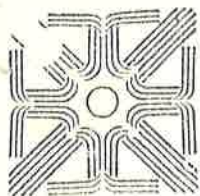


National Capital Region Planning Board
(Planning Committee)

18th Meeting
25 Dec. 1989

MC(18)'1989
1024

Agenda & Minutes



B.N. Singh
Chief Regional Planner
Tele: 3325496

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
नई दिल्ली, सारोख

No.K-14011/72/89-NCRPB(18th)

Dated, New Delhi, the 18.12.89

MEETING NOTICE

Subject: 18th Meeting of the Planning Committee of the NCR Planning Board to be held at 11.00 A.M. on December 29, 1989 in the NCR Planning Board Office, New Delhi.

...

In continuation of this office letter of even number dated 7.12.1989, notes on the Agenda items proposed to be discussed at the 18th Meeting of the Planning Committee to be held at 11.00 A.M. on December 29, 1989 in the office of the NCR Planning Board are enclosed. You are requested to kindly make it convenient to attend the meeting.

Encl: As above.

(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.

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AGENDA ITEMS FOR THE 18TH MEETING OF THE PLANNING COMMITTEE TO BE
HELD AT 11.00 A.M. ON DECEMBER 29, 1989 IN THE OFFICE OF THE
NATIONAL CAPITAL REGION PLANNING BOARD, NEW DELHI.

- Item No. 1. Confirmation of the minutes of the last meeting held on August 11, 1989.
- Item No. 2. Review of the decisions taken in the last meeting and action thereon.
- Item No. 3. Functional Plan for Delhi Metropolitan Area.
- Item No. 4. Formulation of Sub-regional Plans.
- Item No. 5. NCR Planning Cells - Present status and proposals.
- Item No. 6. Formulation of Development proposals for the 8th Plan - Consideration of the Study on Investment Plan and Resource Mobilisation for N C R Plan Implementation by Centre for Policy Research.
- Item No. 7. Recommendations of the Working Group on desired level of services in DMA and Priority Towns in the context of local bodies resource capability.
-

Agenda item No. 1. Confirmation of the minutes of the last meeting held on August 11, 1989.

The 17th meeting of the Planning committee was held on August 11, 1989 and the minutes of the meeting were circulated on August 21, 1989. The Planning Committee may kindly confirm the minutes.

Agenda item No. 2. Review of the decisions taken in the last meeting and action thereon.

Decisions taken -----	Action thereon -----
i) Dr. S. Maudgal, Advisor, of Environment and Forest said that the carrying capacity in terms of availability of natural resources deserved topmost priority in holding capacity of the towns.	All these factors have been considered in drawing up the Regional Plan for NCR. However, at the instance of Ministry of Environment, the Tata Consultancy Services have been entrusted a study on assessing the environmental impact of development both existing and proposed, and assess the holding capacity of the NCR towns. The study findings would be available to the Board in due course.
ii) Secretary, Haryana assured that "Planning and Financing Proposals" (PEP) in respect of the infrastructure schemes relating to water supply in Rewari would be completed soon as per HUDCO guidelines.	Progress may be informed in the meeting.
iii) Inviting objections and suggestions on the draft Sub-regional plans and their publication under NCR Planning Board's Act would be examined through the Ministry of Law.	The Ministry of Law, interpreting the NCR Planning Board Act, 1985 has clarified that there is no need for inviting public objections and suggestions on the Sub-regional Plans.
iv) a) A draft outline plan of Kundli should be prepared in a month's time for discussion with DDA.	A meeting of Chief Coordinator Planner, Haryana and Commissioner (Planning) DDA, took place on 9.11.89. The outcome of the discussion may be informed in the meeting.

- b) The draft master plan for Rohtak should be ready by December 1989. The Plan for Alwar would be completed in March 1989.

Progress may be intimated in the meeting.

An integrated development plan for Bhiwadi and Dharuhera was to be discussed by the representatives of Haryana and Rajasthan.

An outline Plan was discussed by the Chief Coordinator Planner, (NCR) Haryana; Chief Town Planner, Rajasthan in the office of the NCR Planning Board on December 6, 1989. A draft landuse Plan is under preparation in the light of discussions.

- d) Preparation of Master Plan for Hapur, Bulandshahar - Khurja complex initiated; the date of completion would be intimated in consultation with the Chief Town and Country Planner, Uttar Pradesh.

The likely date of completion may be intimated in the meeting.

- v) The findings of the study on Wholesale distributive trades in NCR by the ORG were presented to the Committee. It was decided that the participating States and Delhi UT would send their comments to the Board on these findings within the next 4 to 6 weeks.

A meeting was convened to discuss the findings of the study on distributive trades in NCR on Nov. 7, 1989 in the Board's Office with the representatives of Haryana, Rajasthan and Uttar Pradesh. However, comments from Delhi have not been received as yet. The meeting endorsed the study findings.

- vi) The meeting suggested that the NCR Planning Board should develop the technique of monitoring of landuse changes through remote sensing data in collaboration with the DTRL on a regular basis and extend suitably the duration of the project for that purpose.

DTRL has agreed to provide the assistance on long term and continued basis in this task. However, DTRL has suggested the need for minimum trained manpower to be created in the office of the NCR Planning Board for a continuing work.

- vii) Draft regulations for the constitution of revolving

The views of Uttar Pradesh may be intimated in the meeting

Fund for financing NCR schemes were circulated to the member states. Except Uttar Pradesh other constituents had intimated their views.

Agenda item No. 3. Functional Plan for Delhi Metropolitan Area:

The Draft Functional Plan for the DMA was discussed in the last meeting and on the basis of the suggestions in the meeting, the draft has since been revised and a copy annexed for discussion in the meeting (Annexure 1).

Agenda item No. 4. Formulation of Sub-regional Plans:

Progress of the preparation of Sub-regional Plans was discussed by the Chief Town Planners in a meeting held on Nov. 9, 1989 in the office of the NCR Planning Board. The meeting may discuss the modalities of finalising the Sub-regional Plans for various Sub-regions by the end of March 1990.

Agenda Item No. 5. NCR Planning Cells - Present status and proposals

The NCR Planning Board, on the request made by the participating States had agreed to set up NCR Planning Cells in all States for the preparation of Sub-regional Plans, Project Plans and coordination of different activities relating to the Planning and Development of the region. The Board's sanction was issued in February, 1988 and providing for creation of 30 posts belonging to various disciplines. The Board also agreed to provide Grant-in-Aid to the extent of 50% of the expenditure incurred on the posts and non-recurring expenditure as may be required.

It has been noticed that neither the full strength of the cell has yet been provided nor is the existing sanctioned strength being properly manned. The Headquarters of the Cells also need to be in the respective Sub-regions as suggested by the Board initially for better coordination and interaction. The Board in its last meeting had decided that the preparation of Sub-regional Plans for the respective Sub-regions be completed by March, 1990 and Master Plans for the Priority and DMA Towns completed expeditiously. The Board has requested the State Governments to sanction the full strength and also fill the posts as has been a serious handicap.

2. The Planning Cells were sanctioned initially for the 7th Five Year Plan. The Governments of Rajasthan and Haryana have requested their continuation during the 8th Five Year Plan on 100% Grant-in-Aid basis. It is proposed to place this matter before the Board for its consideration in its next meeting. However, it is necessary that the cell is properly manned and equipped immediately. The Planning Committee may kindly discuss both the issues for appropriate decision.

7

Agenda Item No. 6. Formulation of Development proposals for the 8th Plan - Consideration of the study on Investment Plan and Resource Mobilisation for NCR Plan Implementation by Centre for Policy Research.

A study on Investment Plan and Resource mobilisation for NCR Plan mobilisation was entrusted to the Centre for Policy Research, New Delhi. The Centre has completed the study and the principal findings of the study in the form of a summary and conclusions are enclosed (Annexure 2) for consideration in the meeting.

Agenda Item No. 7. Recommendations of the Working Group on desired level of services in D M A and Priority Towns in the context of local bodies resource capability.

The National Capital Region Planning Board had entrusted a study on Resource Mobilisation for Local Bodies in the National Capital Region to the National Institute of Urban Affairs, New Delhi. The findings of the study were discussed in a meeting of the Secretaries to the Government of Uttar Pradesh, Haryana and Rajasthan recently held on 7th November, 1989. It was decided that a Working Group comprising the Director, Local Bodies of the participating States, Chief Engineer, Public Health Engineering Departments/Jal Nigam and the Chief Regional Planner, NCR Planning Board to go through the recommendations of the National Institute of Urban Affairs and suggest the desired level of services in DMA and Priority Towns, study the patterns of revenue and expenditure of the local bodies, their capability in undertaking capital works, maintenance of assets, need for training, institutional strengthening and, ways and means of raising resources.

The First Meeting of the Working Group will be held at on December 22, 1989. The findings of the Group will be circulated in the meeting for discussion.

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FUNCTIONAL PLAN FOR DELHI METROPOLITAN AREA



National Capital Region Planning Board
Ministry of Urban Development, Government of India

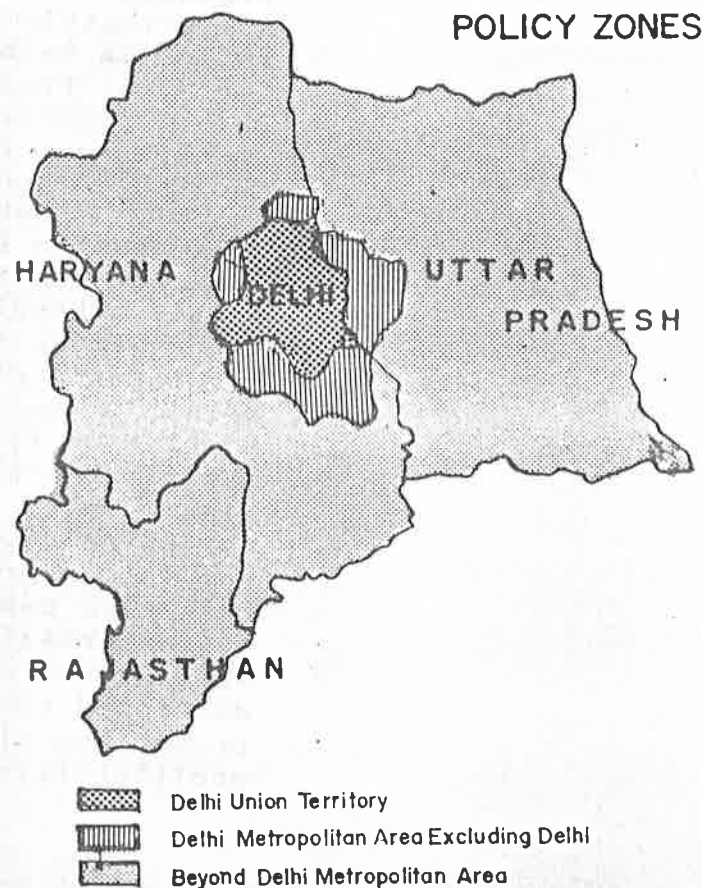
December 1989

CONTENTS

1. Introduction
2. Role of Delhi Metropolitan Area :
An Evaluation
3. Physical Growth of DMA Towns
4. Urban Infrstructure
5. Transport & Telecommunications
6. Landuse
7. Emerging trends in Spatial Expansion
8. Issues, Strategies & Action Plan

**POLICY
ZONES**

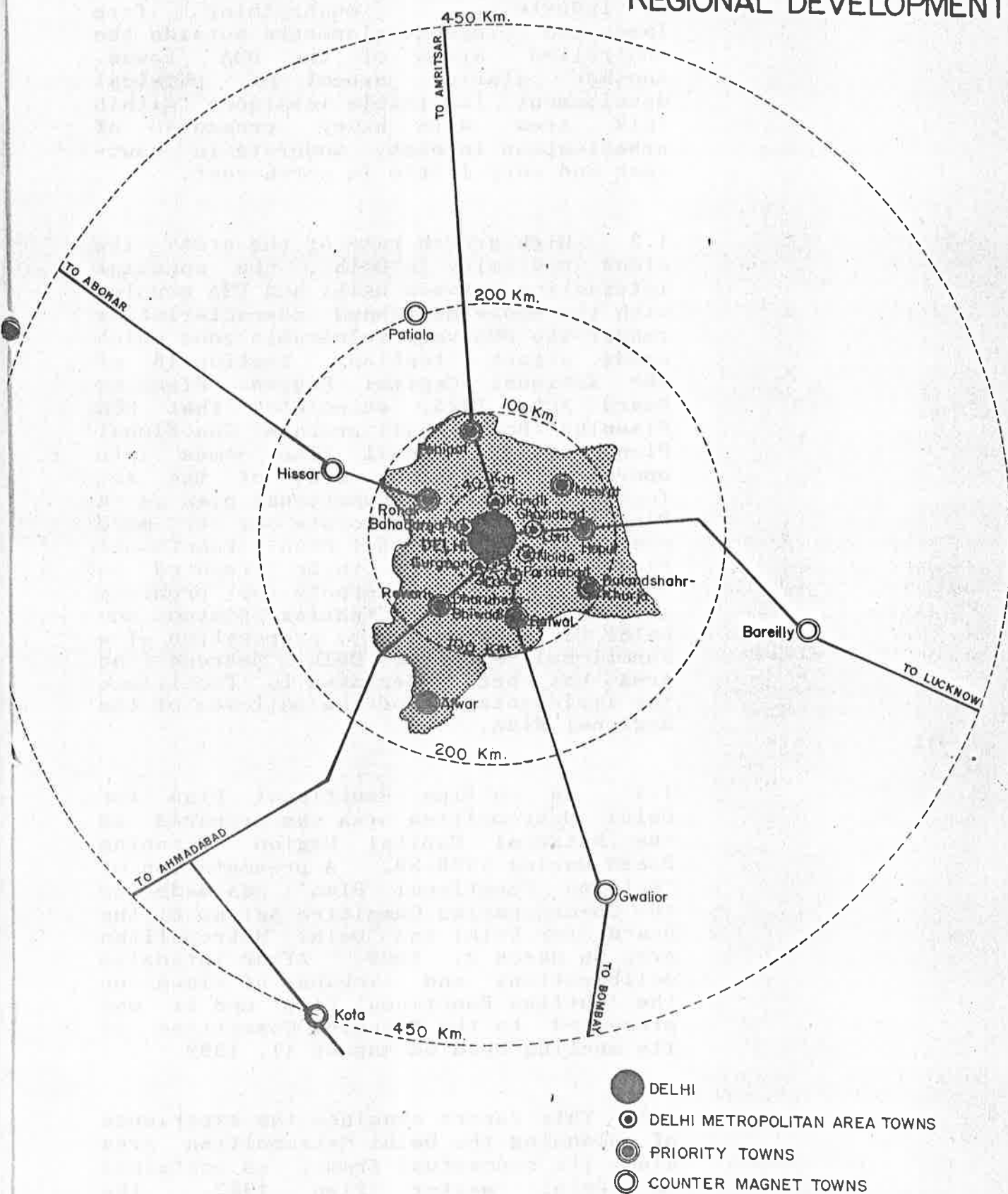
1. The Regional Plan-2001 statutorily enforced with effect from January 23, 1989 has the twin objectives of (a) keeping the growth of Delhi within manageable limits and (b) achieving a balanced growth of the Region around Delhi. This is sought to be achieved by adopting an inter-related policy framework relating to population, settlement system, economic activities, infrastructure, transport, shelter and environment, etc. To gear these policies towards achieving a functionally inter-related and spatially articulated regional settlement system, the plan has identified three distinct policy zones for the application of Plan policies and they are (i) Delhi U.T., (ii) Delhi Metropolitan Area (DMA) excluding Delhi UT and, (iii) the rest of the region. The thrust of the policies is to remove imbalances between Delhi and its adjoining areas constituting the National Capital Region.



WHY A FUNCTIONAL PLAN FOR DMA ?

1.2 The major issues of spatial development in NCR is the heavy concentration of population and economic activities in Delhi UT creating imbalances in the rest of the region. The Regional Plan - 2001 for NCR having taken note of this, envisages decelerated growth of Delhi UT, induced growth of selected Priority Towns and moderate growth of DMA towns in the vicinity of Delhi UT as self-contained centres within NCR. In addition, the Plan also envisages development of selected Counter-magnet towns located at a distance of 350-500 km. outside the NCR in the States of Haryana, Madhya Pradesh, Panjab, Rajasthan and Uttar Pradesh. The proposed counter-magnets are envisaged to play distinctive and mutually complementary role as the future interceptors of migratory flow to NCR and to act as regional growth centres to achieve a balanced pattern of urbanisation. While this treatment has been thought out for the macro level planning of the region, the area immediately surrounding Delhi UT, due to its unique characteristics, needs a closer examination and a comprehensive planning approach. This area, approximately 3182 sq. km. in size which falls in Delhi UT and partly in Haryana and Uttar Pradesh, has been identified as Delhi Metropolitan Area (DMA) and, encompasses six towns around Delhi i.e. Ghaziabad and NOIDA in Uttar Pradesh and Kundli, Bahadurgarh, Gurgaon and Faridabad in Haryana. All the towns are located in radius of 40 km. around Delhi. Development in some of these towns was initiated in 1962, in pursuance of the policies of the Master Plan for Delhi, to accommodate spill over population from Delhi. But interestingly their growth has crossed the take off stage with their growth rate outstripping even that of Delhi. Besides population growth, their physical growth has also been expansive. The attendant characteristics that accompanied this fast growth of this area are lack of well developed social infrastructure, large proportion of unutilised developed land, proliferative persistent speculation of

SPATIAL CONCEPT FOR REGIONAL DEVELOPMENT



developed/undeveloped land, concentration of industries, mushrooming farm lands and fringe developments outside the controlled areas of the DMA towns. Another glaring aspect of physical development is visible imbalance within this area with heavy pressure of urbanisation in east, moderate in south-west and very little in north-west.

1.3 High growth rate of the area, its close proximity to Delhi, the constant interaction between Delhi and DMA coupled with the above mentioned characteristics render the DMA very vulnerable zone which needs urgent attention. Section 16 of the National Capital Region Planning Board Act, 1985, stipulates that NCR Planning Board shall prepare Functional Plans after Regional Plan comes into operation. Section 2(d) of the Act further defines a Functional plan as a Plan prepared to elaborate one or more element of the Regional Plan. Functional Plans are required to be prepared on various development aspects for properly guiding the participating States and Delhi UT. Accordingly, preparation of a Functional Plan for Delhi Metropolitan Area has been undertaken to facilitate the implementation of the policies of the Regional Plan.

1.4 An outline Functional Plan for Delhi Metropolitan Area was prepared by the National Capital Region Planning Board during 1988-89. A presentation of 'Outline Functional Plan' was made to the Co-ordinating Committee set up by the Board for Delhi and Delhi Metropolitan Area on March 2, 1989. After intensive deliberations and exchange of views on the 'Outline Functional Plan' and it was presented to the Planning Committee in its meeting held on August 11, 1989.

1.5 This report examines the experience of planning the Delhi Metropolitan Area since its conceptual frame, as contained in Delhi master Plan 1962. the Functional Plan attempts to review the evolution of the role of DMA, as assigned

to it since 1962 by the Master Plan for Delhi, the Regional Plan - 1981 for the NCR prepared by the Town and Country Planning Organisation in 1973 and, the Regional Plan - 2001 for NCR approved by the NCR Planning Board in 1988 and, to assess the actual role played by DMA and the reasons for deviations or shortcomings, if any, more particularly in the approaches to tackle the various related issues. It also examines the likely scenario by the year 2001 A.D., in terms of its assigned role particularly in the context of policies envisaged in the Regional Plan - 2001 for NCR. Finally, for implementation of the NCR Plan policy package, the Draft Functional Plan analyses the constraints, and suggests strategies to enable it to perform the desired role.

MASTER PLAN FOR

DELHI - 1962

2.1 The Master Plan for Delhi enforced on the 1st September, 1962 with 1981 as perspective envisaged planning and developing Delhi in the regional context i.e., the Core city, the Metropolitan Area and the National Capital Region. Six ring towns in the vicinity of Delhi were identified for development and, they were Ghaziabad and Loni in Uttar Pradesh, Faridabad-Ballabgarh, Gurgaon and Bahadurgarh in Haryana and, Narela in Delhi U.T. These towns were to be developed as self-contained in matters of work places and housing but having strong economic, social and cultural ties with the core city. The Plan recommended that these towns develop rapidly so that they could be in a position to absorb the population increase in the region and the excess growth of population in Delhi that would be diverted to these towns. The Master Plan indicated that these towns would be induced in their growth and more strongly oriented towards industrial activity than that of Delhi. This was based on the policy of prohibiting new heavy industries, and restricting new Central Government employment and distributive trades in Delhi and, encouraging them in the ring towns.

In 1961, the urban population of Delhi was 23.00 lakhs and, trends indicated a size of 53.00 lakhs by 1981. This was considered too high for the institutional capabilities of Delhi obtaining then. The Plan therefore,

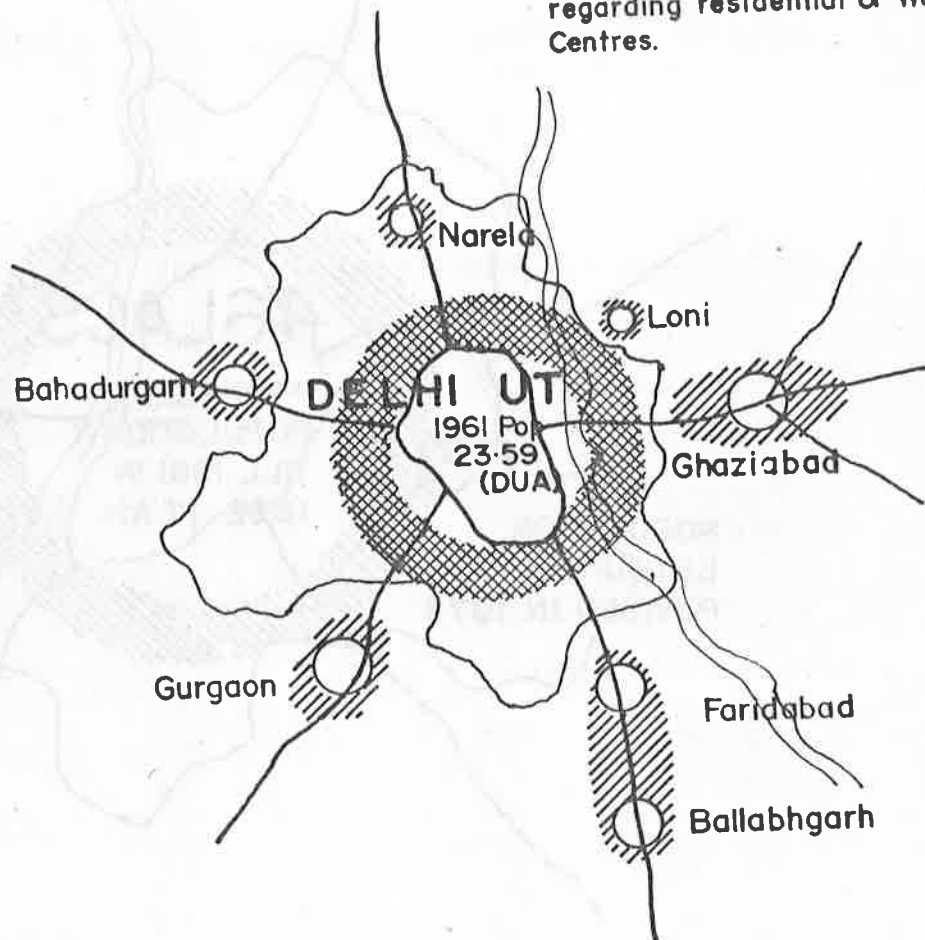
1. Delhi Metropolitan Area comprises the Union Territory of Delhi and the ring towns of Ghaziabad, Faridabad, Ballabgarh Gurgaon, Bahadurgarh and Loni and certain rural areas.

