AGENDA NOTES

Special Meeting of the Board

20.12.2016 at 10.00 A.M.

Hall No. 1, Ground Floor, Vigyan Bhawan,

Maulana Azad Road, New Delhi

National Capital Region Planning Board

Ministry of Urban Development

New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi

Phone: - 24603138, Fax: - 24642163

LIST OF AGENDA ITEM FOR THE SPECIAL MEETING OF THE NATIONAL CAPITAL REGION PLANNING BOARD TO BE HELD ON 20.12.2016 AT VIGYAN BHAWAN, NEW DELHI

AGENDA ITEM NO. 1

FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF DELHI DATED 18.11.2016 IN THE MATTER OF "COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI) VS. UNION OF INDIA & ORS." [W.P.(C) 1346/2015]: AIR POLLUTION IN DELHI

AGENDA ITEM NO. 1: FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF DELHI DATED 18.11.2016 IN THE MATTER OF "COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI) VS. UNION OF INDIA & ORS." [W.P. (C) 1346/2015]: AIR POLLUTION IN DELHI

Hon'ble High Court of Delhi vide its Order dated 18.11.2016 (Copy at **Annexure-I**) in the matter of "Court on its Own Motion (Air Pollution in Delhi) Vs. Union of India & Ors." [W.P. (C) 1346/2015] has expressed its concern about the level of air pollution in Delhi, which is about four times higher than the prescribed standards, due to various reasons, such as:

i) Stubble/biomass burning in the adjoining States of Delhi including Punjab;

ii) Movement of All India Permit Diesel Taxis which come into and go out of Delhi from adjoining States, instead of CNG Taxis;

iii) Burning of garbage in the Sanitary landfill sites at Bhalaswa, Ghazipur and Okhla; and

iv) Pollution contributed by road dust and construction activities.

2. In the said order the Hon'ble High Court of Delhi has directed the States of Punjab, Haryana, Rajasthan, Uttar Pradesh and NCT-Delhi; Central Pollution Control Board and State Pollution Control Boards of the concerned States; and various other Central and State Agencies to prepare a clear-cut Plan of Action and take necessary actions towards reducing the air pollution and improvement of air quality. The Hon'ble High Court has also given following directions to the NCR Planning Board:

> *"We also direct that the National Capital Region Planning Board should have a meeting within three weeks and a status report be filed with regard to the said meeting."*

3. It may be noted that the NCRPB has already prepared the Regional Plan for NCR-2021 (RP-2021), notified in 2005, under Section 7(a) of the NCRPB Act, 1985, which is a broad policy document and provides policy framework for harmonious and balanced development of the NCR. It lays down policies and proposals for various inter-related sectors including Environment, Transport, Power, Water, Sewerage, Solid Waste Management and Regional Landuse. Subsequently, the Board has also prepared a "Functional Plan on Transport for NCR", under Section 7(a) of the NCRPB Act, 1985, in 2009 with a perspective year 2032 for systematic development of transport network in NCR. It has proposed development of Regional Rapid Transit System (RRTS), Mass Rapid Transit Systems (MRTS), Railway, Expressways, Highways, Roads, Integrated Freight Complexes, Logistics Hub, etc. in NCR. Implementation of all the proposals of the Functional Plan especially those pertaining to provisioning/ strengthening of the public transport system (either of buses, MRTS,

RRTS etc.) will result in modal shift from private to public modes and reduction in travel time, costs and pollution in the NCR either directly or incidental thereto. A brief of the major policies and proposals of the RP-2021 and Functional Plan on Transport for NCR is given at **Annexure-II**.

4. It may also be noted that the policies and proposals of the Regional Plan, Functional Plan and Sub-Regional Plans prepared under the provisions of the NCRPB Act, 1985 are to be implemented by the concerned Central Government Ministries/ Departments/ Agencies and the respective NCR participating State Governments. The effective implementation of the policies and proposals of the Regional Plan, Functional Plans and Sub-Regional Plans will collectively result in improved air quality in NCR including NCT-Delhi.

