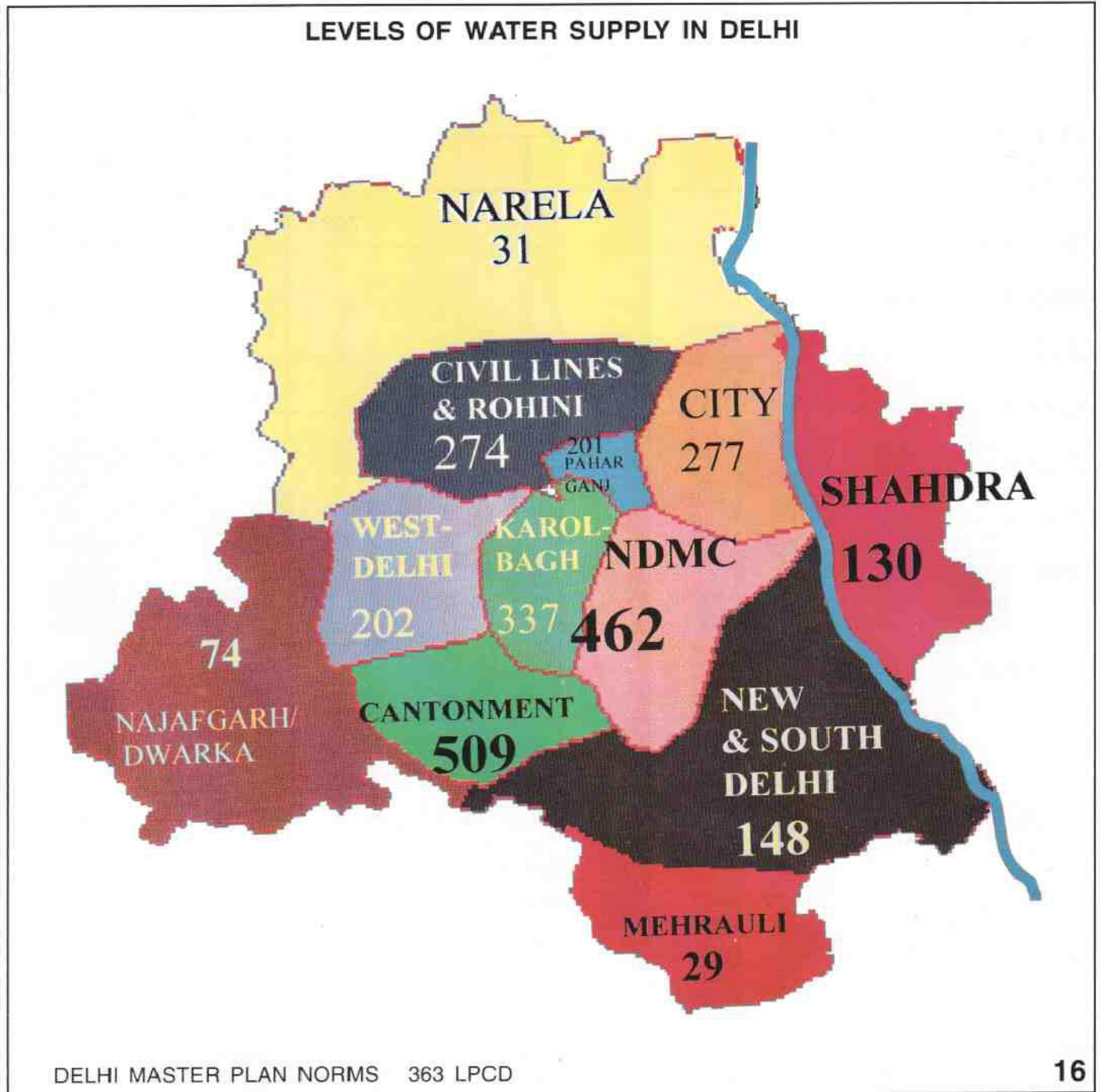


### 5.1.1 Excessive Pressure on Delhi's Water Supply

According to Delhi Jal Board, the current treatment capacity in the year 1999, is 2645 mld. and it is supplying water @ 232 mld. Against this, the demand for water is 4765 mld, based on MPD-2001 norm of 363 litres per capita per day for urban population and 100 lpcd. for rural population. Thus against the present water demand, the shortage is approx. 45%. This shortage has to be met by increasing to 4765 lpcd. 2001 AD

### 5.1.2. Levels of Water Supply

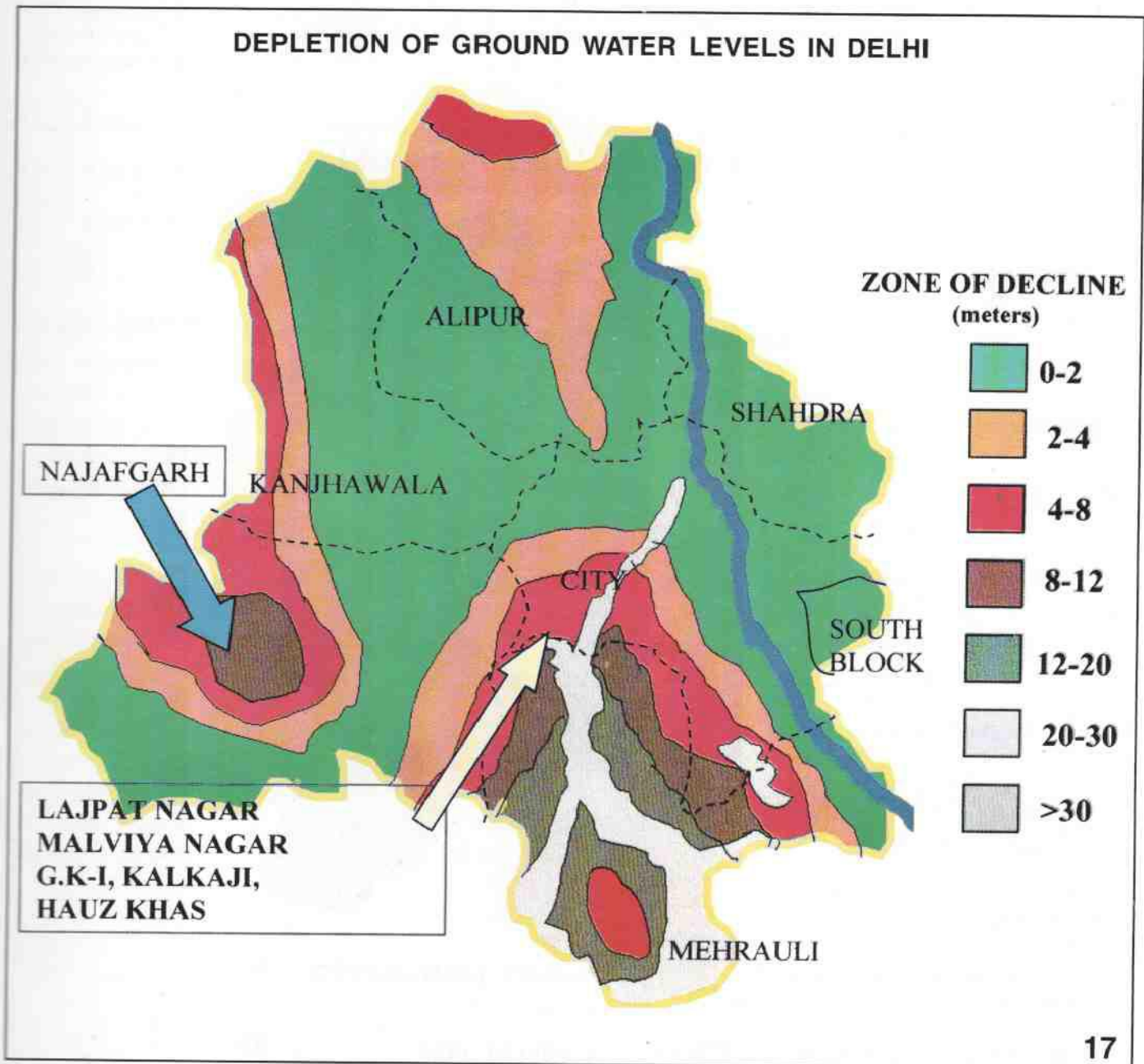
The Water Supply in Delhi is far from uniformly distributed. The NDMC area/Delhi Cantonment area gets average supply above 450 liters per capita per day while Narela/Najafgarh zone gets less than 80 liters per capita on an average with some parts getting less than 35 liters per capita per day water supply. Except the NDMC area the rest of the city has water problems i.e. low water pressure, erratic municipal water supply.



Source : Delhi Jal Board / NCRPB

### 5.1.3 Depletion of Ground Water

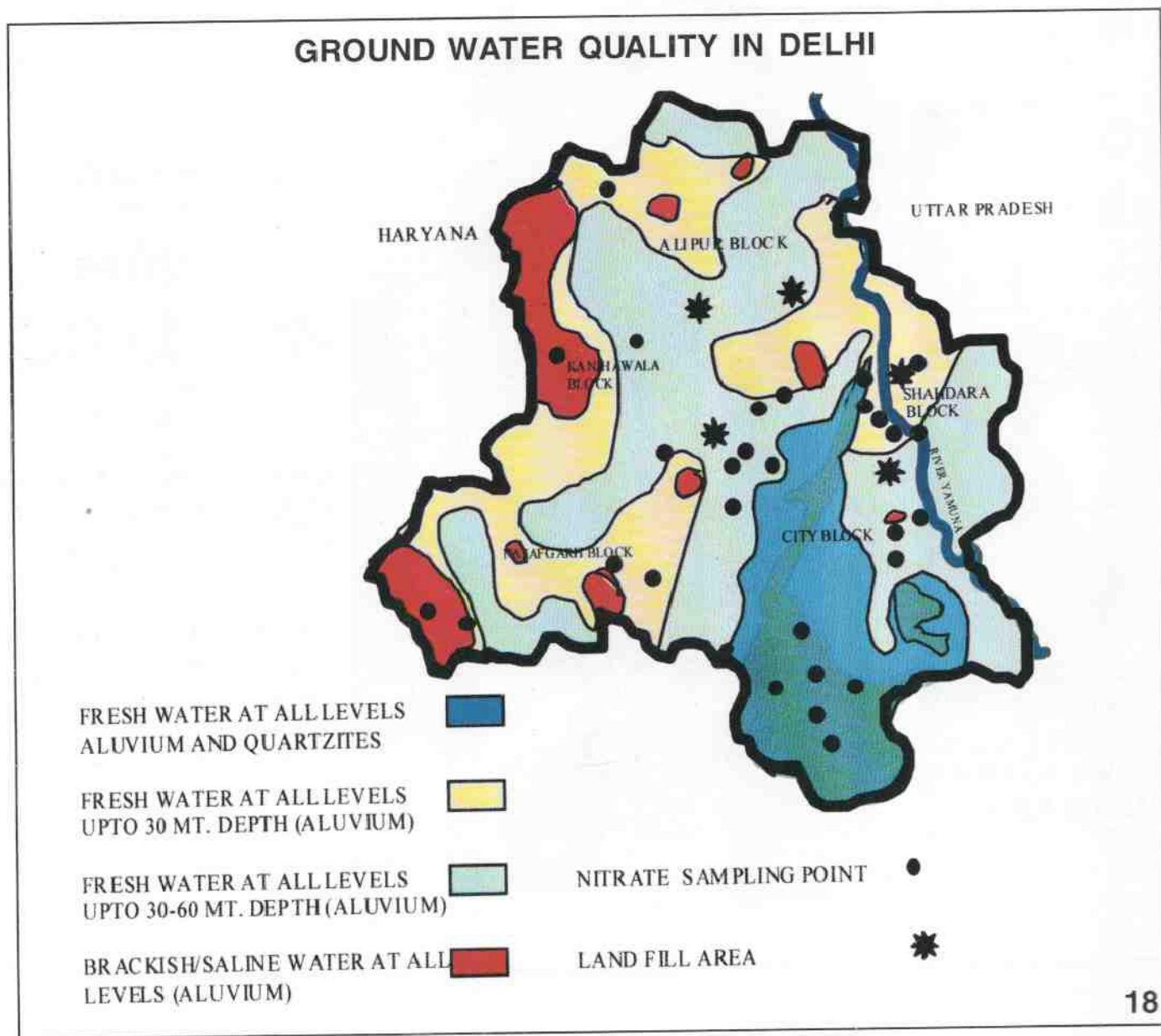
In order to meet the water demand - supply gap ground water withdrawal in the NCT Delhi has emerged as a common place phenomenon resulting in the ground water levels falling in the range of 20-30 meter below land surface in south and south western parts of Delhi. Over exploitation of ground water has disturbed the hydrological balance leading to decline in productivity of wells, increasing pumping cost, more energy requirement and brackish water upcoming etc.



Source : Central Ground Water Board

### 5.1.4 Ground Water Quality

Besides the quantity, quality of potable water is another serious concern as it directly affects the health of citizens. Instances have been noticed in the past where, in many places, the sewage water got mixed up with water supply thus contaminating it. The quality of ground water is also variable in space and depth. In the areas west of the ridge comprising blocks Najafgarh, Kanjhawala, Alipur, City (part) and Mehrauli (part) the salinity of ground water generally increases towards South-West and North-West direction being fairly high in areas around Dhansa, Raota in South-West and Auchandi, Kanjhawala and Tikri Kalan in North-West. Occurrence of high nitrate concentration are at several locations i.e. Saboli (Shahdara) and Kutabgarh (Kanjhawala) have nitrate contents above 1000 mg/l in ground water. Such high levels of nitrate concentration in shallow ground water could be due to leaching from solid wastes, discharge from sewage water etc. The ground water in vicinity of the landfill in Yamuna floodplains also have high nitrate concentration. Similarly Fluoride and other harmful chemical concentrations beyond permissible limits are observed in the ground water at several locations in Delhi.



Source : Central Ground Water Board

### 5.1.5 Future Water Supply to Delhi

The future raw water supplies for Delhi are proposed to be augmented through the following sources:

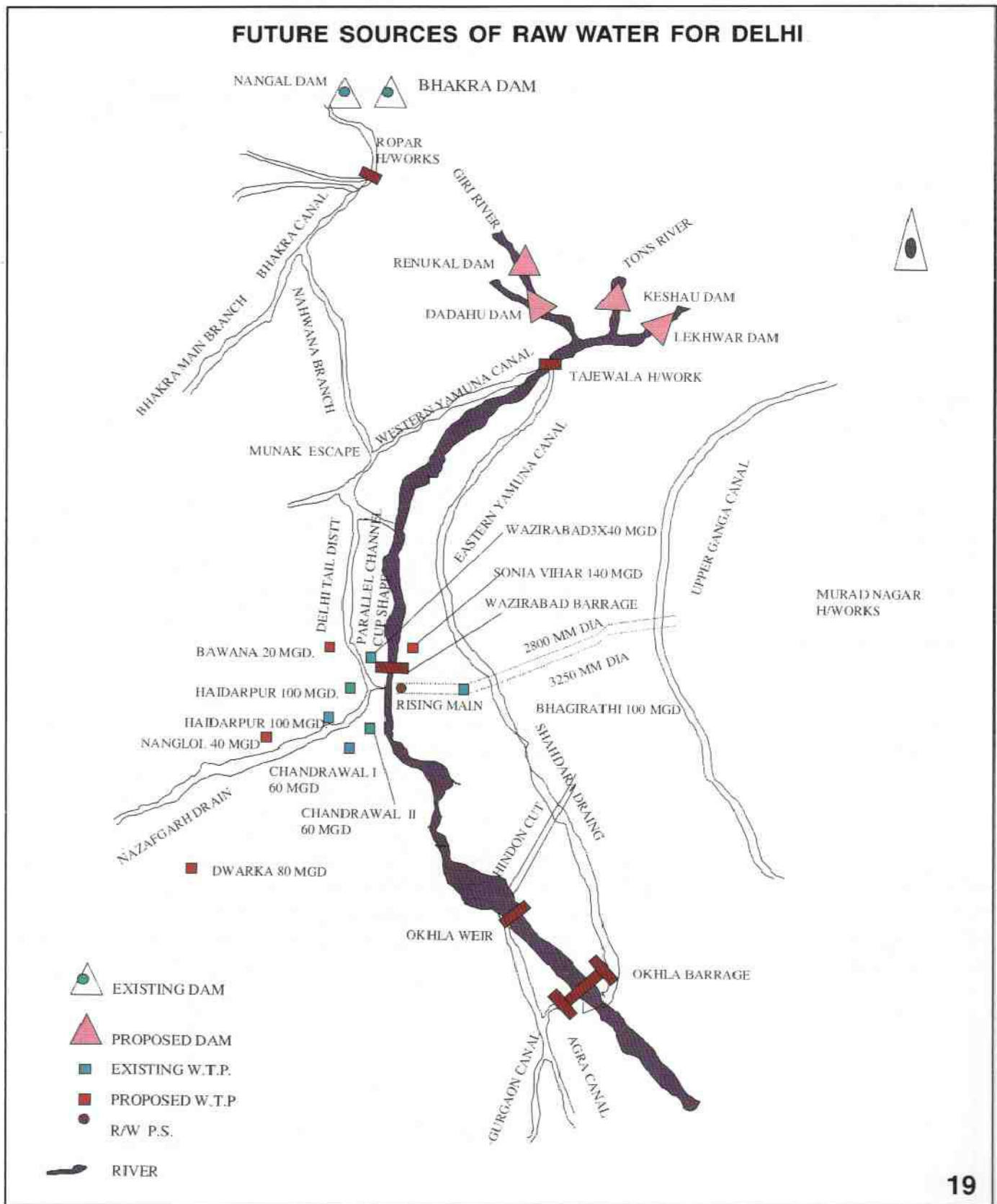
1. **Bhakra storage**
2. **Sub-surface water**
3. **Tehri Dam**
4. **Renuka Dam**
5. **Kishau Dam**
6. **Lakhwar Dam**

Of the above, so far only the first two sources are confirmed for water supply in the near future. The Tehri Dam is expected to be completed by 2002 AD and will be able to supply raw water at that stage. As far as the other three dams are concerned hardly any work has been started, in fact even the project reports and investment clearance are yet to be given for these projects. As such no raw water supplies can be foreseen in the near future from these dams. A flow diagram of the ultimate sources of water supply to different proposed treatment plans in Delhi has been drawn up by WAPCOS.

