub-region

1)	Alwar	757	Adverse
2)	Bhiwadi	789	Adverse

c) Uttar Pradesh Sub-region

1)	NOIDA	614	Tolerable
2)	Khurja	650	Bad
3)	Bulandshahr	615	Tolerable
4)	Hapur	650	Bad
5)	Meerut	632	Bad
6)	Modinagar	633	Bad
7)	Sikandrabad	635	Bad
8)	Ghaziabad	662	Bad

* Source : ' Environmental Impact Assessment and Guidelines for Industrial Development in NCR' by School of Planning and Architecture, New Delhi sponsored by the Ministry of Environment and Forests .

b) Human Settlements

So far sanitation facilities are concerned, the Region presents an equally unsatisfactory picture. Of the urban centres, as many as 65 do not have sewerage system al all. The raw sewage is disposed off on lands, into open drains and is allowed to flow its natural slopes where it stagnates and results in formation of foul smell, germs and virus, rodents and water pollution. Solid wastes are managed only in 29 towns and they are dumped in depressions in an unorganised and unscientific manner polluting the air and underground water by its gaseous products. The rural sanitation scene is till worse. Sewerage system does not exist in villages and solidwaste collection and disposal is fully unscientific and irrational.

iii) Imbalance of Eco-system

One of the important elements in keeping the eco-system in balance is the vegetative cover. The National Forest Policy in this regard stipulates a minimum of 33% of the land area to be under forest cover in average, made up by 20% in plains and 60% mountainous zones. The NCR, by and large, is plain and should have therefore, a minimum 20% of its area under forest/tree cover. But, the Region has only 1.2% of its area under forest cover. In fact, even this is being fast eaten away by encroachment for other uses. Even in the left

over forest area, forests are getting denuded leaving only a fraction of the forest area under tree cover. The satellite imageries of the Region reveal that out of the forest designated area of 65,222 hectares, only 35,557 hectares of land is covered by trees meaning thereby denudation/encroachment of nearly 29,665 hectares of land. This is a significant loss of forest wealth which will have damaging effects on microclimatic conditions causing reduced rainfall, dust storms, deepened water table conditions and finally in economy and livelihood of people. The damage is to an extent of 31,925 hectares in the Haryana sub-region and 8317 hectares in the Uttar Pradesh sub-region.

15.2 Policies and Proposals

i) Air Pollution

The main sources which contribute to air pollution are emission from automobiles, industries, thermal power plants, fertilizer plants, coal burning and indirectly putrefying odour from slaughter houses, raw sewage disposal, solid waste dumping and stagnating water. There is a direct relationship to airpollution levels and urbanisation and industrial activities. The levels of air pollution in the NCR are severe in several pockets such as in the metropolitan and urban industrial areas, major transport corridors, etc. Therefore, any further urbanisation and industrialisation, the NCR has to be reckoned for their air pollution impacts and the general tolerance levels that should be achieved for viable development programmes. These have to be identified through appropriate field research studies so that the levels and types of industrialisation can be established for different sub-regions.

ii) Water Pollution

a) No industry be permitted to discharge its effluents over land or other water bodies without treating it to requisite pollution control standards.

b) As far as possible, new industries be developed in identified and classified industrial areas/estates which should have proper effluent treatment facilities in-situ before they are discharged into natural areas.

c) Urban wastes should be treated to requisite levels of pollution control standards before being discharged into rivers or other water bodies.

d) The existing water supply problems should be solved through inter-State cooperation.

iii) Sewage Disposal

Detailed schemes should be prepared at local level for sewage treatment for all DMA, priority and other towns so that the sewage may be recycled for irrigation and other purposes. The settlements where regular sewerage schemes are not available, low cost sanitation system for individual family or community may be adopted as a short-term measure.

iv) Solid Waste

Solid waste from urban and agricultural areas, if properly recycled, can be a valuable source of nutrient and energy. This approach will also lessen the pollution loads of the solid wastes on the environment or the eco-system. A scientific approach should be adopted for the solid waste management and its re-use in all urban and agricultural areas.

v) A Coordination Committee for prevention and control of pollution of water, land and air should be established for the NCR with the following main functions :

a) To coordinate the activities of the State Pollution Control Boards for the prevention of pollution, and the Environmental Committees constituted at local levels and to provide them the technical assistance and guidance to carry out and sponsor investigations and research relating to problems of water and air pollution and prevention, control and abatement of such pollution.

b) To advise enforcing law for treatment of liquid effluents from domestic areas, industrial and commercial areas for making them fit for recycling, and

c) To promote solid waste management for extracting its nutrient value.

vi) Location of industries in the NCR should be regulated with respect to pollution propensities. Before issuing new licence or renewing the old one, licensing authorities should ensure that industries are located in such a way that smoke emitted by industries is carried away from the main human settlement, and the liquid wastes are released such that the water sources are not polluted and no liquid effluents are released without proper treatment.

vii) Afforestation programmes should be undertaken on all barren and uncultivable land by the concerned agencies.

viii) Care should be taken by the local planning and plan implementing authorities at the time of preparing and implementing the development plans of the urban areas in their Sub-region to contain the spread of corridor developments all along the major arteries of the Region. All urban developments should be regulated within identified geographical areas. As far as possible, each of the settlements may be surrounded by a green belt comprising social forestry, urban forestry or agro-horticulture with adequate vegetal and biomass cover. These would inter-alia, act as climate balancers.

ix) Technical help and training should be given to the people in rural areas through voluntary Organisations and through the concerned agencies of the Central and State Governments to put the animal dung, human waste to productive use of bio-gas generation.

x) Municipalities and other local authorities should provide for sewerage and solid waste disposal in towns and low cost sanitation in towns and villages where conventional sewerage system is not available.

16

MANAGEMENT STRUCTURE FOR PLAN IMPLEMENTATION

16.1 With the establishment of NCR Planning Board, an apex body has been constituted at the Central level with the requisite statutory powers to prepare a Regional Plan for the balanced, harmonised and coordinated development of the NCR and to enforce, oversee and monitor the implementation of the Plan. For successful implementation of the Plan in the Region, suitable institutional arrangements are necessary at all levels. The NCR Plan is required to be implemented by the participating States/Delhi U T. While, schemes falling in the Central sector will be implemented by the concerned Central Ministries.

16.2 A review of the existing planning and implementation arrangements shows a varied pattern in the three participating States and the Union Territory of Delhi. However, none of the existing arrangements has been found to be fully compatible to fulfil the needs of taking up the balanced and integrated development of the concerned Sub-Regions at the field level, which could encompass both the rural and urban areas. In Haryana, the Haryana Urban Development Authority (HUDA) fully meets the needs as far as the urban areas, including controlled areas, are concerned. Planning in their case is the responsibility of the State Town and Country Planning Department. The Director of the Town & Country Planning Department who is also the Chief Administrator of HUDA, is in a position to achieve a fair degree of integration in planning and developmental activities. However, their jurisdiction does not extend to rural areas at all.

In Uttar Pradesh, planning in urban areas is the responsibility of the Development Authorities and Controlling Authorities under the U P Urban Planning & Development Act and the U P Regulation of Building Operations Act respectively. The State Town & Country Planning Department acts as an agency for planning on behalf of the Development Authorities. But once again, they have no responsibility for the rural areas. The suggestion made to the UP Government for declaring the Sub-Region as a Special Area under their UP Special Area Development Authorities Act, 1986, has not yet found favour with the State Government and they have been considering various other proposals. Uttar Pradesh, of course, has the added advantage of having Development Authorities covering their towns included in the DMA and the other towns identified for priority development. However, as pointed out above, the

existing machinery does not fulfil the need of having a body which could exercise uniform authority for planning and implementation in the urban and rural area. In the Rajasthan Sub-Region, all the territory lies in one district alone, viz Alwar. The State Government has presently extended the scope of the Urban Improvement Trust, Alwar, to include development of Bhiwadi, one of the identified priority towns, but they have themselves accepted the limitations of this arrangement. They have agreed that they intend to constitute a Sub-Regional Development Authority with wider jurisdiction to undertake planning and to implement the NCR Plan for the entire Sub-Region when their proposed Town & Country Planning Act is enacted. The situation in the Delhi Union Territory is still more complicated and a Commission appointed by the Union Government is presently going into the question of suggesting a revised administrative structure and we shall have to await their findings.

16.3 The main issue to be resolved is about dovetailing the planning and development in the rural areas along with urban areas. The concept of the development of the NCR goes much beyond the limited applicability on the urban areas and has to integrate and harmonize the development of the rural areas also. It is a fact that a number of agencies, such as Zila Parishads, Panchayat Samities, Panchayats, cooperative bodies, in addition to the official agencies of the Government, are operating in the rural areas. Since an integrated approach is crucial for the development of the Region, it is of utmost necessity that a Sub-Regional Area Development Authority be set up which would have jurisdiction for planning in the entire Sub-Region, and an overseeing role in the implementation of the NCR objectives and policies. It would be necessary at the Sub-Regional level to have one plan for the entire Sub-Region consisting of resources from the NCR Planning Board and the regular schemes of the State Plan. It is quite clear that the existing legislative framework in none of the participating States and the Union Territory of Delhi provides for establishment of such a body at the operational level. Thus, it would be necessary to have a separate legislation for this purpose and the Board should circulate a model legislation at the earliest.

16.4 The need for having a Planning Cell in the three participating States to carry out the preparation of the Sub-Region Plans, Functional Plans, Project Plans etc. and to provide the necessary information to the NCR Planning Board for the preparation of its plans, has been accepted. Planning Cells with different compositions are already in operation and it is expected that they would be shortly re-organised on

the pattern recommended and accepted by the Board. Presently, the three participating States have also set up Steering Committees under the chairmanship of the Chief Secretaries concerned, to establish the required coordination at the State level. However, the need for such committees would havt to be re-examined once the proposed Sub Area Authorities are set up.

16.5 One of the functions of the NCR Planning Board is to arrange for, and oversee, the financing of selected development projects in the NCR, through Centre and State Plan funds and other sources of revenue. For both these functions, suitable monitoring systems would be developed as under :

A. In case of projects with financial assistance of the NCR Planning Board, it is proposed that each implementing agency/organisation would have the following institutional arrangement :-

(i) **Within the Implementing Agencies in participating States :** Creation of a **Programme Monitoring Unit (PMU)** which which would be responsible for monitoring of the programmes of the agency/organisation including projects funded by the NCR Planning Board. This Unit will monitor the achievement of the overall goals of the sectoral programmes and also physical and financial progress of individual projects funded by all sources, including NCR Planning Board. This Unit will submit a quarterly progress report to be evaluated by the Planning cells (in the Town and Country Planning Department) of the State Government and finally to the NCR Planning Board for review by the Project Sanctioning and Monitoring Group of the Board.

(ii) **In Central Ministries :** In case of NCR projects to be implemented by the Central Ministries, progress reports on quarterly basis will be made available to the NCR Planning Board Secretariat for review by the Project Sanctioning and Monitoring Group of the Board.