2. National Capital Region comprises Union Territory of Delhi and the 8 adjoining tehsils and 3 additional tehsils of Meerut, Hapur and Bulandshahr.

assigned 46.00 lakhs population for Delhi through a policy of deflecting 7.00 lakh population to the ring towns. The Plan anticipated a workforce of 50,000 in the ring towns in Government Offices and, 1,14,000 in manufacturing activities. Thus, in essence, the 1962 Master Plan for Delhi recognised the need for treating urban Delhi as the core of the larger metropolitan complex and, the necessity of planning and developing the ring towns with enormous job opportunities with regulative land use measures for the intervening rural areas.

1962

Ring Towns to be Self contained regarding residential & Work Centres.



Expected Growth of Delhi to be curbed at 46 Lakh by 1981.

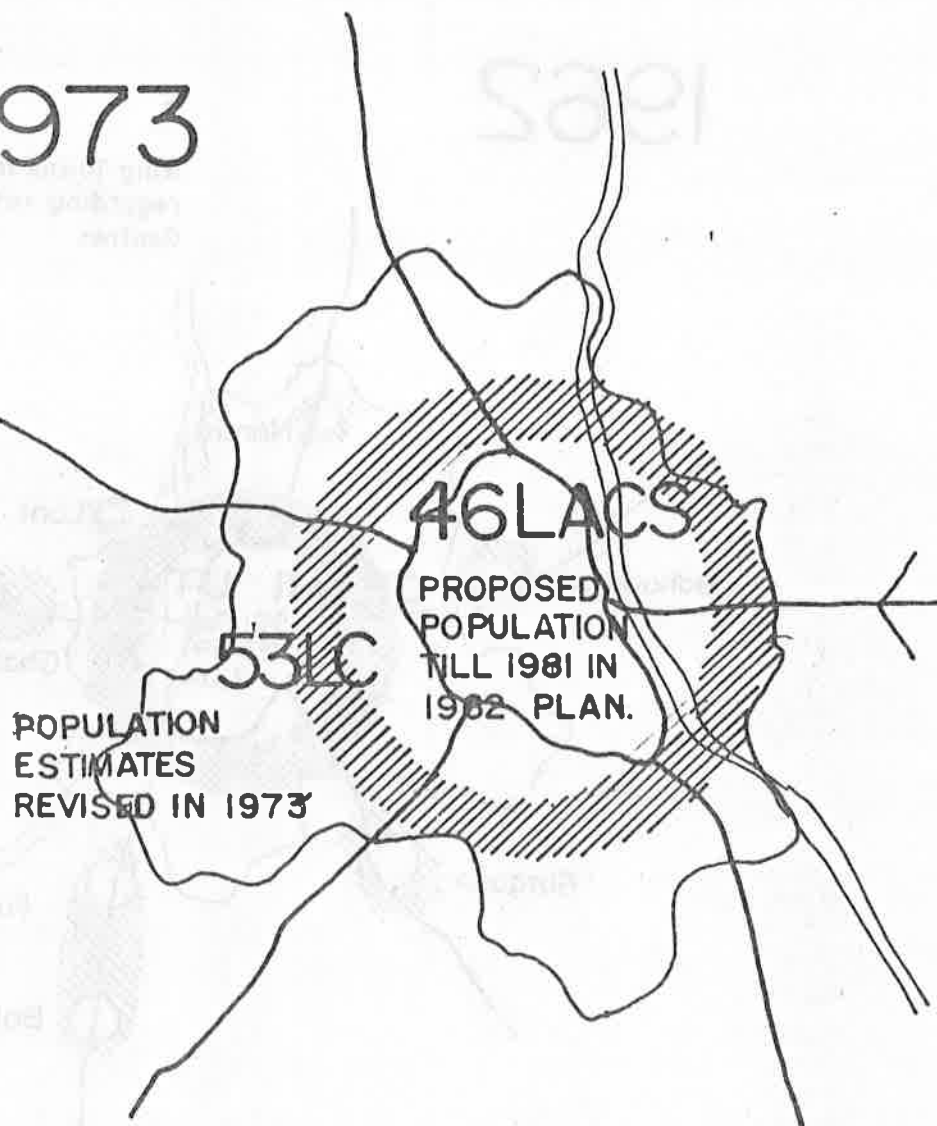


Induced Growth of Ring Towns to achieve 7 Lakh by 1981.

**DEVELOPMENT :
1962-73**

2.2 By 1971, it became apparent that the neighbouring States were vigorously implementing, this regional strategy. However, the employment generating activities continued to concentrate in Delhi UT resulting in unabated growth of population necessitating revision in 1973, the 1981 population holding capacity of the Delhi Master Plan area to the original projection of 53.00 lakhs so as to atleast help in reducing the gap in backlog in services more realistically.

1973

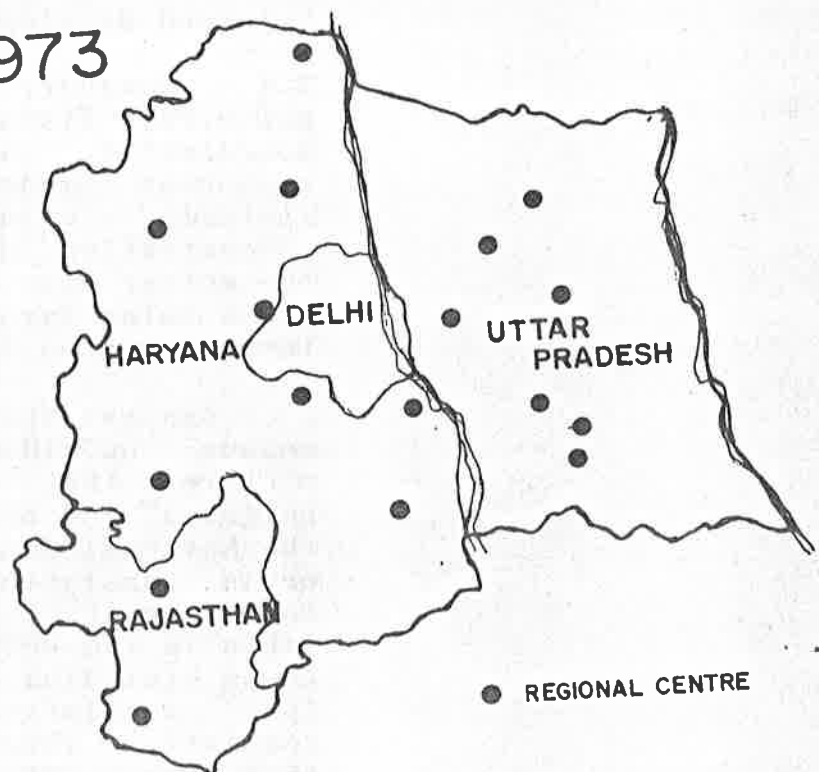


REGIONAL PLAN

N C R - 1973

2.3 The National Capital Region Plan approved by the High Power Advisory Board in 1973 identified an area over 30,000 sq km comprising the Union Territory of Delhi and parts of Haryana, Uttar Pradesh and Rajasthan the planning of which would help tapering off the rate of growth of the Delhi UT in favour of selected regional towns in the Region. The 1973 Plan recommended building of a compact urban structure in Delhi for a population of 53 lakhs by 1981 diverting the excess population to 17 regional towns including 4 ring towns (Faridabad, Gurgaon, Bahadurgarh and Ghaziabad) identified in the Plan along the radial corridors.

1973



These towns were to be developed as self-contained entities in matters of work places and housing with social and cultural relationship with Delhi. The Regional Plan reiterated the 1962 Delhi Master Plan's Industrial Policy of exclusion of large scale and heavy industries from Delhi and, shifting of non-conforming industries either to new industrial areas in the city or to the ring towns of their choice. The Plan also suggested the trades of material handling such as ware-housing be shifted to suitable regional towns in addition to markets. The policy of decentralisation of Central Government offices from Delhi to the ring towns was reiterated to be vigorously pursued. Adoption of mutual beneficial fiscal and other measures were suggested for effective decentralisation process. These policies aimed at maintaining the National Capital character of Delhi and also to providing balanced development of the Region.

2.4 However, differences in land policies, fiscal structure, and lack of coordinated and inter governmental responses made this policy package virtually a non-starter resulting in concentration of economic activities in the mother city on the one hand and ring towns being favoured for location of huge investments on the other.

Against these predictions, the 1981 census unfolded a very frightening picture that pointed to conflicting policies and priorities with regard to the National Capital and ring towns. The urban population of Delhi stood at 57.30 lakhs against the revised size of 53 lakhs in the Delhi Master Plan. The ring towns excluding Narela together held 7.66 lakh population against the intended population size of 7.71 lakhs for them by 1981. In fact during 1951-81, while Delhi grew almost three times, (300%) the ring towns recorded a growth of six and quarter times (630%). (Tables 1 & 2). Thus, taking Delhi and the ring towns together, the actual population in 1981, exceeded the forecast by almost 5 lakhs. Delhi and

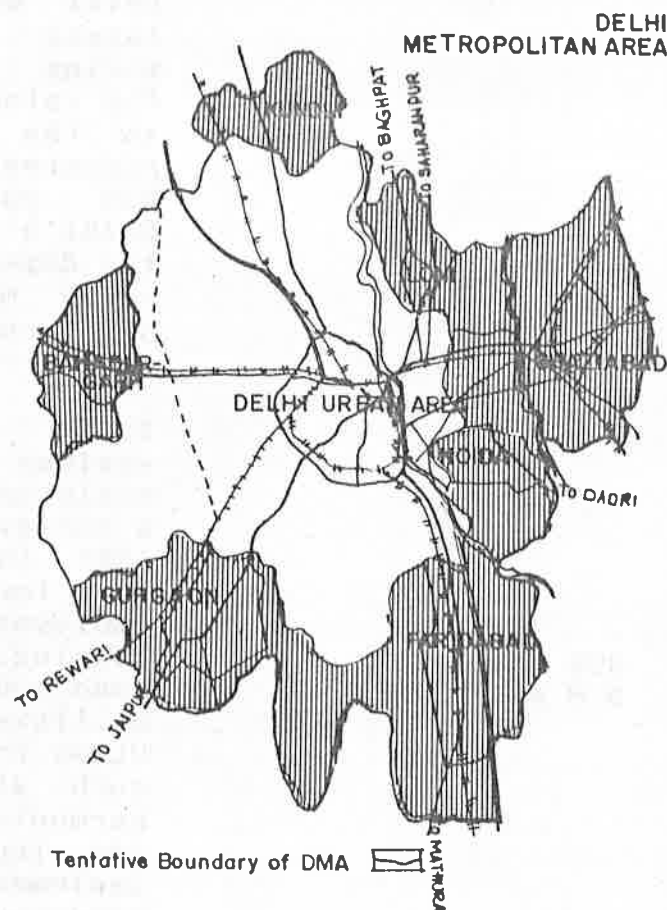
DEVELOPMENT DURING
1973 - 81

its ring towns, now called the Delhi Metropolitan Area, became, for all purposes, a multi-functional giant. While Central Government, Public sector undertakings, the distributive trades and industries continued to get located/expanded in Delhi UT, through promotional efforts of State governments and the entrepreneurs the ring towns also attracted economic activities to a large extent without corresponding deconcentration of activities from Delhi. Normal physical and social infrastructure required for the growing population could not be provided commensurate with the demand and thereby widening the gaps in infrastructure. Thus, the redistribution of population as expected between the core city and the ring towns could not take place in the manner envisaged and but the magnetic pull of Delhi continued unabated resulting in larger share of migrant population moving into Delhi Metropolitan. Infact, the volume of migrants more than doubled in the decade 1971-81 (12.30 lakhs) as compared to 1961-71 (5.3 lakhs). This has put considerable pressure on the Delhi's infrastructure on one hand and the dependence of the ring towns on Delhi added more on to this pressure due to deficiency in services in them on the other.

2.5 Realising the gravity of the serious problems in store for Delhi, the Ministry of Urban Development constituted a Sub-group on Delhi Metropolitan Area in 1983 to examine the policies relating to the location of industries and other employment generating activities, housing, acquisition and development of land and, provision of infrastructure and utilities in the States of Haryana and Uttar Pradesh and Delhi U.T. to identify such steps that would help evolving harmonised policies for the growth of DMA including Delhi and coordinating implementation of the various sectoral programmes in the area.

SUB GROUP ON
D M A - 1983

The Sub-Group redefined the DMA covering an area 3182 sq. km. comprising the Delhi Union Territory (1485 sq km), Ghaziabad Complex which includes Loni (496.91 sq km) NOIDA controlled area (149.15 sq km), Faridabad-Ballabhgarh Complex (393.98 sq km), Gurgaon (266.71 sq km), Bahadurgarh (174.03 sq km), the proposed township of Kundli (137.22 sq km) and the extension of the Delhi Ridge in Haryana i.e. the portion in Faridabad Complex and Gurgaon Complex as well as the part that lies between Faridabad and Gurgaon (78.85 sq km).



MASTER PLAN for DELHI
PERSPECTIVE - 2001
JUNE - 1987

2.6 In 1987, the Master Plan for Delhi Perspective - 2001 (PDP) prepared by the Delhi Development Authority has crystallised the concept of Delhi Metropolitan Area further by spatialising this concept. The zone of Delhi Metropolitan Area as delineated by the Sub-Group was adopted for planning. The Plan recommends some policies to deconcentrate and decentralise some Delhi based economic activities in DMA. The Plan emphasises the need for planning the Delhi Metropolitan Area as a composite unit. The Plan reiterates the earlier proposal that no new heavy and large industrial units shall be permitted in Delhi and the existing heavy and large scale industrial units shall shift to Delhi Metropolitan Area and the National Capital Region. Regarding, location of Government Offices, only those offices which directly serve the Ministries of the Government of India and only the liaison offices of the Public Sector Undertakings should be located in Delhi. The quasi-Government employment needs to be judiciously distributed in the regional towns and the counter-magnets as part of the NCR. The Plan also suggests that the Regional wholesale trades should be judiciously distributed in the Region beyond Delhi which included some of the DM towns for selected trades such as Ghaziabad, Faridabad, Gurgaon, Kundli and Loni. However, the Plan did not provide objectives regard DMA. It concentrated on the blue print to achieve above problems of Delhi only and suggested land uses in the physical context of UT alone.

This was in contrast to the Master Plan for Delhi - 1962 and Regional Plan 1973 for NCR, which not only formulated the concept of DMD but also gave specific direction for achieving the objectives. These directions were desired growth roles in the form of population assignments, development of economic activities and a policy for socio-cultural interaction between Delhi & DM Towns.

2.7 The Regional Plan - NCR - 2001 prepared by the NCR Planning Board in 1988 and enforced with effect from the 23 January 1989 has proposed a three tier policy approach for the dispersal and development of economic activities in the Region. While recognising the role of Delhi Metropolitan Area in deconcentrating and decentralising Delhi based activities and also in attracting the Delhi bound migrants, the Plan has advocated a moderate growth of population in DMA keeping in view the potential problems of its unlimited growth on the services of Delhi on one hand and uncontrolled sprawl of DMA on the other. The Plan recommended moderate growth in DMA would also result in removal of imbalance in development with in Delhi Metropolitan Area. The NCR Plan policies on economic activities relevant to DMA are briefly as under :

a) In the long term perspective, the growth of large and medium scale industries in DMA towns may have to be restricted, and these may be permitted in the DMA towns for a period of 10 years, whereafter the policy shall be reviewed. The emphasis will be on promoting growth of large and medium scale industries in Priority Towns in preference to DMA towns.

b) Controls 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.

REGIONAL PLAN -2001

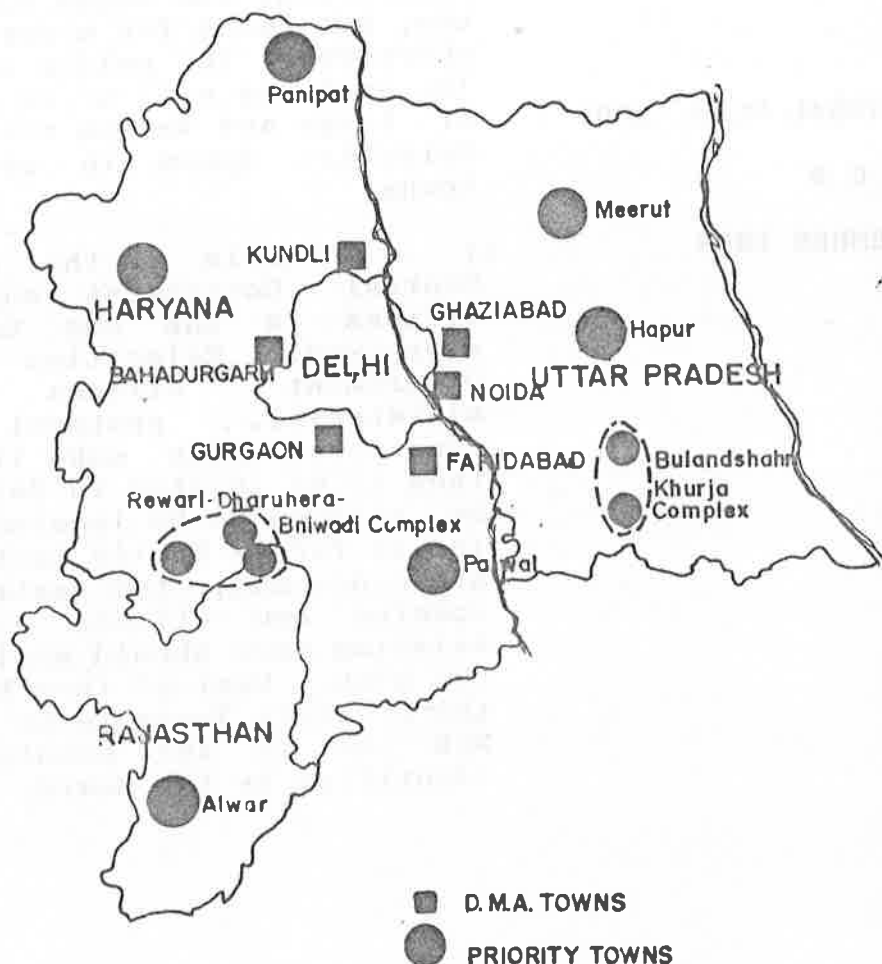
N C R

NOVEMBER 1988

c) There are certain wholesale trades and storages in Delhi which are hazardous because of their location in congested areas and, also due to bulk handling activities relating to plastic and PVC goods, chemical, timber, foodgrains, iron and steel and building material. These wholesale trades in addition to new trades and related activities should be encouraged to be developed in the DMA towns.

REGIONAL PLAN - 2001 N C R

Delhi Metropolitan & Priority Towns



d) In agreement with the and encouraged by the recommendations made by the DPM 1962, the State Government of UP and Haryana prepared the master Plans of the respective ring towns with strong emphasis on industrial component and with higher growth rate. The State Government's interest for development of these towns were mainly two reasons:

i) These towns have their rich agricultural hinterland and construction, higher level of infrastructural facilities than the remaining parts of the State, and therefore, they were considered highly potential centres for industrial development.

ii) The nearness to the National Capital, a metropolitan city made these centres to grow at an alarming rate to reach the present state. Besides, the tremendous growth of the ring towns, Ghaziabad, Faridabad and Gurgaon, the industrial town of NOIDA in UP has emerged mainly due the Government Policy for promoting industrial activities at a place nearest possible to the Delhi. Similarly, Kundli is coming up as industrial town in Haryana at the boarder of Delhi UT.

2.8 Thus, the role of DMA has oscillated since the inception of its concept in 1962 as varying from 'Ring Towns' to 'Regional Centres' finally culminating into a 'spatial zone' known as 'Delhi Metropolitan Area' performing varying roles as under :

Role as Ring Towns :

- to have induced growth to absorb population increase from Delhi,
- to provide extensive job opportunities in industry, Government offices and commercial activities,
- as self-contained entities in terms of work places and housing, and
- to have strong economic, social and cultural ties with the National Capital

Role as of Regional Centres :

**EVALUATION OF
D M A's ROLE**

The National Capital Regional Plan - 1973 identified 17 Regional Centres of which 4 Ring Towns were included for priority development. These towns were Ghaziabad, Faridabad-Bhallabgarh, Gurgaon and Bahadurgarh with a role :

- to absorb excess population from Delhi,
- to help deconcentration of non-conforming industries to Ring Towns,
- to help decentralisation of Central Government Offices.
- as self-contained entities in terms of work places and housing, and

Role in Perspective Development Plan for Delhi - 2001 :

The Plan identifies Delhi Metropolitan Area and envisages its role :

- to help deconcentration of Public Sector Offices from Delhi,

- to help shifting of existing heavy and large-scale industries from Delhi, and
- to help decentralisation of the wholesale trade, new markets, specially space extensive trades to be located in DMA.

Separate Plan for Delhi Metropolitan Area needs to be prepared. This Plan could deal with aspects like transport, and preservation of ridge for the balanced development of DMA.