The total cost of the dams according to Central Water Commission (1996) was estimated to be Rs. 7714 crs. The cost component of the projects as have been given are of initial project estimates. The cost may escalate due to delay in execution, increase in cost of materials, manpower and priority of purposes.

Among the above proposed dams, Renuka and Kishau are under investigations and still to get clearances i.e. investment clearances, clearances from Ministry of Environment & Forests and Ministry of Welfare, etc. Tehri dam has been started but certain difficulties are being faced in the execution of the project due to paucity of funds, agitation by the local people and environmental groups. As per the schedule, stage I of the Tehri dam is to be commissioned by year 2002 AD provided that the carrier system is simultaneously put in position.

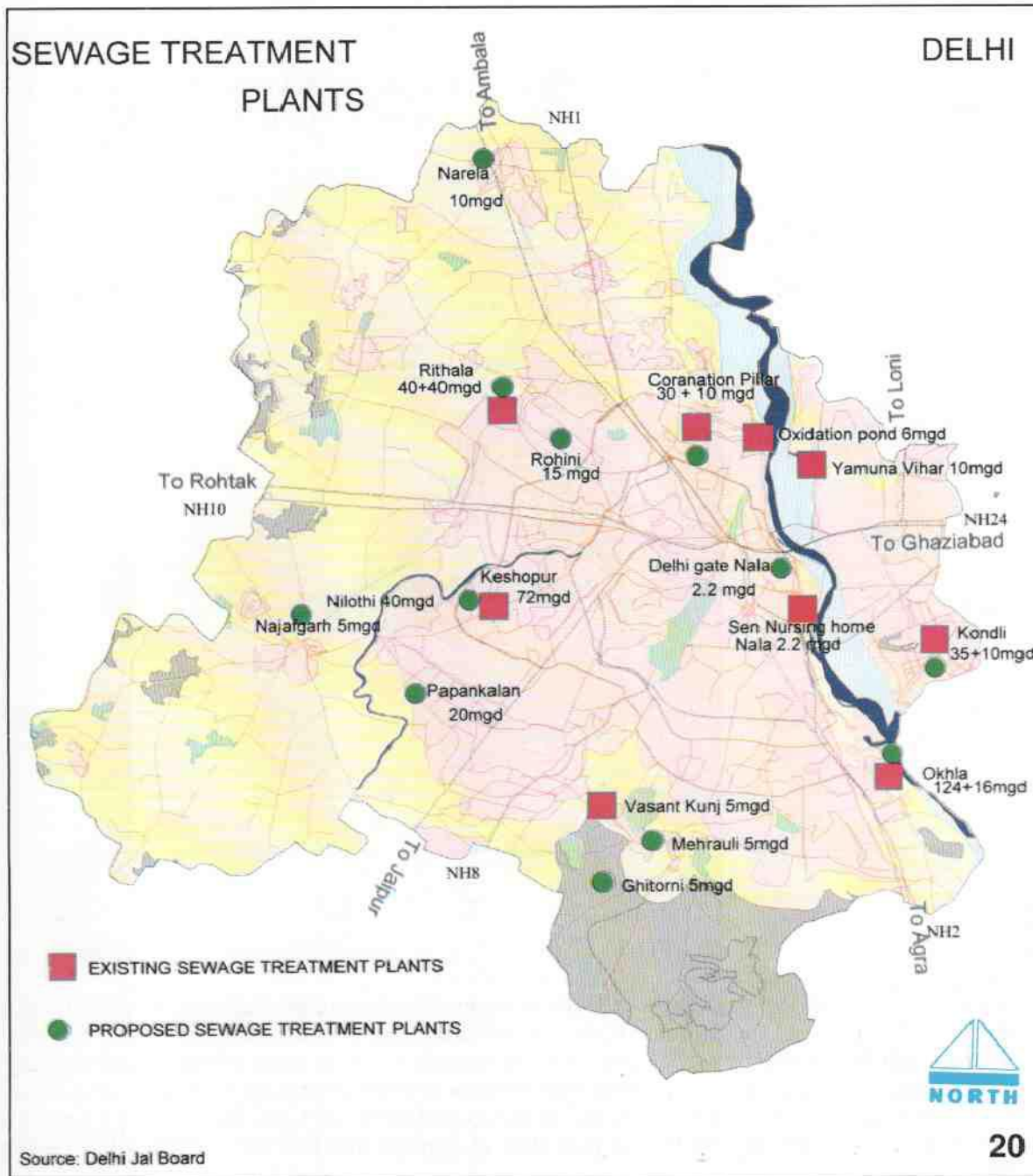
# FUTURE SOURCES OF RAW WATER FOR DELHI



Source : WAPCOS

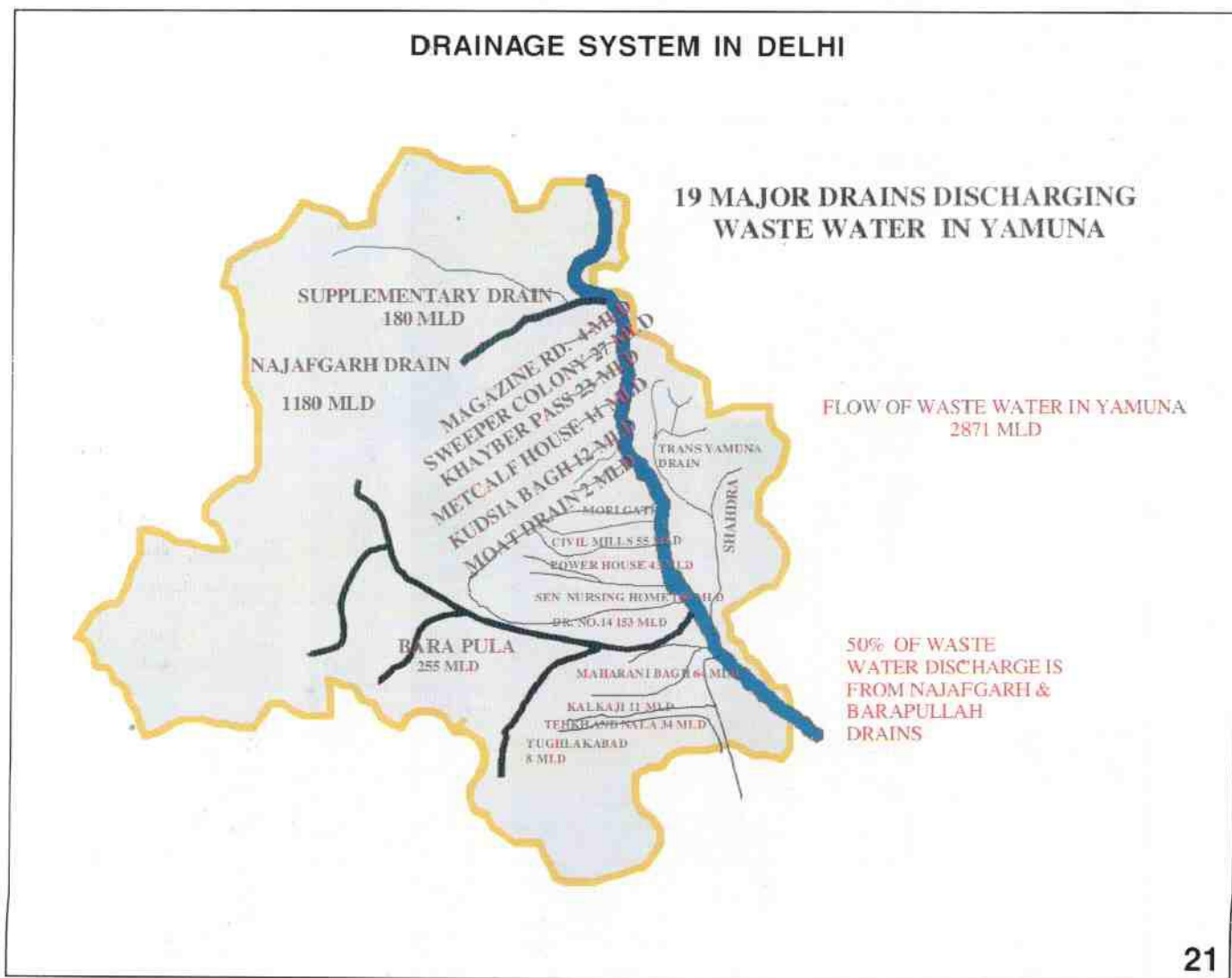
## 5.2 Sewage Disposal & Treatment

The existing sewage treatment plants in Delhi are—Okhla (124 mgd), Coronation Pillar (30 mgd), Keshopur (72 mgd), Rithala (40 mgd), Shahdra (35 mgd), Wazirabad Oxidation Ponds (6 mgd), Vasant Kunj (5 mgd), Yamuna Vihar (10 mgd) and Sen Nursing Home Nalla (2.2 mgd) with a total capacity of 324 mgd (1478 mld).



### 5.2.1 Discharge of Effluents in Yamuna

Delhi generates large quantities of sewage. At present, the total quantity of sewage generated is 2,871 mld while the total capacity of the sewage treatment plants in Delhi is 1,478 mld while the remaining untreated sewage (1,393 mld) finds its way into river Yamuna through the 19 major drains outfalling into the river carrying sewage and industrial effluents from the city. As a result the water quality in the river has been deteriorating and the water in the river is at present unfit for animal drinking and agriculture use.

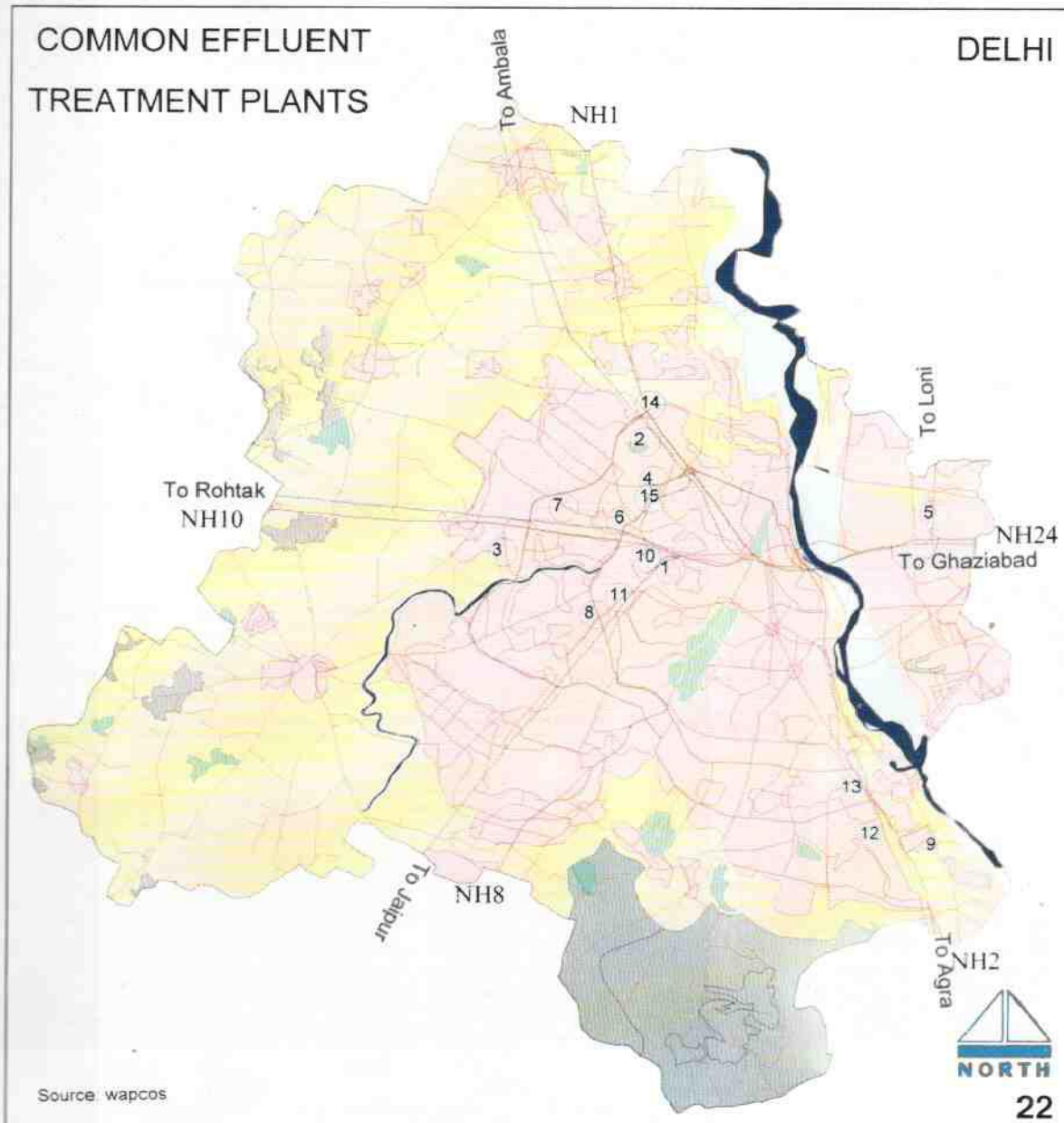


Source: WAPCOS

At present only about 75% of the population in Delhi is covered by sewerage facilities. The sewerage system is non-existent in large parts of trans-Yamuna area, all resettlement colonies and, of course squatter settlements. The 113 urban villages possess internal sewage system. In other parts of the city sewage lines, laid decades ago are now unable to carry the increasing quantities of sewage and are in a state of virtual collapse. The trunk and branch sewers have settled at many locations and have not been repaired for a long time. This appears to be one of the major reason for the over flow of sewage into the storm water drains and into the river Yamuna.

## 5.2.2 Common Effluent Treatment Plants in Delhi

Of the total sewage generated in Delhi, it is estimated that 218 mld (48 mgd) consists of industrial effluents. Delhi State Industrial Development Corporation Ltd. (DSIDC) has proposed construction of 15 common Effluent Treatment Plants CETP's in Delhi as per directions of the Hon'ble Supreme Court of India. The treated effluent will be discharged in the same drains in which it is flowing at present. The Proposed locations of CETPs are as follows:

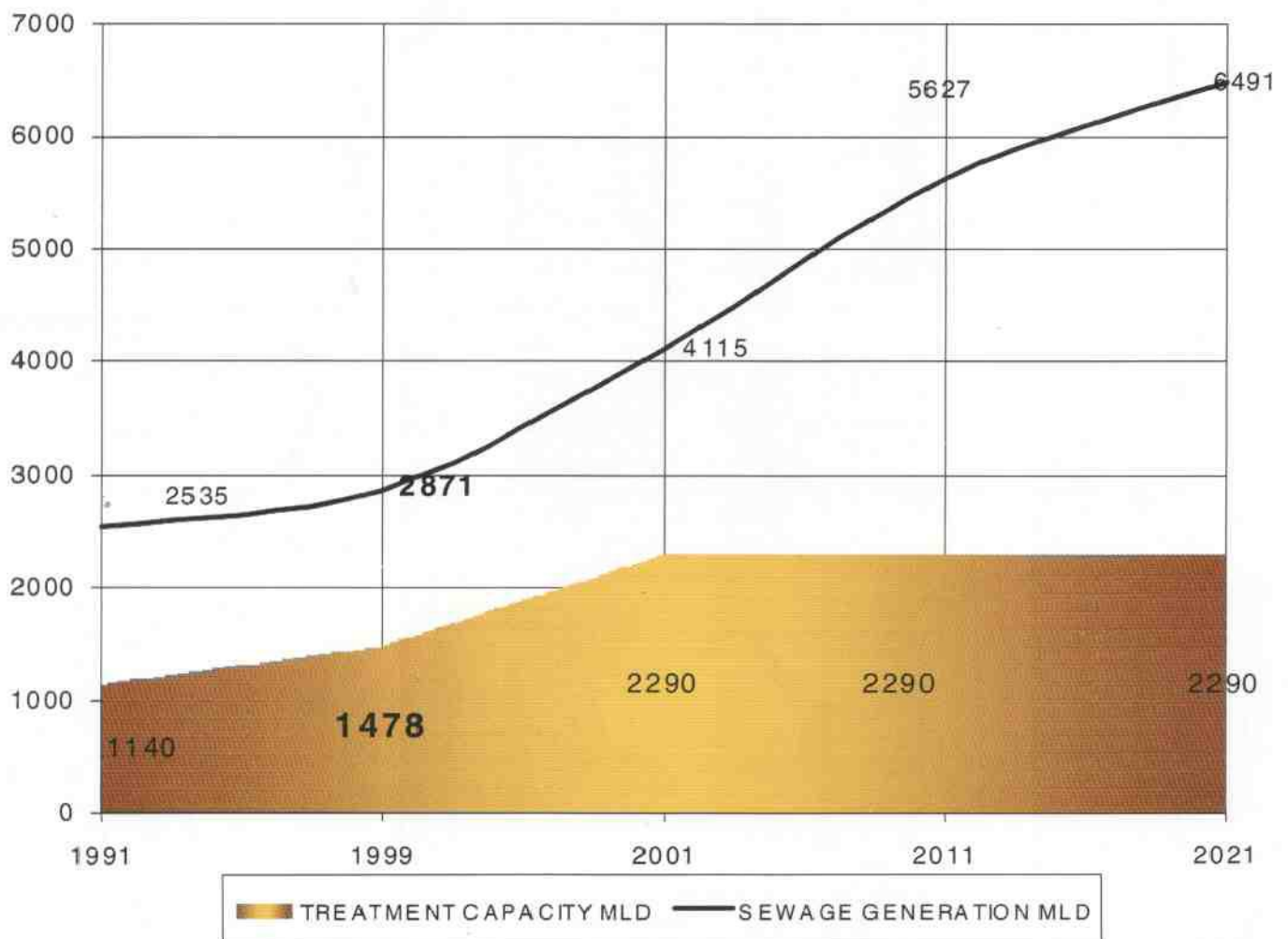


1.	Anand Parbat Indl. Area	6.	Lawerence Road Indl. Area	11.	Naraina Indl. Area
2.	Badli Indl. Area	7.	Mangolpuri Indl. Area	12.	Okhla Indl. Area
3.	Nangloi	8.	Mayapuri Indl. Area	13.	Okhla Indl. Estate
4.	G.T.K.Road Indl. Area	9.	Mohan Co-operative Indl. Area	14.	S.M.A. Indl. Area
5.	Jhilmil Indl. Area	10.	Najafgarh Indl. Area	15.	Wazirpur Indl. Area