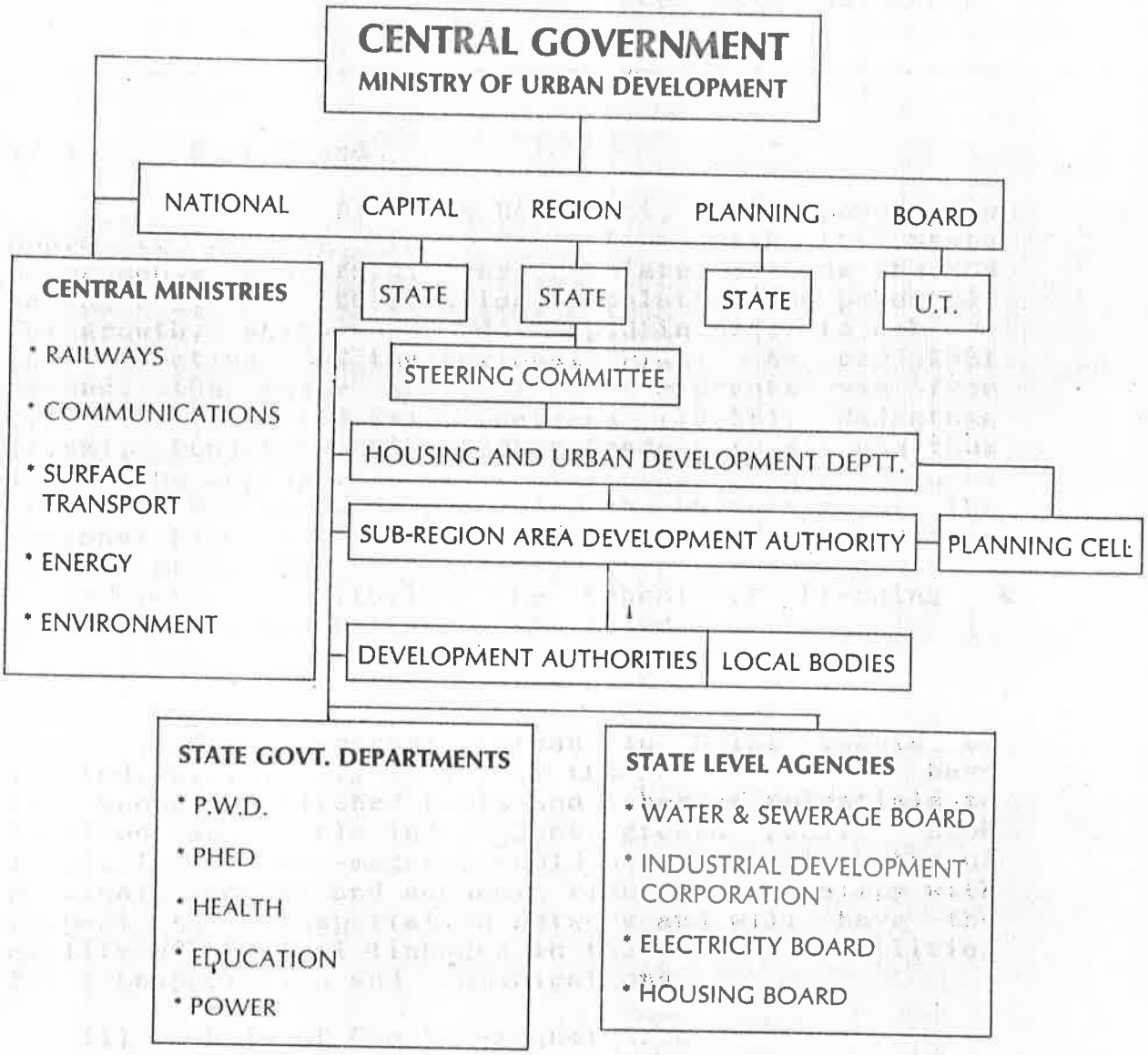
iii) For monitoring of projects both of State and Central Schemes, a **Project Appraisal Monitoring and Evaluation system** will be developed in the Secretariat of the NCR Planning Board.

B. As regards monitoring of the following aspects suitable scientific systems will be developed within the secretariat of the NCR Planning Board for monitoring of major developmental activities as follows :

(i)	**Landuse aspect**	Through sequential/ periodical aerial photographs/satellite Imageries to evaluate persistent trend of land-use over a period of time and monitor unauthorised developments and to detect growth trend of urban areas for review by the Planning Committee and the NCR Planning Board.
(ii)	**Environmental aspects**	Through Constitution of a joint Committee represented by the respective constituent State Pollution Control Boards, Central Pollution Control Board and the NCR Planning Board to be reviewed by the Planning Committee and the NCR Planning Board.

16.6 An Organisational Structure for the purposes of Planning and co-ordination of enforcement and implementation of the Regional Plan, Functional Plans, Sub-regional Plans and Project Plans is as follows :

PROPOSED ORGANISATIONAL STRUCTURE FOR IMPLEMENTATION



17

COUNTER MAGNET AREAS

17.1 Background .

The NCR Planning Board Act, 1985 empowers the Board to select, in consultation with the State Governments concerned, any urban area outside the NCR having regard to its location, population and potential for growth, which may be developed in order to achieve the objectives of the Regional Plan. As per 1981 Census, the major share of Delhi migrants was from Uttar Pradesh (48.2%), Haryana (15.5%), Rajasthan (7.6%), Punjab (9.8%), Madhya Pradesh (2.4%) and thus it may be appropriate to identify the Counter-magnets in these States to help meeting the objectives of the Regional Plan. A study to identify appropriate Counter-magnet areas has accordingly been entrusted to a Professional Institution- the School of Planning & Architecture, New Delhi, by the Board.

i) Concept of Counter-magnet

Counter-magnet areas to Delhi should be located sufficiently away from the NCR and should have its known established roots and inherent potentials to function as viable independent growth focii. Such identified Counter-magnets would have the attributes of physical, social and economic viability; nodality with respect to transportation network and will have the quality of physical linkages in the form of facilities for transportation and communications.

ii) Role of Counter-magnet Areas

The proposed Counter-magnets are envisaged to play two distinctive and mutually complementary roles in the context of the NCR :

(a) **firstly,** as the future intercepters of migratory flows which may escalate as the accelerated development of the NCR would provide a pull to migrants from the less developed adjoining areas;

(b) **Secondly,** as regional growth centres in the regions of their setting which would help over time to achieve a balance pattern of urbanisation.

17.2 Identification of Counter-magnets

i) The criteria employed by the Consultants in identifying the Counter-magnet areas are:

a) Nodality Considerations : The Counter-magnet areas are expected to maintain certain amount of complementarity in respect of metropolitan functions with Delhi and the NCR and as such, a range of 250-300 km from the NCR boundary or 350-400 km from Delhi representing 6 hours journey time at the prevailing transport conditions should enable interaction between chosen Counter-magnet and the metropolitan core, without impairing its developmental autonomy and functional identity as a regional growth centre. However, these distances for search zones would be extended to the entire constituent States with the likely technology improvement in the transport sector specially along the major transport corridors. To avoid overlapping of influence zones, such identified centres would be spaced atleast about 60 km apart.

b) Spatial Considerations : To infuse complementarity to spatial pattern, size and functional specification of priority towns and their linkages outside the NCR, particularly in the search zones to identify for linking possible Counter-magnets, spatial considerations are imperative.

c) Size and viability considerations : Counter-magnets will generally have a population size of about 3,00,000 and upwards as that size cities have estabilished service area and basic level social and economic infrastructure with a diversified economic base. While this would be only a general guideline, emphasis would be location specific.

d) Migration considerations : By an large, the location of Counter-magnets may be guided from the consideration of higher rate of migration flow in a district or a group of districts of a State.

ii) **Search Zone**

The Consutants have listed thirty six urban centres from the States of Uttar Pradesh, Haryana, Rajasthan, Punjab and Madhya Pradesh,and have screened them on the basis of the criteria that they lie in the influence zones of the NCR, but at the same time their zones of influence do not overlap with each other in the next 20 years, accessibility, linkages, administrative base, production base, growth impulse, and that are not at the same time religious or cultural centres, or of defence strategic importance or ecological sensitive areas.

An evaluation of the towns in terms of their regional significance, viable economic base and availability of an adequate level of urban infrastructure, additional input requirement of selected economic sectors namely, manufacturing, trade and commerce and service sector has led to the selection of the followingtowns :

Uttar Pradesh
1. Bareilly/Moradabad
2. Saharanpur
3. Allahabad

Rajasthan
1) Kota
2) Ajmer

Haryana
1. Ambala/Karnal
2. Hissar

Madhya Pradesh
1. Gwalior

Punjab
1. Patiala
2. Ludhiana

17.3 Policy Guidelines

Development of Counter-magnet areas would require co-ordinated efforts of the State and Central Governments and the National Capital Region Planning Board. The broad policy guidelines for development of Counter-magnet areas in terms of the role by the Governments and the Board may be as under :

A. State Governments

i) The Counter-magnets would be finally identified by the NCR Planning Board in consultation with the State Governments. The State Governments/its implementing Agencies will prepare an integrated long term development programme under which detailed projects would be prepared to coincide with Five Year Plans for their accelerated development.

ii) Specific action programmes for each Counter magnet area for the first five years, would then have to be prepared by the State Government/implementing agencies indicating the investment implications relating to development of physical and social infrastructure, economic activities such as industries, commerce and services, housing, environmental improvement etc in the State sector and, development of transport (National Highways and Railways) and Telecommunications in the Central Sector.

iii) The constituent State Governments should take steps to formulate a special programme in the State sector for the integrated development of the concerned Counter-magnet areas and, set apart a special fund (in

the form of revolving fund) for this purpose in the State Plans providing easy accesss to the funds by local bodies/authorities. The financial assistance in the Central sector will be in the transport and telecommunications schemes.

iv) The State Government should immediately take steps to establish statutory development authorities if not existing and, these authorities and local bodies should be equipped adequately with both manpower and finance, to be able to take up massive urban development programmes.

v) The State Governments' promotional role would include extending incentive packages for industrial and commercial entrepreneurs favouring location in Counter-magnet areas. This calls for a reorientation of the State level industrial development policy directed at encouraging not only public sector but also corporate sector investments in the Counter-magnet areas.

vi) A Coordination Committee may be set up at the State level to coordinate various development programmes of the Counter-magnet areas with other development programmes relating to agriculture, marketing infrastructure, rural roads and electrification etc. in the district.

vii) The State Government may provide additional thrust to Counter magnet areas taking advantage of Central Sector urban development programmes and ensure additional allocation for such schemes.

viii) The Counter magnets should be given a priority status for the purpose of institutional funding of various development programmes like development of industrial land, infrastructure and housing.

B. Central Government/NCR Planning Board

i) The NCR Planning Board in its budgetory demands should incorporate a special head for supporting the development of Counter-magnet areas, based on an assessment of investments required under Central sector for transport and communication schemes.

ii) The NCR Planning Board would extend technical assistance to the State Governments/implementing agencies for the preparation of integrated projects for the development of Counter magnet areas. Besides, the NCR Planning Board would also be responsible to monitor the implementation of various development programmes for which a suitable mechanism will be worked out by the Board in consultation with the State Governments.

iii) The Central Government, in addition to providing the financial support would also have a substantial promotional role to play. For this purpose the Board would formulate policy guidelines relating to development of various sectors.

C. State and Central Government and NCR Planning Board

i) To mobilise public support and participation and to attract private enterpreneurs to invest in the Counter-magnet areas at the development authority level, a publicity campaign should be organised with the support of such institutions as Chamber of Commerce, Market Associations, Mandi Committees, etc. and using mass media like newspapers, radio and television network.