5. Hon'ble High Court of Delhi vide its Order dated 14.01.2016 (Copy at **Annexure-III**) in the said matter had sought an affidavit from the Central Government with regard to the Regional Plan and Sub-Regional Plans under the NCRPB Act, 1985. The material for the affidavit was provided by the Ministry of Urban Development (MoUD) vide their e-mail dated 21.01.2016 (File no. 4/19/2015-DDVI) to MoEF&CC for further necessary action as per the directions of the Hon'ble High Court. (Copy at **Annexure-IV**).

6. Further, in order to address air pollution problems in the NCT-Delhi by identifying major air pollution resources, their contributions to ambient air pollution level and develop an air pollution control plan, the Govt. of NCT-Delhi and Delhi Pollution Control Committee (DPCC) conducted a Study titled as "**Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi**" through **Indian Institute of Technology (IIT), Kanpur**. This study on air quality management is comprehensive and provides insight into air quality measurements, emission inventory, source-receptor impact analyses, dispersion modelling, identification of control options, their efficacies and action plan for attaining air quality standards. In the said Report **"Control Options, Analyses and Prioritization for Actions"** have been given in Chapter 6 (P-265 to 283 of the Report) to reduce the Air Pollution levels in Delhi. The action plan given in Para 6.3 of the said Report states that ***"the findings and Action Plan of the Study are applicable for NCR and will bring air quality improvement in the entire region."*** Relevant extract of the said para is re-produced below:

> *"6.3 **Action Plan and Consulting Remarks***
>
> ***.....It was observed that NCR is contiguous extension of activities similar to that of NCTD. The pollution levels in NCR were also similar to that of NCTD. It is expected the findings and action plan of this study are applicable for NCR and will bring air quality improvement in the entire region. In view of the limited financial resources, it is suggested that no separate or respective study is required in NCR and Delhi for re-establishing***

source-receptor impacts; the focus should be on early implementation of action plan."

7. Board had circulated the copies of the said Report to the NCR participating States vide letter dated 26.02.2016 requesting that the plan of action for reduction of air pollution may be adopted and implemented in time bound manner in their respective sub-regions. A copy of the **Executive Summary and Chapter 6 of the said Report** is at **Annexure-V**.

8. The Plan of Action recommended by the IIT, Kanpur in the said Report would be deliberated by the Board in the Special Meeting so that its implementation can be reviewed and carried out by the NCR States in time-bound manner.

Action Point:

(i) The NCR Participating States, concerned Central Ministries/ Departments and their Agencies to provide the status of the implementation of the policies and proposals of the Regional Plan, Sub-Regional Plans and Functional Plan on Transport towards reducing the air pollution in their respective sub-region.

(ii) The NCR Participating States to provide the status of the implementation of the Plan of Action recommended by IIT, Kanpur in the "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi".

(iii) ***To Direct the NCR Participating State Governments and the concerned Central Government Agencies to prepare detailed time bound Plan of Action (Short Term and Long Term) for implementation of the recommendations of the Study of IIT, Kanpur and policies -proposals of the Regional Plan, Sub-Regional Plans and Functional Plans towards achieving improved air quality in NCR, as per the directions of the Hon'ble High Court of Delhi.***

AGENDA ITEM NO. 2

ANY OTHER ITEM WITH THE APPROVAL OF THE CHAIRMAN

AGENDA ITEM NO. 2: ANY OTHER ITEM WITH THE APPROVAL OF THE CHAIRMAN.

ANNEXURES

TO

AGENDA NOTES

Special Meeting of the Board

20.12.2016 at 10.00 A.M.

Hall No. 1, Ground Floor, Vigyan Bhawan,

Maulana Azad Road, New Delhi

National Capital Region Planning Board

Ministry of Urban Development

New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi

Phone: - 24603138, Fax: - 24642163

LIST OF ANNEXURES

ANNEXURES

ANNEXURE - I

Hon'ble Delhi High Court Order dated 18.11.2016

Annexure-I

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* **IN THE HIGH COURT OF DELHI AT NEW DELHI**

\+ W.P.(C) 1346/2015

COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI)

..... Petitioner

Through: Mr Kailash Vasdev, Sr. Adv. with Mr Sumer Singh Sandhu, Ms Divija Rajkhowa and Mr Umrao Singh Rawat, Advs, Amicus Curiae.