Source: WAPCOS

### 5.2.3 Sewage Treatment

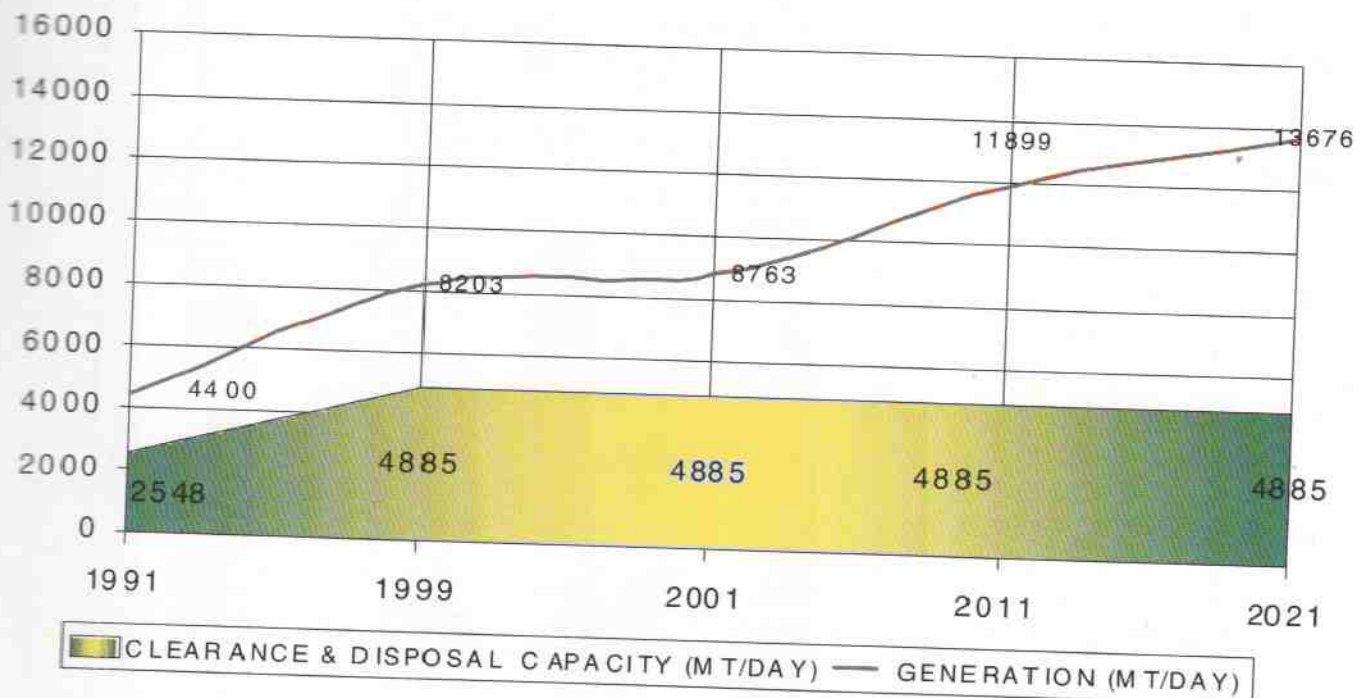
Against the present requirement of treating approx. 2,871 mld. per day, Delhi has a treatment capacity of hardly 1478 mld. leaving about 48% of the sewage untreated to be discharged in raw form. On the basis of MPD-2001 water supply norms, the quantities of sewage estimated to be generated in 2001 will be 4,115 mld which will increase to 6,491 mld. in 2021 AD While Delhi Jal Board by augmenting the existing capacity of sewage treatment plants and construction of new STP's will have a total treatment capacity of 2,290 mld, there will still be a wide gap, which may be about 59% in 2011 and is likely to increase to 65% by 2021 AD.



Source : Delhi Jal Board/WAPCOS/NCRPB

### 5.3 Solid Waste Management

In most localities of Delhi garbage/solid waste dumps are overflowing and the number of open garbage dumps in the bylanes, parks, drains and roadsides are on the increase. It contributes to the pollution of entire environment -air, water and soil. During 1999, estimated quantity of waste generated was 8,203 MT based on 0.61 kg per capita per day (average of NEERI norms for NDMC area - 0.67 kg/c/d and MCD 0.60 kg/c/d) and despite High Court's intervention and regular monitoring, the clearance/disposal was limited to 4,885 MT. The civic agencies MCD, NDMC, Delhi Cantt. Board are hard pressed and have failed to provide clean and healthy environment. It is estimated that with present growth of population and changing life styles quantity of waste generation would increase to 8,763 MT in 2001 and further to 11,899 MT and 13,676 MT by 2011 & 2021AD respectively. With the present capacity of the civic bodies limited to handling the above quantum of solid waste, the present gap of 40% is likely to increase to 44% in 2001, 59% in 2011 and 64% in 2021 AD.

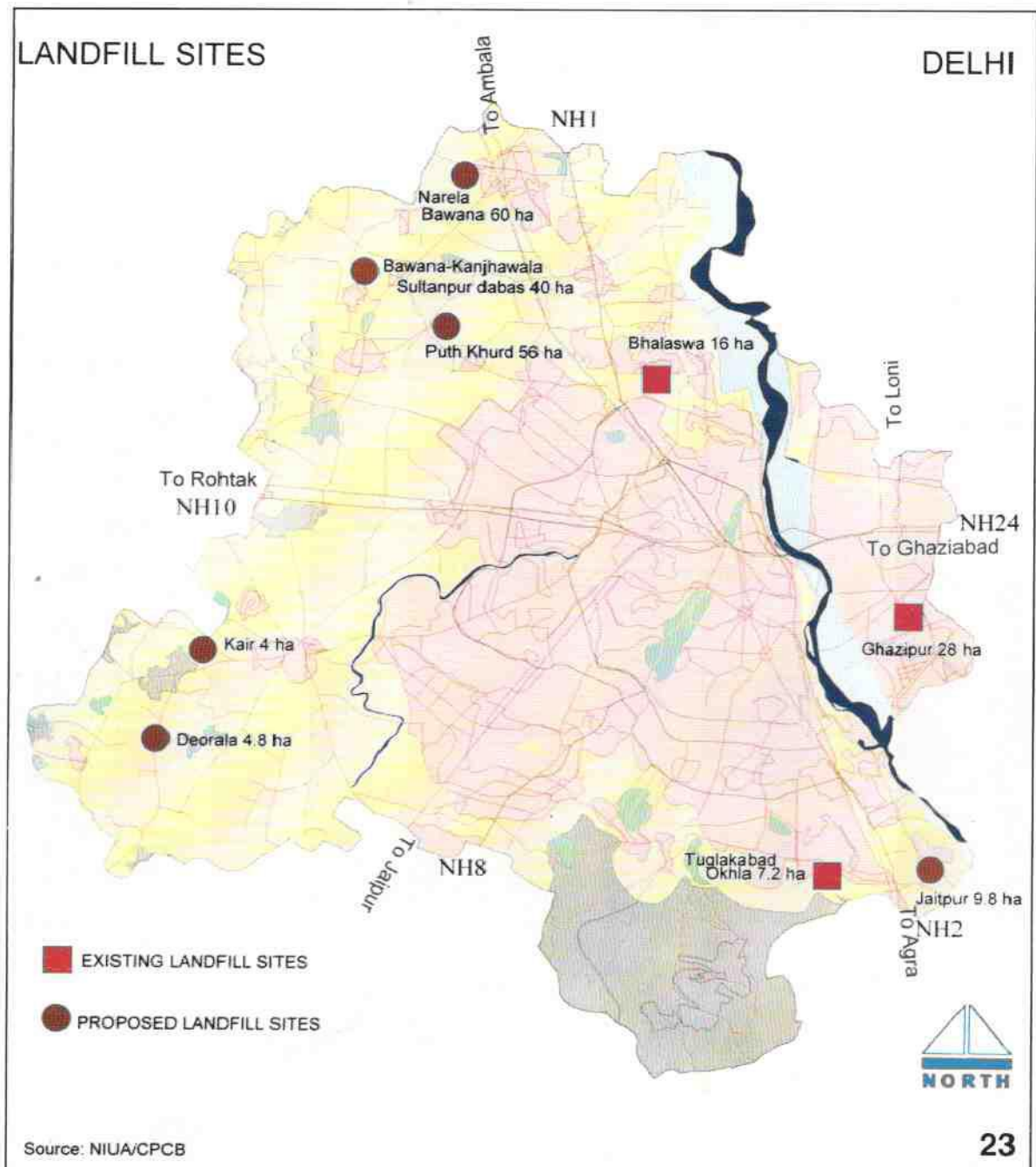


Source : Central Pollution Control Board / NCRPB

### 5.3.1 Landfill Sites

All the collected solid waste in Delhi is disposed of in low lying areas at the landfill sites following conventional ways of dumping. Since 1950's over 12 large landfill sites have been packed with all sorts of non-biodegradable and toxic wastes of Delhi.

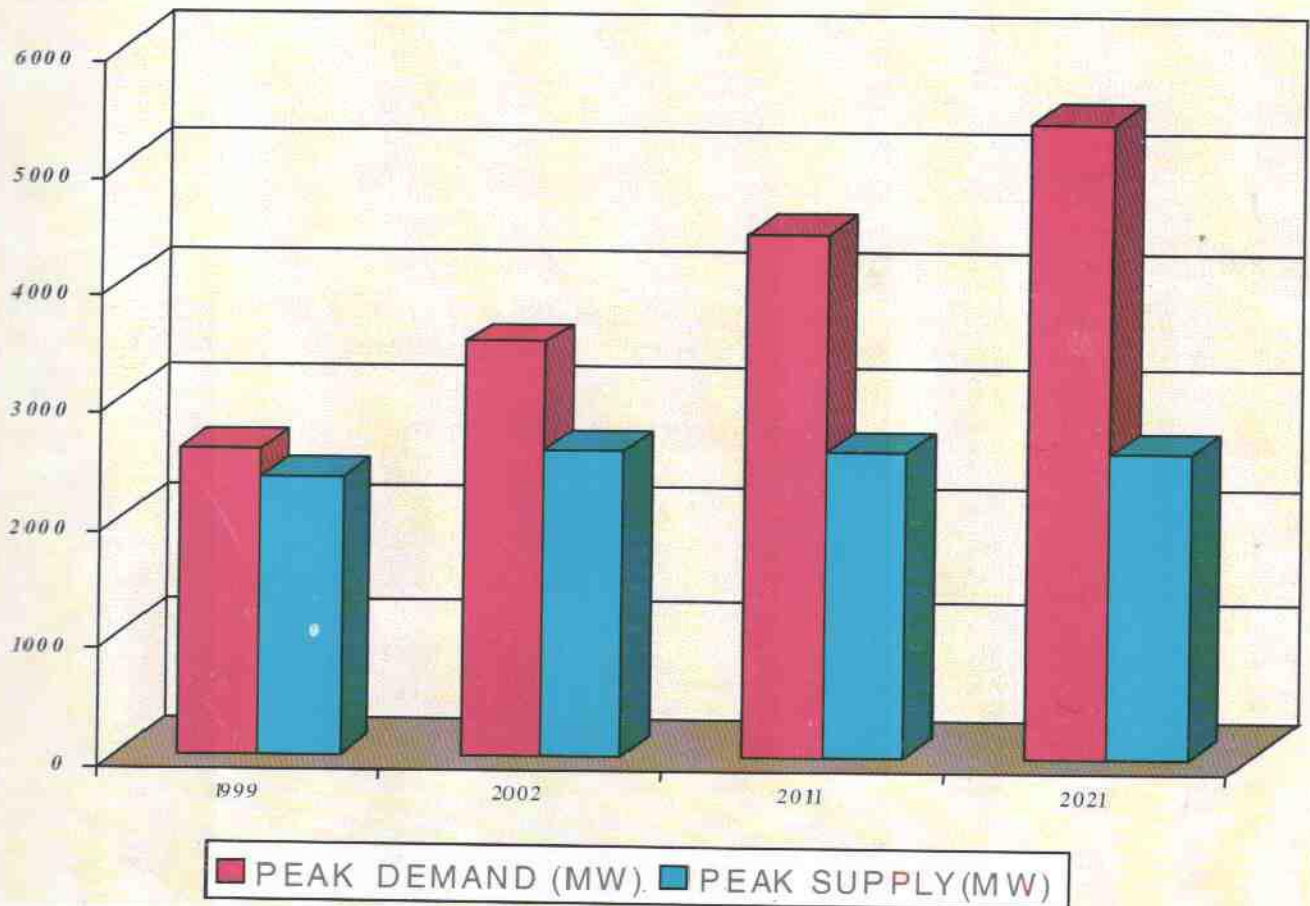
At present there are three landfill sites - Bhalaswa, Gazipur and Okhla. The base of none of these landfill sites are lined due to which continuous ground water contamination takes place. Neither the sites are prepared before using them for disposal-dumping of waste nor environment impact assessment has been carried out while selecting these sites.



## 5.4 Power

Power is indispensable for any development and for improving the living standards of the people. NCT Delhi has been facing frequent load shedding and power systems breakdowns almost every summer. The peak demand has been rapidly increasing both due to the continuous growth of population and the rise in living standards of the people. It has increased from 1,435 MW in 1991 to 2,600 MW in 1999. As per the DVB projections, this demand is expected to go up to 3,500 MW by 2002 and if continued in the same manner, it is likely to increase to 5,390 MW by 2021. The availability of power in 1999 was approx. 2,355 MW which is likely to increase to about 2,600 MW by 2002 AD. Unless drastic steps to reduce the T&D losses, from over 50%, caused mostly by theft and pilferage of power, unauthorised connections and non-billing, to the technical loss of 14-15% are taken and the power purchase agreement entered into with other states, by 2021, the gap between supply and demand is likely to be as high as 50%.

### DEMAND SUPPLY GAP

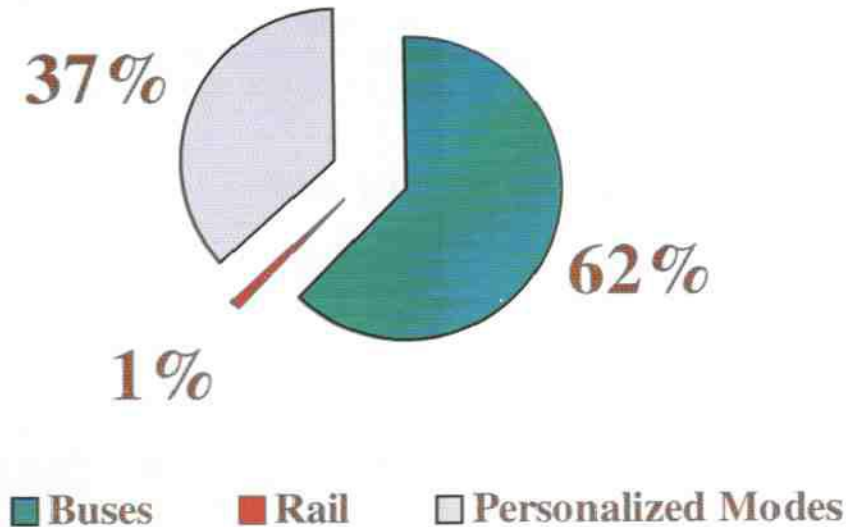


Source: DVB/NCRPB

## 5.5 Transport

The phenomenal growth in population in the last few decades and the disparity in income level of the populace in Delhi has caused severe modal imbalance. Commuting in Delhi today is a nightmare experience for all-alike; be it the pedestrian, the motorist or the user of public transport. The current travel scenario indicates practically no use of the 120 kms. of Delhi's Rail Network and entire commutation dependent upon the road based transport.