18

STRATEGIES AND PRIORITY AREAS FOR DEVELOPMENT 2001

The Regional Plan for the NCR-2001 stipulates an inter-related policy frame-work for achieving the objectives of the NCR Plan. The policies require several strategies to be followed each of which has significant impact on programmes to be undertaken in the NCR. Various strategies and priority areas for development as discussed below are related to the goals of the NCR Plan being (i) a manageable Delhi, (ii) harmonised and balanced development of the NCR to be achieved by 2001 A.D.

18.1 Policies and Strategies

Although the year 2001 AD has been taken as the perspective for the Regional Plan, the Plan is not finite but is a part of a continuous process. Nevertheless it is essential to structure this continuous process into discrete phases, that can be organised within the limits of the resources and implementing capability of the organisations involved. It is equally essential to place the tasks into an order of priority. The tasks can be divided into the following :

i) Continuation of the work of Regional Plan through the preparation of Functional Plan by the NCRPB and Sub-regional plans by the participating States and Delhi UT.
ii) Action Plan, programmes and project plans by each of the participating States and Delhi UT and the Central Ministries.
iii) Institutional Improvements
iv) Resource mobilisation
v) Approval and monitoring of implementation of projects, and
vi) Implementation of the Regional Plan.

i) Continuation of work of Regional Plan

The Regional Plan contains broadly policy frame-work, strategies and guidelines for development of the Region together with broad landuse for the NCR-2001.

The Secretariat of the NCRPB will prepare functional Plans for various sectors of development in close collaboration with the Central/State Government agencies. These Functional plans will identify areas of action for proper guidance of the participating States and of the Union Territory to achieve the objectives of the NCR Plan.

The action plan will suggest measures :

a) To contain the population of Delhi UT through decelerated growth

b) To achieve moderate growth of DMA , excluding Delhi UT.

c) To induce growth in the towns/complexes identified for priority development by enhancing the momentum of economic expansion and technolocial development and also adopting effective promotional measures to create employment opportunities to attract the Delhi bound potential migrants and, creating a physically efficient pattern and socially desirable environment with effective participation of the States, that will sustain dynamic growth in keeping with objectives and goals of the NCR Plan.

d) For action to expand and to effect qualitative and quantitative improvement in physical and social infrastructure in towns identified for priority development.

The Sub-regional Plans will be prepared by each of the participating States for the respective Sub-region. The Sub-regional Plan will indicate the following elements to elaborate the Sub-regional Plan at the Sub-regional level namely :

a) reservation of areas for specific landuse which are of the regional or sub-regional importance;

b) future urban and major rural settlements indicating their areas, projected population, predominant economic functions, approximate site and location;

c) road network connecting Sub-regional centres, Service Centres and Basic villages;

d) proposals for the coordination of traffic and transportation, including terminal facilities;

e) priority areas at sub-regional level for which immediate plans are necessary;

f) proposals for the supply of drinking water and sanitation and drainage; and

g) any other matter which is necessary for the development of the Sub-regions.

ii) **Action Plan, programmes and Project Plans** by each of the participating States/Delhi UT and Central Ministries :

a) The Regional Plan for the NCR envisages development of economic activities over a wider area in the Region more specifically in the towns/complexes that are identified for this purpose. These priority towns need to be planned each as a self-contained unit and action taken for their coordinated and synchronised development both physical and economic to maximase their growth for induced development. This can only be done through an interrelated programme for which projects would be required to be identified over a time-scale. The programme for Central Ministries would be in the Transport both road and railways and telecommunications sectors while that for State sector in Urban Development Schemes and regional roads.

b) The development stategies approved in the Regional Plan need to be translated into a set of programmes and phased suitably to achieve the major objectives of the plan. The three phases would be as follows :

- Phase I (1987-90) corresponding to the remaining part of the 7th Five year Plan period.

- Phase II (1990-1995) corresponding to the 8th Plan period.

-Phase III (1995-2001) corresponding to the 9th Plan period and part of 10th Plan period.

c) Bringing down the growth rate by attracting the Delhi bound migrants to priority towns through creation of job opportunities will have a strong impact on priority towns cannot absorb a large number of migrants who are presently moving to the National Capital without inducing growth rate in them three to fourtimes higher than their present rate. In view of the greater concentration of population in the Capital, the need for flow of migrants to be re-directed to priority towns will be greater. This will require well identified projects to gradually increase the migration share to the priority towns by improving their economic base. The dominant force in triggering inmigration is the growth of secondary and tertiary sectors. The secondary sector has a greater multiplier impact upon the expansion of local and regional economy than a similar employment expansion in the service sector. For effectuation of such programme, the institutional framework both at the State and local levels will need to be strengthened and action taken to improve the resource mobilisation at the local level. This will

also call for inter-linkages of investments and programmes of the agencies responsible for economic activities, State level functional agencies and local authorities incharge of the infrastructural services and maintenance.

Need for multisectoral projects :

In the context of the above, coordinated urban development projects for various sectors of the Region/selected towns will need to be prepared.

The regional level components will be :

- surface transport: the Expressways, N.H. and regional roads
- railways
- telecommunications

And the priority towns components will be :

- development of economic activities - Industry, Distributive trade and commerce and Government and Public Sector Offices to promote employment and improve the economy

- urban infrastructure and services like water supply, sanitation, storm water drainage, solid waste management, traffic and transportation etc.

- provision of social infrastructural facilities such as education and health

- development of shelter for the urban poor, and

- development of small scale enterprises in the informal sector for expansion of employment opportunities and upgrading skills.

Determining priorities :

In this regard, more appropriate action would be to designate the areas where urgent planning action is needed and to treat these as 'priority areas' for which integrated plans and programmes would be prepared. These would be called 'action areas' and the plans would be called 'action plans'. To prepare the plan, it is suggested that the Planning Cells of the State Governments would be responsible for complete programmes including the tasks of coordinating investments of public and private agencies. A programme would be

devised in relation to the priorities finally culminating into projects for implementation. The Secretariat of the NCR Planning Board's role in the project cycle will be in the areas of :

a) Identification of suitable projects that support the NCR Plan objectives.

b) Assisting the agencies in preparation of projects comprising technical, economic and financial aspects and institutional aspects of the proposed project by providing guidance and/or financial assistance for preparation.

c) Appraisal comprising review of all aspects of the project. The appraisal report will serve the basis for sanction of the projects by the NCR Planning Board.

d) Implementation and supervision will be the responsibility of the participating States/Delhi UT. Quarterly progress reports on the implementation will be reviewed and field visits undertakn by the Secretariat of the NCR Planning Board for the same.

e) Evaluation to provide lessons of experience which will be built into subsequent identification, preparation or appraisal work.

iii) Institutional improvements

For efficient implementation and management of the projects, it is necessary to tone up institutions incharge of urban development, services and management at all levels. This will involve review of the working of the development authorities, taxation and tax recovery system of the local authorities and monitoring methods of the projects, at the local level.

iv) Resource mobilisation

Under Section 22 of the NCR Planning Board Act, it is provided that the National Capital Region Planning Board fund may be constituted. The sources for such fund shall be :

a) all grants and loans from the Central Governments;

b) all sums paid to the Board by the participating States; Delhi UT; and

c) all sums received by the Board in consultation with the Central Government, participating State Government and UT

v) **Approval and monitoring of projects**

The project plans will be mainly prepared by the implementing agencies at local level within the framework of the Regional/Sub-regional/Functional Plans in collaboration with the Planning Cells at the Local levels. The NCR Planning Board will assist the implementing agencies in preparation of identified projects. Each implementing agency will have a Monitoring Cell for the projects under that agency and they will submit timely progress of the performance in implementation as a feed back to the NCRPB. The NCRPB will develop a Monitoring and Evaluation system and also extend assistance in the preparation of objective effective and financially viable projects.

vi) **Implementation of the Regional Plan**

The Regional Plan, although containing socio-economic policies, has alternative strategies with investment implications. The Regional Plan represents an end product, the implementation of which would be pursued on the desired strategies and goals through a number of projects. However, in the light of the impact the development would create, the Plan and its strategies in its entirely would be reviewed every five years and, after such review, substitute it by a fresh regional plan or make such modifications or alterations therein as may be found necessary.

18.2 **Resources for implementation**

i) **NCRPB's Resources :** In addition to the 'NCR Fund', it is proposed to mobilise resources under Section 22(1) (c) for financing implementation of the NCR projects through :

a) Life Insurance Corporation of India
b) Debentures/Bonds
c) Nationalised Commercial Banks
d) Proposed Urban Development and Urban Water Supply Finance Corporation.

ii) State Government Resources

At the State level, the general provision of pattern of matching share will continue. However, the State Governments will make efforts to raise additional resources through :

a) HUDCO
b) LIC
c) Nationalised Commercial Banks
d) Market borrowings.

iii) Local Government Resources

a) Locally raised taxes
b) User Charges
c) Market Borrowings
d) Other non-tax revenues for performance of statutory and regulatory functions.
e) Transfers from higher level of Government including shared taxes and grants-in-aid.

iv) Role of Private Sector

Recognising the critical importance of the private sector and the dominant role of private investments in the total investment, its resources and expertise should be incorporated in the regional planning process. The regional planning involves the integration of a much larger number of sectors such as economic development, social services and environmental management where the private sector can play a significant role in improving the regional economy.

18.3 Special Component Plan

The allocation of financial resources is primarily made by the concerned Ministries with the approval of the Planning Commission. Allocation of resources for State sector urban development schemes sponsored by the Centre is made by the Ministry of Urban Development. The Ministry of Urban Development would also be responsible to ensure that sectoral investments concerning other Ministries such as Surface Transport, Telecommunications and Railways allocate resources for the NCR Schemes consistent with, and supportive of NCR priorities and objectives. In practice, this task is extremely difficult because of the competing demand on the available resources and is thus a serious drawback for implementation of the regional development programmes. It is, therefore, proposed that a financial mechanism of Special Component Plan for NCR be established in the Central and State Plans to permit the simultaneous channelling of funds through Central Ministries and State Governments for inter-related activities ensuring the efficient implementation of comprehensive urban and regional development programmes in the NCR.

TABLES

Table-2.1 : Area, Population and Growth Characteristics of DMA

Constituent Units of N.C.R.	Area (in Hectare)	Population (1981) in lakhs	Decadal Growth(%) 1951-61	1961-71	1971-81
Delhi, UT	1,48,500	62.20	52.43	52.92	52.98
Bahadurgarh	17,403	0.37	34.43	72.28	45.23
Faridabad-Ballabgarh	39,398	3.31	57.88	103.42	169.39
Ghaziabad including Loni	49,691	2.97	61.01	68.71	141.65
Gurgaon	26,671	1.01	103.42	50.94	76.50
Kundli	13,722	-	-	-	-
NOIDA	14,915	0.42*	Did not exist till 1981		
Ridge falling outside the area of DUT, Gurgaon and Faridabad.	7,885	-	-	-	-
Total D.M.A.	3,18,185	70.28	-	-	56.76
Total D.M.A. excluding Delhi	1,69,685	8.08	-	-	95.84

*Gives rural population of fifty villages in controlled area.