Role in the Regional Plan 2001 - N C R

The Plan recognises the rapid growth of DMA towns, growing in competition with the core City with widening shortages in the basic infrastructure like water supply, sanitation, drainage, power, transport and telecommunications. The Plan advocates for a moderate growth of DMA on the assumption that deconcentration of certain economic activities should be in DMA towns, as found appropriate. The towns need to be developed as self-contained and on self-sustaining basis with ties with core City in terms of availability of higher level social and cultural facilities.

2.9 In development strategy followed nearly for the last 3 decades for the DMA, though broadly remained as to absorb the over-growth of Delhi in terms of population and job opportunities, showed variations in the perception of its role. Priorities dictated by conditions obtaining at the various points of time during the last 3 decades lead to the conclusion that the participating States as well as Delhi UT could not fully respond to the DMA's role enunciated successively in the various plan exercises particularly in meeting the infrastructure support such as water supply, sanitation, power, transport and telecommunications.

Cases of moving back into Delhi of some economic activities from the DMA towns have also been noticed. For want of planned and adequate investments, there was lopsidedness in the development of income generating activities and appropriate infrastructure support. This was aggravated by the prevailing variance in fiscal measures between constituents of NCR. From the planning point of view, integrated approach for the DMA as a whole escaped the required attention.

All these resulted in short of achieving the objectives enunciated in the plans as to containing the Delhi's growth to a manageable size through diversion of economic activities to the adjoining ring towns in the DMA. This also has given rise to an imbalance in the distribution of population in as much as the imbalance in the distribution of economic activities in Delhi and its environment.

FUTURE ROLE OF DMA

2.10 In the light of the past experience, the emerging trends indicate that the DMA towns should have the following role to enable them to perform their designated functions in the NCR Plan:

- Self-containment towns in terms of work-places, housing and community facilities.
- Development of such economic activities as requiring de-concentration from the Core city.
- Augmentation of the deficient infrastructure such as water supply, sanitation and drainage etc and pollution control so as to make the quality of life comparable to that of the Core city.
- Linkages among themselves and with the core city through well developed transport and telecommunications network.

-to help decentralisation of the wholesale trade, new markets, specially space extensive trades to be located in DMA.

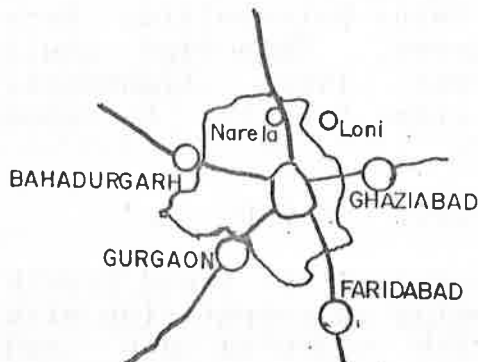
Separate Plan for Delhi Metropolitan Area needs to be prepared. This Plan could deal with aspects like transport, preservation of ridge for the balanced development of DMA.

The Regional Plan 2001 - N C R

The Plan recognises the rapid growth of DMA towns, growing in competition with the Core city with widening gap and shortages in the basic infrastructure like water supply, sanitation, drainage, power, transport and telecommunications. The Plan advocates for a moderate growth of DMA on the assumption that deconcentration of certain economic activities should be in DMA towns, as found appropriate. The towns need to be developed as self-contained and self-sustaining with ties with Core city in terms of available higher level of social cultural facilities.

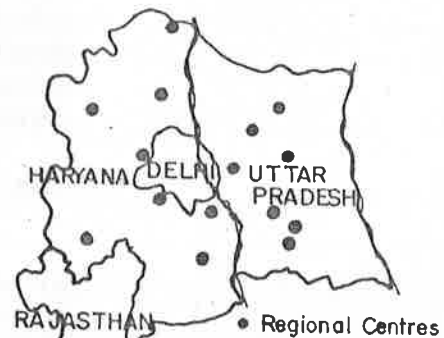
DMA CONCEPT :

1962 DELHI MASTER PLAN



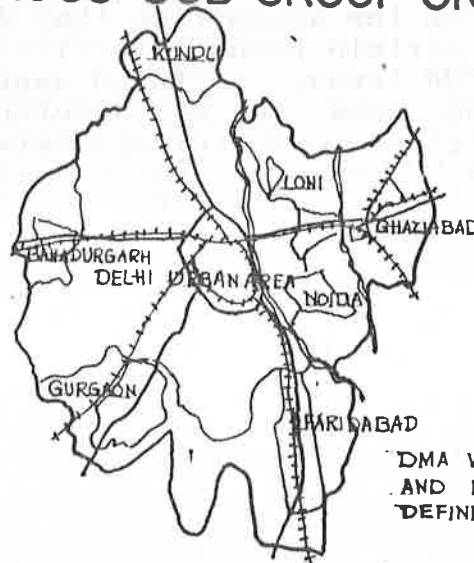
6 RING TOWNS AROUND DELHI TO BE DEVELOPED AS SELF CONTAINED SATELITE TOWNS TO ABSORB OVER SPILL OF DELHI'S POPULATION.

1973 REGIONAL PLAN



RING TOWNS TO BE TREATED AS IDENTIFIED REGIONAL CENTRES

1983 SUB GROUP ON NCR



DMA WAS RECOGNISED AS A SPECIAL AREA AND ITS ADMINISTRATIVE BOUNDARIES WERE DEFINED.

1987-2001 PDP FOR DELHI



1. ADMINISTRATIVE BOUNDARIES OF DMA AS DEFINED BY SUB-GROUP WERE ADOPTED.
2. SPECIFIC TRADES/INDUSTRIES ETC. TO BE DECENTRALISED WERE IDENTIFIED.

1987-2001 NCR PLAN



DMA IS RECOGNISED AS ONE OF THE THREE POLICY ZONES AND MODERATE GROWTH IS RECOMMENDED.

Out of the six DMA towns, Master Plans for Ghaziabad-Loni, NOIDA, Faridabad Complex Admn., Gurgaon and Bahadurgarh have been in force with perspective for 1981 and later revised/under revision to 2001 in most of the cases except for Kundli, the Plan for which is still under preparation. The following brief review indicates the trends in growth of both population and areal expansion. It also indicates the emerging trends within the controlled area/regulatory areas of the towns concerned.

3.1 Delhi urban area had a population of 57.3 lakh in 1981. The Regional Plan NCR - 2001 has assigned a population of 110 lakhs for urban Delhi. Studies have revealed that DUA-81 urbanisable limits by the year 2001 would be able to accommodate about 82 lakhs population by judicious infill and selected modifications of densities. The remaining 30 lakh shall have to be accommodated in the urban extension. To accommodate 30 lakh population, the DUA which could systematically hold 82 lakh population need to be extended by about 18,000 hec. during the two decades (1981-2001) to effectively respond to the growth of the Capital.

The recent RDP - 2001 for Delhi forecasting a population of 128 lakhs by 2001 proposes almost doubling of the urban spread with new cities of a million population like Rohini and Papankalan.

GHAZIABAD :

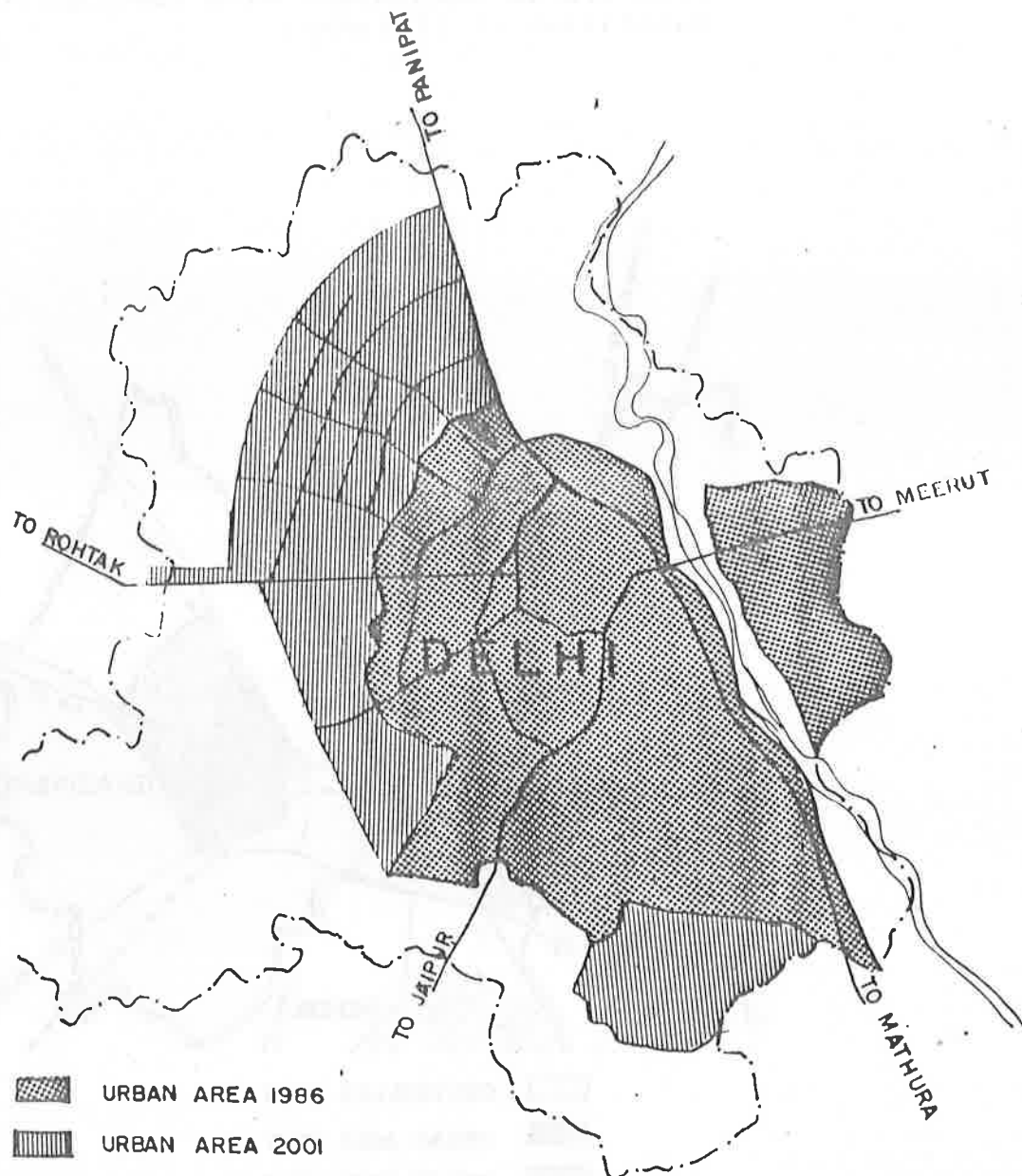
3.2 Ghaziabad Urban Agglomeration is located on National Highway No.24 at a distance of 15 km from Delhi. The town had a population of 70,431 in 1961, 1,27,700 in 1971, and 2,87,170 in 1981. Thus, its growth has been spectacular with 82% and 125% growth rates during the successive decades ending 1981. The urban agglomeration is spread over an area of 65.77 sq.km and has a density of 4366 persons per sq.km as of 1981. Spatially too, the town has expanded very fast. The urban area was only 7.59 sq.km in 1961 which increased to 42.50, 51.75, 57.94 sq.km in 1971, 1981 and 1986 respectively. Thus, its area increased almost 7 fold during the period 1961-1981. With the policy of allowing moderate growth of DMA towns, a population size of 11 lakhs has been assigned by 2001 for Ghaziabad-Loni in the Regional Plan NCR - 2001.

The Master Plan for Ghaziabad-Loni Complex is distinctly in three parts (i) Cis-Hindon (ii) Trans-Hindon (iii) Loni.

Trans-Hindon Area was planned as contiguous to East-Delhi Urban Area in 1962. Today, apart from the existing National Highway-24 passing through the urban Ghaziabad, two bypasses one in the Northern portion joining the outer ring road of Delhi and the other National Highway-24 bypass in the South, limit the physical growth.

Out of the total development area of 496.91 sq.km, the urban area as of 1986 is 57.94 sq.km. Ghaziabad-Loni has been proposed to accommodate a population of 11 lakhs (10.40 for Ghaziabad and 0.60 lakhs for Loni). The break-up of the

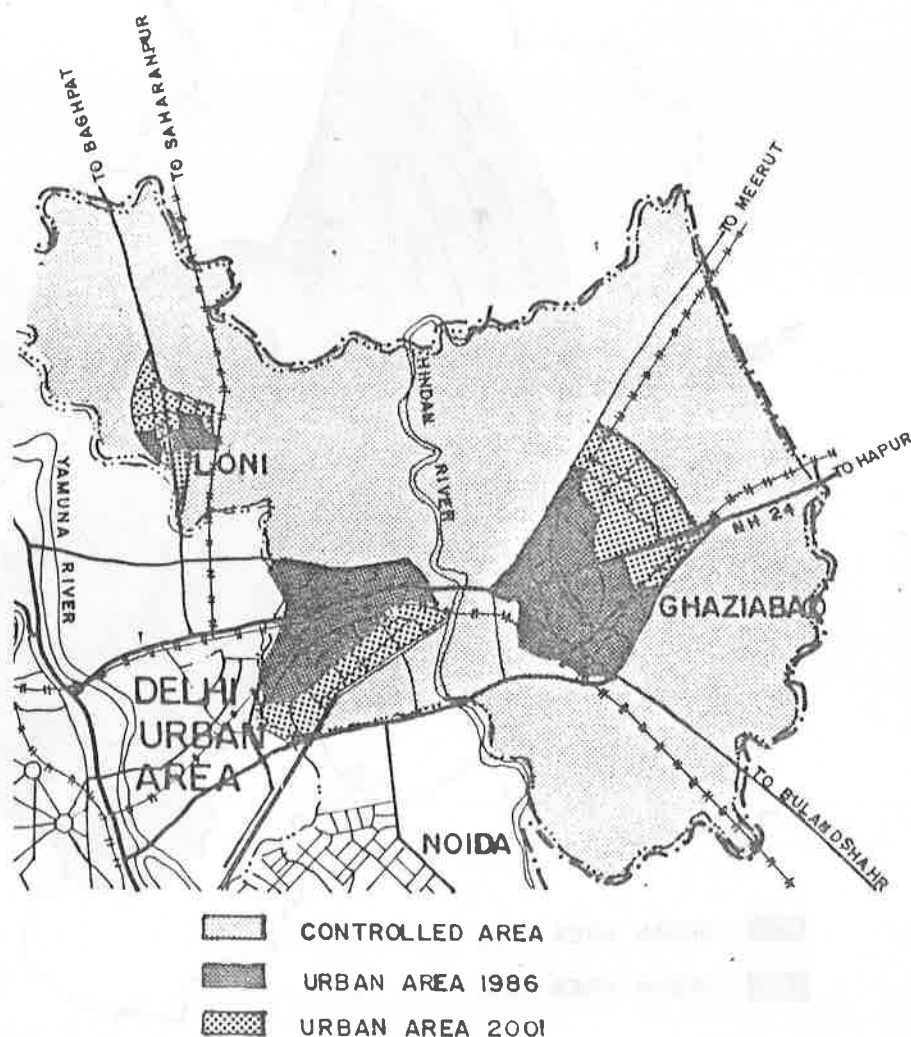
PROPOSED URBAN EXPANSION DELHI URBAN AREA



residential, industrial and commercial areas proposed for 2001 including existing areas are as follows :

Residential	:	4988.8 ha.
Industrial	:	2010.0 ha.
Commercial	:	513.0 ha.

The areas proposed in the Master Plan are in accordance with the assigned population of 11 lakhs.



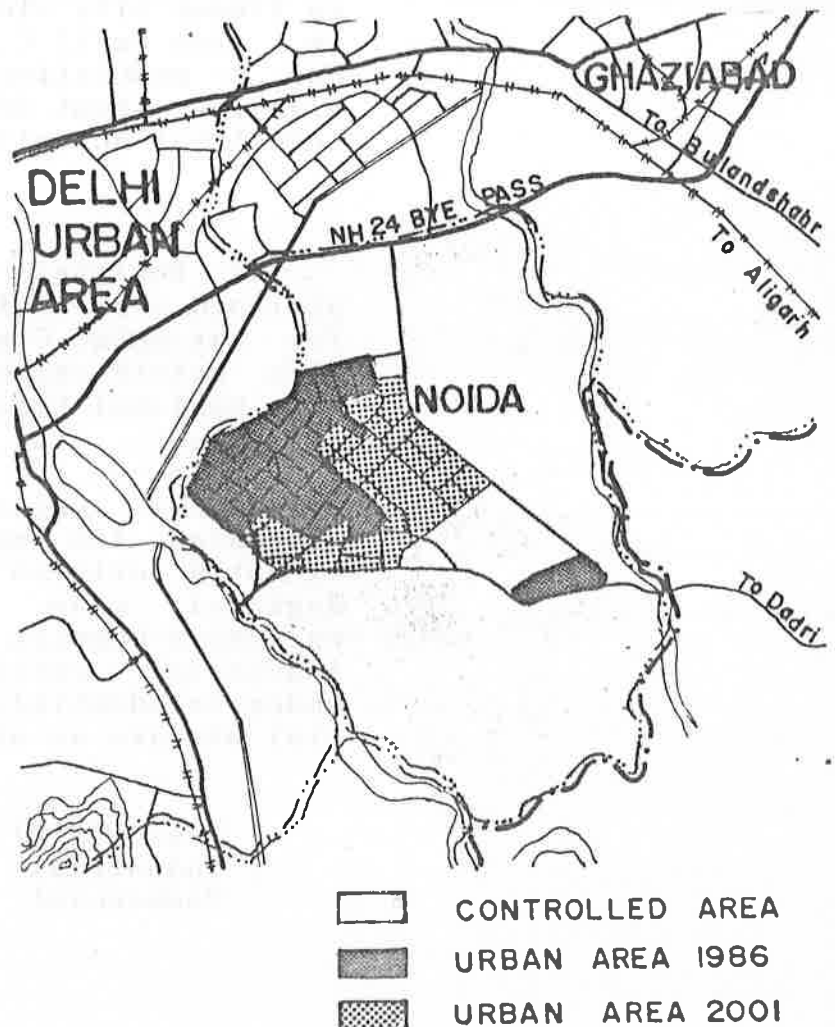
NOIDA

3.3 NOIDA, a new township at the door step of Delhi emerged as an industrial township in 1976. The controlled area under the NOIDA township is 149.15 sq.km. A Master Plan for 5.5 lakhs population as assigned in NCR Plan exists in a draft form for the year 2001. Recently exercises are under way to increase the industrial landuse of the planned area. The township lacks rail connection. An expressway has been proposed in the NCR Plan to connect Ghaziabad-Faridabad enroute NOIDA.

The areas under different landuses provided in the Draft Master Plan are as under :

Residential	-	1870 ha.
Industrial	-	495 ha.
Commercial	-	230 ha.

By and large, the proposals are in conformity with the NCR Plan.



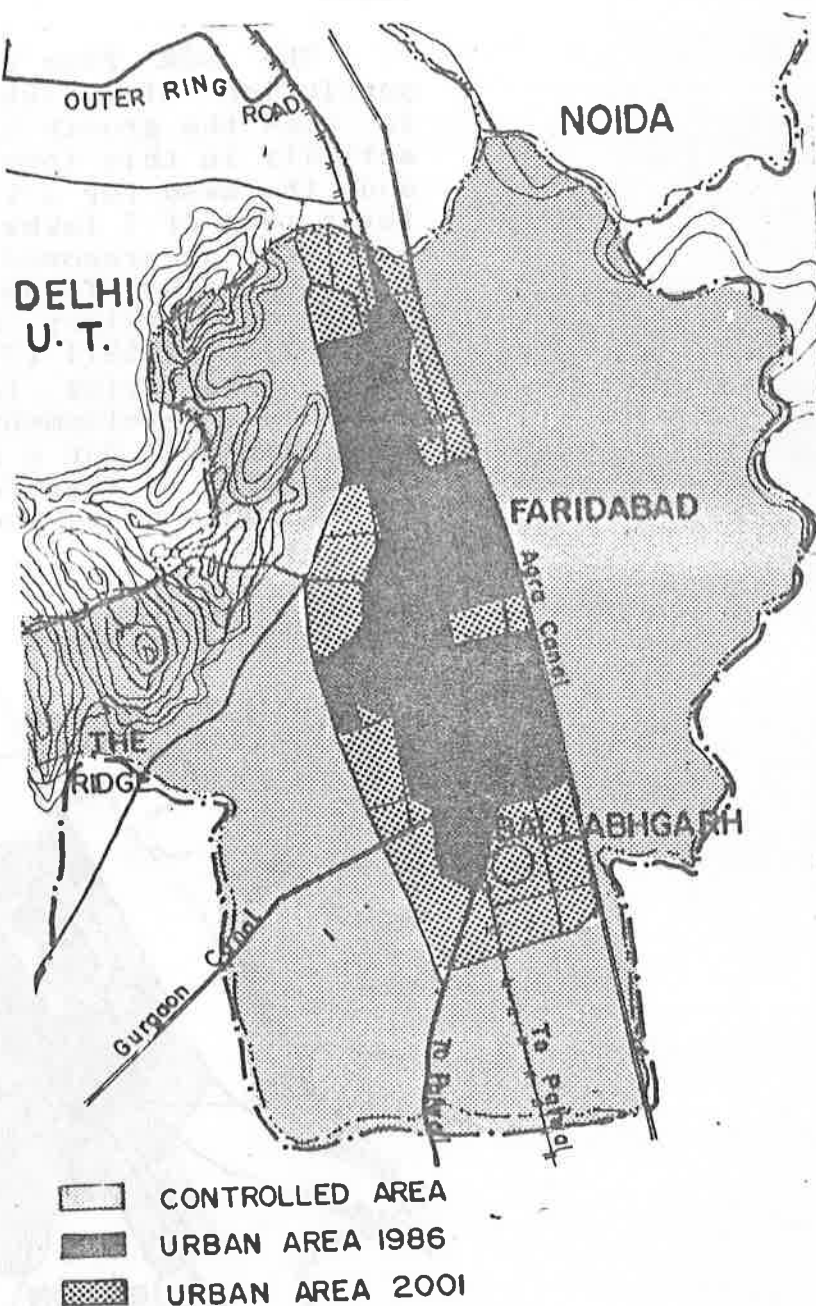
3.4 Faridabad-Ballabhgarh Complex is situated on National Highway No.10 between Delhi-Mathura at a distance of 31 km. from Delhi. The complex has been constituted with the amalgamation of Faridabad town, Faridabad NIT, Ballabhgarh and 38 surrounding villages. It had a population of 330864 in 1981 and spread over an area of 178.24 sq.km. Owing to its linear character, and vast rural tracts included within its boundary, it had a very low density -the lowest among the DMA towns. Faridabad-Ballabhgarh had a population of 0.58 lakhs in 1961 which rose to 1.23 lakhs in 1971 and 3.31 lakhs in 1981. Thus, this complex registered extra-ordinatry growth during the last two decades with 108% and 169% growth rate during the successive decades ending 1981. During this period the urban area of this complex increased six fold from 7.31 sq. km. in 1961 to 50.62 sq.km. in 1986.