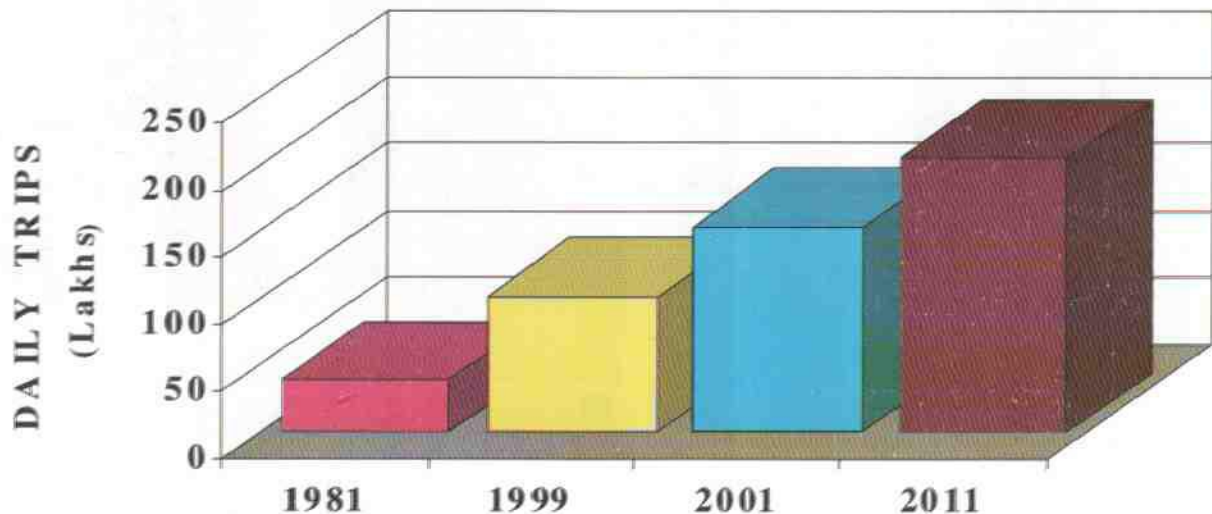
### COMMUNICATION MODES



Source: RITES Study (1999) for Ministry of Railways.

There has been a gradual increase in the per capita trip rates from 0.72 PCTR in 1981 to 0.76 PCTR in 1999 and is likely to go upto approximately 1.05 PCTR by 2011. Proportionately the number of actual trips performed will increase manifolds.

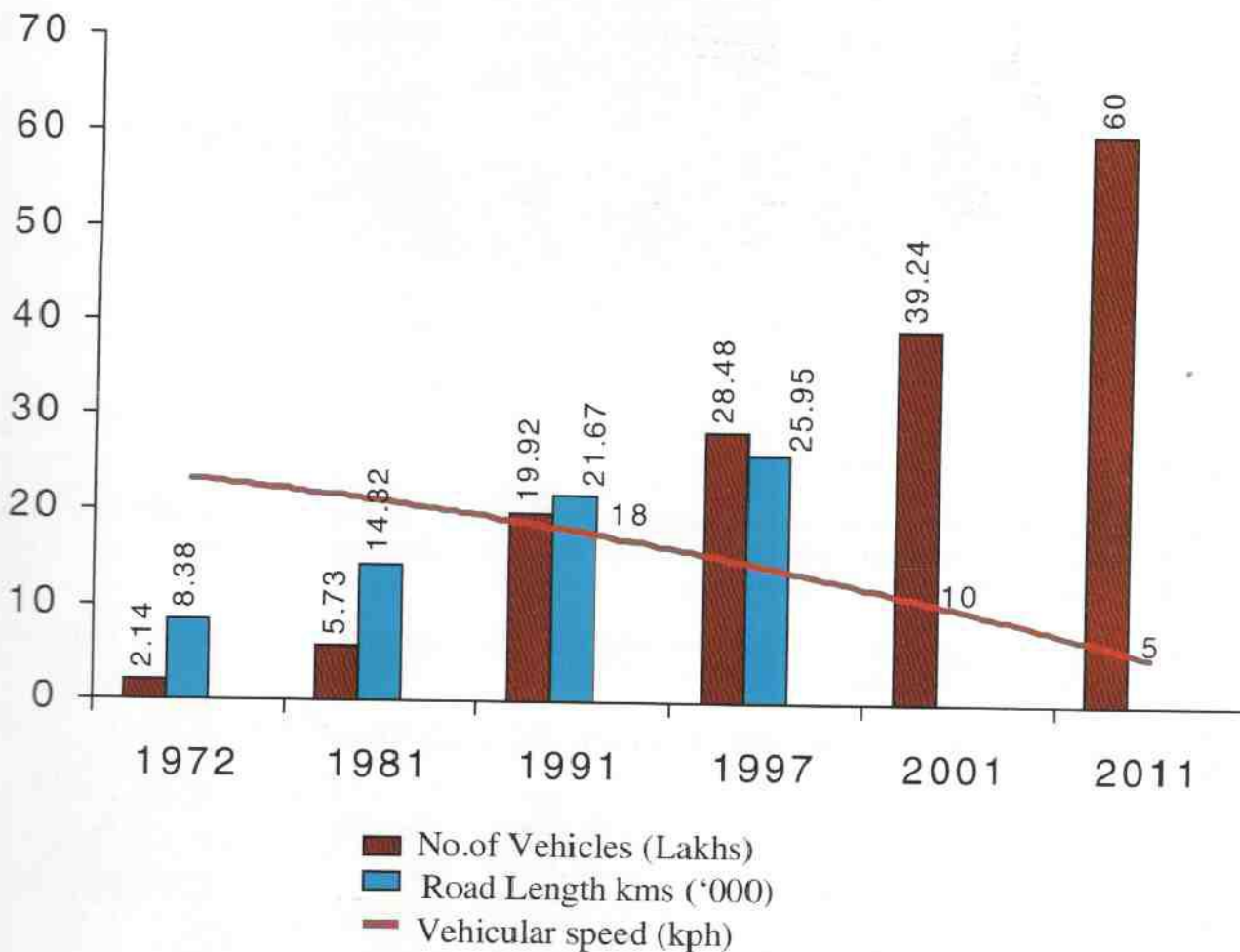
### INCREASE IN INTRA-CITY TRIPS



Source: RITES Study (1999) for Ministry of Railways.

### 5.5.1 Growth of Vehicles

The increase in the road based traffic demand has resulted in a phenomenal growth in the number of motor vehicles in Delhi, so much so that about 10,500 vehicles are added every month. Consequently, the number of motor vehicles in Delhi has increased from 5.73 lakhs in 1981 to 28.48 lakhs in 1998 and unless very serious steps are taken to improve the public transport, their number is likely to go upto 40 lakhs by 2001 and 60 lakhs by 2011. On the other hand, the road space has not increased proportionately. This present motor vehicles population in Delhi is more than that of Mumbai, Calcutta and Chennai put together. The result is extreme congestion on Delhi roads, ever slowing speeds, increase in road accidents, fuel wastage and environmental degradation.



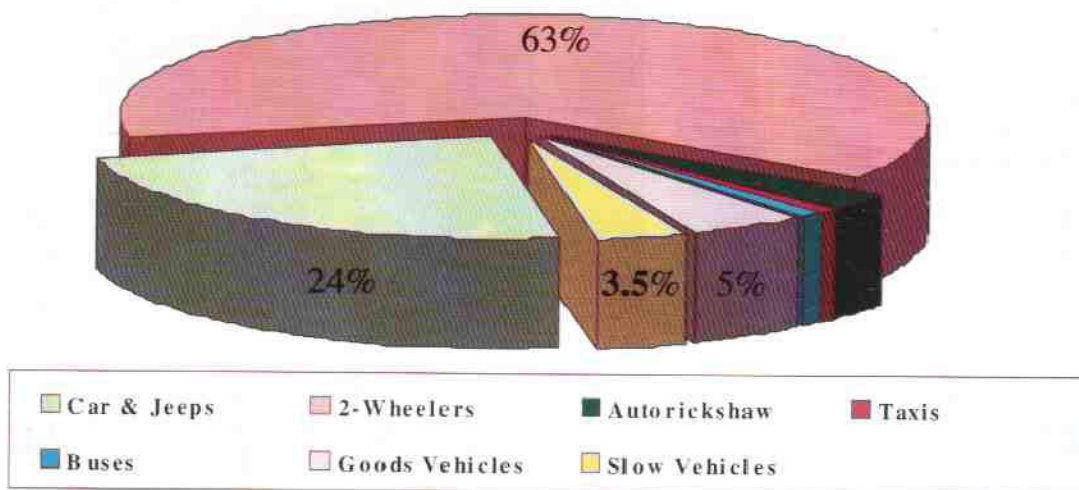
Source : 1. Statistical Hand Book of Delhi  
2. NCRPB

### 5.5.2 Modal Mix

The mix of various modes of transport that are required to meet the total urban transport demand in Delhi is inappropriate. In the absence of adequate and reliable public transport system in Delhi, a disproportionately high share of trips is carried by personalized transport modes, creating chaotic situation and causing over strain on the existing inadequate transport infrastructure. The composition of traffic in the city is heterogeneous one with the domination by two wheelers on the roads. In South Delhi, the personalized vehicles especially cars are the prime mode of commuting whereas in the Walled City areas modes like Rickshaws and Tongas are also popular. West and East Delhi residents rely more on public buses.

The following diagram indicates the modal composition of traffic in Delhi:

**MODAL COMPOSITION OF TRAFFIC IN DELHI**

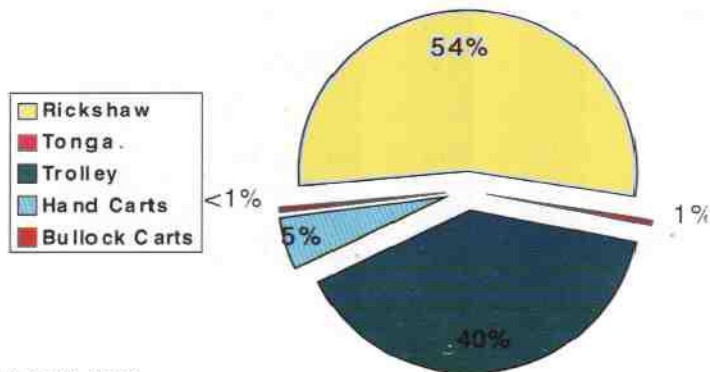


Source: Statistical Hand Book of Delhi, 1998.

The above diagram indicates that 2/3rd of the registered vehicles are two wheelers. Whereas, cars and jeeps account for 24%, auto-rickshaws contribute 3% only, buses contribute 1% and goods carrying vehicles account for 5% of the total vehicular population.

The slow moving vehicle constitutes 3.5% of the total vehicular population in Delhi and its composition is indicated in the following diagram:

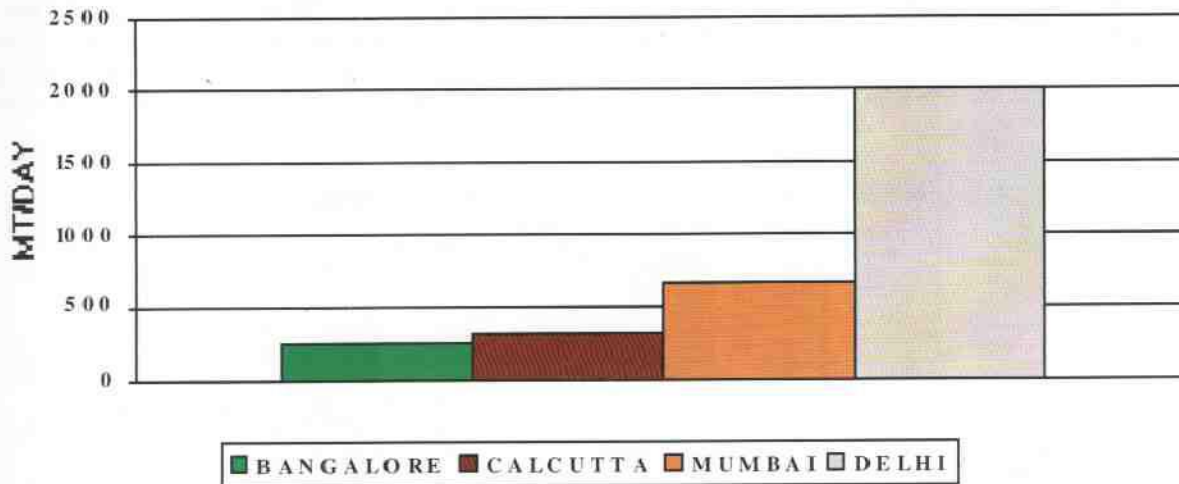
**COMPOSITION OF SLOW MOVING VEHICLES**



Source: Statistical Hand Book of Delhi, 1998

### 5.5.3 Vehicular Pollution

On an average the total amount of air pollutants received by the city daily is around 3,000 tonnes as compared to 100 tonnes a decade ago. Around 65% of these pollutants are produced by motor vehicle criss crossing the roads everyday. This is more than the sum of motor vehicles emissions of Mumbai (660 tonnes/day), Calcutta (311 tonnes/day) and Bangalore (254 tonnes/day) put together.



Source: World Health Organisation, Urban Air Pollution in Mega-cities of the World.

### 5.5.4 Emission Standards : Indian Vs. Western Standards

In the last two decades, diesel consumption has overtaken that of petrol in Delhi. According to a CPCB study, diesel is responsible for 100% of the particulate matter (SPM) produced by vehicles. Annual average maximum levels of SPM in Delhi's air have increased from 7.6 times the permissible limit in 1987 to 16.7 times in 1995. Neither improving diesel quality nor upgrading engine technology can help avert the threat posed by toxic particulate emissions from diesel vehicles. The only option is to ban registration of new diesel cars.

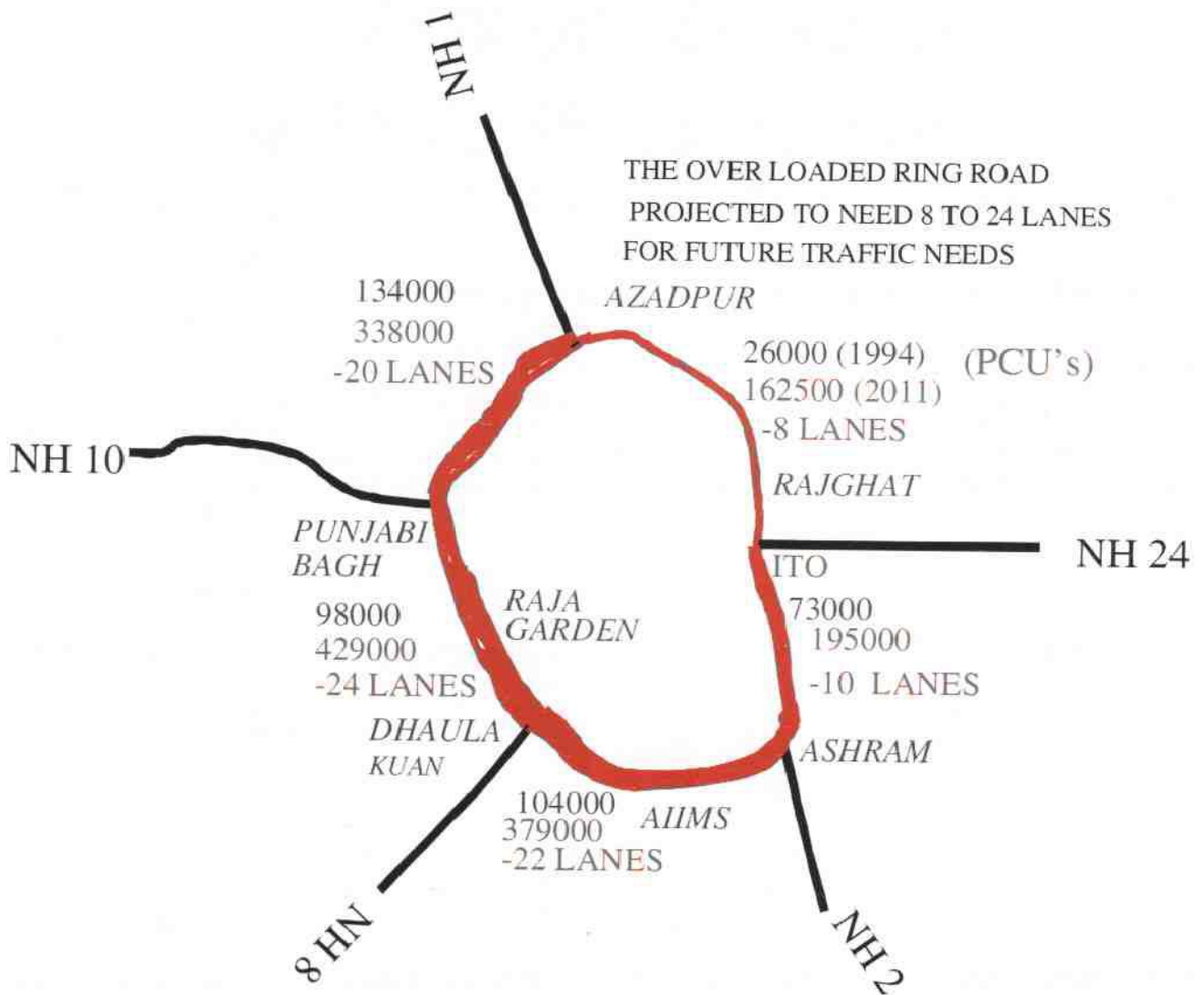


The above table shows that Indian Vehicular emission standards are lagging behind European Standards by almost 8 years. But the April 29, 1999 Supreme Court Order has forced the Ministry of Environment and Forests to tighten the standards.