Source : 1. Census of India - 1981

2. Report of the Sub Group of DMA - 1982, Ministry of Urban Development, Govt. of India.

ble 3.1 Pattern of Inmigration into Delhi 1941-81

nsus ar	Population	Net decadal increase	Total Decadal inmigr-ants**	Propn. of inmigrant to total pop. % in that year (4/2)	Propn. of inmigrant to net increase (%) (4/3)	Decadal Growth of in-migra-tion(%)
941	917939					
51	1744072	826133				
961	2658612	914540	544198*	20.47		
971	4065698	1407086	525309	12.92	37.33	
981	6220406	2154708	1229745	19.77	57.07	134.10

Represents inmigrants upto 1961 and includes migrants for 'period not kno
ategory (99,143).
In the population Census, migrants are classified on the basis of either
) Place of birth, or (ii) Place of last residence. A person is considered
migrant by place of birth if the place of enumeration during the Census is
ther than the place of his/her immediate last residence. Till 1961, statistic
n migration was based on 'birth place', but since 1971, it is on the basis o
place of last residence'.

able 3.2 Migrants to Delhi by States of their Origin

tate	Before 1961	1961-71	1971-81	Period not known	Total
aryana	98324 (22.1)	85945 (16.4)	159028 (12.9)	14412	357709 (15.5)
adhya Pradesh	5585 (1.2)	8860 (1.7)	37709 (3.1)	2496	54650 (2.4)
unjab	749944 (16.8)	59503 (11.3)	78671 (6.4)	11447	224565 (9.8)
ajasthan	33341 (7.5)	39885 (7.6)	93836 (7.6)	7603	174665 (7.6)
ttar Pradesh	185550 (41.7)	260748 (49.6)	616021 (50.1)	54362	1107681 (48.2)
ther(including outside India	47311 (10.7)	70368 (13.4)	244480 (19.9)	17823	379982 (16.5)
otal	445055 (100.0)	525309 (100.0)	1229745 (100.0)	99143	2299252 (100.0)

ote: Figures in brackets indicate % to the respective totals.

able 3.3 Population Projections for the NCR by Constituents

(Population in lakhs

ub-Region		Population 1981	Projected Population 1991	2001
elhi UT*	Total	62.2	92.5	132.6
	Rural	4.5	4.4	3.6
	Urban	57.7	88.1	129.0
aryana	Total	49.4	62.7	72.1
	Rural	37.3	40.3	34.4
	Urban	12.1	22.4	37.7
ajasthan	Total	10.6	11.3	11.9
	Rural	8.9	8.7	8.5
	Urban	1.7	2.6	3.4
ttar Pradesh	Total	69.7	87.6	108.6
	Rural	50.2	51.8	45.0
	Urban	19.5	35.8	63.6
CR	Total	191.9	254.1	325.2
	Rural	100.9	105.2	91.5
	Urban	91.0	148.9	233.7

Projection for Delhi UT is based on the draft recommendations of the Expe Committee on Population.

able 3.4 Controlled Population Projection of Delhi UT 1981-2001.

ear	Population (in lakhs)	Net increase (in lakhs)	Decadal Growth rate	Addition by Natural growth(%)	Increase by inmigration in lakhs(%)
ctual					
961	26.59				
971	40.66	14.07	52.91	8.82 (33.17)	5.25 (19.74)
981	62.20	21.54	52.98	9.24 (22.74)	12.30 (30.24)
rojected					
991	92.55	30.35	48.79	12.44 (20.00)	17.91 (28.79)
001	112.00	19.45	21.01	11.11 (12.00)	8.34 (9.01)

ote: Figures in brackets indicate components of decadal growth rate.

Table 3.5 Population Assignment by 2001 AD For Delhi, DMA & NCR (in lakhs)

Sl.No.	Area	Population 2001					
		Projected			Assigned		
		Total	Urban	Rural	Total	Urban	Rural
1.	Region	325	234	91	325	234	91
2.	Delhi Sub-region	132	129	3	112	110	2
3.	Haryana Sub-region	72	38	34	78	43.5	34.5
4.	Rajasthan Sub-region	12	3.5	8.5	14	7	7
5.	Uttar Pradesh Sub-region	109	63.5	45.5	121	75.5	45.5
6.	Delhi Metropolitan area						
	a. Total	170	166	4	150	147	3
	b. Delhi				112	110	2
	c. Haryana				21	20.5	0.5
	d. U.P.				17	16.5	0.5
7.	DMA Towns				37	37	–
	a. Ghaziabad including Loni				11	11	–
	b. NOIDA				5.5	5.5	
	c. Faridabad				10	10	
	d. Gurgaon				7	7	
	e. Bahadurgarh				2	2	
	f. Kundli				1.5	1.5	
8.	Other areas outside DMA				(Urban 89 and rural 86 lakhs)		
	a. Haryana	17	17		57	23	34
	b. Rajasthan	4	4		14	5	9
	c. U.P.	47	47		104	59	45

Table 4.1 Functional Classification of Towns in NCR 1971-81

Sl. No.	Name of the Town	Census Class Size	Population in 1981	Density (per sq.km) 1981	Growth rate in 1971-1981	Function in 1971	Function in 1981
	1	2	3	4	5	6	7
Delhi UT Sub-Region							
1.	Delhi UA	I	5729283	10594	57.09	Others Industry	Others
2.	Alipur	V	6735	787	**	–	Others
3.	Biwana	IV	12637	745	**	–	Others
4.	Bijwasan	V	7389	678	**	–	Others
5.	Pehladpur Banger	V	5011	1073	**	–	Others
6.	Poth Khurd	V	7145	716	**	–	Others
Uttar Pradesh Sub-Region							
7.	Abdullapur	V	6383	3940	*	–	Primary-Others
8.	Agarwal Mandi	V	9353	10116	*	–	Primary-Others
9.	Aminagar Sarai	V	6837	3617	21.97	Industry-Trade & Commerce-Others	Others
10.	Anup Shahr	IV	15193	5866	23.99	Others–Industry–Primary	Others
11.	Aurangabad	IV	11622	3874	*	–	Others–Primary
12.	Babugarh	VI	2389	445	*	–	Others
13.	Baghpat	IV	17157	5957	47.07	Primary	Others–Primary
14.	Bahusama	V	7906	2635	*	–	Primary
15.	Baraut	III	46292	4468	48.07	Trade & Commerce Industry–Others	Others
16.	Bhawan Bahadur Nagar	V	6779	1808	**	–	Others–Primary
17.	Bilaspur	V	4661	2188	*	–	Others
18.	Bugrasi	V	8307	1298	16.12	Primary–Others Industry	Others
19.	Bulandshahr	I	103436	11016	73.83	Others–Trade & Commerce–Industry	Others
20.	Chhaprauli	IV	13805	12550	*	–	Primary
21.	Chhatari	V	5862	982	*	–	Primary
22.	Dadri	IV	19723	3156	51.01	Others–Trade & Commerce–Industry	Others
23.	Dankaur	V	7935	802	14.18	Others–Trade & Commerce–Industry	Others
24.	Daurala	V	9146	8710	*	–	Primary
25.	Debai	III	22430	9627	31.62	Industry–Trade & Commerce–Primary	Others
26.	Doghat	IV	10019	10890	**	–	Primary
27.	Faridnagar	V	9116	20718	20.89	Industry–Primary	Others

	1	2	3	4	5	6	7
28.	Garmukteshwar	IV	17914	560	63.79	Primary Industry Others	Others
29.	Ghaziabad (UA)	I	287170	4366	124.88	–	Others
30.	Gulaothi	III	24416	10949	40.52	Trade & Commerce Industry	Others
31.	Hapur	I	102837	17639	44.30	Trade & Commerce Industry–Others	Others
32.	Hastinapur	IV	11637	3803	30.91	Industry–Others	Others
33.	Jahangirabad	III	29301	10317	35.79	Primary–Industry Trade & Commerce	Others
34.	Jahangirpur	V	6447	626	**	–	Primary–Others
35.	Jewar	IV	15275	837	*	–	Others
36.	Kakod	VI	4299	3495	*	–	Others–Primary
37.	Karnawal	V	9895	8315	**	–	Primary
38.	Khanpur	V	8311	5099	*	–	Primary
39.	Kharkhoda	V	8708	4976	*	–	Primary–Others
40.	Khekada	III	24984	20648	*	–	Others
41.	Khurja	II	67119	6479	33.58	Industry–Others Trade & Commerce	Others
42.	Kithaur	IV	13791	4522	*	–	Primary
43.	Lawar	IV	11535	3178	*	–	Primary–Others
44.	Loni	IV	10259	3901	*	–	Others
45.	Mawana	III	37620	14525	51.3w	Diversified	Others
46.	Meerut (UA)	I	536615	6640	44.34	Others–Industry	Others
47.	Modinagar (UA)	II	87665	6105	101.67	Industry	Others
48.	Murad Nagar	III	26047	16279	86.25	Industry–Trade & Commerce–Primary	Others
49.	Narora	V	9573	1760	*	–	Others
50.	Niwadi	V	7078	4424	*	–	Primary
51.	OF Muradnagar	IV	13147	1983	45.66	Others	Others
52.	Pahasu	V	9016	39200	45.66	Others	Others
53.	Parikshitgarh	IV	11328	3293	*	–	Others
54.	Patiala	V	7847	6539	**		Primary
55.	Palauda	IV	10357	4523	*		Primary
56.	Pilkhua	III	37884	8363	58.24	Industry	Others
57.	Rabupura	V	8999	868		–	Primary–Others
58.	Sardhana	III	30138	2145	36.48	Industry–Primary Trade & Commerce	Others
59.	Sewalkhas	IV	10278	12534	**	–	Primary
60.	Shajahanpur	V	8867	1483	20.80	Primary–Industry	Primary
61.	Shikarpur	III	21449	43876	29.79	Primary–Industry Others	Others
62.	Siana	III	22410	4335	35.79	Primary–Others Trade & Commerce	Others
63.	Sikandrabad	III	43135	4913	34.67	Industry–Primary Trade & Commerce	Others
64.	Tikri	IV	11315	10286	**	–	Primary
Haryana Sub-region							
65.	Bahadurgarh	III	37488	4165	45.23	Others–Industry	Others
66.	Bawal	V	7760	21556	18.85	Primary	Others
67.	Beri	IV	13490	5208	9.35	Primary	Others–Primary
68.	Faridabad Complex Administration	I	330864	1856	NA	Industry	Others
69.	Farukkhagar	V	6367	4760	16.04	Primary–Trade & Commerce–Industry	Others
70.	Ferozepur	V	9400	1061	18.06	Primary–Trade & Commerce–Industry	Others
71.	Ganaur	IV	16489	1820	96.32	Industry–Trade & Commerce–Others	Others