versus

UNION OF INDIA & ORS ..... Respondents

Through: Mr Vivek Goyal, CGSC with Ms Namisha Gupta, Adv. for UOI.
Mr Rahul Mehra, Adv. with Mr Satyakam, Adv.
Mr Pawan Mathur, Adv. for DDA.
Mr Gaurang Kanth, Adv. with Ms Biji Rajesh, Adv. for EDMC.
Mr Anil Mittal, Adv.with Ms Komal Aggarwal, Adv. for State of U.P.
Mr Avnish Ahlawat, Adv. for DTC.
Mr Sanjeev Ralli, Adv. with Mr Ravin Kapur, Mr Trinayan Sonowal, Advs.
Insp. Akhilesh Mishra- TI/Legal Cell Traffic with SI Ramtirath (Pairvi Officer Traffic).
Mr Parag P. Tripathi, Sr. Adv. with Mr Asheesh Jain, Mr Yudhvir Singh and Mis Mishika Bajpai, Advs and Mr Manpreet Singh, IAS, Chairman Punjab Pollution Control Board, Patiala, Dr. Babu Ram, Member Secretary, Punjab Pollution Control Board, Mr Manmohan Kalia, Agriculture Engineer, Punjab, Mr Anil Sharma, Assistant Engineer-II, Department of Agriculture and Mrs Divya Aggarwal, Assistant Environmental Engineer, Punjab Pollution Control Board, Patiala.
Mr Ajjay Aroraa, Adv. with Mr Kapil Dutta, Adv. for MCD.
Mr Sanjeev Ralli, Adv. with Mr R. Kapoor, Mr Trinayan Sonowal, Mr Dinesh Jindal, LO and Dr George, Scientist.
Mr. Anil Grover, AAG Haryana along with Mr Mishal Vij, for State of Haryana.

True Copy
MKapoor 21/11/16
Court Master
Delhi High Court
New Delhi

Mr Mukesh Kumar, Adv. for NHAI.
Mr Ajay Digpaul, CGSC with Ms Mohita, Adv. for UOI.
Mr R.S. Suri, Sr. Adv. with Ms Pallavi, Ms Rekha and Mr Ashish Jain, Adv. for State of Punjab.

AND

+ W.P.(C) 2115/2015

SUDHIR MISHRA ..... Petitioner
Through: Mr Kailash Vasdev, Sr. Adv. with Mr Sumer Singh Sandhu, Ms Divija Rajkhowa and Mr Umrao Singh Rawat, Advs, Amicus Curiae.
Ms R. Nanda, Adv.

versus

MINISTRY OF HEALTH & FAMILY WELFARE & ORS.... Respondents
Through: Mr Vivek Goyal, CGSC with Ms Namisha Gupta, Adv. for UOI.
Mr Rahul Mehra, Adv. with Mr Satyakam, Adv.
Insp. Akhilesh Mishra- TI/Legal Cell Traffic with SI Ramtirath (Pairvi Officer Traffic).
Ms Manisha Agrawal Narain, Adv. with Mr S.K. Sharma, Scientist, CPCB.
Mr Dhanesh Relan, Adv. for DDA.

CORAM:
HON'BLE MR. JUSTICE BADAR DURREZ AHMED
HON'BLE MR. JUSTICE JAYANT NATH

ORDER

% 18.11.2016

Mr Parag Tripathi, the learned senior counsel appearing on behalf of the State of Punjab, submits that a better affidavit would be filed on behalf of the State of Punjab. This is so because we feel that the present affidavit, which has been filed, indicates that the State of Punjab is still in denial mode. Furthermore, the affidavit that is to be filed should indicate a clear-

cut plan for the future. The stubble burning/biomass burning is virtually over insofar as the current year is concerned. But, this problem would arise next year again in October-November. We are informed that the State of Punjab alone produces 17 million tonnes of paddy straw annually. Only a small percentage of it is utilised either by paper and cardboard companies or for converting the same into energy or for the purposes of fertilizers. The bulk of the paddy straw is burnt and that is one of the major causes for the spike in the pollution levels not only in Punjab but also in Delhi. The statistics and figures have already been indicated in the previous occasion. We direct the Central Pollution Control Board to indicate after analysing the data scientifically as to how much of the paddy straw per metric tonne which is burnt ends up as PM 2.5 and PM 10 as also other noxious gases and pollutants. The CPCB shall file an affidavit to this effect.