### 5.5.5 Congestion on Ring Road

Delhi is the confluence of no less than five national highways. Apart from the goods and commodities coming for local consumption, large quantities of freight move into Delhi only to be reloaded and sent to other destinations. Today about 80 percent of the total goods traffic movement is by road and only about 20 percent by rail. The result is that as per the traffic volume count of 1994, the Ring Road was handling between 73,000 to 1,34,000 PCUs per day averaging to about a lakh PCUs per day. In fact, the six lane cross section of the existing Ring Road had already reached its saturation capacity of 75,000 PCUs per day in 1994. The traffic on average in next 12 years i.e. by 2011 has been projected to reach between 1.5 to 4 lakhs PCUs on the Ring Road requiring 8 to 24 lane to cope up with this type of traffic load, if smooth traffic movement is to be allowed.

#### NETWORK LOADINGS ON RING ROAD (‘DO NOTHING’ SCENARIO)

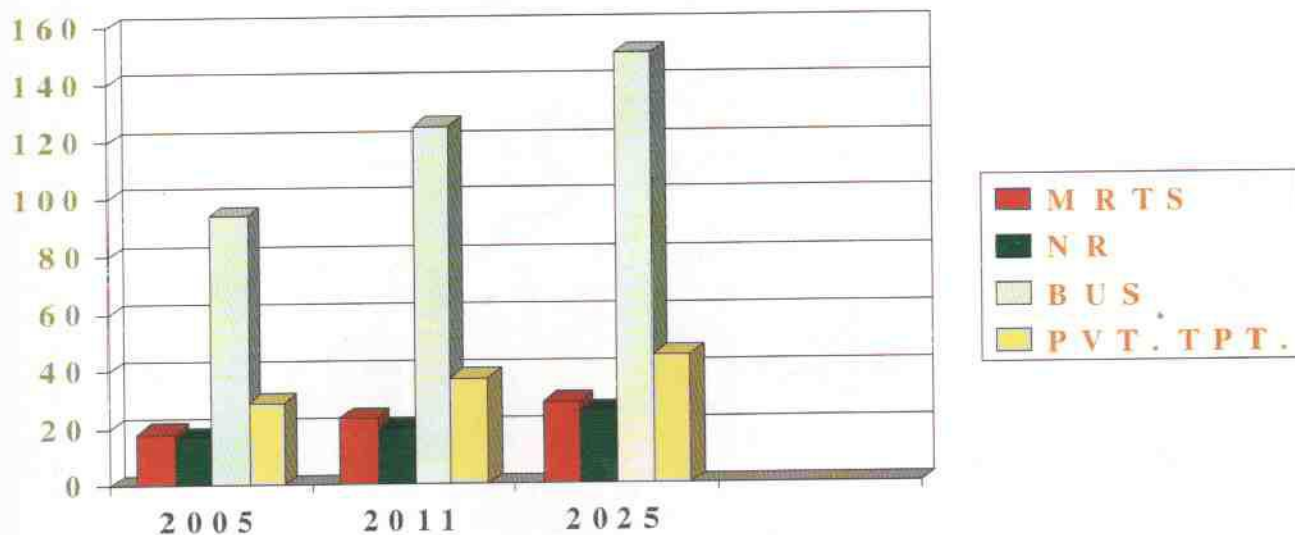


Source: NCRPB

## 5.5.6 Transport Demand

Delhi is the only mega-city, which has a mono-modal public transport system; it depends entirely on buses for the daily needs of its 134 lakh plus population. The transportation network in Delhi is predominantly road oriented. This road based transportation system meets a large proportion of the travel demand generated by both inter-urban and intra-urban traffic. With the population projected to touch 143.7 Lakhs by 2001 and the socio-economic activities expanding proportionately, the demand for buses will increase from 6,000 in 1991 to 36,000 in 2011. This requires overall augmentation of road and rail transport network to cater the need of urban traffic.

**PROJECTED TRANSPORT DEMAND (Lakh Trips/day)**  
(With Modified Phase-I of Delhi MRTS)



Source : Identification of Rail Projects for Commuter Travel in National Capital Region and Delhi - RITES Study, 1999 for Ministry of Railways.

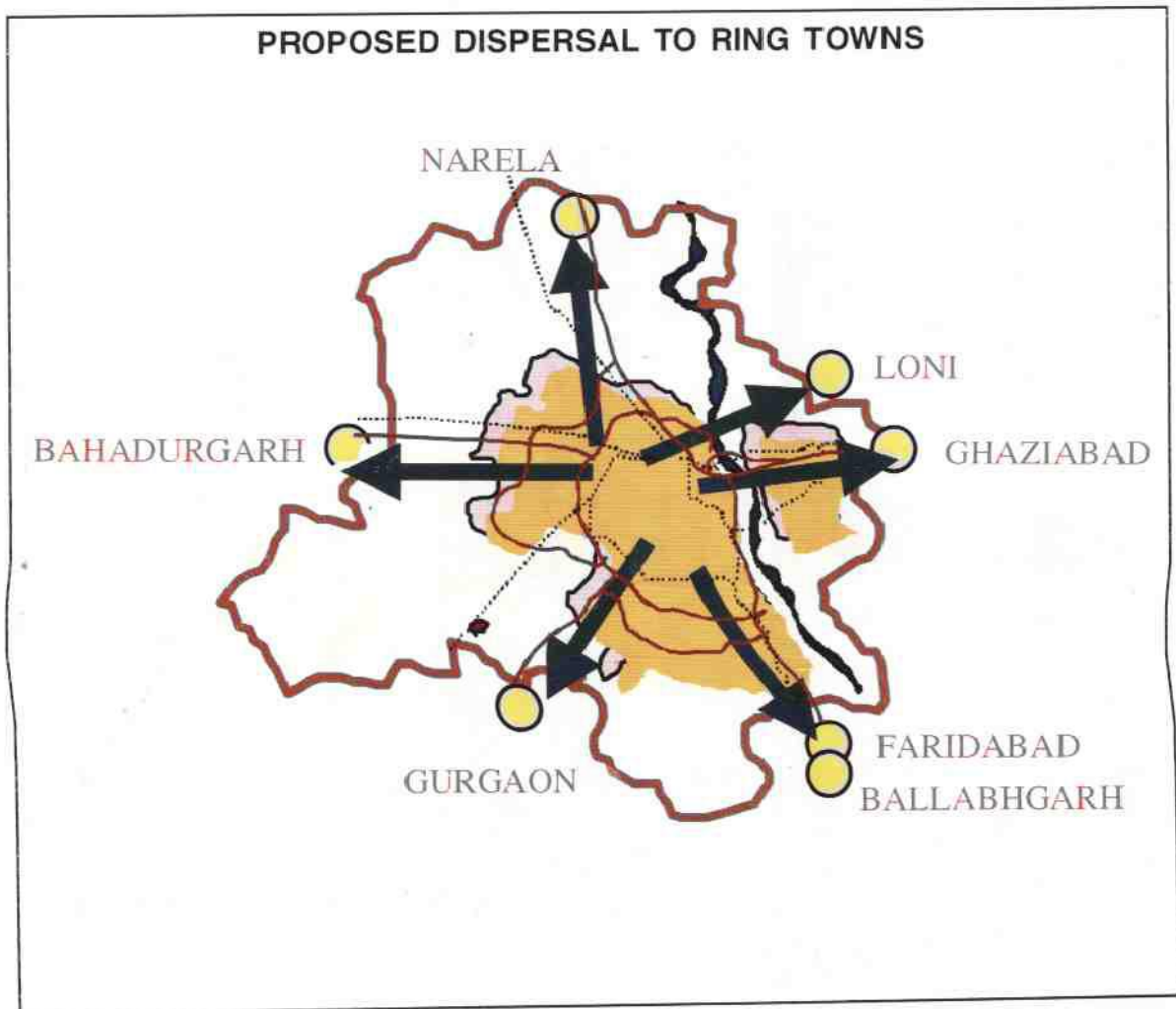
The estimated total passenger trips in 2005 are 157.15 lakhs within the Delhi Urban Area including the inter-city trips which are either generated from or attracted to Delhi from NCR. The estimated trips by public transport are 128.85 lakhs, which are around 82 percent of the total passenger trips. Commuters coming from NCR to Delhi area will also be using Northern Railway Network in Delhi.

Recent studies have shown that in the year 1998, the intra-city commuter load on the transport network of Delhi was around 1 Cr. trips a day, while inter-city trips between Delhi and the Regional Towns was around 20 lakhs trips per day. These numbers are likely to increase to 1.57 Crs. and 33 lakh respectively by 2005.

## 5.6 Non Dispersal of Industries From Delhi

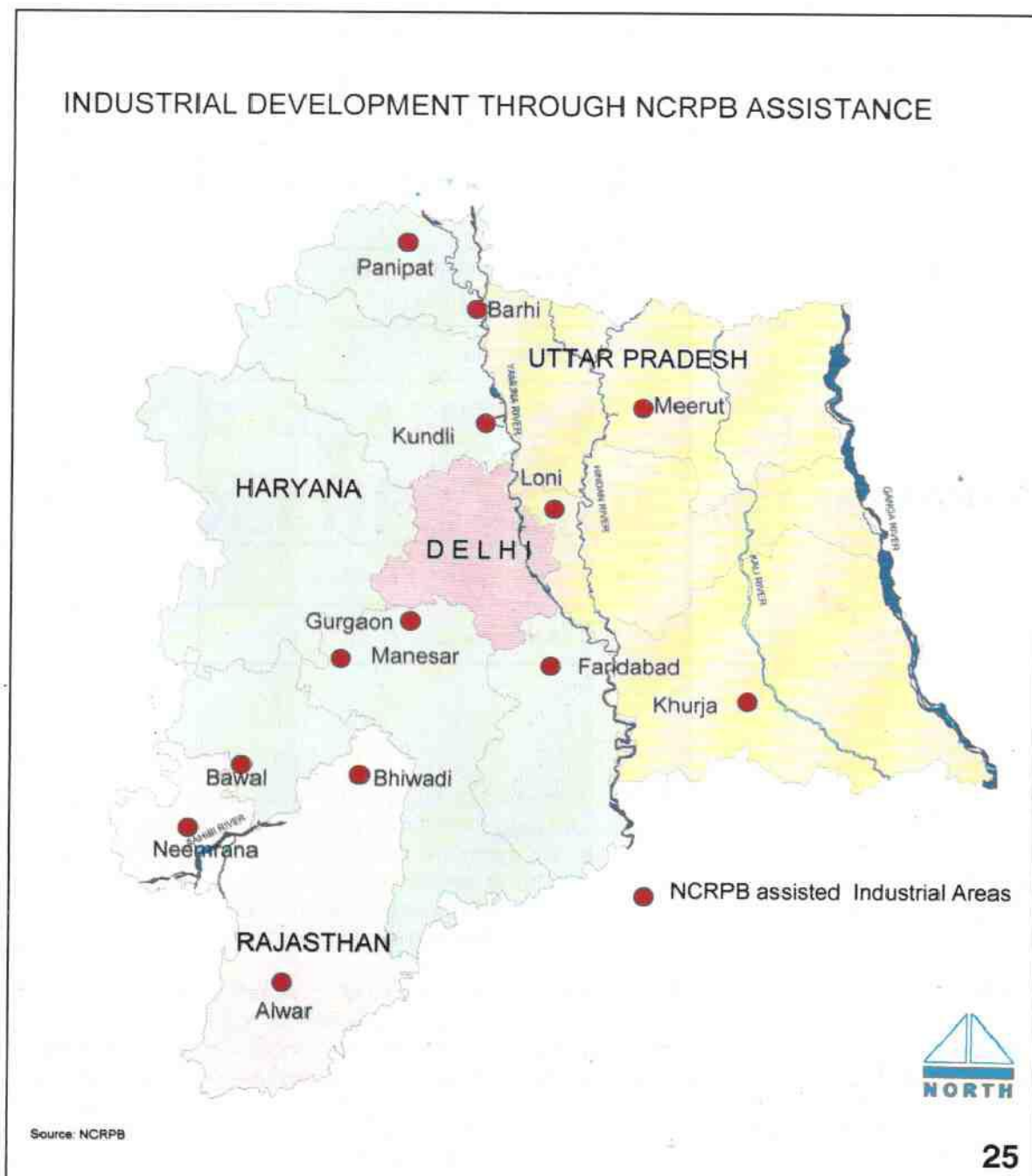
At the time of preparation of the Master Plan for Delhi in 1962, there were only two planned industrial districts in Delhi. One was along the Najafgarh road developed by the erstwhile Delhi Improvement Trust, having both the extensive and intensive industries and the other was a small scale industrial estate near Okhla, developed by Govt. of India. The rest of the industries were scattered all over the city, most of which required re-location.

In the MPD-62, the component of the working force in the manufacturing activity by 1981 was estimated to be 4,40,300 in Urban Delhi and 1,14,700 planned to be deflected to the Ring Towns of Ghaziabad, Loni, Faridabad-Ballabgarh, Gurgaon, Bahadurgarh and Narela. In the Plan about 5% of the total developed area of urban Delhi in 1981 i.e. about 5,800 acres was allocated for industrial use. In addition to this, an area of about 2,800 acres was provided in UP, to the east of Shahdara and altogether about 1,000 acres in Narela and other rural areas of Delhi.



But unfortunately, no conscious attempt was made to shift the non-conforming industries from the heart of the city and the hazardous and objectionable industries continued at their locations aggravating the environment of the densely populated core areas of Delhi. Moreover, unauthorised growth of industries in non-conforming areas continued unabated. The result was that the developed industrial areas in the Ring Towns remained unused for a long time, which forced the respective agencies to allot the plots to new industries.

In the meanwhile NCR Planning Board was constituted in 1985 with the prime objective of de-congesting NCT-Delhi. The Regional Plan advocated a policy of strict control over the growth of industries in NCT Delhi keeping in view the availability of limited space, large scale immigration, pollution and strain on already deficient civic services. It was to fulfil this objective that the three participating States of NCR i.e. Haryana, Rajasthan and Uttar Pradesh were called upon to create adequate industrial infrastructure to accommodate re-location of industries functioning within NCT-Delhi and also to cater to the future requirements of industry in the region.



## 5.6.1 The Supreme Court Decisions

A major thrust in the direction of dispersal of industries came from the Hon'ble Supreme Court which issued orders for the closure of certain industrial units and asked them to get relocated in the conforming areas in NCR. In this context, the Supreme Court took note of the provisions of the Delhi Master Plan which has asked all such units to give their relocation plan within one year of the notification of the Master Plan in 1990 and shift thereafter in the next two years to the NCR. It also took note of the provisions of the NCR Planning Board Act, 1985 and the Regional Plan - 2001 drawn up by the NCR Planning Board. Some of the important orders issued by the Hon'ble Supreme Court in this regard are as under :

SL.NO.	SUPREME COURT ORDER (DATE)	CONTENTS (INDUSTRIES TO BE SHIFTED/CLOSED DOWN)	CLOSING DATE
1.	19.04.96	Non-conforming Industries (about 39,000 units)	01.01.97
2.	08.07.96	168 Industries	30.11.96
3.	06.09.96	513 Industries	31.01.97
4.	10.10.96	43 Hotmix Plants	28.02.97
5.	26.11.96	246 Brick Kilns	30.06.97
6.	26.11.96	21 Arc/Induction Furnaces	31.03.97
7.	19.12.96	337 Industries	30.06.97

In the Master Plan for Delhi - 2001, which was published in August, 1990 the concept of shifting industries outside Delhi was practically given a go bye and instead the plan proposed the development of 16 new light industrial areas covering 1533 ha. and 265 ha. for extensive industries in the urban extension. These provisions of the Master Plan later on formed the basis for the Supreme Court, through its order dated 30.10.96, to permit the acquisition and development of new industrial area of 1300 ha. in NCT Delhi for relocation of industries which were to be closed down in the non-conforming areas.

This decision of the Hon'ble Supreme Court has not only resulted in upsetting the calculations of the utilisation of industrial estates being developed by the participating States of NCR viz. Haryana, Rajasthan and Uttar Pradesh but also jeopardised the entire dispersal process from Delhi. Infact, the industries who had applied for allotment of plots in NCR industrial areas, took refunds and surrendered the allotted plots.