The controlled area for Faridabad-Ballabhgarh township is 178.24 sq.km. It is linear city along the NH-2 of about 13 km. from Delhi U.T. border. Faridabad had a population of 3.31 lakhs in 1981 engaging about 50% of the work force in industrial activities.

The Regional Plan - NCR - 2001 has assigned a population of 10 lakhs by 2001 for Faridabad Complex and a Development Plan exists which is in accordance with the Regional Plan in terms of population assignment. The Development Plan has been prepared for a gross density of 110 persons/ha. while the Regional Plan has suggested 125 persons/ha and to this extent a revision would be required. The Regional plan has recognised that Faridabad Complex would continue to be an industrial centre. The proposed area under residential, industrial and commercial use are as under :

Residential	-	4017.0 ha
Industrial	-	2060.0 ha
Commercial	-	341.70 ha

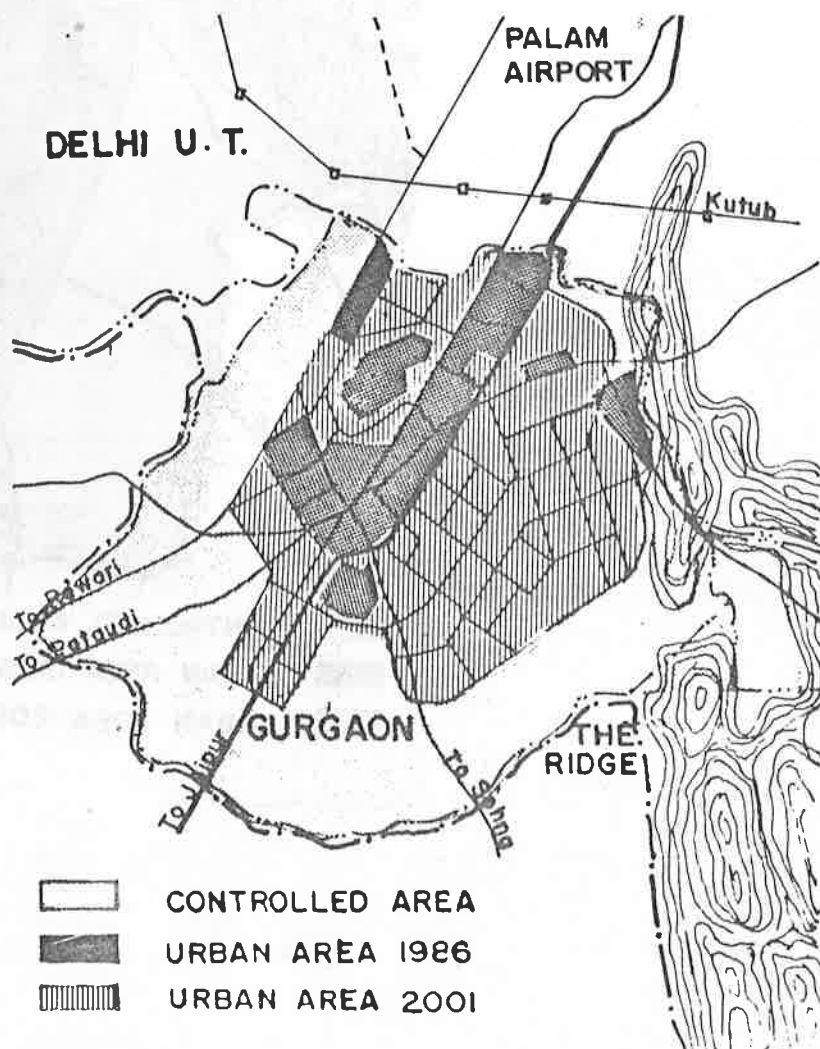
The areas proposed in the Development Plan are in accordance with the assigned population of 10 lakhs.



GURGAON

3.5 Gurgaon is located at a distance of 37 km. from Delhi on the Delhi-Jaipur National Highway (No.8). It had a population of 1,00,877 in 1981. It's growth compared to the other metropolitan area towns has been moderate with 51% during 1961-71 and 77% during 1971-81. It had a density of 4181 persons per sq.km. in 1981. With an area of 24.13 sq.km, its aerial expansion during the recent past has been extra-ordinary. During the period 1961-81 its area increased five fold from 5.18 sq.km in 1961 to 24.13 in 1981.

The NCR. Plan 2001 has assigned a population of 7 lakhs by 2001. Keeping in view the growth trends of industrial activity in this town in the recent past and the need for a viable economic base for a town of 7 lakhs, the Regional Plan for NCR has proposed a shift in the composition of workforce in 2001 from dominance of tertiary activities in 1961 (75.73%) and 1971 (77.10%) to secondary sector activities (50%) in 2001. The town has a Development Plan for perspective year 2001 for a projected population of 10 lakhs. Therefore, the Development Plan need to be revised to 7 lakh population size.



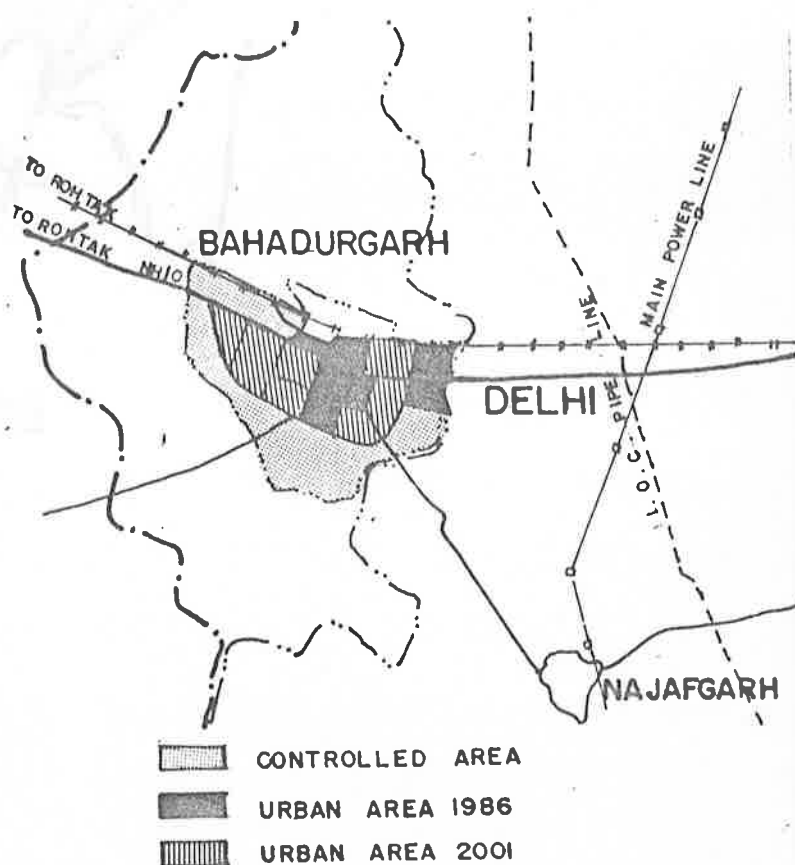
BAHADURGARH

3.6 Bahadurgarh is situated on National Highway No.10 at a distance of 37 km. from Delhi. It had a population of 37,488 persons in 1981. Compared to other DMA towns its growth has been only moderate in the last two decades. Its decadal growth rate was 73% during 1961-71 and 46% during 1971-81. The town has a low density with 4165 persons per sq. km.

Bahadurgarh has been assigned a population of 2 lakhs for 2001 by the NCR Plan. The Regional Plan - 2001 has envisaged a balanced activity structure with about 30% of workforce employed in Industry, 25% in trade and commerce and 25% in other services. Bahadurgarh has an approved Development Plan for the perspective year 1991 for a population of one lakh and to be in conformity with the Regional Plan - 2001, the Development Plan need to be revised in terms of perspective year and population size. Area provided in the Development Plan under various uses are as under :

Residential	-	575.0 ha
Industrial	-	409.0 ha
Commercial	-	89.8 ha

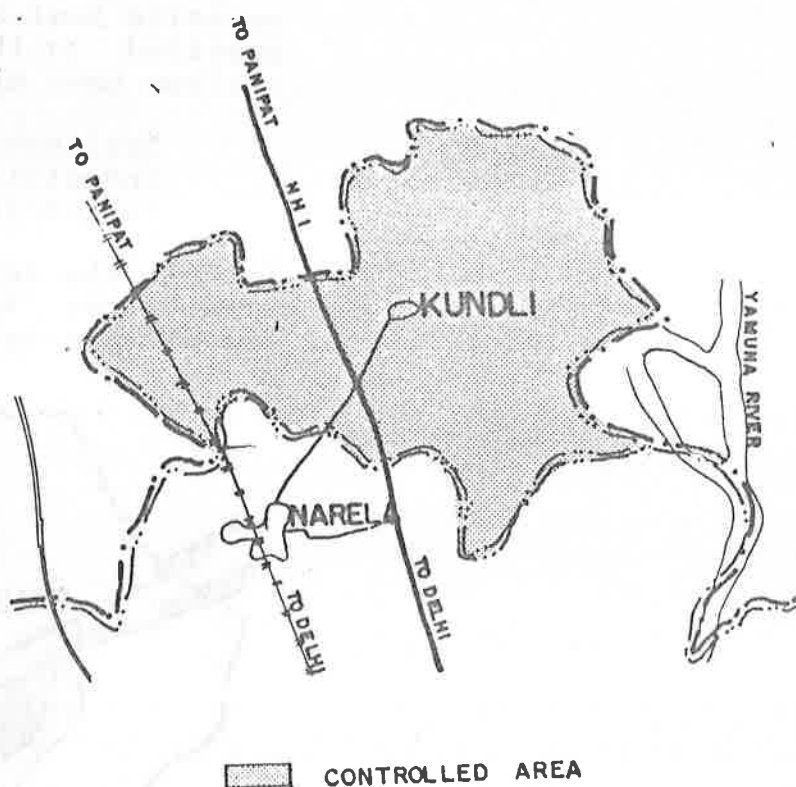
Due to the revision of population size, area under Residential use needs to be increased substantially.



KUNDLI

3.7 Kundli is located on Delhi-Haryana border at a distance of about 22 kms. from Delhi on Delhi-Ambala National Highway No.1. Kundli is being developed primarily as an industrial town. Haryana State Industrial Development Corporation has developed two Industrial Estates. The Regional Plan 2001 has assigned a population of 1.5 lakhs for Kundli.

In view of the development being proposed at Narela within Delhi UT closer to Kundli, the Master Plan for these areas would have to be prepared in an integrated manner.



The quality of life in a settlement/urban areas very much depends on the availability, accessibility and quality of infrastructure it provides. The infrastructure consists of all municipal services, community facilities, public utilities such as water supply, sewerage, drainage etc. Recognising the anticipated population content and consequent physical expansion of the Delhi Metropolitan Area, the urgent need has been felt to prepare an integrated infrastructure Plan taking into consideration the various inter-related and inter-dependent factors among the six DMA Towns i.e. Ghaziabad, NOIDA, Faridabad Complex, Gurgaon, Bahadurgarh.

The present availability, physical infrastructure needs attention are discussed as under :

4.1 DMA : WATER SUPPLY :

The Delhi Metropolitan Area comprises the Delhi UT, controlled areas of the contiguous towns of Ghaziabad including Loni, NOIDA in Uttar Pradesh, Faridabad-Ballabhgarh Complex, Gurgaon, Bahadurgarh, Kundli and extension of Delhi ridge in Haryana. The total area of DMA including Delhi is about 3200 sq. km. with total population of 70.28 lakhs. The DMA is endowed with two perennial rivers namely the Yamuna and the Hindon that traverse the central part of DMA. Besides, DMA is served by Western Yamuna Canal and Upper Ganga Canal.

4.1.1 DELHI :

The main surface sources of water for Delhi are the river Yamuna, Western Yamuna Canal and Upper Ganga Canal. Water supply is supplemented by tubewells and ranney wells as the main sub surface sources. Delhi gets its water from four water treatment plants namely, Wazirabad Water Works, Chandrawal Water Works, Haiderpur Water treatment Plant and Bhagirath water treatment Plant with a total capacity of 1665 MLD as on

1988. The entire supply of water is treated through various units such as prechlorination, clarifloccutation, filtration and post chlorination.

An area of 1483 sq. km (except some of the unauthorised colonies and J.J.Colonies) is covered by the water supply system. Upto March 1987, as many as 61.70 lakh houses had connections of which MCD area alone had 61.0 lakh connections which serves about 97% of the total urban population and 100% in rural areas mainly through handpumps and open wells.

Issues :

Delhi has to depend mainly on the river Yamuna for raw water. It also receives water from Yamuna Canal (Haryana) and Uppar Ganga Canal from U.P. The present availability of treated water supply is 1665 MLD. Average gross availability of treated water in Delhi is 267.68 LPCD. The supply of water is not uniformly distributed in the city; a large section of resettlement colonies, urban and rural villages have very limited access to treated water supply.

As envisaged in the NCR Plan, Delhi would accommodate 112 lakh population by 2001. At recommended norms of 360 LPCD, the total requirement of water for Delhi would be 4032 MLD i.e. an additional supply of 2367 MLD by 2001. To meet this demand, additional sources of water supply and augmentation of existing water system, improvement of treatment and distribution system in Delhi would be required. In doing so, it is essential to integrate Delhi's water supply and distribution system with the DMA towns.

4.1.2 GHAZIABAD :

Ghaziabad city is not endowed with any perennial river except the Hindon river. The underground water of Cis Hindon area is not potable.

Ground water in both the Cis and Trans-Hindon areas of Ghaziabad shows a

general quality of hardness. The average depth of water table in the CIS-Hindon is about 12 metres whereas in the latter, it is only 3 metres. The entire city is covered under the water supply distribution system. The present supply of water however, is 58 MLD. The supply of water is 10 hrs. a day. About 75% of the total population is covered by water supply system. The per capita consumption is 207 LPCD.

Issues :

The present water supply is inadequate. As in the NCR Plan, Ghaziabad proposes to accommodate a population of 11.00 lakhs. To meet the future requirement of the water supply, it is essential to augment the sources of water supply. The water quality of Ghaziabad is not fit for human consumption. Water distribution and treatment arrangements also have to be made to serve the future population.

4.1.3 NOIDA :

Main source of water supply in NOIDA is tubewell. Adequate ground water is available and, the depth of water table is 3.0m. As in 1988, actual water supply was 18.0 MLD and supplied through 350 km long distribution system. The supply of water is intermitent at an average supply of 9 hrs. daily. The present water supply system served a population of 1,25,000 covering an area of 1655 ha.

Issues :

Presently, NOIDA provides water supply to 100% of its population through tubewells. NOIDA's population is proposed to reach to 5.50 lakhs by 2001 which would need at 360 lpcd i out 200 MLD of water. Thus this additional water have to be met through external sources through augmentation of present water supply sources.

4.1.4 GURGAON :

The main source of water supply in Gurgaon is tubewell. It receives water

from 56 tubewells. The Municipal Board is responsible for water supply to the Municipal area and HUDA is responsible for new residential areas. The availability of water in Gurgaon is 1.40 MLD. About 70% of the area is covered with water supply in Municipal area and 100% coverage is in the HUDA colonies.

Issues :

In order to meet the requirements of the assigned population of 7.0 lakhs, total of 252 MLD of water would be required by 2001. To meet the additional water of 85 MLD, additional sources of water supply need to be explored and the present water supply is required to be augmented. State Government planning to link Gurgaon with S.Y.L.Canal.

4.1.5 FARIDABAD :

For better administrative control and to provide better civic amenities/facilities to the public, Faridabad Complex Area has been divided into the three administrative zones namely i) NIT Zone, ii) Old Faridabad Zone and, iii) Ballabgarh Zone. Considering topographical conditions and availability of resources/existing facilities and financial involvement, independent service systems have been provided in each zone.

Faridabad gets its water from 70 deep tubewells and 150 handpumps. About 27 MLD of water produced and distributed in the city through a distribution network of 251 km. Nearly, 75% of the total population and 75% of area is covered under the water supply system. The actual water supply is 67.5 MLD (in 1988) and the demand by 2001 is estimated to 360 MLD.

Issues :

The present water supply is satisfactory to some extent in Ballabgarh and old Faridabad while in NIT area, position of water supply is inadequate. This is mainly due to sinking water table year by year and

in some areas underground water is brackish which is not suitable for drinking purpose. To meet the estimated demand of 360 MLD, it is essential to augment the additional water requirement through installation of Ranney wells in the Yamuna bed and other sources.

4.1.6 BAHADURGARH :

Bahadurgarh gets water from canal. The present water supply is about 4.10 MLD and about 70% of the population of the Town is covered under water supply system. Out of the total water produced, 1.40 MLD is being treated. The present per capita consumption is 130 MLD.

As per Regional Plan - NCR, Bahadurgarh is proposed to accommodate 2.0 lakh population by 2001 for which the total requirement is estimated to 72 MLD by 2001. To meet this requirement, possibilities of additional water from canal and exploration of that source of water supply are to be considered.

4.1.7 KUNDLI :

Presently, there is no water supply system in Kundli. Since Kundli is to be developed as a new town to accommodate 1.5 lakh population by 2001, provision of water supply of 54 MLD by 2001 needs be made.

4.2 DRAINAGE SYSTEM - DMA :

Delhi Metropolitan Area is drained by the rivers Yamuna, Hindon and a number of drains such as Najafgarh, Nangloi, K.S. Nagar, Mangeshpur drain and, in Delhi UT West Juan drain, Padasma drain and Gandhi drain which join together and flow through Bahadurgarh to join the Najafgarh drain in the south. Badshapur drain originates from Delhi ridge and flows north-westward through Gurgaon to join Najafgarh depression. In south, Buria nala originates from Delhi ridge and runs south-eastward touching the northern part of Faridabad to join Yamuna river. Dasna drain runs through Ghaziabad and joins the river Hindon at a place south of Ghaziabad. There are 17

major drains falling into the river Yamuna from Wazirabad Barrage upto Okhla Barrage.

Delhi would accommodate a population of 112 lakhs by 2001. This would require intensive development within the existing urbanisable limits as well as the extension of the present urbanisable limits. This would cause change in surface run off of the area significantly and, thus the discharge is in the need of some new and additional supplementary drains. This requires an integrated and coordinated approach so that the drainage problem of the DMA as a whole could be tackled in the interest of the State Governments and U.T.

4.3 SEWERAGE SYSTEMS IN DMA TOWNS

4.3.1 DELHI :

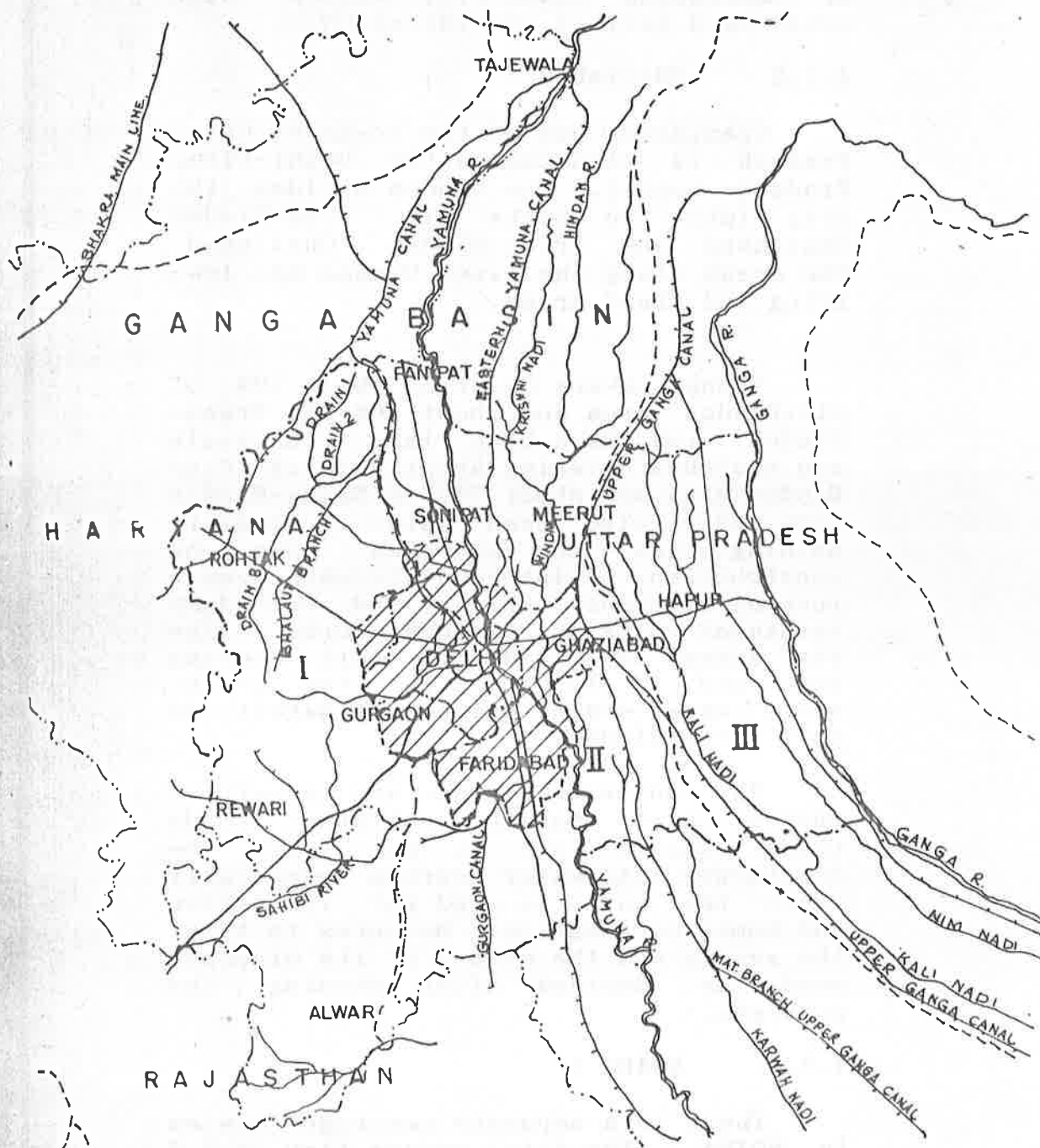
At present, about 327 MGD sewage is generated in Delhi. Against this, sewage treatment facilities available is only for 174 MGD and the balance flows untreated into the river Yamuna through various drains and nallas.