1	2	3	4	5	6	7
72. Gohana	III	26188	3986	56.81	Trade & Commerce Others–Primary	Others
73. Gurgaon	II	100877	4181	76.51	Others	Others
74. Hailey Mandi	IV	10140	3915	350.27	Trade & Commerce	Others
75. Hassanpur	V	5109	5494	**	–	Primary–Others
76. Hathin	V	6553	3293	**	–	Primary–Others
77. Hodal	IV	18740	8329	32.49	Diversified	Others
78. Jhajjar	III	24247	4041	27.97	Primary–Others–Trade & Commerce	Others
79. Jharsa	V	8412	842	**	–	Others
80. Kalanaur	IV	12380	2172	*		Others
81. Maham	IV	11722	3359	11.20	Primary–Trade & Commerce	Others
82. Nuh	V	5992	19973	26.68	Trade & Commerce Others	Others
83. Palwal	III	47328	8574	30.72	Others–Trade & Commerce–Industry	Others
84. Panipat	I	137927	6625	56.77	Industry–Trade & Commerce–Others	Others
85. Pataudi	V	8422	2165	39.32	Primary	Others–Primary
86. Rewari	II	51562	8509	17.49	Trade & Commence Others–Industry	Others
87. Rohtak	I	166767	7570	33.68	Others–Trade & Commerce	Others
88. Samalkha	IV	13532	2222	**	–	Others
89. Sohna	IV	12667	3424	44.35	Trade & Commece Others–Industry	Others
90. Sonipat	I	109369	5118	75.29	Industy–Other–Trade & Commerce	Others
91. Taoru	V	6912	19749	**	Primary–Industry	Others
Rajasthan Sub-region						
92. Alwar	I	145795	1822	45.25	Others	Others
93. Khairthal	IV	15962	728	49.36	Primary–Trade & Commerce	Others
94. Tijara	IV	12199	556	**	–	Others

Note:
* Declassified in 1971
** Newly added town
NA Not Available

Table 5.1: Number of Villages in Different Population Range – 1981

Sub-region	No. of Villages	Population Less than 200	200-499	500-1999	2000-4999	5000-9999	10000 and above
Delhi U.T.	214	9 (4.20)	9 (4.20)	110 (51.40)	71 (33.20)	15 (7.00)	–
Haryana	2386	158 (6.62)	335 (14.04)	1287 (53.94)	508 (21.29)	93 (3.90)	5 (0.21)
Rajasthan	1088	125 (11.49)	318 (29.23)	573 &52.67)	65 (5.97)	7 (0.64)	– –
U.P.	2989	149 (4.98)	283 (9.47)	1705 (57.04)	742 (24.83)	107 (3.58)	3 (0.10)
N.C.R.	6677	441 (6.60)	945 (14.10)	3675 (55.10)	1386 (20.75)	222 (3.32)	8 (0.13)

Note: Figures in brackets indicate proportions to respective sub-region's total

Table-5.2 Distribution of villages according to the availability of different amenities

S.No.	Sub-region	No.of inhabited villages	Number (with percentage) of villages having one or more of the following amenities							
			Education	Medical	Drinking Water	Post and Telegraph	Market/ Hat	Communication	Approachby Pucca Road	Power supply
1.	Delhi UT	214	189 (88.32)	125 (58.41)	214 (100%)	115 (53.74)	7 (3.27%)	183 (85.51)	207 (96.73)	214 (100.00)
2.	Haryana	2386 (76.	2114 (33.60)	1396 (58.51)	2386 (100.00)	758 (31.77)	-	1156 (48.45)	2197 (92.08)	2386 (100.00)
3.	Rajasthan	1088	767 (70.50)	194 (17.33)	1088 (100.00)	232 (21.32)	4 (0.37)	179 (16.49)	265 (24.36)	593 (54.50)
4.	U.P.	2989	2283 (76.38)	697 (23.31)	2989 (100.00)	719 (24.05)	232 (7.76)	737 (26.33)	1512 (50.53)	2489 (83.27)
	NCR	6677	5353 (80.17)	2412 (36.12)	6677 (100.00)	1824 (27.32)	243 (3.64)	2305 (34.52)	4181 (62.62)	5682 (85.10)

Table-5.3 Proportion of Rural population served by different amenities

.No.	Sub-region	Total population of inhabited villages in the tehsil	Proportion of Rural population served by the amenity of							
			Education	Medical	Drinking water	Post and telegraph	Market/ Hat	communication	Approach by Pucca road	Power Supply
1.	Delhi UT	452206	96.52	74.82	100	72.51	4.69	91.75	99.80	100.00
2.	Haryana	3731837	97.05	77.90	100	56.12		66.48	95.72	99.64
3.	Rajasthan	890553	90.25	40.51	100	44.83	1.82	28.84	36.77	70.57
4.	U.P.	5019579	91.34	34.44	100	46.12	17.34	36.34	59.43	89.81
	NCR	10094175	93.72	52.96	100	50.96	8.99	49.40	72.79	92.35

Table 6.1 Distribution of work-force in Delhi 1981 & 2001

Categories	Proportion of workers(%) in 1981 (actual)	2001 (proposed)
Primary Sector	1.59	1.50
Industry	29.18	29.00
Construction	6.39	5.00
Trade & Commerce	22.25	22.00
Transport, Storage and Communication	9.07	11.00
Other services	31.47	31.50
Participation rate	32.20	35.00

Table 6.2 Employment Structure in DMA Towns - 2001

Town	Proposed partici-	Proportion of workers (%) in Primary	Industry	Const- ruction	Trade& Commerce	Transport storage & Communican	Servic
Ghaziabad	30	0.5	38.0	6.0	15.0	10.0	30.0
NOIDA	35	2.0	45.0	6.0	20.0	12.0	20.0
Faridabad							
Ballabhgarh	35	2.0	45.0	6.0	16.0	7.0	23.0
Gurgaon	35	2.0	40.0	10.0	16.0	10.0	22.0
Bahadurgarh	35	6.0	30.0	4.0	25.0	10.0	25.0
Kundli	35	2.0	40.0	10.0	16.0	10.0	22.0

Table 6.3 : Occupational Structure in the Priority Towns by 2001.

(in Percentage)

Priority Town	Partici-pation Ratio-2001(%)	Proportion (%) of workers in					
		Prim-ary	Indus-try	Cons-truc-tion	Trade and Comm-erce	Trans-port & Stora-ges Co-mmuni-cations	Service
1. Meerut	32	2	29	4	20	9	36
2. Hapur	30	6	28	4	22	13	27
3. Bulandshahr	30	4	40	4	20	12	20
- Khurja	30	4	40	4	20	12	20
4. Panipat	32	4	40	4	20	12	20
5. Rohtak	30	7	28	4	20	13	28
6. Palwal	30	9	15	4	17	21	34
7. Rewari	30	9	15	4	21	15	36
Dharuhera	30	5	50	4	16	7	18
Bhiwadi	30	5	50	4	16	7	18
8. Alwar	30	5	30	4	20	11	30

Table6.4 : Employment in Government and Public Sector Offices in Delhi (1921-85)

(Employment in lakhs)

Sector	1921	1931	1941	1951	1961	1971	1981	1982	1983	1984	1985
1. Central Government	0.08	0.11	0.26	0.85	0.94	2.11	2.25	2.31	2.29	2.35	2.30
2. Delhi Administration	0.01	0.03	0.03	0.07	0.25	0.53	0.58	0.62	0.65	0.64	0.65
3. Local Bodies	0.02	0.01	0.12	0.14	0.34	0.9	1.09	1.13	1.17	0.83	0.84
4. Quasi-Government	N.A.	N.A.	N.A.	N.A	0.06	0.56	1.41	1.51	1.63	1.72	1.83
Total	0.11	0.15	0.41	1.06	1.59	4.1	5.33	5.57	5.74	5.54	5.62

Source: Delhi Statistical Handbook - 1986.

Table 6.5: Distribution of Working Force in Urban Delhi 1951-1981

Categories	1951		1961		1971		1981	
	Workers	Percentage	Workers	Percentage	Workers	Percentage	Workers	Percentage
1. Cultivators	3483	0.7	5178	0.7	5176	0.5	7227	0.39
2. Agri.Labours	534	0.1	1242	0.2	3603	0.3	4772	0.25
3. Livestock Forestry etc.	-	-	-	-	-	-	13091	0.70
4. Mining & Querring	1521	0.3	5446	0.7	9091	0.8	4745	0.25
5. Manufacturing, Processing								
a) Household Industry	6632	1.3	12684	1.7	25107	2.2	31349	1.69
b) Other than household	80639	15.7	155099	20.7	242733	21.7	510748	27.49
6. Construction	44948	8.7	32540	4.4	61517	5.5	118699	6.39
7. Trade & Commerce	117338	22.8	143809	19.3	239719	21.6	413430	22.25
8. Transport of Comm.	34455	6.7	47387	6.3	107324	9.6	168457	9.07
9. Other Services	224426	43.7	343430	46.0	422667	37.8	584663	31.47
Total Workers	514026	100.0	746815	100.0	1116937	100.0	1857545	100.00
Population	1437134	-	2359408	-	3647023	-	5763200	-
Participation Ratio	27.96	-	31.65	-	30.62	-	32.20	-

Table 6.6 : Industrial Progress in Delhi - 1985

Item	70-71	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85
No. of Industrial units (in' -000)	26	37	40	41	42	45	50	54	57	62
Investment (Rs. in crores)	190	550	600	650	700	867	965	1035	1105	1200
Production (Rs. in crores)	338	1025	1200	1430	1700	2196	2350	2352	2483	3300
Employment (in 000)	215	300	325	350	375	450	480	507	528	558

Source: Delhi Statistical Hand Books-1986.

Table 6.7 : Registered Factories in Delhi : Group-wise - 1975

Table 6.7 : Registered Factories in Delhi : Group-wise - 1985

Description	Number of Factories							Workers (daily average in '000)						
	79	80	81	82	83	84	85	79	80	81	82	83	84	85
1. Food Products	114	124	130	142	148	153	160	7	9	9	9	9	9.5	9.7
2. Textiles & Textiles Products	457	520	545	622	666	709	746	43	46	46	46	48	50	52
3. Wood Products	46	47	52	56	60	66	67	1	1	1	1	1	1	1.04
4. Paper Products and Printing	230	223	255	279	290	302	315	11	12	12	12	12	12	12.6
5. Leather Rubber & Chemicals	396	429	434	495	534	578	581	12	14	14	14	15	17	17.1
6. Non-metallic mineral Products	55	57	51	107	114	119	146	4	3	3	3	3	3	3.7
7. Metal & Engineering Products	763	307	856	970	1032	1097	1128	23	26	26	27	29	31	32.2
8. Manufacturing of Electric machinery	308	355	374	451	480	530	545	12	14	14	15	16	18	19.6
9. Manufacture and other Misc. of Transport Equip.	393	395	487	555	592	629	653	15	16	16	24	25	27	27.5
10. Generation and Trans. of electricity, water supply and gas.	21	21	18	21	21	21	21	6	5	5	3	3	3	3
11. Miscellaneous	201	215	200	219	226	241	290	7	7	7	4	5	7	7.3
Total	2984	3193	3402	3917	4163	4445	4652	141	153	153	158	166	178.5	135.74

Source: Delhi Statistical Hand Books - 1986.