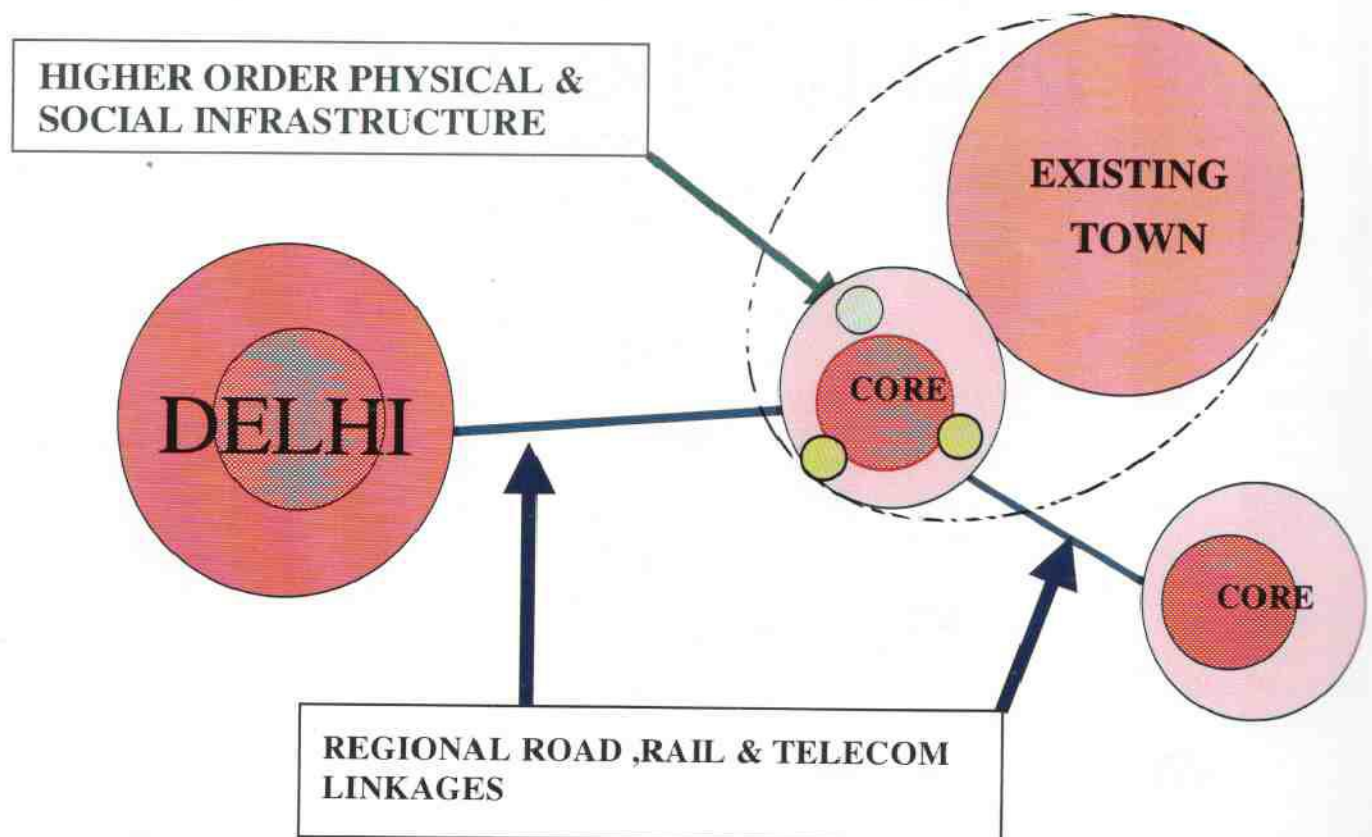
## **6. NCR PLANS : SOLUTION TO DELHI'S PROBLEMS**

## 6. NCR PLANS : SOLUTION TO DELHI'S PROBLEMS

### 6.1 Strategy for Development of New Townships

NCR Planning Board has approved a strategy for development of self-contained integrated townships in the vicinity of the selected DMA and Priority Towns, on the pattern of New Bombay and other developing townships like New Aurangabad in Maharashtra. The salient features of the strategy are as under:

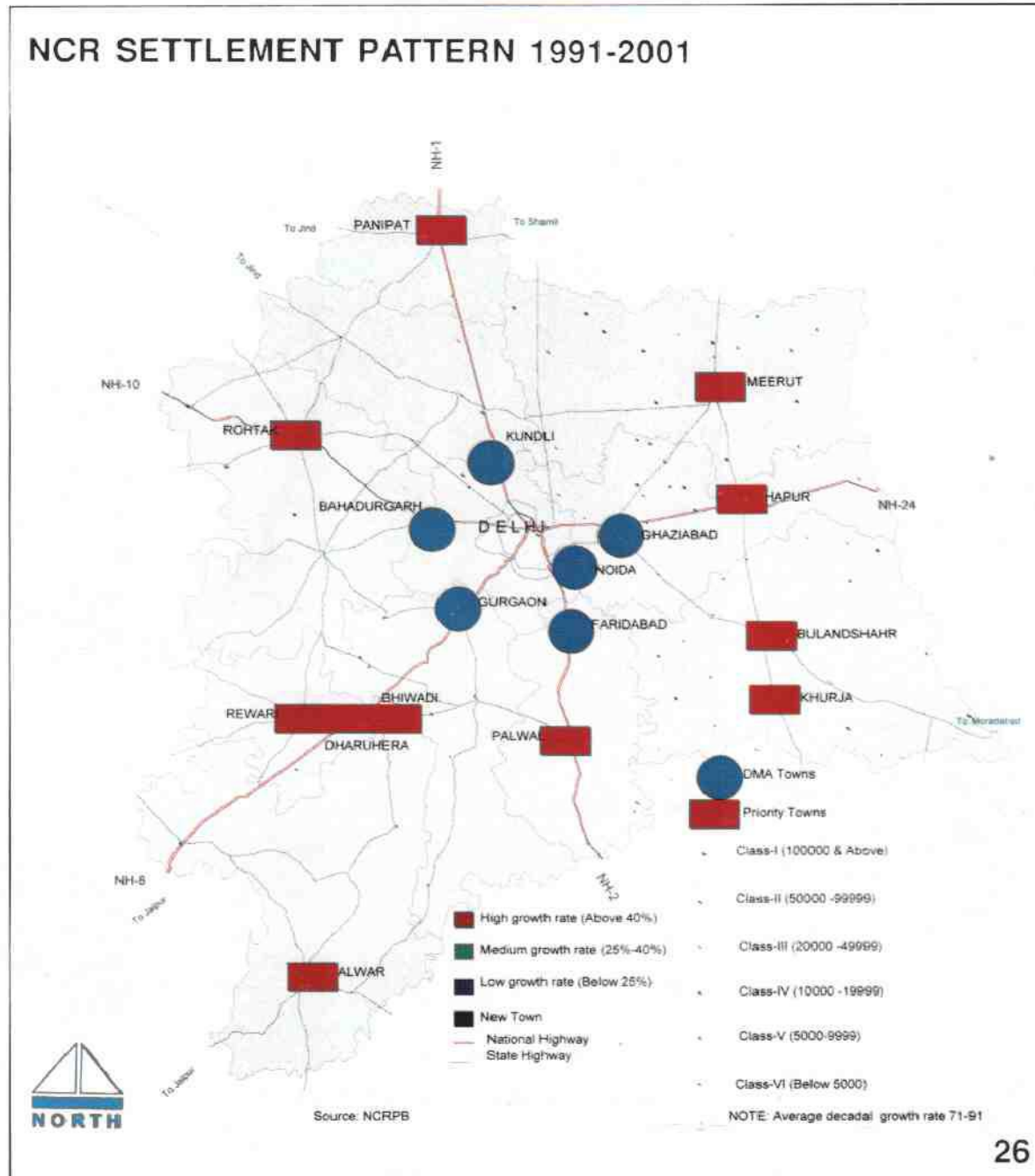
- a) Developing integrated new townships alongside the identified Priority/DMA towns for a total population assigned in accordance with the overall population profile of NCR as envisaged for the year 2001.
- b) The townships to be so developed should be centred around core-economic activities i.e. the large/medium industries, major commercial & office complexes slated to be relocated out of Delhi as part of the over-all dispersal strategy.
- c) Higher-order social facilities of Regional or National importance such as educational institutions, universities, hospitals, sports complexes and tourists centres, may also be among the specific activities to be promoted in these townships.
- d) Such major infrastructural works like the building of expressways, widening of national highways, laying of new railway lines and facilities for better telecommunications as also power distribution system at the sub-regional level, all of which are essential to the balanced and harmonious development of NCR, are intended to be dovetailed with the internal development activities in these townships and funded by the concerned ministries of Central Govt. through a special NCR Component Plan.



## 6.1.1 Development of Priority Towns and Delhi Metropolitan Area Towns

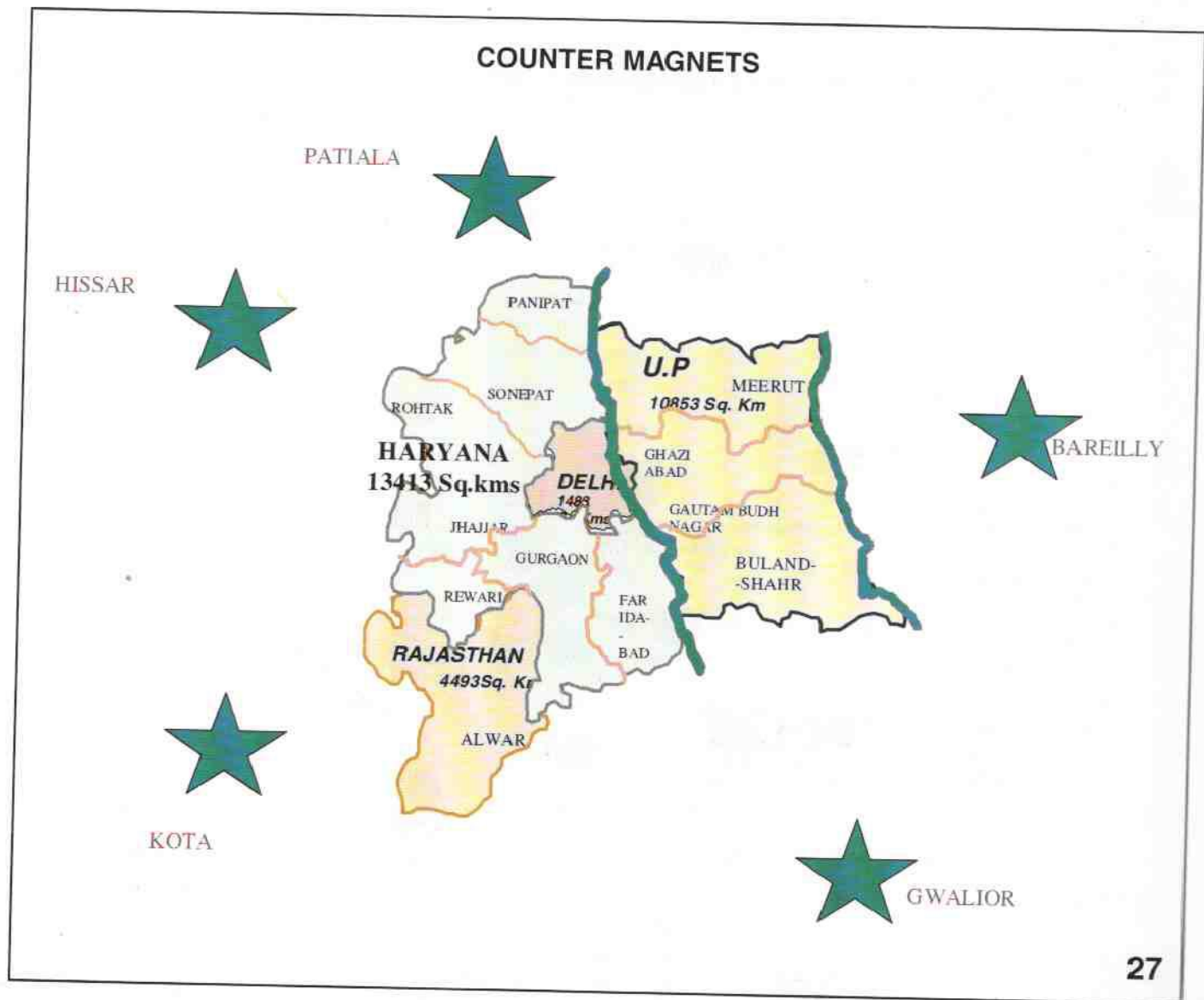
After considering various alternatives, and taking into account the financial, administrative, managerial and other constraints involved, the Regional Plan-2001 has proposed the induced growth in the 8 towns/urban complexes designated as 'Priority Towns'

The Delhi Metropolitan Area, as envisaged, comprises the controlled areas of the contiguous towns around NCT Delhi and the extension of Delhi ridge in Haryana. The total area of DMA excluding Delhi is about 1,696 sq. km.



### 6.1.2 The Counter Magnet Areas

As part of its settlement strategy, the Regional Plan also envisages the planned development of 5 counter magnet areas, one in each State, beyond the boundaries of NCR viz. Patiala in Punjab, Hissar in Haryana, Bareilly in U.P., Gwalior in M.P. and Kota in Rajasthan.



## 6.2 Strategy for The Development of Transport Sector

The objectives of the Transport Sector Functional Plan for NCR are:

- To decongest the over loaded transport network of Delhi by bypassing the through traffic not destined to Delhi through a regional transport network.
- To develop a coordinated regional network to help induce rapid growth of NCR towns and allow fast, comfortable and cost effective regional commutation allowing greater dispersal of population and economic activities through out the region.
- To provide direction and priority for specific transport projects identified in the plan.
- To identify the implementing agencies and fixing the responsibility for the development of transport projects.
- To provide a broad financial strategy for financing the transport projects.

### 6.2.1 Development Proposals - Roads

In order to meet the future requirements of the region the functional plan has proposed:

#### i) Upgradation (4-laning) of the following National Highways

- |                          |   |
|--------------------------|---|
| - National Highway No.1  | - Delhi to Panipat  |
| - National Highway No.24 | - Delhi to Hapur  |
| - National Highway No.2  | - Delhi to Palwal   |
| - National Highway No.10 | - Delhi to Rohtak and Hansi                               |
| - National Highway No.8  | - Delhi to Gurgaon (6 lane)<br>Gurgaon to Behror (4 lane) |

#### ii) Construction of Expressways

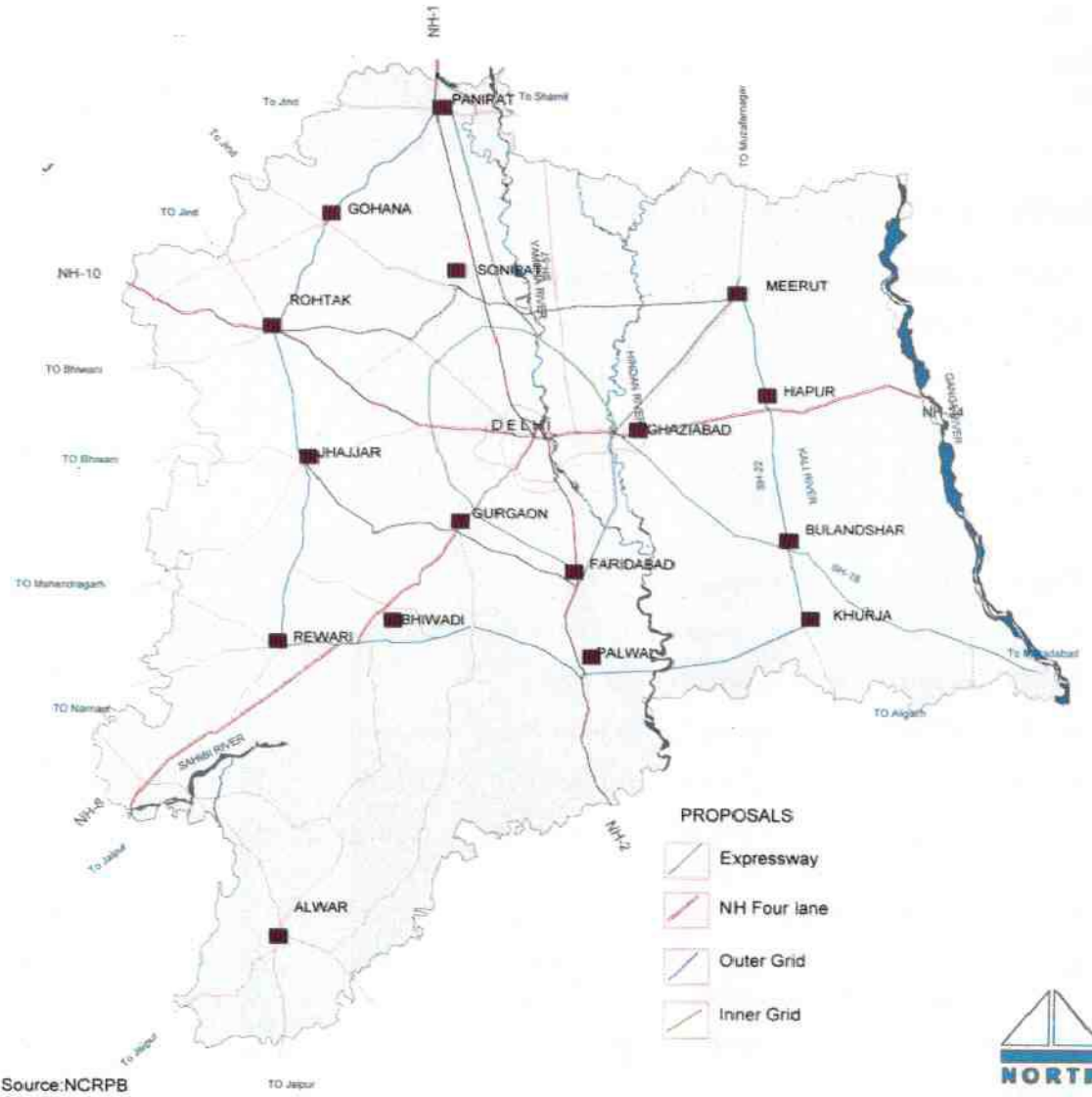
- a) Faridabad-Noida-Ghaziabad Expressway (56 km.)
- b) Ghaziabad-Kundli Expressway (42 km.)
- c) Kundli-Panipat Expressway (parallel to NH-1 - 90 km.)
- d) Ghaziabad-Meerut Expressway (38 km.)
- e) Perimeter Expressway (85 km.) along the western periphery of NCT-Delhi connecting NH-1 at Kundli and NH-2 at Faridabad
- f) Elevated Expressway on the existing Ring Road in Delhi (52 km.)
- g) Delhi-Loni-Noida-Surajpur-Bulandshahr-Khurja (To Aligarh - total 150 km.) on new alignment is suggested beyond 2001

#### iii) Widening (4 laning) of Grid Roads

- a) Inner Grid:
  - On new alignments to connect Murthal to Baghpat, and
  - Strengthening and widening of existing alignments of Rohtak-Sonepat-Murthal, Baghpat-Meerut and Jhajjar-Gurgaon-Faridabad stretches.
- b) Outer Grid:
  - Strengthening and widening of existing alignment of Palwal-Gohana-Rewari-Jhajjar, Rohtak-Gohana-Panipat, Meerut-Hapur-Bulandshahr-Khurja-Palwal, Khurja-NCR boundary (south), Meerut-NCR boundary (north) and Bhiwadi-Tijara-Kishangarh-Alwar stretches.