The State of Punjab shall in the affidavit which is to be filed clearly indicate time lines with regard to the action proposed to be taken so as to eliminate stubble burning/biomass burning completely in the next year. Clear way-points shall be marked out in the affidavit and we shall monitor the same.

Another major cause of concern is the fact that in Delhi all taxies were supposed to have been converted to CNG but a large number, possibly around 40000 taxies, are still running on diesel. We are also informed that there are also 35000 taxies in Delhi with an All India Permit which are

running on diesel. We are also informed that the taxies running in other States, that is, Punjab, Haryana, Rajasthan and Uttar Pradesh are also mostly diesel based. The All India Permits which are granted by these States for taxies to ply inter-state should also be streamlined so as to result in diesel taxies being converted into CNG taxies. This is so because the taxies with the All India Permit in these States come into and go out of Delhi. A clear-cut plan of action should be furnished by each of the States i.e. Punjab, Haryana, Rajasthan and Uttar Pradesh. Each of the States shall file affidavits and the affidavit of the State of Punjab shall include this aspect also. The affidavits should clearly indicate the plans that have been drawn up or are being drawn up to attain this objective. All these affidavits by the States, as also by the CPCB, shall be filed within three weeks from today.

Another problem with regard to air pollution in Delhi is the burning of garbage in sanitary landfill sites at Bhalaswa, Gazipur and Okhla. Mr Vasdev, the learned amicus curiae, showed us photographs and video clips of his recent visit to the Bhalaswa landfill and we could clearly see fires burning in the landfill site. People residing next to these landfill sites are subjected to serious health hazards. The smoke that emanates from the garbage in the landfill sites forms part of the polluted air that citizens all across Delhi breathe. They contain not only small particulate matter such as PM 2.5 and PM 10 but also other carcinogens. The Municipal

Corporations of Delhi are responsible for the landfill sites and they shall ensure that all fires in these landfill sites are extinguished with immediate effect. Affidavits with photographs indicating the same shall be filed before the next date of hearing.

Another aspect which needs consideration is the pollution contributed by road dust and construction. Judicial notice can be taken of the same. At every construction site, whether it is repair of roads or construction of buildings or placing of pipe lines, after the activities are completed the area is left without clearing up. In another writ petition we have directed all the agencies to remove all the rubble and debris left on and along side roads and all public areas such as markets etc. That direction is reiterated by us here also. All the agencies in Delhi are represented before us and they shall ensure that this is taken as an emergent measure so that air pollution is minimised to the extent possible. Insofar as the construction sites are concerned, the MCD, DDA, PWD and NDMC shall ensure that each of the construction sites, whether they are public sector construction sites or of private builders, is kept debris free and there is proper clean up and removal of all construction debris on a day-to-day basis. If this is done, the particulate matter, which comprises of construction dust or road dust, shall be reduced and would see an improvement in the air quality levels. Insofar as the existing air quality levels are concerned, we have got the readings of the city average for 17.11.2016 and we find that PM 2.5 is at

208 and PM 10 is at 438, which are both approximately four times more than the prescribed standards. We also direct that the National Capital Region Planning Board should have a meeting within three weeks and a status report be filed with regard to the said meeting.

Issue fresh notice to NTPC, through its standing counsel/nominated counsel, returnable on 25.11.2016.

Dasti under the signature of the Court Master.

BADAR DURREZ AHMED, J

JAYANT NATH, J

NOVEMBER 18, 2016
kb

True Copy

Court Master
Delhi High Court
New Delhi

ANNEXURE - II

Major policies and proposals of the Regional Plan-2021 and Functional Plan on Transport for NCR to improve air quality in NCR including NCT-Delhi

Annexure-II

Major policies and proposals of the Regional Plan-2021 and Functional Plan on Transport for NCR to improve Air Quality in NCR including NCT-Delhi

1. The NCRPB has prepared the Regional Plan for NCR-2021 (RP-2021), notified in 2005, is a broad policy document and provides policy framework for harmonious and balanced development of the NCR. It lays down policies and proposals for various inter-related sectors including Environment, Transport, Power, Water, Sewerage, Solid Waste Management and Regional Landuse.