During the Seventh Plan period, it is proposed to augment the Sewage Treatment capacity by 1598 MLD (352 MGD). There are 17 major drains falling into river Yamuna from Wazirabad Barrage upto Okhla Barrage.

About 25% of the total population of Delhi does not have access to sewerage. Parts of trans-Yamuna area, most of the unauthorised colonies parts of the city and, old built-up areas are without regular sewerage. Although Delhi is not meant to be an industrial city and, no major industries are being permitted, but the rapid growth of small scale industries in the last two decades has resulted in the generation of large amount of industrial wastes that flow into open drains without any treatment.

To cater to 100 percent of the population with individual sanitation, the Union Territory of Delhi would require sewage treatment capacity of 900

DRAINAGE BASINS NATIONAL CAPITAL REGION



LEGEND

State Boundary	
NCR Boundary	
Main Basin	
Sub Basin	
Canals	
Rivers	
Najafgarh Drainage Zone	
Yamuna Drainage Zone	
Ganga Drainage Zone	
Delhi Metropolitan Area	



10 0 10 20 30 40 50 60 70 80 Km

MGD by 2001. Besides this, the treatment of increasing industrial wastes also would need serious consideration.

4.3.2 GHAZIABAD :

Ghaziabad, one of the towns of Uttar Pradesh is situated on the Delhi-Uttar Pradesh border. The Hindon divides the city into two parts viz. Cis-Hindon Ghaziabad and Trans-Hindon Ghaziabad. The areas along the river Hindon are low-lying and flood prone.

Trunk sewers covering about 70% of Cis-Hindon area and about 30% of Trans-Hindon area have been laid. Laterals and branches covering about 80% of Cis-Hindon Area and about 70% of Trans-Hindon area have also been laid. However, nothing has so far been done on construction of intermediate/main sewage pumping stations, primary and secondary treatment works and disposal works. The raw sewage is lifted with small pumping sets and is discharged into the nearby storm water drains which ultimately go into river Hindon.

The untreated sewage and industrial wastes carry harmful pollutant loads which should not in any case be discharged into water courses especially where the water is used for irrigation and human consumption. Measures to treat the sewage and the method of its disposal need be decided after studying the problems.

4.3.3 NOIDA :

There is a separate sewerage system in NOIDA. The total sewage flow is 2.5 MGD of which 2 MGD is treated through oxidation ponds. The population covered by the sewage system is 1,25,000 including 1000 households /industrial/commercial and other establishments. Presently, the sewage is being let out into the river Yamuna through drains. This contains 0.5 MGD of untreated sewage. This needs be treated before its disposal. By 2001, there will be a demand to treat 20 MGD.

4.3.4 FARIDABAD COMPLEX

Separate sewerage and storm water drain systems are in operation in Faridabad Complex. The total flow of sewage in the complex is 5 MGD which cover 16,000 households /industrial /commercial and other establishments. The sewage is being disposed of into the rivers and drains. 4 MGD is being treated through oxidation ponds in the complex. Though only 20% of the sewage at present is let off into the river course, this pollutant load is dangerous as it contains the industrial wastes.

Considering the natural slope and already laid trunk sewer lines within NIT, Old Faridabad and Ballabgarh Towns, separate sewerage systems have been provided in each zone. At present, the sewerage from NIT Old Faridabad Zone, has been connected with the out fall sewer of HUDA sectors which finally goes into Oxidation Pond. In Ballabgarh Zone, the sewage is being thrown into Agra Canal which renders it dangerous for any use.

4.3.5 GURGAON AND BAHADURGARH

Information available on the sewerage system in respect of these two towns is incomplete.

However, it may be stated that in Gurgaon about 60% of the population is covered with sewerage system. Sewerage system in the town is partly separate and combined with storm water drains. About 2.5 MLD of sewage is generated and is disposed of on land without any treatment.

In Bahadurgarh, about 60% of the population is covered by sewerage facility and about 0.60 MGD sewage is generated daily. Sewerage system is combined with storm water drains in the town. The sewage is utilised for irrigation without any treatment. Raw sewage is harmful for certain crops and also renders soil overtime infertile. It is therefore necessary, to treat sewage before it is disposed of either on land or into water course.

4.4 SOLID WASTE MANAGEMENT :

Solid waste management is an important area which deserves serious and immediate attention. The neglect of management of solid waste is found to be very harmful and give rise to environmental problems. Solid waste management plays a vital role in containing the pollution of ground water as well as atmosphere.

4.4.1 DELHI :

Solid waste management in Delhi is quite satisfactory. A part of the solidwaste is composted. It has improved collection and disposal system. Solidwastes are collected through trucks from the various collection pits and a part of it is carried to sanitary landfill ground. The rest is disposed of in sanitary refill, landfill and open dumping.

4.4.2 GHAZIABAD :

As in 1986, Ghaziabad generated garbage of 275 grams per capita a day of which only 201 grams was managed. The total deficit was 30.12 tonnes per day in 1986. solid waste is being collected and disposed on the open ground causing serious environmental problem is the city.

4.4.3 NOIDA :

In NOIDA the per capital solidwaste generation was 275 grams in 1986 which was said to have been managed.

4.4.4 FARIDABAD COMPLEX :

Faridabad Complex has the highest generation of Solid waste of 290 grams per capita in 1986 of which 257 grams was managed. The deficit was 17.92 tonnes/day in 1986. The solidwaste disposal is done through land filling.

4.4.5 GURGAON :

In Gurgaon, solidwastes generated amount to 180 gram per capita a day of which 144 gram was being treated in 1986. Total deficit was 3.10 tonnes per day. The solidwaste is being dumped on the open ground.

4.4.6 BAHADURGARH :

Bahadurgarh generated about 267 grams per capita a day of solid waste in 1986, of which 147 grams was treated. The total deficit reported as 6.62 tonnes per day. The solid waste is being dumped on the open ground.

5.1 At present, the travel from Delhi Metropolitan Area towns to Delhi is time consuming, involving risk of accidents and pollution due to vehicle emissions. Development of a well-planned transport network providing rapid transit within the DMA thus assumes urgency. Presently more than 3.12 lakh passengers travel daily between Delhi and DMA towns. The intracity trips are equally important in case of DMA towns due to increased socio-economic and industrial activities. As such total transportation system of DMA including Delhi need to be viewed as a single multiple mode system.

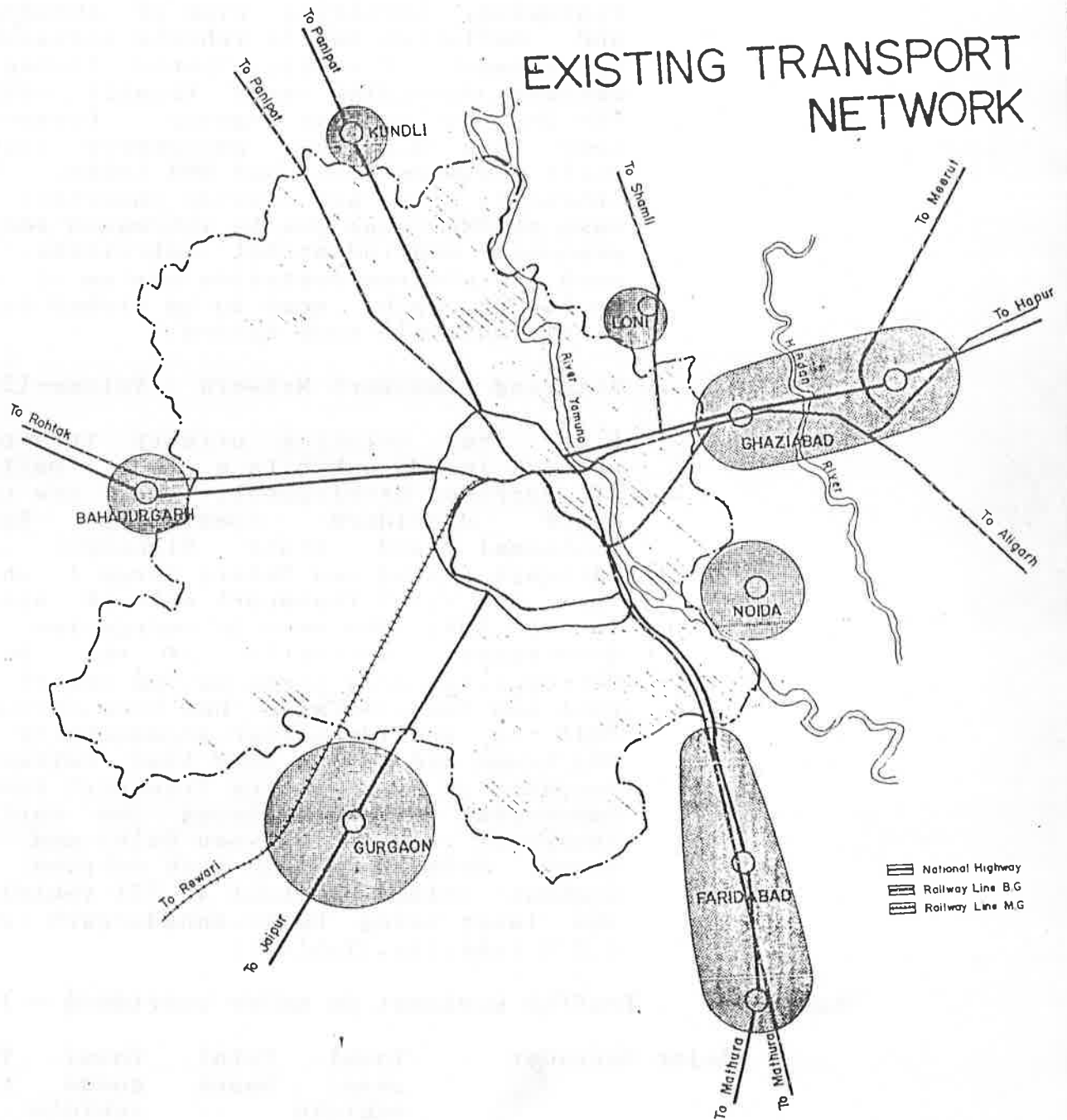
Existing Transport Network - Volume-1987

5.2 The existing primary transport network in DMA exhibits a clear pattern of corridor development. There are nine major corridors consisting Roads (National and State Highways) and Railways (Broad and Metere Gauge) which form the vital transport network system in the DMA. The need to reorganise the development activites of the Delhi Metropolitan Area towns having regard to rail and road-linkages, has been strongly felt to provide better accessiblity in DMA towns and at the same time relieving pressure on the existing transport routes converging at Delhi. Among the various transport routes between Delhi and DMA towns, Delhi-Ghaziabad link carries the highest volume of about 42,751 vehicles, the least being Delhi-Bahadurgarh with 6,974 vehicles. (Table 1)

Table - 1 Traffic movement on major corridors - 1987

Major Corridor	Total pass. vehicle	Total buses	Total goods vehicle	Total volume
1. Delhi-Faridabad	21535 (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)

EXISTING TRANSPORT NETWORK



3. Delhi-Bahadurgarh	3708 (53.2)	753 (10.8)	2513 (36.0)	6974 (100.0)
4. Delhi-Ghaziabad	28714 (67.2)	2605 (6.1)	11432 (26.7)	42751 (100.0)
5. Delhi-NOIDA	16677 (82.1)	1623 (8.0)	2007 (9.9)	20307 (100.0)

Total : 1,15,343

In Rail network also, it is observed that the line capacity in and around Delhi is heavily strained. In the NCR, 75% of the goods traffic and 65% of the mail/express and passenger trains are handled in this intensely worked Delhi Area. Delhi serves as distribution centre for various commodities for the northern region. As DMA towns do not have adequate loading and unloading facilities, most of the goods trains are unloaded in Delhi resulting into heavy goods traffic on road network of DMA.

Travel Characteristics

5.3 The present daily passenger movement (inter-urban) by all modes is estimated at 3.12 lakhs between Delhi and DMA towns. Such a large interaction of DMA towns with Delhi by public and private modes shows the degree of interdependence on each other (Table 2)

Table- 2 Daily Passenger movement between DMA towns and Delhi U.T.- 1987

Between	Bus Pass- engers	Vehicle Passengers	Rail Passenger	Total
Delhi-Ghaziabad	35,000	20,800	46,200	1,02,000
Delhi-NOIDA	61,000	18,400	-	79,400
Delhi-Faridabad	35,600	25,600	8,500	69,700
Delhi-Gurgaon	27,000	12,600	6,500	46,100
Delhi-Bahadurgarh	6,475	2,936	5,000	14,411
Delhi-Kundli	412	100	-	513
Total	1,65,487 (53.02)	80,436 (25.87)	66,200 (21.20)	3,12,124 (100.00)

Passenger Trips by 2001 :-

5.4 In the context of the NCR Plan policies and the DMA towns achieving a degree of self containment, it has been estimated by ORG in transport sector study for NCR that about 5.25 lakhs passengers (i.e. about 2.14 lakhs additional passengers over and above 1987) would travel in different corridors from and to DMA towns by public transport, private vehicles and rail by 2001 as shown in the table below :-

Table 3 : Projected O-D flow between Delhi & DMA Towns - 2001

Corridor	Vehicle Passenger	Bus Passenger	Rail Passenger	Total Passenger
1. Delhi-Ghaziabad	19,074	42,800	92,300	1,54,174
2. Delhi-NOIDA	41,000	1,00,000	-	1,41,000
3. Delhi-Faridabad	30,000	34,000	16,050	80,000
4. Delhi-Gurgaon	24,000	32,000	64,500	1,20,000
5. Delhi-Bahadurgarh	4,507	8,004	13,800	26,311
6. Delhi-Kundli	591	3,120	-	3,711
Total:	1,19,172	2,19,924	1,86,650	5,25,746

Public Transport Passenger 2001 :

5.5 As per studies by ORG, about 1,80,000 additional public transport passengers would travel in different corridors from and to DMA towns by 2001 AD as shown in Table - 4 below :

Table - 4 Additional Public Transport Passengers

Corridor	Additional Public Transport Passengers
1. Delhi-Ghaziabad	40,143
2. Delhi-Faridabad	26,679
3. Delhi-Gurgaon	64,472
4. Delhi-Bahadurgarh	9,041
5. Delhi-NOIDA	39,000
Total	1,79,335 say 1,80,000

Existing Transport Facilities in DMA - 1987

5.6 The existing transport facilities in DMA consist of buses run by State Transport Corporations of Uttar Pradesh, Haryana and Delhi; the buses run by private owners, chartered buses by various transport companies during fixed hours; shuttle trains and EMUs between DMA Towns and Delhi and various other long journey passenger and Mail or Express trains. Details of number of passengers travelling through transport facilities in organised sector within DMA are as follows :

Table 5 : Number of Passengers Travelling by Scheduled Bus Trips.

Between	D.T.C.	Haryana Roadways	U.P. Roadways	Total Passenger.
Delhi-Faridabad	17,118	9,600	-	26,718
Delhi-Gurgaon	4,891	13,080	-	17,971
Delhi-Ballabhgarh	1,400	1,600	-	3,000
Delhi-Ghaziabad	17,337	-	262	17,577
Delhi-NOIDA	(Intra -Urban Service)			45,000
Delhi-Kundli	N.A.	N.A.	N.A.	N.A.
Total	40,746	24,280	262	1,10,288

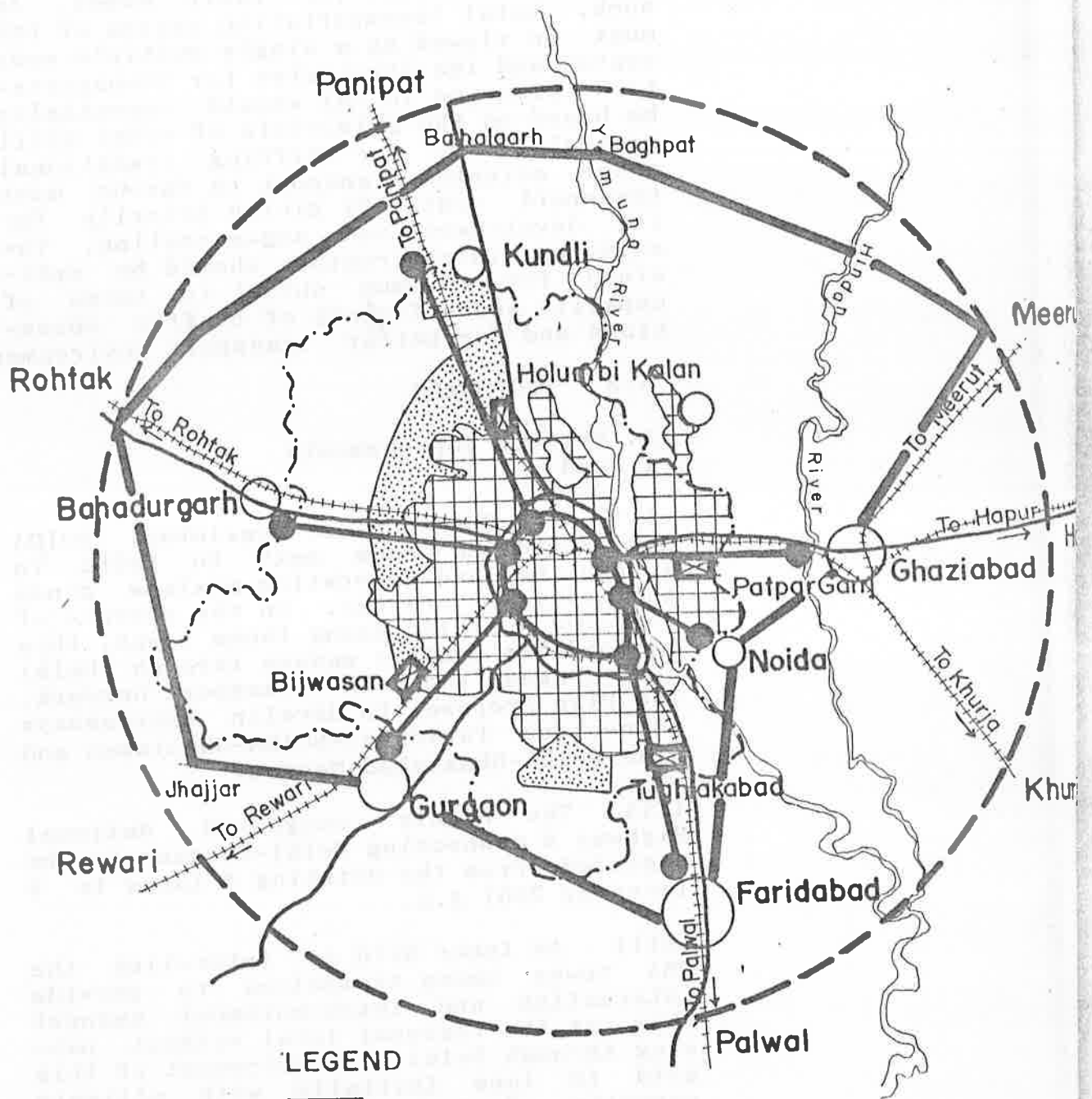
Transport facilities between Delhi and NOIDA in the public sector are provided by DTC only. AS these services cater to the passenger movement from various parts of Delhi to NOIDA and nearby areas, these have been considered as intra-city services. Approximately, such trips from different parts of Delhi to NOIDA amount to 1000. A number of private vehicles such as cars and taxis, chartered buses and those run by private transporters on different routes, and long journey buses run by State Transport Corporations on regional routes touching Delhi and the DMA towns, are in addition. These modes also share the passenger movement in the transport corridors between Delhi and the DMA towns. Such as Delhi-Faridabad, Delhi-Ghaziabad and Delhi-Gurgaon, and Delhi-(Kundli)-Sonipat etc.

Out of the total 3,12,116 passengers about 1,10,288 (i.e. 35.33%) travel by public buses, 55,191 (i.e. 17.68%) travel by private and chartered buses, and 80,437 passengers (i.e. 25.87%) travel by private (personal) vehicles. The remaining 66,200 (i.e. 21.20 %) travel by rail through 100 trains of various classifications. Out of these trains only about 24 trains run during peak hours. In other words we can say that nearly 43.47% passengers travel by private and chartered buses and private vehicles and 56.53% passengers travel by public buses and the rail.








STRATEGY

5.7 It is revealed from the above analysis, that the public transport facilities are either inadequate or practically ineffective, as a result a high percentage of passengers travel by unorganised mode of travel daily between Delhi and DMA towns causing delays, loss of energy, pollution and accidents which shall get further aggravated in the coming years as the existing facilities

PROPOSED TRANSPORTATION STRUCTURE



LEGEND

-  Urban Area
-  Urbanisable Area-2001
-  Intra-City Rail
-  Inter-City Rail
-  Regional Rail By-Pass
-  Metropolitan Terminals
-  Inner Grid-Road

in public sector will not be able to take care of the projected load in DMA towns. Unless the transport system is thoroughly overhauled so as to provide mobility at an increased speed, people may not feel safe and comfortable in living in the DMA or other towns outside the DUT and commute to Delhi for their needs. As such, total transportation system of DMA must be viewed as a single multiple mode system and the strategies for transportation planning in DMA should essentially be based on the principle of modal split manipulations, i.e. shifting traditional motor oriented transport to favour mass transport system by giving priority for its development and augmentation. The existing infrastructure should be optimised for maximum output in terms of capacity and efficiency of traffic operations and for better transport environment.

5.8 PROPOSALS

A. Network improvements I. Road

- (i) The DMA towns of Ghaziabad, NOIDA and Faridabad come next to Delhi in attracting and generating maximum goods and passenger traffic. In the absence of direct connection among these towns, this unavoidable traffic passes through Delhi and congest the Delhi transport network. The Plan proposes to develop Expressways connecting Faridabad-NOIDA-Ghaziabad and also Delhi-Ghaziabad-Meerut.
- (ii) The highly congested National Highway 8 connecting Delhi-Gurgaon to be upgraded from the existing 4 lanes to 6 lanes by 2001 A.D.
- (iii) An Inner Grid to inter-link the DMA towns among themselves to provide interaction and intra-movement amongst them at the regional level without passing through Delhi. Development of this grid (2 lane initially with ultimate capacity of 4 lane divided with 60 m R.O.W.) on new alignment to connect Bahadurgarh and Baghpat, and strengthening and widening of existing alignment on Rohtak-Sonepat-Bahadurgarh, Baghpat-Meerut and Jhajjar-Gurgaon-Faridabad.