# DEVELOPMENT PROPOSALS - ROADS

NCR



Source: NCRPB

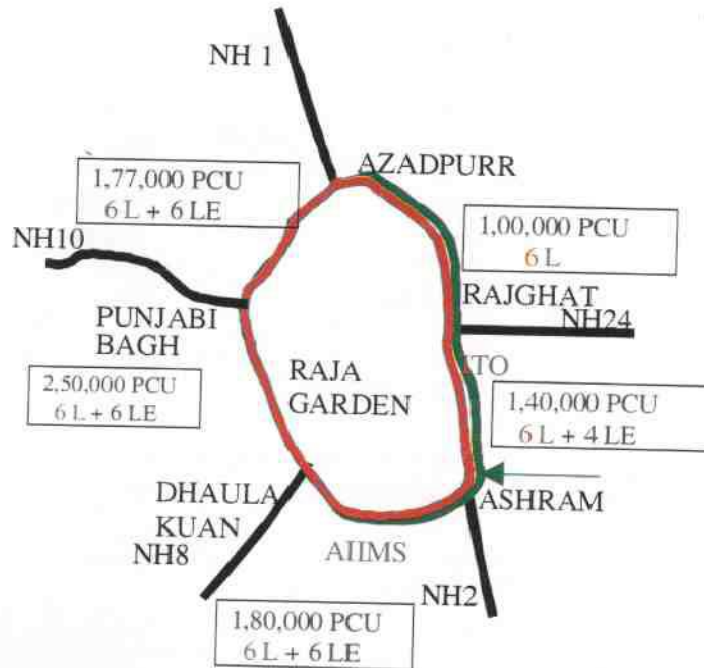
TO Jaipur



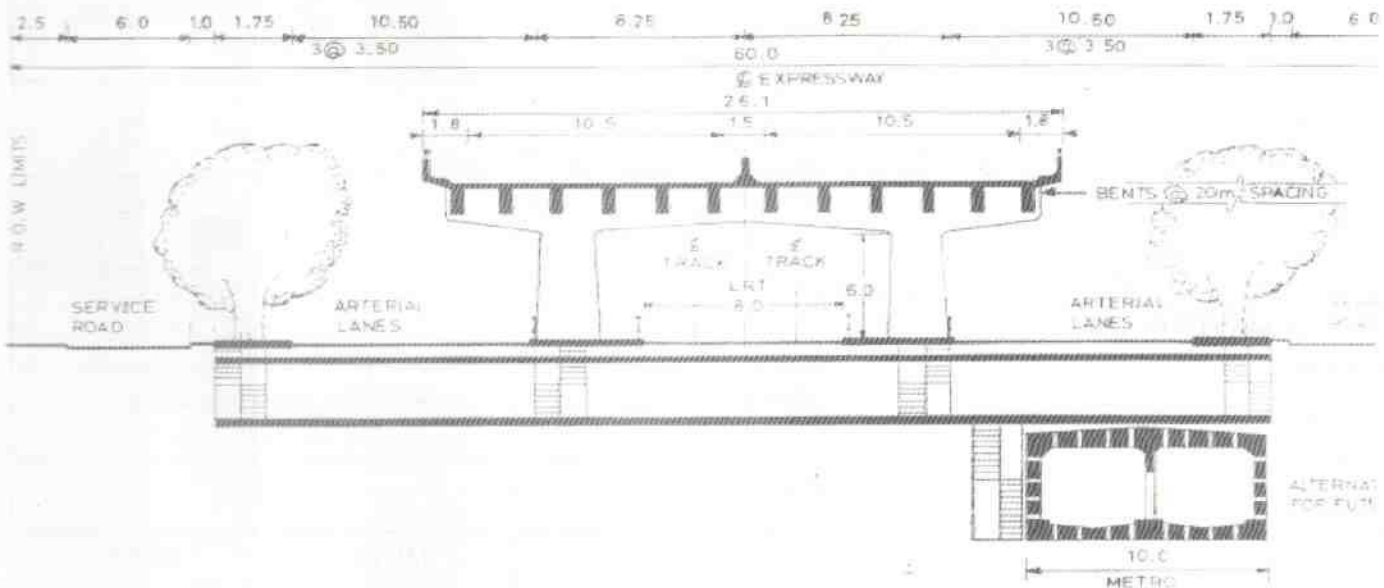
## 6.2.2 Elevated Expressway on Ring Road

Since, the lateral expansion of the Ring Road does not seem to be possible at the ground level, the NCRPB in its Functional Plan has suggested an Elevated Expressway with another 6-lanes on top of the present Ring Road and a set of Peripheral Expressways to divert the through traffic from entering NCT Delhi. In that event the overall loading on the Ring Road can be brought to a manageable level of 12 lanes in two tiers.

### RING ROAD WITH ELEVATED EXPRESSWAY



### CROSS SECTION OF ELEVATED RING ROAD



Source : Transport Sector Plan and Investment Strategy 2011 (CIDA Report, 1994)

### 6.2.3 Development Proposals - Rail

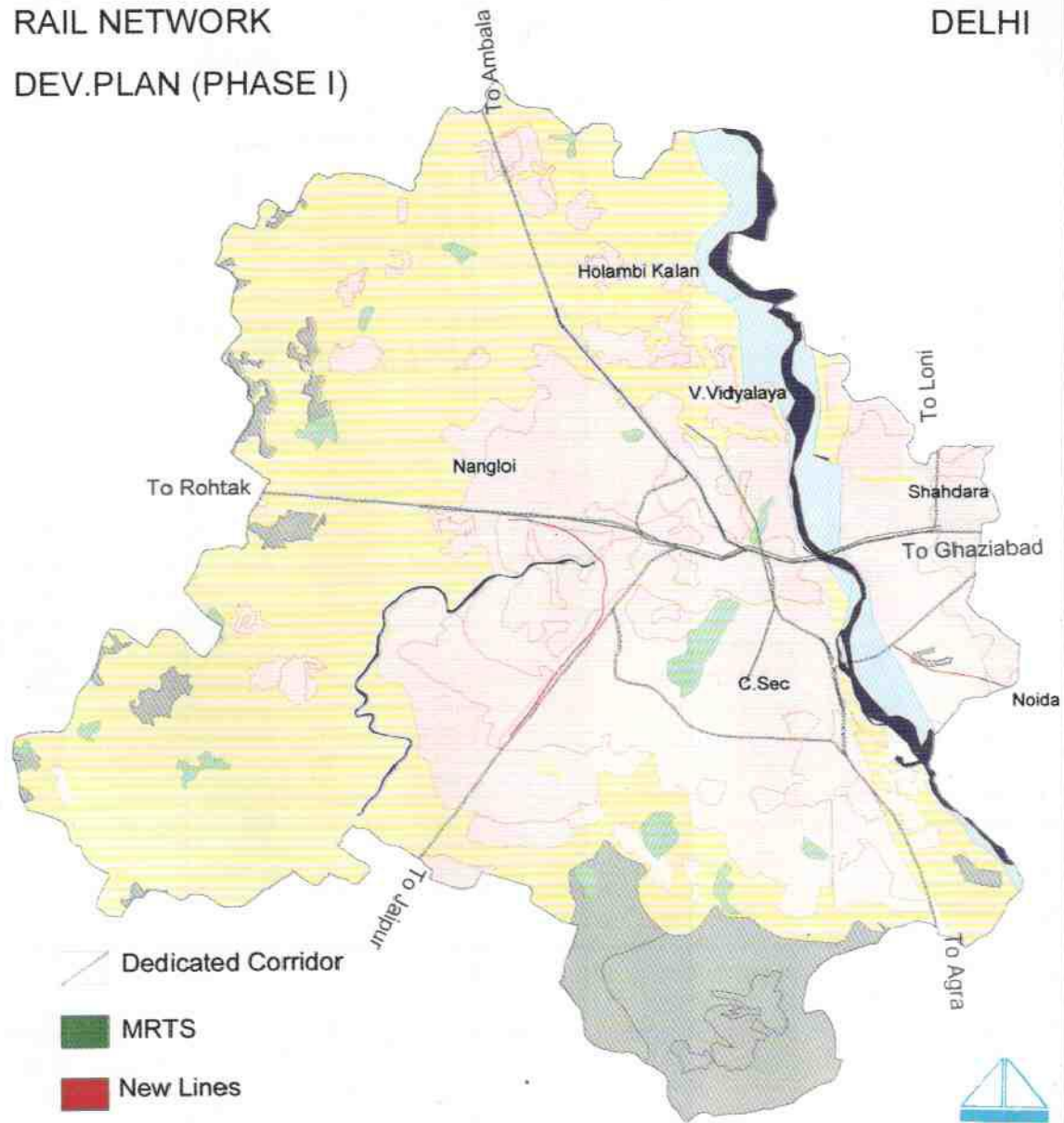
The Regional Rapid Transit System, a larger and broader complementary system, which would connect the central portions of Delhi with the NCR towns can provide relief to the over crowded core of Delhi and help in the dispersal of various activities to the NCR Towns. The Ministry of Railways and NCR Planning Board have recently got a study conducted by RITES to identify the Rail Projects for Commuter Travel in Delhi and NCR. The proposals are enumerated in the following tables:

#### Proposed Rail Network Development Plan In Delhi

	SECTION	PROPOSALS		
		(PHASE-I) 2005	(PHASE-II) 2011	(PHASE-III) 2025
1	Shahdara-Sahibabad	Dedicated BG double line & electrified (on MRTS standards)	—	—
2	Sahibabad-New Delhi Railway station	Dedicated BG double line & electrified	—	—
3	Holambi Kalan-Narela	Dedicated BG double line & electrified (on MRTS standards)	—	—
4	Dayabasti-Bijwasan	Dedicated, electrified BG double line	—	—
5	Tilak Bridge-Tughlakabad	Dedicated BG double line electrified	—	—
6	Southern Ring Rail from Tilak Bridge to Daya Basti	Strengthening	One more line	One more line (dedicated)
7	Patel Nagar to Shakurbasti	Dedicated BG double line electrified	—	—
8	Brar Square to Delhi Cantt. Station	Dedicated, Electrified BG double line	—	—
9	Terminal at Tilak Bridge	EMU Terminal	—	—
10	Tilak Bridge-Patel Nagar-Najafgarh	MRTS	MRTS	—
11	Tri Nagar-Barwala	MRTS	—	—
12	Central Sectt.-Vasant Kunj		MRTS	MRTS

RAIL NETWORK  
DEV.PLAN (PHASE I)

DELHI



Source: RITES, 1995

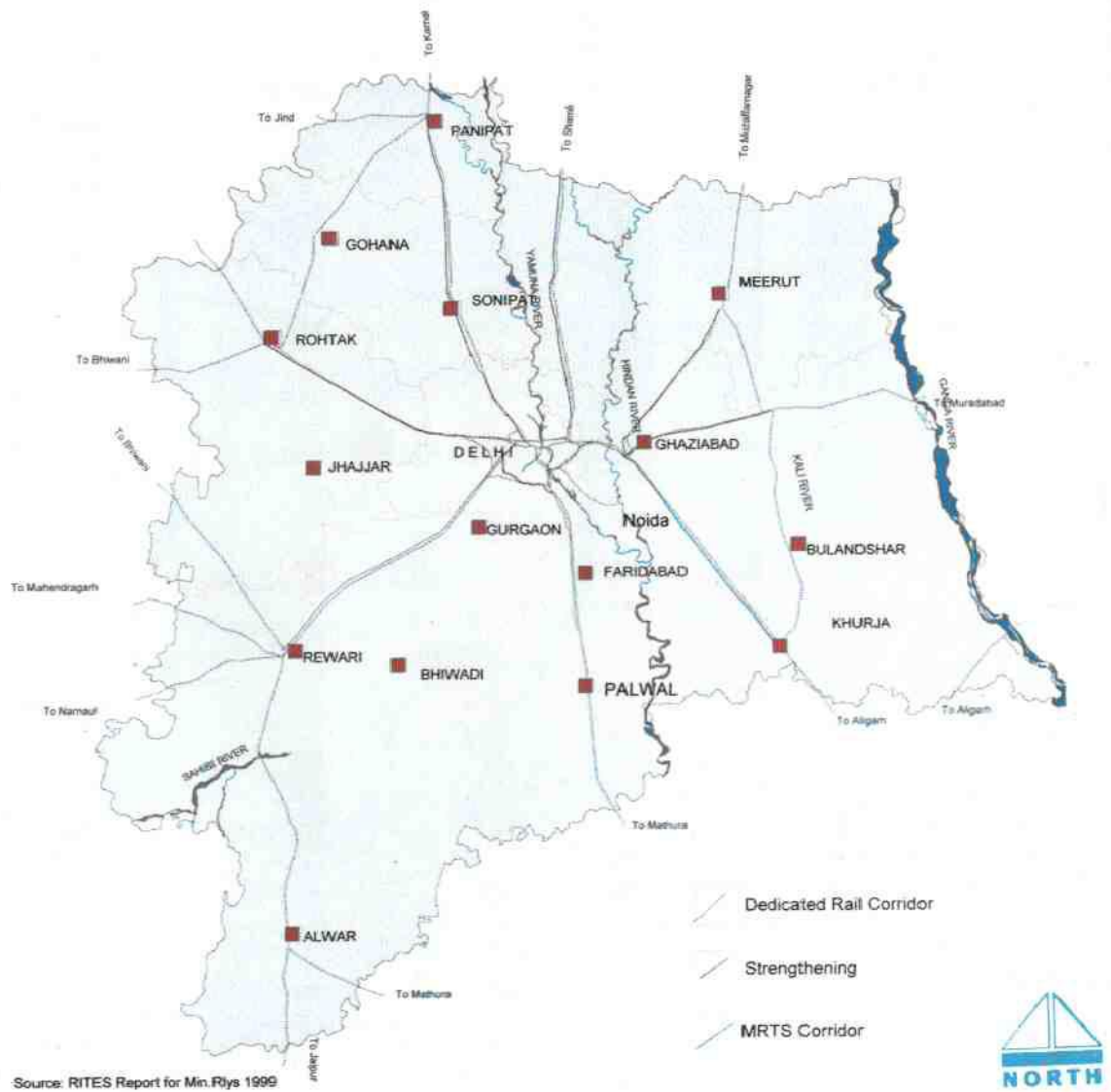


## Proposed Rail Network Development Plan In NCR

	SECTION	PROPOSALS		
		(PHASE-I) 2005	(PHASE-II) 2011	(PHASE-III) 2025
1	Narela-Sonepat	Strengthening	Dedicated BG double line electrified	-
2	Sonepat-Panipat	Strengthening, automatic colour light signalling	One more BG line electrified	One more electrified BG line (dedicated)
3	Nangloi-Bahadurgarh	Strengthening, automatic colour light signalling and electrification	Dedicated BG double line electrified	-
4	Bahadurgarh-Rohtak	Strengthening, automatic colour light signalling and electrification	One more BG line	One more BG line (dedicated)
5	Bijwasan-Gurgaon	Dedicated, Electrified BG double line	-	-
6	Gurgaon-Rewari	Strengthening & electrification	One more BG line	One more BG line (dedicated)
7	Sahibabad-Ghaziabad	Dedicated BG double line electrified	-	-
8	Ghaziabad-Meerut	Strengthening and electrification	One more BG line	One more BG line (dedicated)
9	Ghaziabad-Hapur	Strengthening and electrification	-	One more line
10	Ghaziabad-Khurja	Strengthening	-	One more line
11	Tilak Bridge-Noida	Dedicated BG double line electrified	-	-
12	NOIDA-Dadri	-	-	Dedicated BG double line electrified
13	Tughlakabad-Ballabgarh	Dedicated BG double line electrified (new rail line)	-	-
14	Ballabgarh-Palwal	Strengthening	One more BG line	One more BG line (dedicated)
15	Shahdra-Shamli	Strengthening	-	One more line