2. RP-2021 has recognised the need to improve the environmental condition in the region in its various Chapters. Chapter 14 of the RP-2021 is related to Environment. The policies in this Chapter emphasize the need for carrying out development in the region based on the **Carrying Capacity of the Region** adopting Minimum National Standards. It is also mentioned that the provisions under Environmental Protection Act, 1986 and Rules thereof should be followed in order to protect the environment and address the health requirements of the area, while carrying out activities for the development of the region.

3. As the disposal of Solid Waste, if it is not done in an environmental friendly manner, also causes air pollution, RP-2021 has laid down policies with regard to effective handling and management of Solid Waste in the NCR. Some of the major policies and proposals are as follows:

   i) **Preparation of Detailed Solid Waste Management Plan:** All the towns in NCR should prepare Solid Waste Management Plan in order to handle the waste being generated in their respective towns on the basis of guidelines provided by the CPHEEO Manual & MOEF&CC for the solid waste management. It would be appropriate that the local bodies plan for the whole city and decentralization should be done for disposal of solid waste for reducing the transportation cost.

   ii) **Identification of Land for Treatment/ Disposal of Waste:** While preparing the Master/ Development Plan for various towns/cities, Town Planning Department of respective Sub-regions should earmark the land for treatment/disposal of solid waste. The acquisition of these sites, by the development authorities and municipalities, should form a compulsory element of the development programme and properly budgeted for in their Plan documents. Sanitary landfill sites should be designed and engineered properly to collect and treat leachate and biogas should be collected and utilized in a planned manner. Appropriate collection system of biogas from the landfill sites will reduce the instances of fire in such sites which is major cause of air pollution. Constituents States of NCR should also earmark land for solid waste disposal by sanitary landfill and other means appropriately.

   iii) **Waste Minimization-Recycling/Recovery of Resources:** In view of the limited availability of land for use as landfill sites, there is an urgent need to find other mechanical means of minimizing waste requiring disposal. In fact, we should aim at zero waste output. Fly-ash from proposed/existing thermal power plants should be utilized in environmental friendly manner by using it in the construction industry. The

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prevalent system of recycling/recovery of plastic, glass, metal, paper, etc. from the domestic waste is completely informal/unorganized. This should be done in more organized, scientific, cost effective and environmental friendly manner. The segregation of biodegradable waste from non-biodegradable waste such as plastics, glass, metal, paper etc. at the source should be made compulsory in all towns/cities. Not more than 50% of the total solid waste generated should be disposed off through sanitary landfill.

iv) **Public Awareness and Training:** Public awareness need to be created through mass media including T.V. and newspapers regarding the harmful affects of littering around and how the places can be kept clean. The informal training along with broad-based formal awareness through schools educational curriculum is also recommended. NGO's and Resident Welfare Association (RWA) should be actively involved in the public awareness campaign.

v) **Institutional Improvements:** Institutional capacity building measures are required to be taken in order to improve the efficiency and effectiveness of solid waste management at each stage such as waste collection, transfer/transportation, treatment and disposal. There is a need to associate NGOs/private sector also in this regard. The combination of private sector and public sector in proportionate ratios will be the right option. In the rural areas, there is no mechanism for collection and disposal of solid waste. This should be developed by associating local Panchayats.

vi) Other measures, which are required to be taken, are as follows:

a) Adoption of closed bins and covered transportation vehicles
b) Modification of building bye-laws to ensure provisions of refuse storage
c) Safe and separate storage as well as doorstep collection of biomedical waste, hotel and yard waste etc. on full cost recovery basis.
d) Community participation

RP-2021 has recommended phased implementation of these policies and proposals. Effective implementation of these policies would address the air pollution generated by improper management of solid waste in NCR.

4. RP-2021 has also identified the major natural features as environmentally sensitive areas and has given policies & proposals for their protection and conservation under a broad landuse category of Natural Conservation Zone (NCZ). Such areas Aravalli range, forest areas, sanctuaries, rivers & their tributaries, lakes, water bodies, etc. **It may be noted that forest/ green areas as well as water bodies act as carbon sinks by means of absorbing CO2 and other pollutants** and, therefore, effective implementation of the policies & proposals of RP-2021 by the participating States regarding protection and conservation of these natural features as part of NCZ would address, to a great extent, the challenges posed by air pollution.