II. Rail

The existing rail network has a number of bottle-necks which can be removed to create larger capacity in the rail network and providing an efficient movement of commuter traffic between the DMA towns and Delhi by:

i) Increasing substantially the carrying capacity of existing passenger trains by adding to the number of coaches,

ii) Rationalising the movement of freight traffic to avoid their concentration in Delhi at present.

iii) Eliminating the existing bottlenecks on short stretches by providing additional facilities such as

- provision of an additional pair of lines on (Palwal) Faridabad-Delhi section.

- laying of a single Broad gauge line between Delhi-Gurgaon-Rewari-Alwar, and

- an additional pair of lines between Delhi-Ghaziabad-Khurja.

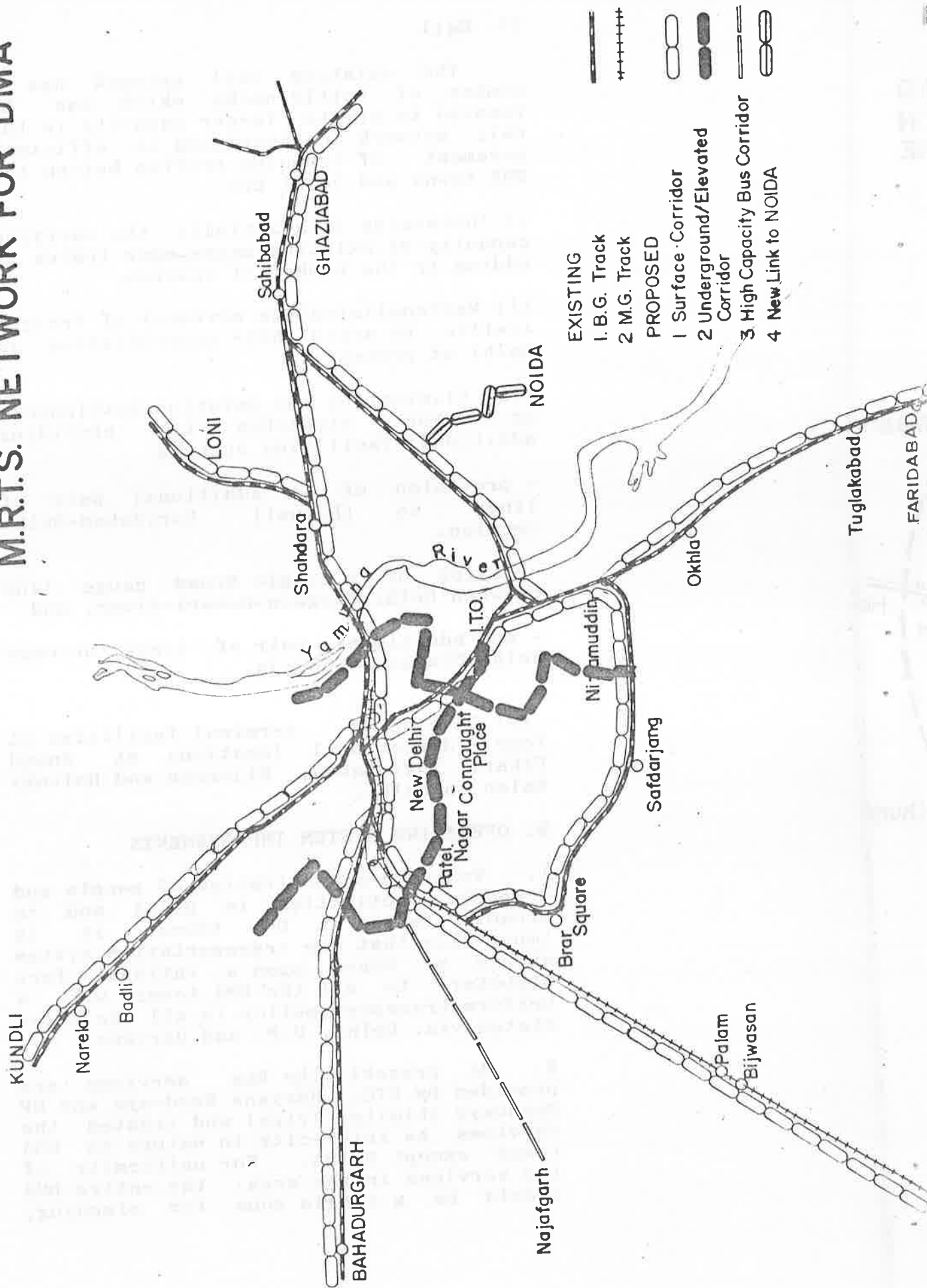
iv) Developing terminal facilities at four directional locations at Anand Vihar, Tuglakabad, Bijwasan and Holambi Kalan in Delhi.

B. OPERATING SYSTEM IMPROVEMENTS

1. To avoid concentration of people and economic activities in Delhi and to promote these in DMA towns, it is imperative that the transportation system should be based upon a rational fare structure to all the DMA towns with a uniform transport policy in all the three States viz. Delhi, U.P. and Haryana.

2. At present the bus services are provided by DTC, Haryana Roadways and UP Roadways (Limited Trips) and treated the services as inter-city in nature to DMA towns except NOIDA. For uniformity of the services in the area, the entire DMA should be a single zone for planning,

M.R.T.S. NETWORK FOR DMA



routing and scheduling of services for avoiding duplication of services and competition among each other. For this purpose all State Road Transport Undertakings can either enter into an agreement in lines of NOIDA with DTC or the number of services should be increased under the existing bilateral arrangements between Delhi and other two States viz., UP and Haryana.

3. The present rate of growth in supply of public transport services in DMA will not be able to meet the future demands especially in newly developing areas at the periphery of Delhi. As such, introduction of private bus services under fixed schedule and routes in lines of private bus operation system under DTC should be identified. The Inter State bus permits for this purpose can be arranged under the Section-108 of Motor Vehicle Act, 1988. This arrangement should also cover the operations of para-transit services (auto, taxi) in DMA towns.

4. There is a proposal to introduce a MRTS initially on East West Corridor and later on North - South Corridor also. This will operate as an integrated transport system with other existing intra-urban (Ring rail) and inter-urban transport system (State Road transport and EMU's on Delhi- Ghaziabad and Delhi-Palwal sections). To meet the travel demand of DMA adequately and efficiently on an uniform basis, it is needed to integrate the proposed MRTS in Delhi with the existing intra-city and inter city transport system with an effective feeder service of D.T.C.

5. If the available capacities of the Rail Corridors within the DMA and Delhi Urban Area are to be optimised and made use of providing intra-urban and inter-urban services, it would be necessary to carry out certain programmes like increasing terminal capacities, remodeling of the yards, laying of dedicated tracks for suburban services, and integrating the two network systems so as to enable optimum utilisation with minimum cost investment.

6. It is also necessary to augment the capacity of existing transport terminals and identifying the sites for new bus terminals in the areas outside Delhi Union Territory for catering the needs of growing traffic between Delhi and new areas under DMA.

7. In order to provide immediate relief to commuters from newly developed peripheral areas of Delhi, the short range programme should be worked out which may consist of allowing movement of paratransit vehicles, extension of existing DTC bus routes with uniform fare-structure up to DMA towns (point to point service) and stopping up trains at new locations etc.

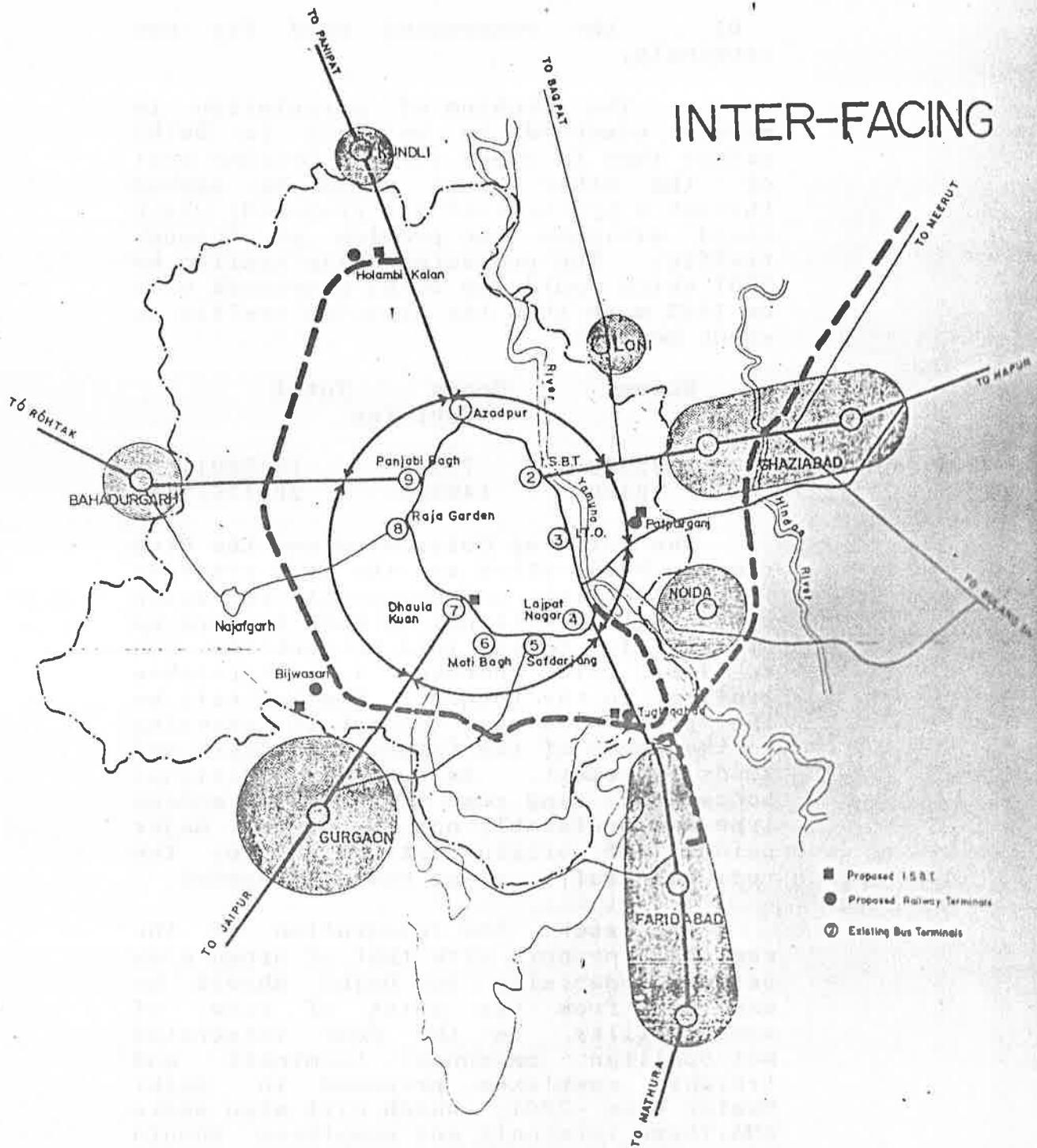
8. Measures should be taken for development of low capacity public transport modes like mini buses, Matador vans etc. to serve needs of the DMA towns other than mother city.

9. In DMA towns other than Delhi, Scientific traffic management measures are almost non-existent. A large number of unlicensed vehicles ply on roads and encroachments reduce road width to nearly half. The shortest and fastest vehicles share the same carriage way, severely hampering mobility. There is also hardly any attempt by authorities to identify bottlenecks. As such, it is essential to promote traffic management measures and identifying transportation requirements of the city. Once corridors have been indicated, land could be reserved, though construction work could be taken up in phases only when the stage of development warrants such facilities.

C.INTER - FACING

The foregoing proposals are primarily based on the inter-urban movement requirements in the DMA. However, an important component of transport-flows would be 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 :

INTER-FACING



a) the effects of the inter-urban movements on intra-urban circulation pattern, and

b) the consequent need for new terminals;

The problem of circulation is mainly expected to be felt in Delhi rather than in other towns, 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 as shown below :

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

The existing Outer ring and the Ring road in Delhi which are the main arteries for collection and dispersal of inter urban traffic will not be able to cope up effectively taking into account the two to four fold increase in 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. As such an additional concentric ring road of a limited access type and preferably not having any major points of origin/destination for the regional traffic along would be needed.

As such the integration of the regional network with that of urban area network specially for Delhi should be examined from the point of view of accessibility 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.

It would also be necessary to design intersections between the proposed inter urban roads and proposed concentric ring road as grade separated interchanges, to maintain the uniform speeds on both the roads. Similarly, in other important urban nodes of DMA, the terminal facilities would need to either drastically expand their existing facilities or go in for the development of bus terminals at Ghaziabad, Faridabad, Gurgaon and NOIDA and requiring interfacing with regional roads due to large intra-urban traffic in future.

D. INTEGRATION

At present, various transport /authorities /agencies are responsible for planning, development and managing transportation facilities and services. They operate independently of each other and this resulted in avoidable long journey time and more expenditure. The agencies charged with such responsibilities need to be strengthened and, a coordinating agency need to be constituted with representation of various transport authorities, which would coordinate and take an overall integrated view of the total transportation system.

TELECOMMUNICATIONS

5.9 For dispersal and development economic activities away from Delhi to out-lying areas and DMA towns to make them self contained units, providing them social security and making them as attractive as Delhi, augmentation of telecommunication facilities in these towns is the foremost necessity.

On the basis of moderate growth in these towns, the Department of Telecommunications envisaged a programme of augmenting these facilities by way of expansion and modernisation of the existing exchanges with automatic devices during 7th Plan. It included providing :

- i) The Telephone connections to all those registered upto 1987.
- ii) Connectivity to all DMA towns with Delhi through reliable cable and radio media, and
- iii) Telex connections on demand by 1990.

The expected targets for 7th Five Year Plan were fixed at clearing the waiting list of 1987.

Main objective of Department of Telecommunication with respect to DMA towns during 8th Five Year Plan is to provide telephone and telex connections on demand by 1995. (Refer Table)

Augmentation of telecom facilities on a faster rate in DMA towns consists of :

1. Extension of existing building or construction of new buildings to house sophisticated machinery for automatic exchanges.
2. Extension of new lines.
3. Import of sophisticated equipment.

Table 1

STATEMENT OF TELECOM FACILITIES IN DMA TOWNS DURING
7TH AND 8TH FIVE YEAR PLAN

Towns	Expected Demand by 1990 according to ERU (DOT)	Expected Capacity and type of Exch. by 1990	Expected Demand by 1995 according to ERU (DOT)	Expected Capacity in 1994	Expected Capacity in 1995
1	2	3	4	5	6
1. Faridabad	18604	12000(EL)	32588	30880	34543
2. Gurgaon	8509	6000(EL)	20583	18285	21818
3. Ghaziabad		6000(ICP) , 2000			
	13356	4000(Dig.RLU)			
		4000(E 10 B)			
Loni		200			
		14200	23519	22263	24930
4. NOIDA	9825	13000(EL)	17700	16695	18762
5. Bahadurgarh	879	2000(RLU)EL	1172	1173	1242

In view of achieving optimum utilisation of the line capacity in future the DOT (now the Telecom Commission) has decided to delink Ghaziabad-Faridabad and NOIDA tpwnships from MTNL. These towns would be linked with the telephone circles of their respective states and the STD facility would be extended to these towns with fixed pulse rates.

BACKGROUND

6.1 The newly defined D.M.A. has three segments, each under different administrative control and They are Union Territory of Delhi and parts of U.P. and Haryana State adjoining Delhi U.T. The towns falling in Haryana area of DMA are Faridabad, Gurgaon, Kundli and Bahadurgarh while in Uttar Pradesh they are NOIDA and Ghaziabad. Physical constraints, historical events and priorities have always shaped the growth of DMA towns. However, varying development trends, development constraints and development controls prevailing in U.P., Haryana and Delhi U.T. areas have led to unique pattern of land use distribution in each of this DMA towns. Initially, when these settlements were far away from each other, such diversity in land use patterns reflected their individual character as also encouraged of competition between various towns. However, with the unprecedented growth of Delhi and DMA towns in the past three decades, the entire area has become one urban agglomeration and, therefore, the need for an integrated landuse plan for entire DMA including Delhi has become imperative.

It is in this background, various aspects of land use planning are being discussed in this chapter.

Physical
Characteristics
of DMA

6.2 Delhi Metropolitan Area is spread over an area of nearly 3,222 sq. km including the area of Delhi Union Territory, which is roughly 1,485 sq. km. Therefore, excluding Delhi Union Territory, the area of DMA works out to nearly 1,737 sq. km. This area includes the controlled areas of Faridabad-Ballabhgarh Complex, Gurgaon, Kundli, Ghaziabad including Loni, NOIDA, urban area boundaries of Bahadurgarh, and the portion of Ridge falling outside the

controlled area limits of Gurgaon and Faridabad. Along the north south axis, the DMA stretches over 75 km and along east-west 70 km.

Two main rivers that pass through this area are the Yamuna and the Hindon. The Yamuna River almost bisects the entire DMA in roughly two equal parts along north-south axis. The Hindon River, which also flows along the north-south axis is located further east of the Yamuna, and bisects the industrial town of Ghaziabad.

But for the presence of the Ridge on the south-west of the Delhi Metropolitan Area and in some parts of north and central Delhi, the rest of the DMA is almost entirely a flat plain. There is gentle slope from north-west to south-west. The dominant contour is of 210 metres with north-west portion registering 220 metres above sea level. There is a drop of only 20 metres over 80 km distance from north-west to south-east.

The Ridge located in the south of the DMA is generally defined as "rocky outcrop of the Aravalis". This presents a weak undulating landscape. In fact, the Aravalis, a Central India range, tapers off to terminate in Delhi. Its northern spur approximately meets the Yamuna at the apex and the eastern spur stretches towards the river on the borders of Delhi and Haryana to the south. The triangular portion thus formed constitutes a natural protection barrier and accordingly the most important role of the ridge until recently has been historical. With growth in all directions outside the historic triangle, the emphasis has been on conservation of the ridge.

Since the substantial portion of the Ridge falls outside the limits of Delhi Union Territory, the first Master Plan for Delhi of 1962 gave

detailed directions for the preservation of this area. It has, by and large, retained its original character and is known as breathing lung of Delhi. However, in the context of Delhi Metropolitan Area, it assumes added importance because the major portion of the ridge is situated between Faridabad and Gurgaon towns of Haryana and is still generally uncontrolled by any regulations and therefore open to encroachments and mis-use. In fact, of late, there is a spurt in construction activity in the Ridge area.

As can be seen from the Plan, Ridge forms a number of low level hills, the highest point being at an elevation of 318 metre (MSL) i.e. about 100 metres higher than the surrounding flat plains. The unique location of small flat lands in between the hills has been able to trap rain waters in them and, therefore, a number of interesting natural lakes have developed here. These lakes are being very well utilised by Haryana to develop tourist resorts. Some good examples have been the Suraj Kund, the Badkhal Lake, the Damdama lake near Sohna etc. With the development of new transport links and other facilities, these tourist spots are now open to a wider cross-section of Delhi and Delhi Metropolitan Area residents and, for this reasons, they have also become more vulnerable to misuse. It is, therefore, of utmost importance that this area be conserved in its natural form maintained.

6.3 As mentioned earlier, the main physical barriers to the development of Delhi and Delhi Metropolitan Area are :

(a) Physical constraints like location of the Ridge.

(b) River Yamuna and the River Hindon and, low lying areas around them and;

DEVELOPMENT
CONSTRAINTS

(c) Limited availability of resources like ground water for drinking purpose.

Due to these constraints, the development of Delhi Urban Area was largely limited to the west of the Yamuna till 1971. A number of bridges were built across the Yamuna River thereafter and the area east of the Yamuna was rapidly urbanised. On the south, Delhi has been restrained due to the presence of the Ridge near Mehrauli. However, around 1982, when Asian Games were held in Delhi, a number of roads and flyovers were built in south Delhi and, the area was open to fast urbanisation. Even then south and central parts of Delhi even today are less urbanised than rest of Delhi primarily due to the presence of the Ridge. In Haryana part of the DMA, the Ridge is located between Faridabad and Gurgaon townships. Location of Agra Canal and the Yamuna on the east and the Ridge on the west are the primary reasons for Faridabad's development into a linear pattern along north-south axis.

The limited availability of ground water has not been able to make an impact on the physical growth of Delhi Union Territory primarily because water requirements for the entire Delhi are met either from the Yamuna river or outside sources. However, recently, the availability of water from outside sources has been under considerable constraints and, therefore, large section of developed colonies like Rohini and Basant Kunj townships in south west of Delhi are without adequate water and hence not fully urbanised. Shortage of water, however, has had considerable impact on the development of Bahadurgarh and Gurgaon towns in Haryana where good amount on potable drinking water is not available from local resources and, on account of this, physical development has not taken place in

these towns as well despite Government efforts.

Certain low lying areas near Yamuna River in Haryana (east of Agra Canal) and around Hindon River (Cis-Hindon area in Ghaziabad), Loni near Ghaziabad are prone to flooding and, therefore, not fit for urbanisation. However, pressures of urbanisation are such that even these areas are getting urbanised in an unauthorised manner.

DEVELOPMENT CONTROLS

6.4 The Development Controls exercised in the towns falling in the two States - Haryana and Uttar Pradesh vary from each other considerably and, those controls also reflect upon the type and extent of physical development taking place in these towns. While it might be desirable to have uniform development controls in the entire Delhi Metropolitan Area, but development controls are exercised through various Acts and Rules available in the two States. Some of these Acts relating to Urban Development are given below :

ACTS RELATING TO HARYANA

6.4.1 For the purposes of urban development in the Haryana portion of Delhi Metropolitan Area, following Acts and Rules framed thereunder are relevant :

(i) The Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act, 1963 and the Rules, 1965 framed thereunder.

(ii) The Haryana Development and Regulation of Urban Areas Act, 1975 and Rules 1976 framed thereunder.

(iii) The Haryana Urban Development Authority Act, 1977.