# RAIL NETWORK DEVELOPMENT PLAN (PHASE I)

NCR



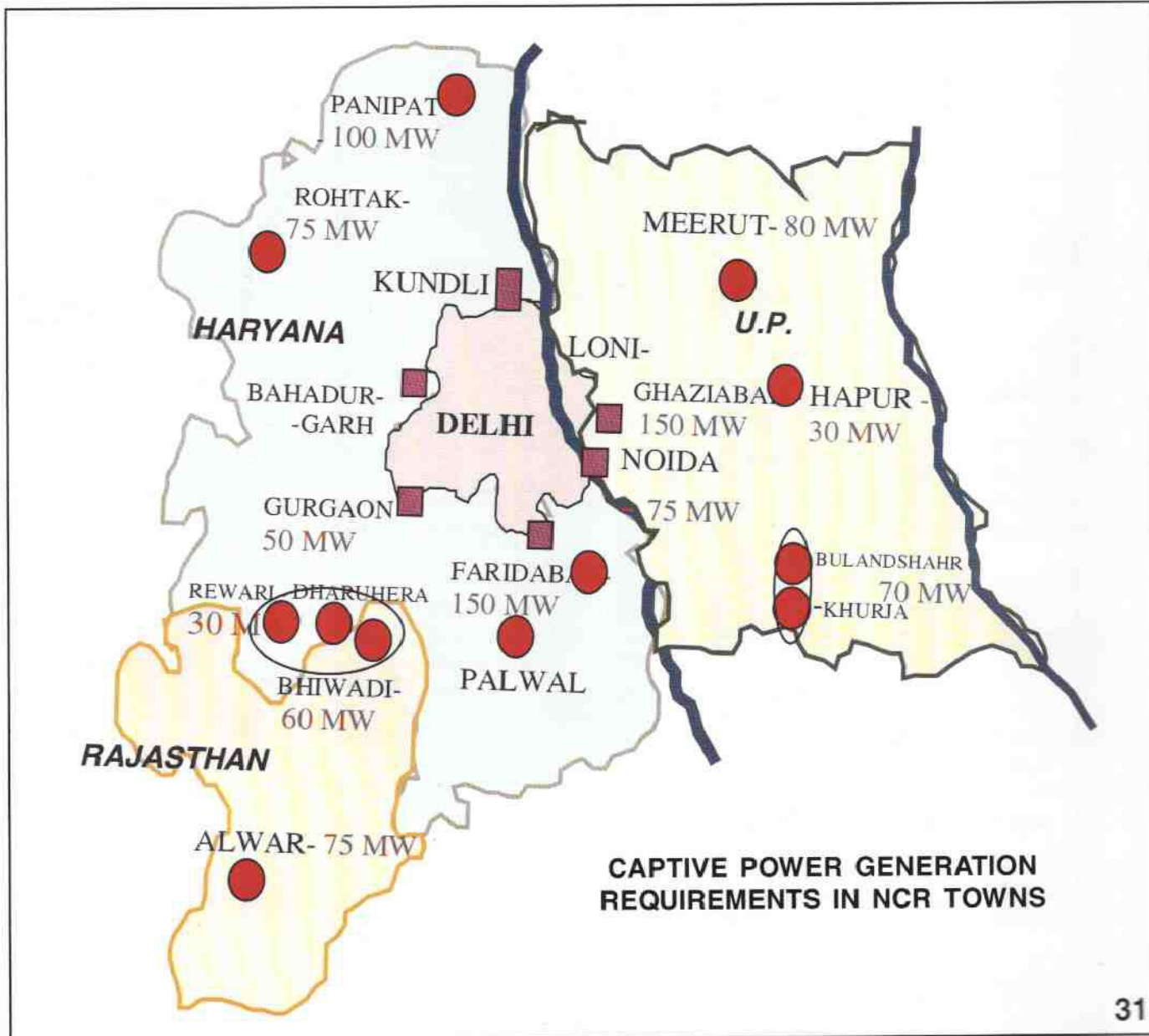
Source: RITES Report for Min. Riys 1999

### 6.3 Strategy for the Development of Power Sector

The main objective of the Functional Plan for the power sector is to provide a power supply system in the NCR towns which ensures availability of adequate and reliable power for industry, economic and business activities at par if not better than Delhi Metropolis. The plan has accordingly suggested the following strategies:

- NCR to be treated as a sub-grid of northern grid.
- To make NCR towns power cut free, atleast 50% of the peak demand should be generated through captive power generation in NCR towns through private sector and the towns be islanded in case of grid failure.
- Improvement of Transmission & Distribution System by state electricity boards

As a first step in this direction, NCRPB is getting pilot project studies conducted for captive generation through the Central Electricity Authority for the towns of Ghaziabad, Manesar and Bhiwadi.



## 6.4 Strategy for Development of Telecom Sector

### 6.4.1 Uniform Local Call System in the whole of NCR

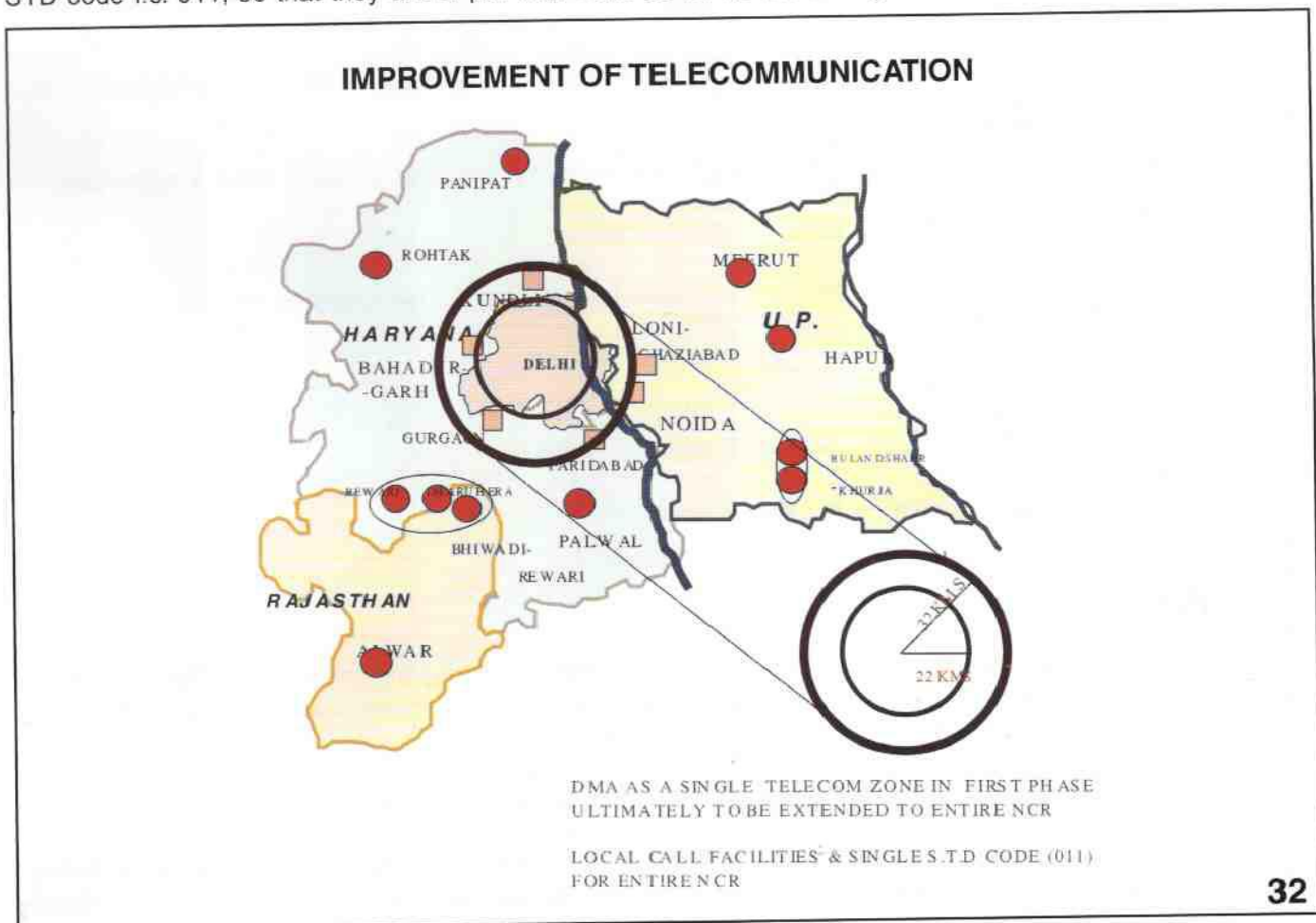
At present there exists a local call system (on level 91) between Delhi and DMA towns i.e. Delhi- Gurgaon; Delhi-Ghaziabad; Delhi-NOIDA; etc. It is proposed that all the towns in NCR should have local call system among each other as well as with Delhi. This facility in the first phase could be provided among DMA Towns i.e. Loni, Ghaziabad, NOIDA, Faridabad, Gurgaon, Bahadurgarh, Kundli and Delhi, while in the II<sup>nd</sup> phase it could be extended to the entire NCR and cover all the regional towns.

### 6.4.2 Extension of MTNL Boundaries to cover entire NCR

In order to provide the entire NCR including Delhi with a uniform high level of telecom services, the boundaries of the MTNL should be enlarged to cover the entire NCR. In case it is not possible to immediately do so in the phase-I the MTNL boundaries may be extended to cover the DMA town areas and in the phase-II it may cover the entire NCR.

### 6.4.3 Single STD Code

In order to bring cohesiveness in the entire region, it will be necessary to place all the NCR towns on a single STD code i.e. 011, so that they are at par with Delhi as far as the calling areas outside NCR are concerned.



## 6.5 Strategy for Industrial Development

The objectives of the Functional Plan for Industry in NCR are :

- i) To break the strangle-hold of Delhi in terms of location of industries and creation of job opportunities in industrial activities.
- ii) To prevent Low-Tech and allow restricted growth of only Hi-Tech industries in Delhi and recycle Low-Tech industries into Hi-Tech in a phased manner.
- iii) To revitalise the economy of the stagnating urban centres and rural settlements in the Region.

In order to achieve these objectives following area specific policies have been proposed.

### (a) NCT Delhi

The primary consideration for location of industry in Delhi should be availability of space, large scale in-migration, pollution and strain on already deficient services. With these considerations, Delhi should follow a policy which have following elements:

- Only those industries which are required either for marketing and market related activities and/or for providing consumer needs of Delhi's population should be allowed in Delhi.
- The requirements on civic services viz. Power, Water etc. should not exceed the standards and norms permissible for the residential areas.
- The industries should meet the standards laid down by the local pollution control authorities.
- Only Hi-Tech industries should be allowed in Delhi.
- In the existing industrial areas Low-Tech industries should be recycled into Hi-Tech.

### (b) Delhi Metropolitan Area

- No hazardous and polluting industry should be allowed in DMA
- Hi-tech industries should be allowed in DMA.

### (c) Rest of NCR outside DMA

- The towns selected for priority development should have a strong industrial content, and incentives comparable to those given to industries in centrally declared backward areas should be given to all types of industries.
- Modern Industrial Townships/Estates should be developed in the area outside DMA.
- Specific areas should be earmarked in the Region outside the DMA for relocation of polluting, hazardous, heavy and large and non-conforming industries proposed for shifting out of NCT-Delhi.

## POTENTIAL LOCATIONS FOR INDUSTRIAL DEVELOPMENT IN NATIONAL CAPITAL REGION



## **7. NCR PLAN : IN RETROSPECT AND PROSPECT**

## 7. NCR PLAN : IN RETROSPECT AND PROSPECT

### 7.1 Review of Regional Plan -2001

The Regional Plan-2001 for NCR, approved by the NCR Planning Board on November 3, 1988 and notified on January 23, 1989, is being implemented by the member states of Haryana, Rajasthan, Uttar Pradesh and NCT-Delhi. The Plan-enabling legislation, the NCRPB Act, 1985, stipulate that this Regional Plan shall be reviewed periodically and, if necessary, revised. In compliance of this legal mandate, the NCR Planning Board had constituted a Steering Committee under the chairmanship of Sayed S. Shafi, a renowned spatial planner and former Chief Town Planner, Town & Country Planning Organisation of the Govt. of India, to guide this Review Exercise by analysing its policy parameters and suggesting the various mid-course corrections needed, if any, for its effective implementation.

The Review exercise mainly relied upon the voluminous data/information support available in the Board's Secretariat which were assembled through exhaustive studies/surveys conducted with the help of prominent research institutions and also its Geographical Information System (GIS) capabilities with which essential base maps in various scales were generated. The Review exercise also drew heavily from the Functional Plans which were already approved by the Board which spell out sectoral policy guidelines in respect of Industry, Transport, Telecommunications and Power as well as the Fiscal Plan for Resources for the Regional Plan.

In order to facilitate the Review Exercise, on the advice of the Steering Committee, the following 7 Sub-groups were formed which were chaired by eminent experts in their respective fields of specialization:

1. Policy Zones, Demographic Profile and Settlement Patterns  
Chairman - Prof. J.H. Ansari, School of Planning & Architecture, New Delhi.
2. Economic Profile, Fiscal Plan and Development Resources  
Chairman - Prof. M.C. Purohit, NIPFP, New Delhi
3. Regional Landuse, Environment & Eco-development and Rural Development.  
Chairman - Shri R.C. Gupta, Former Professor (Regional Planning), School of Planning & Architecture, New Delhi
4. Physical Infrastructure  
Chairman - Shri J.C. Gambhir, Former Commissioner (Planning.), DDA, New Delhi
5. Social Infrastructure  
- Shri J.C. Gambhir, Former Commissioner (Planning), DDA, New Delhi
6. Transport and Circulation including major policies in the inter-connected areas  
Chairman - Shri P.S. Bawa
7. Management Structure for Plan Implementation Strategies and Development Priorities.  
Chairman - Shri M.K. Dhar

The Review Report approved by the NCR Planning Board recommended the following policy parameters that should govern the formulation of a new Plan for Delhi and NCR-2021:

- ⇒ It is absolutely important that the practice of piecemeal and ad-hoc decisions should come to an end. As a corollary to this all development schemes currently been contemplated either by *Dilli Sarkar*, the DDA or the participating States of the NCR and which proposals are clearly outside the approved plans viz. MPD-2001 and NCR Plan-2001 should not be taken up.

In fact, it is virtually impossible to discern the tearing hurry which tantamount to preempting the options left for the national capital and its region. It may be pointed out that almost all such schemes

outside the approved plans are, in fact, illegal. Moreover, in case they are taken up for implementation, they would practically nullify the entire planning effort.

- ⇒ While the reasons for non-implementation and non-effectuation of the plan, have been pointed out in this report, in the main this has been so, because no systematic fixation of priority was ever established; time-bound programs were never formulated responding to the felt-needs of the various segments and communities within the metropolis and its metro-region.

**It is, therefore, necessary to make the necessary modifications in the plan-enabling legislation to mandate systematic programming and fixation of priorities without which no long-term plan can be implemented in the envisaged time frame;**

- ⇒ The Union Government has a special responsibility for the sound development of the national capital and its region, therefore, location of new offices, allied institutions and offices of the Public Sector Undertakings (PSUs) within Delhi should be completely stopped.

**Offices and institutes, which have already been identified, should be shifted out the national capital territory of Delhi in the metropolitan area, but preferably in the metro-region.**

**In this connection, the relocation of Abattoirs (slaughter houses), Fish and Poultry from the congested central areas of Delhi (Shahjahanabad) to alternative locations must be undertaken on a top priority basis.**

Also relevant, in this connection is the necessity of the relocation of certain wholesale trades that have strong storage component and have already been identified in earlier sections of this Report. Programmes need to be prepared and a time-bound schedule made for their relocation in a programmed manner in the designated towns and cities of the NCR.

- ⇒ In the interest of the future and survival of Delhi, makes it imperative that no massive investment, especially in short-time, should be made in Delhi that is bound to further enhance its magnetism. Example : development of ten or twelve, Five-Star deluxe hotels with a large Shopping Complex and a Convention Centre.

**However, investments are nonetheless required to fill the increasing gaps in urban infrastructure and services including water supply, electricity, sanitation, flood control and drainage.**

- ⇒ Operationalising and implementing the principle of Common Economic Zone (CEZ)

**Although the idea was first mooted as far as back 15 years and was rapidly accepted, it was also endorsed as recently as September, 1997, it is yet to be taken up in a serious manner.**

- ⇒ Finally, amendments and modifications required to be made in the plan enabling legislation, viz. DDA Act, 1957 and NCRPB Act, 1985.

It may be necessary to appoint a small Task Force to identify important changes as are required in the above laws, so that they become more responsive and are in tune with the changing realities.

- ⇒ To effectuate understanding and consideration of planning schemes, a small Standing Committee be formed between the technical personnel of the NCRPB and DDA.

They should review and reconcile their plans and schemes in close collaboration. While the terms of reference of this Committee could be worked out in due course, among others, the Chief Planners of the DDA, NCR PB, DDA's Commissioner (Planning) later, Member Planning (as and when made) should be its member, including the Chief Planner, TCPO. Meeting may be held at least once in a month or as frequently as may be required.