Table 8.1: Traffic Movement on Major Corridors

	Major Corridor	Total Pass. Vehicle	Total Buses	Total Goods Vehicle	Total Volume
1.	Delhi-Faridabad	21585 (71.2)	1936 (6.4)	6795 (22.4)	30316 (100.0)
2.	Delhi-Gurgaon	9407 (62.7)	1483 (9.9)	4105 (27.4)	14995 (100.0)
3.	Delhi-Bahadurgarh	3708 (53.2)	753 (10.8)	2513 (36.0)	6974 (100.0)
4.	Delhi-Panipat	3383 (40.7)	1207 (14.5)	3712 (45.8)	8302 (100.0)
5.	Delhi-Baghpat	5056 (64.0)	474 (6.0)	2371 (30.0)	7901 (100.0)
6.	Delhi-Ghaziabad	28714 (67.2)	2605 (6.1)	11432 (26.7)	42751 (100.0)
7.	Delhi-NOIDA	16677 (82.1)	1623 (8.0)	2007 (9.9)	20307 (100.0)
8.	Ghaziabad-Meerut	7047 (62.7)	1089 (9.8)	3109 (27.5)	11245 (100.0)
9.	Ghaziabad-Hapur	4176 (60.8)	789 (11.5)	1906 (27.7)	6871 (100.0)
10.	Ghaziabad-Bulandshahr	6110 (67.8)	768 (8.5)	2141 (23.7)	9019 (100.0)
11.	Gurgaon-Sohana-Alwar	1146 (52.4)	157 (7.2)	884 (40.4)	2187 (100.0)
12.	Gurgaon-Behror (NCRB)	2021 (30.3)	613 (9.2)	4036 (60.5)	6670 (100.0)

Table 8.2: Generation of Passenger Traffic (Daily) for NCR and Important Urban Areas - 1987.

Urban Zone/NCR	Vehicle Passengers		Bus Passengers		Rail Passengers		Total	Rail Share %
	Total	Per Capita Trip Rate	Total	Per Capita Trip Rate	Total	Per Capita Trip Rate		
1. D.U.T.	58794	0.007	173722	0.021	107000	0.013	339516	32.00
2. Ghaziabad	17465	0.035	32298	0.060	32856	0.061	82619	40.00
3. NOIDA	9300	0.043	31026	0.146	-	-	40326	-
4. Faridabad	16505	0.031	24675	0.046	6568	0.012	47748	14.00
5. Gurgaon	8868	0.032	18603	0.066	N.A.	N.A.	-	-
6. Bahadurgarh	1863	0.022	4123	0.048	4115	0.048	6390	64.30
7. Meerut	17368	0.022	34242	0.045	9420	0.012	61030	15.00
8. Hapur	6125	0.041	11456	0.077	3500	0.023	21081	16.60
9. Bulandshahr	13460	0.054	23522	0.094	2644	0.011	44242	7.00
10. Palwal	1215	0.016	1674	0.022	6440	0.085	9329	69.03
11. Panipat	1573	0.006	7097	0.029	5775	0.023	14445	39.97
12. Rohtak	18200	0.065	20845	0.078	5197	0.019	39626	12.00
13. Rewari	5025	0.040	6454	0.051	6307	0.050	17786	35.46
14. Alwar	1945	0.008	7392	0.029	2915	0.012	9337	31.20
15. Sonepat	824	0.005	4196	0.027	15183	0.096	20203	75.15
16. Modinagar	3242	0.016	909	0.006	1820	0.013	5971	30.48
17. Rest of NCR	51406	0.004	39623	0.003	N.A.	-	-	-
TOTAL	232000	-	442000	-	210000	-	884000	23.7%

Table 8.3: Road Passenger Movement Pattern (Generation)

Movement	Bus Passengers		Vehicle Passengers	
	Total NCR	DUT	Total NCR	DUT
Internal-Internal	346933 (64.4)	143968 (69.6)	214168 (86.3)	53739 (85.5)
Internal-External	95036 (17.6)	61188 (29.5)	18066 (7.2)	8740 (13.9)
External-Internal	95062 (17.7)	-	15580 (6.499)	-
External-External	2055 (0.4)	1855 (0.9)	313 (0.001)	366 (0.06)
Total	539085 (100.0)	207014 (100.0)	248127 (100.0)	62845 (100.0)

Figures in bracket indicates %age to total.

Table 8.4: Projected Trip Rate and Passenger Trips

Towns	Projected Trip Rate		No. of Passenger Trips	
	Vehicle Passengers	Public Transport	Vehicle Passengers	Public Transport
DUT	0.007	0.030	93406	339671
Ghaziabad	0.023	0.075	25300	82500
NOIDA	0.057	0.154	25856	85224
Faridabad	0.036	0.064	25812	64131
Gurgaon	0.063	0.145	31650	101554
Bahadurgarh	0.040	0.119	8095	23872
Meerut	0.030	0.094	39000	122200
Hapur	0.050	0.135	23272	81000
Bulandshahr	0.011	0.169	8867	169289
Palwal	0.025	0.048	7643	14441
Panipat	0.035	0.128	28200	76800
Rohtak	0.030	0.082	18000	49200
Rewari	0.051	0.097	15446	29151
Alwar	0.034	0.112	27500	79500

Table 8.5: Projected average daily goods traffic (road) for NCR

Towns	Existing		Projected		Average annual Simple Rate Growth.
	Gen.	Attr.	Gen.	Attr.	
1. DUA	40577	59980	82980	124458	7.5
2. Ghaziabad	23415	25995	59357	72136	11.0
3. NOIDA	2165	4606	10283	23230	26.8
4. Faridabad	9676	4738	32898	16968	17.1
5. Gurgaon	2845	2253	19459	15320	41.7
6. Bahadurgarh	1721	1252	7465	5713	23.8
7. Meerut	2210	5705	11558	28810	30.2
8. Hapur/Rest of NCR	11471	3360	45061	25288	20.9
9. Bulandshahr	1705	1710	9070	14405	30.9
10. Palwal	824	691	5042	4215	36.6
11. Panipat	880	5724	14673	22906	112.0
12. Rohtak	2169	4004	9154	17017	23.0
13. Rewari	829	648	5020	3467	36.1
14. Alwar	1681	4438	10590	27072	37.9
15. Sonepat	7038	4426	28997	16917	22.3
16. Modinagar	1998	1834	8032	11397	21.6
Rest of NCR	7346	4258	19769	20737	17.8
Total	118550	135622	385266	449088	16.1

T. 9.1 : Telecom Facilities in DMA/Priority Towns - 1987.

	Towns	Type	Capacity	DEL's in 1987	Waiting List 1987
1.	Faridabad	MAX I&II	7600	7069	7585
2.	Gurgaon	MAX I PRX(Elect.)	4000	3650	2000
3.	Bahadurgarh	MAX II (Stgr)	600	552	226
4.	Ghaziabad	ICP (X)	5000	4631	
		(Stgr)	2100	1626	
		ICP	2000	1834	
	Loni	MAX (II)	100	87	
5.	NOIDA	MAX (I) Stgr.	3000	2707	
6.	Kundli	-	-	-	-
7.	Rohtak	MAX I (Stgr)	4500	4176	810
8.	Rewari	MAX II (Stgr)	1500	1342	49
9.	Dharuhera	CBNM (Manual)	200	168	3
10.	Palwal	CBM (Manual)	840	740	-
11.	Panipat	MAX II (Stgr)	2100	1982	2262
12.	Alwar	PRX (Elect)	3000	2786	681
13.	M.T.A.Alwar	CBNM (Manual)	250	184	-
14.	Bhiwadi	CBNM (Manual)	300	286	37
15.	Meerut	MAX I (Stgr)	6600	6336	
		ICP (X)	4000	1135	

T.9.2: TELEX Facilities in DMA/Priority Towns-Proposals

Towns	Existing Cap.	Expected Capacity		
		1990	1995	2001
Faridabad	150 L	250 L		
Gurgaon	40 L	100 L		
Rohtak	-	20 L		
Bahadurgarh	-	-		
Rewari	-	20 L		
Dharuhera	-	-		
Palwal	-	20 L		
Panipat	50 L	100 L		
Kundli	-	-		
Alwar	-	20 L		
M.I.A. Alwar	20 L	40 L		
Bhiwadi	-	20 L		
Meerut	60	150 L		
Ghaziabad (Loni)	100	100 L (under consideration)		
NOIDA	40 L	100 L		
Hapur	-	20 L	National Telex Proposal	
B. Shahar	-	20 L		
Khurja	-	-		

Source :- D.O.T. Min. of Telecommunications.

T 9.3: Targets- Phasewise: 1990-2001

T 9.3: Targets- Phasewise: 1990-2001

TOWNS	- 1990 Demand	- 1990 Target	1995 Demand	1995 Target	2001 Demand	2001 Target	Assigned Pop. 2001 (in lakhs)
. Faridabad	27400	12.1 K Lines (E 10 B) New Exchange 10 K.L.	49900	--	75000	-	10.00
.Gurgaon	9687	6000 (E 10 B) New Exchange	19774	--	50000	--	7.00
. Bahadurgarh	1100	2000 L New Exch. (Elect.RLU)	1550	--	15000	--	2.00
. Ghaziabad Loni	--	6000 ICP 2000 (Dig) RLU 2000 ICP 4000 (E 10 B) New Exchange	--	--	--	--	11.0
. NOIDA	--	3000 (SXS) 4000 (E 10 B)	--	--	--	--	5.5
. Kundli	--	--	--	--	--	--	1.5
. Rohtak	6800	5400 (SXS)	9300	--	35000	--	5.00
. Rewari	2086	2000 (SXS)	3129	--	10000	--	1.10
. Dharuhera	248	400 L(NEAX) New Exch.	520	--	10000	--	0.75
. Palwal	1214	900 L(NEAX)	2670	--	12000	--	3.00
. Panipat	7420	4000(ICP) N.Exch.	3200	--	40000	--	5.00
. M.I.A.Alwar	50	400L(MAX) N.Exch.	80	--	200	--	
. Alwar	1800	4000 PRK	3200	--	8000	--	5.00
. Bhiwadi	300	400 L(NEAX) New El.Exchange	650	--	2000	--	1.15
. Meerut	--	6600 (SXS) 6000 (ICP) 4000(Expn.of ICP)	--	--	--	--	15.5
6. Hapur	--	1600 L	--	--	--	--	4.5
7. Bulandshahr	--	1400 L	--	--	--	--	5.00
18. Khurja	--	1000 L(NEAX) N.El.Ex.	--	--	--	--	3.00

able 10.1: Power Generation Schemes in the NCR

.No.	Schemes (Agency)	Type	Units & rated capacity MW	Installed capacity MW	Expected year of commissioning
	EXISTING				
.	Rajghat (DESU)	Thermal	1X15	15	
.	IP Estates (DESU)	Thermal	1X36.6 3X67.5 1X60	284.1*	
.	Badarpur (NTPC)	Thermal	3X100 2X210	720	
.	IP Estates(DESU)	Gas	6X30	180	
.	Panipat Stage I & II (HSEB)	Thermal	4X110	440	
.	Faridabad (HSEB)	Thermal	1X15 3X60	195	
		Sub Total		1834.1	
	UNDER CONSTRUCTION :				
.	Rajghat (DESU) (Replacement units)	Thermal	2X67.5	135	Unit I May; 1988 Unit II Sep; 1988
.	Panipat Stage III (HSEB)	Thermal	1X210	210	1987-88
.	Kokroi**	Hydel	3x0.1	0.3	Not known
.	Narora (APP)	Nucleat	2X235	470	& Unit I-87-88 Unit-II- 89-90
.	Dadri (NTPC)	Thermal	4X210	840	Unit I- 1991-92 Unit- II- 1992-93 Units III & IV 93-94
		Sub-total		1655.3	
		Grand Total		3489.5	

Includes the share of Haryana of 62.5 MW

* By Alternate Hydro Energy Centre, Roorkee University as an experimental project.