The main provisions of these Acts are as under :

(i) The Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act, 1963

stipulates as under :

(a) No construction can be carried out within 30 metres of a scheduled road and within 100 mts of a bypass. The Government is empowered to declare any road a Scheduled road. At present, all the National Highways passing through Haryana and important State Highways have been declared as Scheduled Roads. By definition, this restriction does not apply to that portion of the Scheduled Roads which is situated within the municipal limits.

(b) The State Government is empowered to declare an area upto 8 km from the boundary of a Municipal town to be controlled area. The Act also empowers the State Government to declare an area upto 2 km from the periphery of an ancient and historical monument, public institutions etc. to be controlled area. Upon such declaration, the Director, Town & Country Planning is required to prepare a Plan for the controlled area showing the restrictions on the land use and the conditions under which the prescribed land uses and the construction can be brought about. The Plans so prepared and approved by the Govt. are published in the Gazette for inviting objections and thereafter the plans are finalised and again published.

(ii) Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules Framed thereunder :

This Act has been enacted to control the activities of the private colonizers in the various towns or Haryana. The object of the enactment is two fold :

(a) To prevent exploitation or defrauding by bogus colonizers who often sell plots without even acquiring land.

(b) To ensure that in the private colonies, the colonizers do not

merely reap the benefit of unearned increase in urban land values and to get away without providing the basic amenities with which the local bodies are later burdened.

(iii) The Haryana Urban Development Authority Act, 1977.

This Act has been enacted to provide for the establishment of an Urban Development Authority for undertaking urban development in the State of Haryana and for matters ancillary thereto. Such an authority known as HUDA is already functioning in the State.

6.4.2 In Uttar Pradesh portion of Delhi Metropolitan Area, the towns of Ghaziabad-Loni and NOIDA constitute the major urban settlements. The developments in these towns are governed by the provisions of :

(i) U.P. Urban Planning and Development Act, 1973, for Ghaziabad Township and

(ii) U. P. Industrial Area Development Act, 1976, for NOIDA Township.

(iii) U.P. Regulation of Buildings Operation Act, 1958 for recently declared, regulated area.

The salient features of these Acts are as under :

(i) U.P. Urban Planning and Development Act, 1973:

(a) The Government is empowered to declare any area in the State as development area and to constitute for the purposes of this Act an authority to be called the Development Authority for any development area.

(b) After declaration of any area as a development area, no development of land shall be undertaken, or carried

ACTS RELATING TO UTTAR PRADESH

out or continued in that area by any person or body (including the Department of a Government) unless permission for such development has obtained in writing in accordance with the provision of the Act.

(c) After the coming into operation of any of the Plans in any development area, no development shall be undertaken or carried out or continued in that area unless such development is also in accordance with such Plans.

(ii) U.P. Industrial Area Development Act, 1976 :

This Act was enacted by U.P. Government in the year 1976 with the objective of development of certain areas in the State into industrial and urban townships and for matters connected therewith. Its salient features are :

(a) The State Government may, by notification, constitute for the purposes of this Act, an Authority to be called "(name of the area) Industrial Development Authority", for any industrial development area.

(b) The Authority shall have powers to acquire land in the industrial development area (through land acquisition Act, 1894), to prepare the Plan for this area, to provide infrastructure in this area as well as to dispose of this area by sale or lease or otherwise for industrial, commercial or residential purposes.

(iii) U.P. Regulation of Buildings Operation Act, 1958 :

Under this act, an area is declared 'regulated area' to prevent haphazard development. Certain area has been declared as 'regulated area' under the Act along NOIDA-Surajpur-Dadri Road recently. NOIDA Township in U.P. has been established under this Act.

6.4.3 (i) Both the States of Haryana and Uttar Pradesh do not have a comprehensive town planning legislations.

(ii) In both U.P. and Haryana, there are separate Acts for urban development and for municipal functions.

CONCLUSIONS

(iii) While in Haryana, there is only one Urban Development Authority for all the urban areas of the State, in U.P. there are separate Development Authorities for all major urban settlements.

(iv) Due to so many development authorities, development controls and other administrative set up in the towns of DMA, it is difficult to follow uniform pattern of urban development. There is thus a need for uniform development regulations in this area.

PROPOSED LAND USES

6.5 The Regional Plan for NCR has given detailed guidelines for the development of both DMA as well as NCR towns. As the perspective of the Regional Plan is the year 2001, the guidelines for the growth of DMA towns have also been given similarly for the year 2001. The guidelines include population assignments, participation ratios as well as proposed employment structure in various sectors for DMA towns. However, before the statutory Plan for the Region came into force, the Development Plans/Master Plans for individual DMA towns were already prepared and are in force today. Some of these Plans have a perspective in conformity with the Regional Plan for NCR - 2001 while in some cases like Bahadurgarh, Plans have been drawn up for the year 1991. Similarly, there is a variation in the population assignment made by NCR Plan vis-a-vis the local Master Plans as in case of Gurgaon. The proposed Development Plan for Kundli has not been finalised so far. The annexure

from series VI to X gives detail analyses of the development Plans of individual towns in force vis-a-vis the provisions of Regional Plan for NCR. Accordingly, these Plans need to be revised. Similarly, the Development Plans for Kundli need to be finalised at an early date and they should be in conformity with the provisions of the Regional Plan for NCR.

7.1 The participating States are in the process of preparing/revising the Master Plans for their respective DMA towns in accordance with the population assignments made in the Regional Plan - 2001 for NCR. Master Plans already stand approved in respect of some of the towns in accordance with the population assignment (Ghaziabad - Loni, Faridabad), Draft Master Plan exists in accordance with population assignment in the case of NOIDA, and Master Plans are under revision for 2001 population assignment in respect of Gurgaon, Bahadurgarh and Kundli. All the DMA towns have controlled area/regulated area/development area notified in the respective State Acts.

7.2 It has been observed that the following developments outside the boundaries of Delhi Metropolitan Area, which comprises the controlled areas of the DMA towns, are taking place in an unplanned manner :

Ghaziabad :

The following un-intended developments, in the area proposed to be kept as green/agricultural zone in the Plan for 2001, are taking place as shown in the enclosed sketch :

(1) Conversion of recreational area (3000 acres) into residential/institutional use.

(2) Expansion of industrial areas expanding out-wards on Meerut road and Bulandshahr road.

(3) Conversion of agricultural zone into industrial/residential use (1500 acres) on Delhi-Baghpat Road at Loni.

NOIDA :

There have been haphazard developments in the area between National Highway bypass and the NOIDA township and, this land is being proposed for institutional uses.

Faridabad-Ballabgarh :

The area closer to Delhi U.T. and area between Agra-Canal and the river Yamuna have been under haphazard development. There has been sub-division of land as well as constructions. A number of farm houses are coming up in the Ridge area.

Gurgaon :

Unplanned developments are taking place between railway line and controlled area boundaries in north west. Farm houses/farm lands are coming up in the Ridge area of Gurgaon.

Bahadurgarh :

The urban area of Bahadurgarh extends outward from the Delhi-Bahadurgarh boundary line. The area is under severe pressure and the plan for this zone needs to be prepared collaboratively.

Delhi UT :

In the context of developments taking place between Narela and Kundli and, Bahadurgarh and Delhi urban area, it is necessary to prepare plans for these units in a collaborating manner.

7.3 In addition, some of the unintended developments in the immediate vicinity of the DMA towns are as below :

In the same area, large number of residential developments advertised by developers for sale of the plots.

- 1) Large scale acquisition of land for industrial purpose by UPSIDC along NOIDA-Surajpur-Kasna Road. The proposal of UPSIDC is to develop about 10000 acres of land. In the same area, most of this land falls is area recently declared as

regulated area.

- 2) Sale of Farmhouses on the south west of Delhi by a large number of developers.
- 3) Residential plots emerging on Delhi-Baghpat Road within and outside the jurisdiction of the Ghaziabad Development Authority.
- 4) Industrial development along the National Highway No.-1 beyond Kundli.
- 5) Industrial developments along Ghaziabad - Meerut Road.
- 6) Industrial development on both sides along Ghaziabad-Hapur Road.
- 7) Proliferation of farm houses and sub-division of land in small parcels. (Below two acres) in areas just outside the controlled areas of Faridabad and Gurgaon.

These developments are taking place in areas either not covered under any regulation/control. It may be noted that such developments beyond the designated urbanisable areas would lead to extensive sprout of the DMA which is envisaged be controlled in the NCR Plan with a view to reducing pressure on to Delhi.

problems of transport and communications, basic services and environmental degradation.

8.2 The first master plan of Delhi, covering a 20 year's period between 1961 and 1981, was conceived in a regional context, with the city as the nucleus of a larger metropolitan region. The principles on which the plan was based were;

(1) Functional balance :

provision of residential and community facilities near employment centres.

(2) Decogestion of the Walled city :

(3) Preservation of Delhi's functional character as the national capital :

limited and selective industrialisation to support the city's existing role as a major centre of public employment and commerce.

(4) Development of ring towns:

development of six ring towns around urban Delhi to relieve the city of its pressure of immigrants. The urban limit permissible up to the year 1981 was to be contained by an inviolable green belt. To fulfil these objectives, it was recommended that the entire area of urbanisable land within the Union Territory be acquired for public control.

DELHI
METROPOLITAN
AREA
IN
RETROSPECT
AND
PROSPECT

8.3 Master Plan Perspective 2001

The objectives identified are :

(1) Provision of adequate infrastructure, housing and transport:

enlargement of urbanisable limits, and development of a mass rapid transit system.

ISSUES

8.1 The issues arising out of the discussion in this document comprise broadly the following :

1) In the absence of an integrated plan for balanced development of DMA including Delhi UT, un-coordinated development is taking place in various constituents of DMA and beyond. This is also affecting important aspects like transportation, infrastructure and environment.

2) The present tendency of DMA towns coalescing with Delhi or, with each other or, expanding outwards exhibiting a strong tendency to grow into a megalopolis would be detrimental to the Planning Concept of DMA.

3) The green buffers between the DMA towns and also around them including Delhi urban area are fast disappearing causing irretrievable damage to the ecosystem.

4) The rate of growth of population has far out-stripped the rate of development leaving increasingly widening gaps between the level in the supply of facilities and amenities, and the demand for the same particularly in the DMA towns. Further development in DMA would only worsen the situation in addition to exerting more severe pressure on the urban services of Delhi. Nevertheless, no conscious and concerted effort is visible to contain the growth of Delhi or to bridge the gap in services in the DMA towns.

5) The DMA boundaries as defined by the Sub-group on DMA in 1983 would no longer seem valid in the context of the present growth and developments taking place within DMA and beyond.

6) A coordinated effort is lacking all through among the constituents in planning and implementing an integrated development plan for DMA including Delhi resulting in conflicting landuses,

(2) Strengthening the spatial aspects of the economy:

provision for the informal sector, dispersal of economic activities at city and regional levels.

(3) Projection of the image of the city as the national capital:

provision of a satisfying environment, improvement of the visual impact of the city

Evaluation of the Plans

8.4 The emphasis of the Plan was on public action through (1) measures to decongest urban growth, (2) measures to equalise civic services within the various parts of the Territory, and, (3) measures on urban land policy. An examination of the first and second plan for Delhi would show that the Plan objectives hang somewhat loosely without being related to any one overriding goal. The objectives of the first Plan have some homogeneity, which seems to be lacking in the second Plan; this may be to a large extent, due to the fact that many of second Plan's proposals are correctives or additions to the first Plan. However, the overriding goal in both the plans seems to be protection of the character of Delhi as a national capital; this is at the root of the plan proposals for urban decongestion and public control of urbanisable land in Delhi.

EVALUATION
OF
THE
PLANS

Delhi's Plan was conceived in its regional context; although it did not contain detailed proposals for regional development as a means of deflecting the Territory's population to the larger region, the ring towns conceived in the master plan formed part of the delineated Delhi Metropolitan Area. Later, as a result of a review of the first master plan, and preparation of a statutory Regional Plan for NCR, a three-tier structure of Delhi's spatial planning was recognized: the mother city, the metropolitan area and the rest of the

national capital region.

8.5 Within Delhi itself, contrary to the expectations of decentralisation, the decade 1971-81 saw the largest proliferation of not only new central government offices and institutions but also the headquarters of all the major public sector undertakings and liaison offices of various state governments. Delhi Administration has been keen in developing small scale industries within its area so much so that during 1971-88, industrial employment in Delhi increased by more than 130 percent; the highest rate amongst all the metropolitan cities in India. The trends lead us to believe that the policies enunciated in the Plan and the actions pursued subsequently were not compatible with each other but rather the ultimate effect was in the opposite direction. The forces unleashed by dynamically growing metropolis appear to be of a gigantic nature forcing the growth of metropolis in all directions leading for a megalopolis.

The ring towns now known as DMA towns in the National Capital Region that have actually prospered are those that are located close to Delhi. Ironically, instead of helping, they have increased the strain on infrastructure and services in Delhi.

Issue for the future :

8.6 On the basis of current population estimates for 2001, Delhi would have a total population of 132 lakhs by the turn of the century. In view of the constraints on land, water, power, transportation, and environment in the NCR, it is estimated that the holding capacity of the Union Territory, would be 112 lakhs population. The need to preserve the image of the city as national capital would require strategies which tend to restrict Delhi's urban growth to the limits of its holding capacity of 112 lakhs by 2001. The strategy for the NCR has been viewed in this context. As noted already, the available instruments for controlling the

city size had proved to be totally inadequate in the past and, are likely to be so in the foreseeable future in view of the stronger pull for employment and income opportunities in Delhi. Given this fact, it would be more realistic to recognise the consequences of the inevitable disequilibrium among the three vital elements of an urban system viz. population, space and activities. When population size of a city is larger than the available space can suitably provide for, the problems of housing shortages and slums only would aggravate. As the expansion in activities can never cope with the phenomenal increase in population, unemployment and poverty would inevitably result. Similarly, when activities tend to grow faster than the available space could accommodate, social costs and environmental deterioration are bound to take place.

It may be argued that the problem of space can be solved by extending the urbanisable area. However, the area under Delhi UT being limited, a balance between ultimate urbanisable area to the total UT area must be ensured. Keeping the pressure urbanisation would exert on the rural area both within Delhi UT and beyond, it is imperative to maintain a balance in space in terms of level and extent of urbanisation and development for easy mobility of goods and services within the city and from one city to another vis-a-vis the other uses.

8.7 The Master Plan for Delhi-Perspective 2001 AD recognises that planning of the National Capital has to be an integral part of the Region. However, the plan proposals are confined only to the boundaries of Delhi UT. The existence of peripheral development, in DMA towns falling in the adjoining States of Uttar Pradesh and Haryana, has not been taken into consideration. With this limited perspective, it may not be possible to achieve the decelerated growth of the National Capital as one of the core objectives of the Regional Plan 2001 AD. Therefore, a set of strategies aiming at achieving a manageable Delhi by

containing its growth to a size of 112 lakhs need to be evolved for effectuation during the remaining Plan period upto 2001 AD. This functional plan spells out the issues, strategies and action plan for implementation by Delhi and the States of Uttar Pradesh and Haryana.

1) Master Plan for Delhi Urban:

The necessity of drawing up a composite land use plan for Delhi urban and DMA for a population of 112 lakhs for Delhi and 38 lakhs for other DMA.

The land use plan for Delhi UT should reflect in clear terms the functions of the National Capital as to comprising the political, administrative, cultural and support functions.

In addition, those economic activities which have developed over time to support the existing and future population would also need to be incorporated in the plan. However while the plan would define the nature of environmental quality for the National Capital, the plan would also identify seeking alternative locations outside Delhi UT for the following :

- i) Non-conforming industries in Delhi,
- ii) Such whole-sale distributive trades which are regional in character and are otherwise space extensive on the basis of a recent study conducted by ORG for the NCR Planning Board.
- iii) Government, Semi Government and Public Sector Offices not performing the ministerial, liaison and protocol functions.

2) Master Plan for DMA Towns:

The Physical Plan should incorporate proposals for location of those activities as identified in Delhi Plan to be located in DMA towns such as distributive trades of regional nature

(as identified in ORG study) Central Government and public sector offices, super markets, national level institutions, seeking large space and recreational areas.

8.8 The strategies required to achieve the objectives of containing the Delhi's growth, and a balanced development of the entire Delhi Metropolitan Area in consonance with NCR Plan policies would be broadly as follows:

1) to mitigate the pressure on the growth of the Metropolis;

2) to increase and maintain the environmental quality of DMA as far as possible. The first task would, therefore, be to prepare 'Structure Plan' for the Delhi Metropolitan Area. This Plan should identify :

- (i) Development Control Zone
- (ii) Re-location promoting zone
- (iii) Resource Preservation Zone
- (iv) Development Reserved Zone

The functions of the Zones would be as under:

(i) The Development Control Zone would cover the entire Delhi Union Territory aiming at expansion of the new development as per the assigned population both for the urban and rural areas, improvement of existing built-up area, and simultaneous control on the proliferation of industries and other economic activities.

(ii) Re-location Promotion Zone would provide for promoting re-location of economic activities which need to be located outside Delhi Union Territory, improving living environment, provision of institutional uses and improving the basic facilities.

(iii) Resource Preservation Zone would promote preservation of natural resources, promotion of agricultural farming, social forestry and related uses.

(iv) Development Reserved Zone would take care of the natural landscape, recreational areas, resorts and areas of scenic beauty, historical importance and environmentally sensitive places.

The areal delineation and development strategy of these functional zones would be :

Operational Area	Functional Zones	Development Strategy
Delhi UT	Development Control Zone	Containment and Mitigation strategy . .
DMA Towns	Relocation Promoting Zone	Balancing Strategy
Agricultural Zone around DMA towns	Resource Preservation Zone	Green Belt Strategy
Ridge Areas of scenic beauty and resort.	Development Reserved Zone	Environmental Strategy.

8.9 The Functional Plan for DMA would have to address basically the following 4 major development elements :

- 1) Landuse
- 2) Infrastructure
- 3) Traffic and Transportation
- 4) Environment

The planning for Delhi Urban Area is intrinsically linked with the planning of DMA towns. NCR Planning Board, being the only co-ordinating agency for planning NCR, it should oversee and co-ordinate the planning exercises for all towns of DMA including Delhi UT.

While the detailed landuse plan would be prepared by the respective participating States and the Delhi UT in respect of their areas in consultation and coordination among themselves and the NCRPB, studies on integrated traffic and transportation plan, infrastructure services and environment would need to be carried out under the aegis of the NCR

Planning Board. It is suggested that these aspects on infrastructure, traffic and transportation and environment be studied at depth by professional Consultants with major terms of reference being integration of these aspects in the context of the NCR Plan strategy.

The task of preparing the landuse plan would be in accordance with the Functional Zones as proposed in para 8.7. The NCR Planning Board Secretariat should prepare a Structure Plan spelling out the actions and guidelines for different zones for the preparation of the detailed landuse plan for the respective areas.

ACTION PLAN

8.10 The following indicates the Action Plan :

1. Delineation of the revised D M A boundaries beyond the boundaries of the Delhi U.T. and controlled areas of DMA towns.
2. Completion of the Sub-Regional Plans for constituent Sub-Region.
3. Preparation of a Structure Plan for DMA demarcating the Functional Zones for implementation of the respective development strategies through the Landuse Plan of the respective towns.
4. Finalisation of the Landuse Plans of Delhi and DMA towns in the context of the policies, strategies, population and functional assignments.
5. Studies on the following aspects to be undertaken :
 - (a) Urban Infrastructure including services.
 - (b) Traffic and Transportation and
 - (c) Environment.
6. Corporate Plans by respective authorities for Delhi and DMA towns.

STUDY ON INVESTMENT PLAN AND RESOURCE
MOBILIZATION FOR NCR PLAN IMPLEMENTATION

CENTRE FOR POLICY RESEARCH
DHARMA MARG, CHANAKYAPURI
NEW DELHI - 110 021

December, 1989

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769/CRP/87
18-12-89

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CONTENTS

	<u>PAGES</u>
Foreword	i
Summary of Conclusions and Recommendations	ii-xiv
I. Introduction	1 - 15
II. The Regional Plan 2001, National Capital Region	16-27
III. Development Surveys of the Priority Towns	28-39
IV. The Investment Plan	40-68
V. Resource Mobilisation for Plan Implementation	69-83
VI. Reforms in Fiscal and Investment Policies	86-93
VII. Construction and Maintenance of Projects	94-96
VIII. Needs for Further Work	97-102
IX. Monitoring of Plan Implementation	103-104
Appendix I - Basic Data on the Priority Towns collected through the Developmental Surveys - Tables and Explanatory Notes.	105 onwards

Summary of Conclusions and Recommendations

1. The study was undertaken to formulate the Investment Plan as a counterpart of the Regional Plan 2001 and to indicate the financial resources for the implementation of the Investment Plan. Its scope has been extended, however, to include recommendations on reforms in fiscal and investment policies aimed at achieving the objectives of the Regional Plan, establishing a system of monitoring and evaluation of plan implementation and needs for further work including preparation of a plan for the Delhi Metropolitan Area.

2. Inputs into the study include:

i) Development surveys in the 11 towns called 'priority towns' in the Regional Plan 2001, which have been identified as regional growth centres to reduce the pressure of growth on Delhi. Accelerated growth in these towns will be achieved primarily through encouraging dispersal from Delhi and the Delhi Metropolitan Area of manufacturing industries and other non-agricultural economic activities. The surveys were aimed at obtaining data on the economic, administrative and social structures of the towns; their growth experience during the past nearly three decades, and prospects of growth to the year 2001, and the principal deficiencies in infrastructures and other constraints, which would impede their

development as regional growth centres. The estimates of public investment for land development, housing and expansion/improvement of physical and social infrastructures in these towns are based primarily on the results of these surveys.

ii) Studies of experience with metropolitan planning and development in the other giant cities of India - Bombay, Calcutta and Bangalore, and some metropolitan cities of South and South-East Asia.

3. The development surveys have revealed wide variation among the priority towns in economic and social structure, trends in growth of economic activities and of population, during 1961-81 and outlook for growth to 2001. However, large areas of the economies of all of them are firmly rooted in the micro-regional economies.

4. Among the priority needs for public investment in the 11 priority towns and the 5 DMA towns, the most important are for programmes of land development and housing, and expansion/improvement of physical and social infrastructures. The specific needs in the latter are for expansion of water supplies, improvement of sewerage and drainage, increase in power supply and expansion facilities for telecommunications, education

and medical care. The investments are needed to overcome present serious shortages and the needs for growth to 2001. Investment in land acquisition and development programmes will contribute to growth of well-planned residential colonies near the old towns.