5. RP-2021 has also laid down detailed policies and proposals to address various aspects/challenges relating to transportation in NCR. It may be noted that the share of vehicular air pollution in NCR is significant. In view of this, detailed policies and proposals have also been given in RP-2021 to address the issues related to transportation, which would also have significant impact on air pollution. The policies for development

of Transport sector in NCR, aims to achieve the following overall objectives:

a) To decongest NCT-Delhi roads, rail and rail terminals by diverting the by-passable traffic from Delhi.

b) To provide linkages amongst Metro/ Regional Urban Settlements in the outlying areas of NCR

c) To connect Metro/ Regional Centres with the Capital by an efficient and effective transport network for facilitating faster movement of traffic among such centres and NCT-Delhi

d) To link the Sub-regional Centres with effective and efficient transport network for facilitating the faster movement of traffic among such centres and higher order settlements.

e) To directly link other urban nodes having maximum attracting and generating characteristics.

6. RP-2021 states that it is recognised and reaffirmed that the solution of the increasing transportation problem lies in development of settlements outside the NCT-Delhi metropolis at appropriate distance and providing inter-connection between Delhi and settlements thus reducing pressure on Delhi's transport infrastructure. Accordingly, RP-2021 proposes the following:

   a) Develop activities keeping in view rail and road linkages in Central NCR having better accessibility and at the same time relieving pressure on the existing transport routes converging at NCT-Delhi.

   b) Unrestricted movement of buses, taxis and auto-rickshaws within NCR.

   c) Focus on certain inter-state issues (e.g. land acquisition) for workable coordination and evolve an institutional mechanism on priority basis to encourage private participation.

   d) Execution without further delays of the Regional Rapid Transport System (RRTS), Expressways and Bypasses.

7. Further, as per the Section 7 (a) of the NCRPB Act, 1985, NCRPB has prepared the "Functional Plan on Transport for NCR" in 2009 with a perspective year 2032 for systematic development of transport network in NCR. It has proposed development of Regional Rapid Transit System (RRTS), Mass Rapid Transit Systems (MRTS), Railway, Expressways, Highways, Roads, Integrated Freight Complexes, Logistics Hub, etc. in NCR. Implementation of all the proposals of the Functional Plan especially pertaining to provisioning/ strengthening of the public transport system will result in reduction in travel time, costs and pollution in the NCR.

8. The Functional Plan on Transport for NCR-2032 is proposed to be implemented by 2032 by the concerned State Governments/Central Government Ministries in a phased manner. The copies of the said plan were provided to the concerned departments by the Board for implementation.

9. Subsequent to the preparation of the Functional Plan on Transport-2032, NCRPB has prepared the Feasibility Reports for the three prioritised Regional Rapid Transit System (RRTS) Corridors out of eight RRTS Corridors proposed in the Functional Plan. The three prioritized corridors are Delhi-Sonepat- Panipat (111 kms.), Delhi-Ghaziabad-Meerut (90 kms.) and Delhi-Gurgaon-Rewari-Alwar (80 kms.). NCRPB has also prepared draft DPR for Delhi-Panipat corridor.

10. National Capital Region Transport Corporation (NCRTC) has been incorporated on 21.08.2013, after obtaining the Cabinet approval on 11.07.2013, with an initial seed capital of Rs.100 crore for designing, developing, implementing, financing, operating and maintaining RRTS in NCR.

11. In addition to above, in order to implement the policy related to unrestricted movement of buses, taxis and auto-rickshaws within NCR, "Reciprocal Common Transport Agreement" among Governments of NCT-Delhi, Haryana, Rajasthan and Uttar Pradesh for unrestricted movement of vehicles in NCR for "Contract Carriage" and "Stage Carriage" were signed on 14.10.2008 and 22.04.2010 respectively. Under these agreements, vehicles shall use clean fuel (CNG) conforming to prevailing norms in NCR which has direct impact of the reduction of vehicular air pollution in NCR.

12. As the utilization of existing roads has reached a saturation point in many stretches of the roads leading to traffic jams and increased pollution, a conscious effort is required to be made by all the NCR participating States as well as concerned Central Ministries/ Departments to implement the proposals of the Functional Plan on Transport for NCR-2032. Implementation of proposals related to public transport system such as RRTS, MRTS, Bus Systems, etc. will lead to shifting of people from their private modes to public transport. Timely implementation of the Eastern and Western Peripheral Expressways would reduce vehicular pollution caused by non-destined passenger and goods traffic transiting through Delhi and congesting roads of Delhi.