Narora Atomic Power Project under Central Sector is being set up for the benefit of constituent States of the Northern Region. Allocation of power is yet to be decided.

ources:

i. Ministry of Energy/Central Electricity Authority
ii. State Power Boards
iii. DESU

Table 10.2 Pattern of Energy Consumption 1985-86

Unit: MU

Sl.No.	Area	Domestic	Commercial	Industrial	Agricultural	Others	Total
1.	Delhi UT	1280.00 (32.32)	800.00 (20.20)	1115.00 (28.16)	– –	765.00* (19.32)	3960.00 (100.00)
2.	Haryana Sub-Region						
	i. Sonepat Distt.	31.50	4.80	78.68	40.59	1.83	157.40
	ii. Gurgaon Distt.	24.94	6.36	51.58	55.79	5.29	143.96
	iii. Faridabad Distt.	72.64	14.34	327.33	53.64	6.95	474.90
	iv. Rohtak Distt.	55.69	13.40	68.00	44.51	2.89	184.49
	v. Panipat Tehsil	28.78	9.92	168.27	151.59	2.31	360.87
	vi. Rewari and Bawal Tehsils	12.33	1.95	25.32	37.17	2.49	79.26
	+ Sub-Total	225.88 (16.12)	50.77 (3.62)	719.18 (51.33)	383.29 (27.36)	21.76 (1.55)	1400.88 (100.00)
3.	Rajasthan Sub-Region						
	i. Six Tehsils of Alwar Distt.	14.74 (4.69)	7.36 (2.35)	253.76 (80.86)	30.29 (9.66)	7.67 (2.44)	313.82 (100.00)
4.	Uttar Pradesh						
	i. Meerut Distt.	89.34	31.31	157.53	208.09	88.79	575.06
	ii. Ghaziabad Distt.	82.75	34.06	498.53	143.65	125.56	884.55
	iii. Bulandshahr Distt.	28.21	3.35	69.81	291.35	1.78	394.50
	Sub-total	200.30 (10.80)	68.72 (3.71)	725.87 (39.15)	643.09 (34.68)	216.13 (11.66)	1854.11 (100.00)
	Grand total	1720.92 (22.86)	926.85 (12.31)	2813.81 (37.37)	1056.67 (14.04)	1010.56 (13.42)	7528.81 (100.00)

Sources: Concerned State Electricity Boards and DESU

Note:
1. Figures in brackets are percentages to total

* DESU supplied 710 MU in bulk to licencees like NDMC and MES

\+ The unrestricted energy consumption would be Domestic: 305, Commercial: 69, Industrial: 971, Agricultural: 517 and Others: 30.
Total: 1892.

Table 10.3 Rural Electrification and Energisation of Pumpsets

S.No.	Area	Total No. of Inhabited villages	Villages electrified	Villages proposed to be electrified during VII Plan	Villages to be electrified by the end of VII Plan	Pumpsets energised	Pumpsets proposed to be energised during VII Plan	Pumpsets to be energised by the end of VII Plan
I	Delhi UT(31.3.85)	214	214	Nil	214	15732	2500	18232
	Sub-Total	(100.0)			(100.0)			
II.	UP Sub-Region (31.3.85)							
	1. Meerut Distt.	920	710	210	920	40154	3823	43977
	2. Ghaziabad Distt.	704	424	280	704	8727	2180	10907
	3. Bulandshahr Distt.	1365	651	714	1365	39943	4500	44443
	Sub-Total	2989	1785	1204	2989	88824	10503	99327
			(59.7)		(100)			
III.	Haryana Sub-Region (31.3.85)							
	1. Sonepat Distt.	331	331	Nil	331	11687	2000	13687
	2. Gurgaon Distt.	673	673	Nil	673	25374	2000	27374
	3. Faridabad Distt.	425	425	Nil	425	15174	3000	18174
	4. Rohtak Distt.	438	438	Nil	438	10987	3000	13987
	5. Panipat Tehsil	167	167	Nil	167	29295	3000	32295
	6. Rewari & Bawal Tehsils	352	352	Nil	352	14838	2000	16838
	Sub-total	2386	2386	Nil	2386	107355	15000	122355
			(100.0)		(100.0)			
IV.	Rajasthan Sub-Region (31.3.87) Alwar, Behror, Mandawar, Tijara, Kishangarh and Ramgarh Tehsils	1063	960	N.A.	1063	N.A.	N.A.	N.A.
	Grand Total	6652	5345	1204	6652	211911	28003	239914
			(80.35)		(100)			

*Includes uninhabited villages.

Note: Figures in brackets indicate percentages of the total number of villages in the respective Sub-region/region.

Sources: State Electricity Boards and DESU

T.10.4: Electricity Forecast- 2001

Energy in MU/ Load in MW

Area	1989-90		1994-95		11999-2000		2000-2001	
	ER	PL	ER	PL	ER	PL	ER	PL
elhi UT	7217	1373	11372	2164	17920	3409	28233	5871
aryana Sub-region	4046	825	6401	1305	10128	2065	18024	3678
ajasthabnSub-region -	811	154	1347	256	2237	425	3716	706
ttar Pradesh Sub-region	3428	675	5434	1070	8613	1696	13651	2883
.C.R.	15502	3027	24554	4795	38898	7595	61624	12032

ER : Energy Requirement
PL : Peak Load.

Source : State Governments and Ministry of Energy.

Table 11.1 Urban Water Supply and Sanitation

a) Water Supply 1986

Sub-region	No. of Urban areas	Organised w/s available	Per capita consumption lpcd	Population covered % (range)	Suuplemented by spot sources %
Delhi UT	6	1	240	94.3	1
Haryana	27	26	30-159	30-100	15
Rajasthan	3	3	80-106	100	18
U.P.	58	37	17-220	45-90	12
NCR	94	67	17-240	30-100	

b) Sewerage System: 1986

Sub-region	Total towns 1981	Info. available	Sys. exists	Sewage Systems			Towns With				Treatment		Disposal		
				Comp.	part	Combined	Water borne	Sani. lat	Septic tank	Other	Yes	No	Drains	on land	r v r
Delhi	6	1	1	-	1	-	1	-	-	-	1	-	-	-	1
Haryana	27	27	14	-	14	8	11	10	5	6	-	14	4	3	7
Rajasthan	3	3	1	-	1	1	1	2	3	1	-	1	-	3	--
U.P.	58	58	4	-	4	3	3	2	1	1	3	1	-	3	1
N.C.R.	94	89	20	-	20	11	16	14	9	8	4	16	4	9	9

c) Storm Water Drainage: 1986

Sub-region/NCR	No. of towns-1981	Info. avail-ble	Drainage			Type			Disposal			
			Yes	Comp.	Part	Comb.	Open	Cove-red	Drains/ sewer	on land	Irrigate	others
Delhi	6	1	1	1	-	-	1	1	-	-	1	-
Haryana	27	27	15	-	15	9	13	2	7	2	2	4
Rajasthan	3	3	3	-	3	1	3	1	1	2	-	-
U.P.	58	58	33	1	32	1	32	-	-	31	-	2
N.C.R.	94	89	52	2	50	11	49	4	-	35	3	6

d) Solidwaste Management: 1986

Sub-region/NCR	No. of towns	Info. available for	Solidwaste managed in	Type of Disposal			
				Comp.	sanitary refill	Land fill	Open dumping
Delhi	6	1	1	1	1	-	1
Haryana	27	26	13	1	-	8	4
Rajasthan	3	3	3	-	-	-	3
U.P.	58	19	14	-	-	11	3
NCR	94	49	31	2	1	19	11

Sources : State Governments and DWS and SDU.

Table II.2: Rural Water Supply and Sanitation.

Sub-region/ Tehsil	No.of villages	No. served by				Problem Villages			No. of villages with sewerage.	Type and coverage
		Canals	Wells	HP	PWS	Scarcity (Water)	Bad quality	No. local sources		
I. DELHI UT										
1. Delhi	Not available.									
II. HARYANA										
1. Bahadurgarh	92	90	-	-	-	-	5	-	-	-
2. Jhajjar	231	74	100	6	-	-	21	-	-	-
3. Rewari	346	-	346	-	346	37	-	309	-	-
4. Meham	30	24	-	-	24	-	8	-	-	-
5. Rohtak	103	45	-	-	45	-	42	-	-	-
6. Sonepat	215	53	13	49	66	117	-	-	-	-
7. Panipat	167	47	120	-	68	84	123	39	-	-
Sub-Total	1184	333	581	55	549	238	199	348	-	-
III RAJASTHAN										
1. Ramgarh	134	-	16	116	18	11	1	4	-	-
2. Alwar	156	-	33	118	35	13	1	11	-	-
3. Tijara	186	-	11	175	11	6	-	6	-	-
4. Mundawar	114	-	16	100	14	6	-	7	-	-
5. Kishangarh	130	-	20	155	25	11	2	18	-	-
6. Behror	159	-	55	100	59	3	1	11	-	-
Sub-Total	929	-	151	764	162	55	5	57	-	-

1	2	3	4	5	6	7	8	9	10	11
IV. UTTAR PRADESH										
1. Meerut	268	-	-	45	-	71	-	-	-	-
2. Mawana	305	-	-	13	-	9	-	-	-	-
3. Baghpat	231	-	-	9	-	29	4	-	-	-
4. Sardhana	212	-	-	15	-	84	-	-	-	-
5. Ghaziabad	167	-	-	107	-	59	-	-	-	-
6. Hapur	232	-	-	128	-	93	-	-	-	-
7. Dadri	155	-	-	25	-	42	32	-	-	-
8. Garhmukteshwar	153	-	-	53	-	45	-	-	-	-
9. Bulandshahr	404	-	-	105	-	359	3	-	-	-
10. Khurja	370	-	-	100	-	241	3	-	-	-
11. Anupsagar	420	-	-	74	-	299	-	-	-	-
12. Sikandrabad	266	-	-	63	-	147	-	-	-	-
Sub-Total	3183	-	-	737	-	1478	42	-	-	-

Source : State Governments DMS and SDU.

T-13-1 Occupied Residential Houses : 1971-81

Sub-Region/ Region	Occupied Residential towns					
	1971			1981		
	Urban	Rural	Total	Urban	Rural	Total
Haryana	1,06,157	4,63,113	5,69,270	2,10,427	5,42,379	7,52,800
Uttar Pradesh	1,61,325	6,82,078	8,43,403	3,26,603	7,82,515	11,09,118
Rajasthan	18,718	1,05,391	1,24,109	29,494	1,34,082	1,63,570
NCR(excluding Delhi UT)	2,86,200	12,50,582	15,36,782	5,66,524	14,38,976	20,25,50
Net after deleting 10%	2,57,580	11,25,524	13,83,104	5,09,872	13,13,078	18,22,95
Occupancy Rate	7.33	7.309	7.313	6.53	7.34	7.116

Sources : Census 1971, 1981

T.13 -4 Housing Requirement in Phases 1988-2001.