5. Facilities for technical and professional training need to be expanded and improved, in order to increase supplies of skilled workers and trained professionals. Engineering Colleges should be opened in the two University towns - Meerut and Rohtak. The latter will also make the towns more attractive for living of professionals.

6. Since the surveys have proved extremely useful for estimating public investment and other needs in these priority towns, it is recommended that they should be conducted also in : (a) all the DMA towns, (b) Karnal (Haryana) and Aligarh (U.P.), two towns which are located on the periphery of the NCR, and are greatly affected by developments within it and could serve as counter-magnets, and (c) industrial and residential developments along the principal highways radiating from the DMA towns.

7 The Investment Plan outlined in Chapter IV provides for total public investment of Rs. 7815 crores during the 11-year period, 1990-2001. The distribution of the investment by central, state and local sectors:

by sub-regions of the NCR; by individual 'priority' and DMA towns, and by two sub-periods, 1970-75 and 1953-2001, which correspond roughly to the periods of the Eighth and the Ninth Five Year Plans, is indicated. While the bulk of the investment will be in the 11 priority and 3 DMA towns, lumpsum provisions have been made also for rural development, improvement of management and intra-town development projects.

8 For estimation of the cost of physical inputs, standard rates were determined which in case of water-supply, sanitation, drainage and disposal of solid wastes, were 'per person', for land acquisition and land development 'per hectare' and for housing 'per dwelling unit'. Inter-town differences in prices of land and other costs have been taken into account in arriving at standard rates for the different towns.

9 Most of the estimates were first worked out for the terminal year 2001 based on the 'assigned' population and physical targets of the Regional Plan 2001. They were then divided between the two time periods, mentioned above. While for most of the items the division is in the ratio of 35:65, for some such as land development and rural development, the ratio is 30:70 and for management development it is 60:40. The reasons for adopting the different ratios are explained in Chapter IV.

10 The total investment envisaged for 1990-2001 is Rs. 7815 crores, of which 62.4% falls in central sectors and 37.6% in the local/state sectors. Itemwise distribution is as under:

<u>Sector/Item</u>	<u>Investment 1990-2001</u> (Rs crores)
<u>Central</u>	
National Highways	319.00
Expressways	225.00
Railways	807.00
Telecommunications	885.00
Power	2637.00
Sub-total	4873.00
<u>State/Local</u>	
Land acquisition and development	841.00
Water Supply	355.62
Sanitation	349.77
Drainage	344.00
Solid Waste	51.60
Shelter (EWS)/(LIG)	480.32
Rural Development	250.00
Management Development	50.00
Intra-town Development	150.00
Environment Control	70.00
Sub-total	2942.31
Total	7815.31

11 Rural development is an important objective of the Regional Plan 2001. Additional funds over and above normal plan funds are essential for the achievement of Regional Plan objectives. Management development is suggested for improving urban administration by introducing simultaneously efficient operation and maintenance of various civic facilities. Intra-town development is suggested to eliminate the existing bottlenecks in economic growth and spatial development. Environmental control programmes are essential to reduce pollution of water and air, and depletion of natural resources.

12 The total investment requirements for land acquisition and development has been estimated at Rs. 4594 crores. In the Investment Plan however only a provision of Rs. 841 crores has been included. This amount is intended to serve as seed money and establishing a revolving fund with the NCRPB. The loans should be given from it by the NCRPB to the development authorities for land acquisition and development. The remaining amounts should be raised from institutions like HUDCO and surpluses generated by the development authorities themselves through registration and sale of developed lands.

13 Resource mobilization for the suggested Investment Plan has been examined in respect of different agencies viz. local level (municipal bodies and development

authorities), state and central governments, financial institutions (domestic and foreign) and the private sector.

14 In the municipal bodies of the priority towns, current revenues fall short of current expenditure and the shortfalls are met by grants or loans from the state governments. Furthermore, the bodies lack the financial resources and managerial capacities for undertaking development projects, or even efficient operation and maintenance of the facilities created by the projects.

15 Municipal bodies should increase their revenues by raising or revision of rates for property tax and other taxes, revision of user charges and creation of economic assets. Rates of property tax should be raised to reflect current market prices of land and construction costs. User chargers should be increased progressively to cover the cost of operation of the services provided, and to cover also depreciation and interest on the infrastructure facilities. Augmentation of municipal resources should be encouraged by the states governments by instituting a scheme of matching grants for the local development works undertaken by the municipal bodies.

16 Development authorities have great scope for making profits from disposal of developed lands; they should be able to generate substantial resources for contributing to expansion/improvement of physical and

social infrastructures. In Haryana, where the development authority is a state level body, it should be ensured that the surpluses generated in the NCR towns are plugged back in them or other NCR towns.

17 Central and state governments will continue to be the main source of finance. However, among the competing demands on their resources, high priority needs to be given to economic and social bottlenecks in the NCR. It will be appropriate that a new plan head NCRP is created in central and State Plans.

18 Urban development programmes/projects are recommended for inclusion in the state plans as in the case of rural development. This is in consonance with the similar recommendations made by the National Commission on Urbanisation, and is aimed at providing assured funding for the projects/programmes.

19 The financial institutions, domestic and foreign will continue to be the principal agencies for financing large investment projects. In order to attract financing by them, it is essential that adequate capability is built up for project formulation and implementation. Bankable projects, to be financed by the institutions, should be prepared well ahead of implementation dates in order to assure timely appraisal, approval and implementation. To take care

of the special needs of NCR and time bound programme of work, financial institutions may combine and set up a National Capital Region Finance Corporation.

20 The NCRPB should develop a cadre of technical officers with expertise and experience of preparing development project in the sectors covered in the Investment Plan (and listed in Table 4.2). The officers should be regularly deputed to render technical expertise to the state and local development authorities in preparing such projects.

21 The private sector - household, business and industrial, cooperative and others - can make an important contribution for meeting the total investment needs of the Investment Plan. Significant private sector contributions will reduce the needs for public investment and assist in implementation of the Investment Plan. Private sector investment can be increased by timely complementary public sector investments and by adding to the fiscal incentives already available to private investors.

22 Public sector agencies should concentrate on investment in land acquisition and development with the bulk of the complementary investment in housing coming from the private sector. Public investment in housing should be confined to meeting the shelter needs of vulnerable groups such as, the economically weaker

sectors (EWS), and low income groups (LIG). The investment should, moreover, be in low cost housing of the site-and-service or core housing type.

23 Investment by households and cooperative societies will be principally in land development and housing. Business and industry should be encouraged, through appropriate fiscal incentives, if necessary, to meet the housing needs of a substantial proportion of their workers. Large enterprises should also be encouraged to assist management development in smaller enterprises to increase their efficiency and profits, and upgradation of skills among their workers.

24 To the extent that the private sector is allowed to take up or participate in joint projects, in sectors such as, power generation and distribution, water supply and transport whose outputs can be sold, the demands on public investment would be reduced.

25. Private charitable institutions have been doing commendable work in creating and managing social infrastructure facilities. There is need to encourage and increase their participation in this area. Local communities should be encouraged to assist in effective operation and maintenance of physical and social infrastructures in their areas.

26 Level and scale of needed investment and finding

the required financial resources will not be enough unless appropriate policy changes are also effected to form an integrated mix of investment and policy reforms to achieve the NCR plan objectives. The mix of investment and policies current in Delhi and the neighbouring DMA towns needs to be delineated to get the appropriate directions for the growth and development of NCR outside DMA.

27 Differential sales tax in the constituent states of the NCR is an anomaly in the present NCR scene and it is essential that the rates are made uniform; rather such rates are increased in Delhi to serve as disincentive for further increases in economic activities there.

28 The role of the central government in initiating policy reforms and programmes is crucial in persuading the states to fall in line and provide assistance to them if any policy changes result in reduction in their revenue from the existing levies.

29 A note of caution is, however, stressed that reforms are essentially slow to be effected. What is required is to keep on persisting with them and create the right climate.

30 NCRPB has a pivotal role in the NCR Plan implementation. Since planning is a continuous process, formulation and approval of Regional Plan 2001

is not the end of the exercise. Considerable further work is required to formulate, within the overall framework of the Regional Plan 2001, (a) sub-regional plans; (b) sectoral development programmes; (c) an integrated plan for the DMA, (d) development plans for the individual DMA and priority towns, and (e) a development programme for the rural areas of the NCR. All these plans and programmes must in turn, be divided by the periods of the Eighth, Ninth and subsequent five years plans, so that they can be integrated five year plans of the central and state governments.

30 Evaluation and monitoring is an integral part of the planning process. Enough experience and expertise is already available in this respect. NCRPB must ensure that monitoring and evaluation at different levels becomes an integral part of planning and implementation exercise. Appropriate follow-up action should also be ensured.

31 Keeping in view the overall objectives of the Regional Plan 2001 and experience gathered in this study, it is suggested that following four studies are undertaken which will help in plan formulation and implementation. These are:

1. Urban-rural relationship in one DMA and 2 priority towns (one each in U.P. and Haryana).
2. Potential and constraints on industrial growth in DMA and priority towns.

3. Development of Shiwadi as an industrial centre.
4. Location and growth of a new residential colony in a DMA or priority town.

These are in addition to other studies suggested in para 6.

MINUTES OF THE 18TH MEETING OF THE PLANNING COMMITTEE
HELD AT 11.00 A.M. ON DECEMBER 29, 1989 IN THE OFFICE
OF THE NATIONAL CAPITAL REGION PLANNING BOARD,
NEW DELHI.

The list of participants is annexed.

AGENDA ITEM NO.1 : CONFIRMATION OF THE MINUTES OF THE LAST
MEETING HELD ON AUGUST 1989.

The minutes were confirmed.

AGENDA ITEM NO.2 : REVIEW OF THE DECISIONS TAKEN IN THE
LAST MEETING AND ACTIONS THEREON.

i) Member Secretary informed the Committee that at the instance of the Ministry of Environment, the Tata Energy Research Institute has undertaken a study on 'assessment of the environmental impact of development' in NCR and the Board would be associated with the study. He also mentioned that discussions have taken place with NIDC in drawing up terms of reference for the proposed study on industrial potential of the entire Region.

ii) Shri B.D. Gulati informed the Committee that Haryana would be submitting the Planning and Financing Proposals (PFP) in respect of schemes for financing by HUDCO. Shri Viswanathan, Executive Director, HUDCO informed the Committee that the empowered Committee has decided that cities having population size less than 10 lakhs would be assisted in non-remunerative schemes at an interest rate of 11.5% whereas for remunerative schemes at a rate of 15%. He also mentioned that in the first stage HUDCO is looking for only the PFP for the consideration of the Technical Committee and, after its approval the second stage of detailed planning of the projects would have to be undertaken. All the projects within NCR need to be forwarded through NCRPB. He also said that HUDCO would be able to assist the implementing agencies in the preparation of PFP through its Regional Offices located at Lucknow, Chandigarh and Jaipur, and informed that in the last quarter of this year, HUDCO had a target of sanctioning Rs.100 crores out of the total of Rs. 262 crores allocated in the current financial year.

Member Secretary observed that inspite of repeated reminders, preparation of PFPs for the infrastructure projects suggested earlier by the States do not seem to have received due attention by the implementing agencies and, the projects might thus suffer financing by HUDCO within this year. He suggested that for quickening the process, a separate meeting could be arranged in the second or third week of January 1990 with HUDCO to consider the PFPs and also suggested that this could take place at the level of Secretaries of States. He also

suggested that in the preparation of PFPs, assistance of the panel of experts of HUDCO could be availed. He referred to the existing Uttar Pradesh Municipal Act and said that the Act did not permit the local authorities to obtain resources from any source other than the State. Member Secretary informed that such problems to be being sorted out by the participating States.

iii) Member Secretary informed the Committee that the Law Ministry, had reaffirmed their earlier view that there was no need to invite public objections/suggestions on the Sub-regional Plans.

iv.a) Shri B.D. Gulati, Chief Co-ordinator Planner, NCR, Haryana stated that the Delhi Development Authority (DDA) Plan preparation for Narela was still in the formative stage, whereas Haryana had already initiated preparation of a Plan for Kundli. Member Secretary, said that the proposed development of fruit and vegetable market by APMC should be appropriately incorporated in the Kundli Plan at this stage itself.

iv.b) Shri Gulati stated that the draft Master Plan for Rohtak was ready and had been approved by a State Level Committee and, it was being finally published.

iv.c) It was informed that the draft Landuse Plan for Bhiwadi-Dharuhera Complex would be ready in 10 days time and could be discussed in the third week of January in the office of the NCR Planning Board.

iv.d) Information on the stage of preparation of Master Plan for Hapur and Bulandshahr-Khurja Complex would be sought from the Chief Town & Country Planner, Uttar Pradesh.

v.) Shri Bhasin, Special Secretary, Delhi Administration stated that a Committee had been constituted to look into the recommendations of the Study on Distributive Trades in NCR undertaken by ORG on behalf of the NCR Planning Board. This Committee was likely to meet shortly, he added. Member Secretary requested Shri Bhasin to convey the Planning Committee's concern for the urgent need of completing the Sub-regional Plan for Delhi to Delhi Administration.

vi.) It was felt that officials in the Office of the Board should be trained on monitoring of landuse to pursue the changes through remote sensing data with the help of Defence Terrain Research Laboratory (DTRL), on a continuing basis.

AGENDA ITEM NO.3 : FUNCTIONAL PLAN FOR DELHI METROPOLITAN AREA.

A presentation of the Draft Functional Plan on the Delhi Metropolitan Area was made in the meeting. The following suggestions were made on the draft plan :

Shri D.S. Meshram, felt that the Functional Plan for DMA, when seen in the context of 1962 Plan and also Perspective Development Plan (PDP)-2001 of Delhi might have to clearly include an unified approach for planning and development of Delhi and Delhi Metropolitan Area. He said that he would be sending detailed comments on the Draft shortly.

Shri J.C. Gambhir, Commissioner (Planning), DDA said that the emerging trends of spatial expansion as mentioned in Chapter VII were indeed alarming and he felt that the strategies for the development of DMA, as a whole, would have to be worked out in much more detail. Agreeing with the concept of preparing a Structure Plan by NCR Planning Board clearly providing policy statements regarding employment, transportation, infrastructure and landuses, he felt that this need to be worked out urgently. He agreed that the Structure Plan would be a policy document with spatial guidelines. However, he was of the view that the Functional Plan should be conceived in a series of policy documents as spelt out in the present draft and the role of NCR Planning Board in achieving a unified approach for the planning of entire DMA would thus become much more critical in this regard. He agreed that there was a need for undertaking in-depth studies in areas of transportation, environment and infrastructure. He also felt that since there was need within the DMA for free movement of people and goods, the strategy of development should be accordingly worked out within the framework of the Structure Plan. Shri K.K. Bhasin agreed with these views.

Shri B.D. Gulati, said that according to him the exercise appeared to be academic. He felt that the functional plan need not attempt preparing a detailed landuse plan for DMA and also there was no need to re-define the boundaries for the DMA as it would not serve any purpose. As regards issues in the document, they appear to be well brought out and the Board need to resolve them. In his view the plan should really discuss and suggest solutions to various problems.

Shri H.K. Sharma, Senior Planner, Town and Country Planning Department, U.P. said that the additional functions for the DMA towns, as suggested in the draft document, together with creation of employment opportunities with a view to deflecting population from Delhi should be the cornerstone for the development of the DMA towns.

Shri S.Kumar, Director (MTP), Railway Board said for financing of railway projects during the 8th Plan, funds could not be provided for in the Railway Plan. The Board should, therefore, look into the possibility of its financing from other sources including its own.

Shri V.k. Sibal,, Director (T&D), Department of Power, Ministry of Energy said that he would send the comments on the document after studying the same.

Shri R.K. Gupta, Deputy General Manager (Telecom Planning) DOT said that he would come back on the telecommunications sector later.

Shri K.C. Saxena, Senior Planner, NCR Planning Cell, Uttar Pradesh Sub-region emphasised the need for effective enforcement of the proposals of the NCR Plan.

Shri G.R. Viswanathan, said that the document should also discuss the institutional arrangements for implementation of the Plan and, if necessary, a study could be conducted on this aspect.

Summarising the discussions, Member Secretary referred to the definition of the Functional Plan as provided in the NCR Planning Board act, 1985 and said that the preparation of Functional Plan was indeed a statutory exercise and would be applicable to all the constituents. This exercise is meant to solve the problem of conflicting landuses, uncoordinated development and would suggest development in a positive manner, at the same time making provisions for preventive measures of curbing the growth where such unplanned growth would not be in conformity with the plan. He stated that the document identified clearly three studies, indepth studies need be undertaken in aspects of urban infrastructure, traffic and transportation and environment. The draft Functional Plan has suggested preparation of a Structural Plan which the Board would prepare but in this context, the revision of the boundaries for DMA was equally relevant for the preparation of a structural plan. Since this meeting could not be attended by the Secretaries, Housing and Urban Development, Department, and Chief Town Planner, Town & Country Planning Department, Uttar Pradesh, Member Secretary said that we could discuss this matter in the next meeting of the Planning Committee.

AGENDA ITEM NO. 4 : FORMULATION OF SUB-REGIONAL PLANS.

Member Secretary, reiterating the decision of completing the Sub-regional Plans by March 1990, requested the State Chief Town Planners to report the stage of the preparation Sub-regional Plans.

Shri C.S. Mehta stated that it would be possible to adhere to the stipulated date if the Planning Cell became operational with full strength. The representatives, of Haryana and Uttar Pradesh also endorsed the views of Chief Town Planner, Rajasthan. Regarding Delhi, Shri Gambhir said that pending creation of a Cell in DDA by Delhi Administration, he would initiate action for formulation of Sub-regional Plan for Delhi UT.

Member Secretary felt that this was an important item in the Annual Action Plan for 1989-90 and, we would be required to report the progress to the NCR Planning Board likely to meet shortly. This item should be reconsidered in the next meeting of

the Planning Committee when the Secretaries to the State Governments would be able to participate.

AGENDA ITEM NO. 5 : NCR PLANNING CELLS - PRESENT STATUS AND PROPOSALS.

Member Secretary recalled that the Board had suggested that for better co-ordination and interaction, the Headquarters of the Planning Cells needed to be located in the respective Sub-regions.

He further informed that in order to provide equipment for efficient functioning of the Planning Cells, the ET & T, a Public Sector Corporation had been contacted for supplying of a personal computer with printer to each of the Planning Cells. He requested the State Governments to decide and inform the Board, where such equipment should be installed as frequent shifting might not be advisable.

Representative from Uttar Pradesh said that the equipment would be installed at Meerut where the Planning Cell had already started functioning. In case of Haryana it was informed that for the time being it should be installed at Chandigarh and later at Gurgaon, and in the case of Rajasthan first at Jaipur and later at Alwar. In case of Delhi UT, it would be placed in DDA.

AGENDA ITEM NO. 6 : FORMULATION OF DEVELOPMENT PROPOSALS FOR THE 8TH PLAN - CONSIDERATION OF THE STUDY ON INVESTMENT PLAN AND RESOURCE MOBILISATION FOR NCR PLAN IMPLEMENTATION BY CENTRE FOR POLICY RESEARCH.

The summary of the recommendations of the Study on the Investment Plan and Resource Mobilisation for NCR Plan implementation was considered by the Committee. The Committee was of the view that it was a useful work which contained the developmental surveys of the Priority Towns, guidelines for detailed investment Plan to be prepared by the respective States, for the respective Sub-regions and, dealt with the reforms on fiscal and investment policies that would be required for resource mobilisation. The Committee was appreciative of the enormous amount of the data pertaining to the Priority and DMA Towns made available in the report. The final copy of the study was made available to the respective participating States for the Planning Cells for their work.

AGENDA ITEM NO. 7 : RECOMMENDATIONS OF THE WORKING GROUP ON
DESIRED LEVEL OF SERVICES IN DMA AND PRIORITY
TOWNS IN THE CONTEXT OF LOCAL BODIES
RESOURCE CAPABILITY.

Member Secretary informed the members that a meeting of the Working Group on desired level of services in DMA and Priority Towns in the context of local bodies resource capability was held on December 22, 1989 and a copy of the report of the Working Group was circulated in the meeting. Member Secretary requested the members to have a discussion with the concerned departments at State level and have their comments sent to the Board at an early date.

The meeting ended with vote of thanks to the Chair.

No. K-14011/72/89-NCRPB
National Capital Region Planning Board
7th Floor, 'B' Wing, Janpath Bhawan.

New Delhi, the 10th January, 1990.

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

ANNEXURE

List of Members present :

1. Shri K.K.Bhatnagar,
Member Secretary,
NCR Planning Board. In Chair
2. Shri V.K.Sibal,
Director,
Department of Power,
Government of India.
3. Shri R.K.Gupta,
Dy. General Manager (Telecom Planning)
representing Dy. Director General,
Department of Telecommunications
Government of India.
4. Shri R.K.Singh,
Director, Town & Country Planning,
Government of Haryana, Chandigarh.
5. Shri D.S.Meshram,
Chief Planner,
Town & Country Planning Organisation,
Government of India.
New Delhi.
6. Shri C.S.Mehta,
Chief Town Planner, Rajasthan,
Jaipur.
7. Shri H.K.Sharma,
Senior Planner,
representing Chief Town and Country Planner,
Town & Country Planning Dept. (UP),
Lucknow.
8. Shri J.C.Ghambir,
Commissioner (Planning)
Delhi Development Authority.
representing VC, DDA.
9. Shri G.R.Vishwanathan,
Executive Director
representing CMD,
HUDCO, New Delhi.
10. Shri K.K.Bhasin,
Special Secretary (L&B),
representing Secretary (L&B),
Delhi Administration.

11. Shri S. Kumar, Director MTP), Railway Board, Min. of Railways, New Delhi.
12. Shri Arjan Dev,
Under Secretary, representing
Ministry of Urban Development,
Government of India.
- 13 Shri B.N. Singh,
Chief Regional Planner,
NCR Planning Board.

Other participants

Delhi Administration/DDA

1. Ms Rashmi Krishnan,
Under Secretary (L&B),
Delhi Administration.
2. Shri. Prakash Narain
Joint Director (PPW),
Delhi Development Authority.

Haryana :

3. Shri B.D.Gulati,
Chief Co-ordinator Planner,
Haryana, Chandigarh.

Rajasthan :

4. Shri Lalit Mehra,
Director NCR & Secretary
U.I.T., Alwar.

Uttar Pradesh :

5. Shri K.C.Saxena,
Senior Planner,
Planning Cell, Meerut.