ANNEXURE - III

Hon'ble Delhi High Court Order dated 14.01.2016

Annexure - III

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* **IN THE HIGH COURT OF DELHI AT NEW DELHI**

\+ **W.P.(C) 1346/2015**

COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI) ..... Petitioner

Through : Mr Kailash Vasdev, Sr Advocate, Amicus Curiae with Mr Shreyans Singhvi, Mr Sumer Sandhu and Mr Umrao Singh Rawat

versus

UNION OF INDIA & ORS ..... Respondents

Through : Mr Vivek Goyal with Ms Namisha Gupta for UOI.
Mr Ajjay Aroraa with Mr Kapil Dutta for SDMC.
Mr Anil Grover with Ms Kanika Singh and Ms Noopur Singhal for R-5.
Mr Pawan Mathur, Mr Dhanesh Relan and Mr Arush Bhandari for DDA.
Mr Sunil Satyarthi for Delhi Cantonment Board
Mr Mukesh Kumar for R-19/NHAI
Mr Ajay Digpaul with Mr Kunal Gosain for UOI.
Mr Shubham Puri for Gaurang Kanth for EDMC
Mr Sanjeev Ralli for DPCC
Ms Latika Choudhary for Ms Avnish Ahlawat for DTC.
Mr Sanjay Lao with Mr Siddarth Sindhu along with Mr Romil Banniya, IPS, Dy. Commissioner of Police, HQ. Traffic with Insp. Kailash Bisht, Legal Cell, Traffic
Mr Rahul Mehra and Mr Sanyog Bahadur for GNCTD.
Mr Satyavan Kudalwal along with Mr Puneet Garg, Law Officer, DMRC
Mr Abhishek Paruthi for R-6/CPCB.
Mr K.M.M.Khan, Advocate for applicant – Sanjay Colony, Bhati Mines.
Mr D.Rajeshwar Rao, Advocate for PWD/GNCTD with Deputy Director Lahari Shankar.
Mr Ram Niwas Jindal, Director, Ministry of Environment, Forests and Climate
Mr Shiv Kumar, Advocate for R-21/DMRC.

ACP Ravindra Soni and Inspector Kailash Bisht.
Ms Manisha Agrawal Narain, Advocate for CPCB.

CORAM:
HON'BLE MR. JUSTICE BADAR DURREZ AHMED
HON'BLE MR. JUSTICE SANJEEV SACHDEVA

ORDER

% 14.01.2016

CM No.1325/2016 (exemption)

Exemption is allowed, subject to all just exceptions.

CM No.1326/2016(for intervention)

This is an application for intervention. We have heard the applicant–in-person. The applicant is permitted to intervene.

Mr Vasdev, the learned senior counsel who appears as Amicus Curiae in this matter, has been given the copy of the application and he has been requested to make submissions thereon on the next date. The other respondents may also take copies of the application and make their submissions on the next date.

The application is allowed and stands disposed of accordingly.

W.P.(C) 1346/2015

On the previous occasion, after a detailed hearing, we had set out 14 points, which had emerged from the discussion and the record. During the hearing, it was generally felt that various compliances, which were supposed to have been done by the various authorities, have not been done. In respect of the 14 points and the compliances required, we note as under:-

1. The affidavit, pursuant to the order dated 24.04.2015, was supposed to have been filed by the PWD, particularly, in connection with the news item, which appeared on the Times of India on 24.02.2015, under the heading, **"Green Fetish holds up plan to clear cities worst traffic mess"**. The Government of NCT of Delhi and, particularly, the PWD were required to file an affidavit in connection with the said news item but we find that no such affidavit has yet been filed. Mr Rahul Mehra, the learned counsel appearing for the PWD, states that there was some misunderstanding and an affidavit had been filed but that did not pertain to the said news item. He assures this Court that before the next date

of hearing, an appropriate affidavit shall be filed.

(2) An affidavit was required to be filed pursuant to our order dated 03.12.2015 passed in CM No.29407/2015, whereby PWD was directed to disclose the orders of the concerned Tree Officer permitting the felling of trees on Olaf Palme Marg/RTR Marg and also to give the number of trees felled etc. That affidavit has not been filed but Mr Rahul Mehra has handed over an affidavit, which is taken on record. A copy of the said affidavit has been given to Mr Vasdev, who requests for some time to make submissions thereon.