	Category	1988-90	1990-95	1995-2001	2000-2001	Total
1.	E.W.S. a) Slum up-gradation	0.22	0.70	0.85	0.22	1.99
	b) Sites & Services	0.70	2.15	2.70	0.44	5.99
2.	L.I.G.	0.32	1.00	1.20	0.265	2.785
3.	M.I.G.	0.06	0.20	0.25	0.07	0.58
	Total	1.30	4.05	5.00	0.995	11.345

T. 13.2: Additional Demand for Housing Units: 1988-2001

Sub-regions/ Region		Occupied Residential Houses 1971 (Actual)	1981 (Actual)	1987 (estimated)	Population Assignment for 2001 (in lakhs)	ORH requirement by 2001 @ 5 persons per (in lakhs)	Addition H.Units between 1988-2001
Haryana	U	1,06,157	2,10,427	2,45,690	43.5	8.7	6.243
	R	4,63,113	5,42,379	5,30,945	34.5	6.9	1.591
	T	5,69,270	7,52,806	7,76,635	78.0	15.6	7.834
Uttar Pradesh	U	1,61,325	3,26,603	3,83,193	75.5	15.1	11.268
	R	6,82,078	7,82,515	7,58,499	45.5	9.1	1.515
	T	8,43,403	11,09,118	11,41,692	121.0	24.2	12.783
Rajasthan	U	18,718	29,494	32,364	5.0	1.0	0.677
	R	1,05,391	1,34,082	1,36,166	9.0	1.8	0.438
	T	1,24,109	1,63,576	1,68,530	14.0	2.8	1.115
NCR (Excluding Delhi UT)	U	2,86,200	5,66,524	6,61,247	124.0	24.8	18.188
	R	12,50,582	14,58,976	14,25,610	89.0	17.8	3.544
	T	15,36,782	20,25,500	20,86,857	213.0	42.6	21.732

* Net after allowing 10% for non-residential, vacant and non-liveable units.

Sources: Census 1971, 1981 for actuals.

T-13.3 Additional Housing Requirements in the Priority, DMA and other Towns by-2201

Towns	Housing Requirement by 2001 (lakhs)	Net liveable Housing Units in 1987(actual)	Additional Requirement 1988-2001
1. Priority Towns			
1. Meerut	3.1	1,17,703	1,92,297
2. Hapur	0.9	16,988	73,012
3. Bulandshahr	1.0	17,891	82,109
4. Khurja	0.6	10,416	49,584
5. Panipat	1.0	26,157	73,843
6. Rohtak	1.0	28,926	71,074
7. Palwal	0.6	7,545	52,455
8. Rewari	0.22	8,222	13,723
9. Dharuhera	0.15	-	15,000
10. Bhiwadi	0.23	-	23,000
11. Alwar	1.0	26,680	73,320
Sub-Total	9.8	2,60,583	7,19,417
DMA Towns			
1. Bahadurgarh	0.4	7,017	32,983
2. Faridabad Complex	2.0	79,001	1,20,999
3. Ghaziabad	2.2	64,722	1,55,278
4. Gurgaon	1.4	19,315	1,20,685
5. Kundli	0.3	-	30,000
6. NOIDA	1.1	-	1,10,000
Sub-Total	7.4	1,70,055	5,69,945
Other Urban Centres in NCR	7.6	2,30,609	5,29,391
Total Urban NCR excluding Delhi U.T.	24.8	6,61,247	18,18,753

Table 14.1 Landuse in the NCR—1986-87 (Sub-regionwise Distribution)

(Area in Hectares)

Category	Delhi	Haryana	Rajasthan	Uttar Pradesh	NCR	Proportion reported
1. Forest	1434 (2.2)	34000 (52.1)	9870 (15.2)	19918 (30.5)	65222 (100.00)	2.1
2. Land put to non-agricultural use	35820 (24.2)	128431 (43.3)	17398 (5.9)	114860 (38.7)	296509 (100.00)	9.9
3. Barren Land	18707 (13.2)	35000 (24.7)	56425 (39.8)	31545 (22.3)	141677 (100.00)	4.7
4. Water Bodies	329 (4.0)	3569 (42.9)	2407 (28.9)	2017 (24.2)	8323 (100.00)	0.28
5. Permanent pasture & Other grazing land	793 (3.0)	12000 (45.0)	11262 (42.3)	2593 (9.7)	26648 (100.00)	1.2
6. Land Under Misc tree crops and groves	1137 (24.0)	—	91 (1.9)	3512 (74.1)	4740 (100.00)	0.2
7. Culturable Waste	856 (1.5)	24000 (41.8)	7073 (12.2)	25555 (44.5)	57484 (100.00)	1.8
8. Cultivated Land	88411 (3.7)	1099000 (45.9)	314419 (13.1)	890288 (37.3)	2392118 (100.0)	79.9
Total Reporting Area	147487 (4.93)	1336000 (44.64)	418945 (14.00)	1090288 (36.43)	2992720 (100.00)	100

Figures in brackets indicate percentages to total of the NCR
Sources: Compiled from State Government records.

Table 1.2 Distribution of Forest Area in NCR-1985

Sub-region	Total Reporting area	Total forest	Reserved forest	Protected forest	Unclasified forest	Social forest
Delhi UT	149788	1443 (0.9)	NA	NA	NA	NA
Uttar Pradesh	1075993	29455 (19.4)	16308 (29.4)	1995 (6.3)	1064 (1.9)	10088 (100.0)
Haryana	1334640	43815 (28.5)	7346 (13.2)	20850 (65.9)	15619 (27.8)	NA
Rajasthan	420348	78761 (51.3)	30447 (54.8)	8795 (27.8)	39519 (70.3)	NA
NCR	2980769	153474	55544	31640	56202	10088

Source: State Forest Departments & Delhi Administration
Note: Figures in brackets indicate percentages to total of the respective category of forest.

Table 1.3 Landuse Pattern of the NCR 1986-87

Sl. No.	Category	Based on Land records					Based on Satellite Imageries				
		Sub-Region					Sub-Region				
		Delhi	Haryana	Rajasthan	Uttar Pradesh	NCR	Delhi	Haryana	Rajasthan	Uttar Pradesh	NCR
1.	Forest	1434 (1.0)	34000 (2.5)	9870 (2.4)	19918 (1.8)	65222 (2.1)	2678 (1.8)	2075 (0.15)	19203 (4.27)	11601 (1.0)	35557 (1.2)
2.	Land put to non-agricu-ltural use	35820 (24.2)	128431 (9.6)	17398 (4.2)	114860 (10.5)	296509 (9.9)	35820 (24.2)	128431 (9.6)	17398 (4.2)	114860 (10.5)	296509 (9.9)
3.	Barren Land	18707 (12.7)	35000 (2.6)	56425 (13.5)	31545 (2.9)	141677 (4.7)	11438 (7.7)	88044 (7.4)	58539 (13.0)	38217 (3.5)	196238 (6.5)
4.	Water Bodies	329 (0.22)	3569 (0.27)	2407 (0.54)	2017 (0.19)	8323 (0.28)	329 (0.22)	3569 (0.27)	2407 (0.54)	2017 (0.19)	8323 (0.28)
5.	Permanent pasture & Other grazing Land	793 (0.5)	1200 (0.9)	11262 (2.7)	2593 (0.2)	26648 (1.2)	793 (0.5)	12000 0.9)	11262 (2.7)	2593 (0.2)	26648 (1.2)
6.	Land under Misc. tree crops & groves	1137 (0.8)	—	91 (0.02)	3512 (0.3)	4740 (0.2)	1137 (0.8)	—	91 (0.02)	3512 (0.3)	4740 (0.2)
7.	Culturable waste	856 (0.6)	24000 (1.8)	7073 (1.7)	25555 (2.4)	57484 (1.8)	856 (0.6)	24000 (1.8)	7073 (1.7)	25555 (2.4)	57484 (1.8)
8.	Cultivated Land	88411 (59.79)	1099000 (82.3)	314419 (73.1)	890288 (81.7)	2392118 (79.9)	95249 (64.2)	1083182 (80.7)	333256 (74.1)	88694 (81.3)	2398631 (79.3)
	Total Report-ing Area	147487 (100.00)	1336000 (100.00)	41945 (100.00)	1090288 (100.00)	2992720 (100.00)	148300 (100.00)	1341299 (100.00)	449300 (100.00)	108298 (100.00)	3024211 (100.00)

Figures in brackets indicate percentages to total of the NCR
Source: Compiled from State Government Records and Satellite Imageries.

Table 14.4 Proposed Landuse In NCR–2001

District/ Tehsil	Landuse Category	Forest area with no tree cover	Difference in cultivated land (SG-SI)	Barren land (SG-SI)	Cultural waste	Land put to Non Agricultral	Proposed Forest Expansion
I.	DELHI UT	(–) 1244	(–) 6838	7269	856	35820	8800
II.	HARYANA SUB-REGION						
	1. Gurgaon	9970	38358	(–) 44294	–	38149	59200
	2. Faridabad	4000	(–) 6095	(–) 7789	–	27703	28500
	3. Rohtak	8000	(–) 9837	(–) 3253	13000	25167	19700
	4. Sonepat	7966	(–) 11502	(–) 4531	10000	16811	13600
	5. Rewari & Bawal	1989	(–) 5428	3100	–	15000	8300
	6. Panipat	–	10323	3723	1000	5601	4700
	Sub-Total	(–) 31925	(+) 15819	(–) 53044	(+) 24000	(+) 128431	134000
III.	RAJASTHAN SUB-REGION						
	1. Alwar(part of NCR)	(–) 9333	(–) 18837	(–) 2114	7073	17398	89860
IV.	U.P. SUB-REGION						
	1. Meerut	813	(–) 1450	(–) 2912	5182	46238	12800
	2. Ghaziabad	(–) 1050	(–) 4730	1173	7398	32654	29100
	3. Bulandshahr	8555	9524	(–) 1033	12975	35968	28100
	Sub-Total	(+) 8317	(+) 3344	(–) 6672	2555	114860	7000
	NCR Total	(–) 29665	(+) 6512	(–) 54561	(8) 57484	(+) 296509	(+) 302660

Table 14.5: Land Requirement for Urban Development By 2001.

Sl.	Town/Urban Complex	1981			2001		Land Required in Hectares	Additional Land in Hectares.
		Area in Hectares	Population in lakhs	Density per Hectare	Assigned Population	Density per Hectare.		
I.	DMA TOWNS							
1.	Ghaziabad incl.Loni	6840	3.00	44	11.00	125	8800	1960
2.	NOIDA	600	0.75	125	5.50	125	4400	3800
3.	Faridabad-Ballabgarh.	17824	3.30	19	10.00	125	8000	Nil
4.	Gurgaon	2413	1.01	42	7.00	125	5600	3187
5.	Bahadurgarh	900	0.37	41	2.00	110	1818	918
6.	Kundli	200	0.25	125	1.50	110	1363	1163
	Sub-Total I.	28777	8.68	-	37.00	-	29981	11028
II.	PRIORITY TOWNS							
1.	Meerut	8082	5.37	66	15.50	125	12400	4318
2.	Hapur	583	1.03	177	4.50	110	4091	3508
3.	Bulandshahr	939	1.03	109	5.00	125	4000	3061
4.	Khurja	1036	0.67	64	3.00	110	2727	1691
5.	Panipat	2082	1.37	66	5.00	125	4000	1918
6.	Rohtak	2203	1.66	75	5.00	110	4545	2342
7.	Palwal	552	0.47	85	3.00	110	2727	2175
8.	Rewari	606	0.52	86	1.10	110	1000	394
9.	Dharuhera	-	0.05	-	0.75	80	937	937
10.	Bhiwadi	445	-	-	1.15	110	1045	600
11.	Alwar	8000	1.47	18	5.00	110	4545	Nil
	Sub-Total II.	24528	14.33	-	49.00	-	42017	20007
III.	REST OF THE TOWNS (Excluding Delhi)	37307	10.69	-	40.00	-	51563	14256
	Grand Total	90612	33.70	-	126.00	-	123561	45291