(3) An affidavit was required to be filed by the Central Government with regard to the Regional Plan and the Sub-Regional Plans under the National Capital Region Planning Board Act, 1985. That affidavit has not been filed. The affidavit will be filed at least two days before the next date of hearing.

(4) The Central Government was also required by our earlier order dated 03.12.2015 and reiterated on 21.12.2015 to spell out its action plan, divided into short-term, medium-term and long-term, in tackling the problem of air pollution in the Delhi/NCR area. No affidavit has been filed by the Central Government. It is stated that Plans have been received from the Governments of Delhi, Rajasthan, Haryana and UP, but those do not contain any timelines. An affidavit is ready without the timelines and the same shall be filed within one day.

(5) We had also required the Government of NCT of Delhi to submit a PERT chart giving specific timelines and assigning clear-cut responsibilities with regard to the issues of deforestation and maintenance of forests in Delhi. That has not been submitted. Mr Rahul Mehra is present and he assures this Court that the same shall be done before the next date of hearing.

(6) Mr Ralli, the learned counsel appearing on behalf of the Department of Environment, Government of NCT of Delhi and DPCC had, on the previous occasion, submitted a document entitled "Action Plan of Government of NCT of Delhi for Air Pollution Control". We had taken that document on record but as we found that no distinct and definite timelines and responsibilities had been placed on the various departments and agencies, Mr Ralli was required to file a detailed affidavit in support of the Action Plan. The said affidavit was, in fact, filed on 23.12.2015 and the same is on

record. Mr Vasdev states that he has received a copy of the said affidavit only today and he would be making his submissions thereon on the next date of hearing. The learned counsel for the DDA is directed to take specific instructions as to whether any land owned by them in the flood plain, Zone 'O' could be handed over to the Forest Department for maintenance as a forest in order to ensure that no unauthorized construction takes place in these areas and because of forestation, air pollution levels are brought down. The specific instructions be taken by the learned counsel for the DDA and a status report be filed before the next date of hearing.

(7) Mr Arora, the learned counsel appearing on behalf of the South and North Delhi Municipal Corporation, states that affidavits/status reports have been filed with regard to the landfill sites. Copies of the same be given to Mr Vasdev, if not already done, so that he can examine the same and make submissions before the Court on the next date of hearing.

(8) We had noted, on the previous occasion, that it is the failure of the officials, who have been given the responsibilities of ensuring that the air pollution levels remain within the norms prescribed, which has resulted in the situation which exists today. Mr Vasdev made a suggestion that each of the departments, which are concerned and are before this Court, should nominate a specific official, whose job will be to ensure that all the directions given by this Court are complied with by that department/authority. We, therefore, direct all the respondents present to nominate such an officer and each one of the respondent shall give the name to this Court before the next date of hearing.

(9) We had required the DPCC to submit the data with regard to the pollution levels from 2011 onwards. The data was to be supplied for monthly averages as well as for weekly averages for specified periods of time. An affidavit has been filed by the DPCC, in which the data has been submitted and graphical representations of the said data has also been supplied in the form of a chart. It is noted from examining the data, in the first instance, that there are three periods of time during the year when there is peak of air pollution in Delhi. One period is during October-November, the other is during December-January and the third is during May-June. Dr M.P.George, who is a scientist with the DPCC and present in Court, explained to us that the peak levels seen in October-November are essentially due to biomass burning of agricultural wastes in area

surrounding Delhi, particularly, in Punjab and Haryana. It was also submitted by him that the peaking that takes place in December-January is on account of temperature inversions and that of May-June is because of the dust storms emanating in Rajasthan. Apart from this also, we note that the background levels of pollution and, particularly, PM 10 and PM 2.5 is way beyond the prescribed norms. It was pointed out that although pollution levels in 2015 were, in fact, lower than the earlier years. The average annual level of PM 10 was 266 micrograms per cubic metre, whereas the maximum prescribed norm is 60 microgram per cubic metre for the annual average. Similarly, PM 2.5 was recorded to have an annual average of 118 micrograms per cubic metre, whereas the maximum prescribed norm for the annual average is 40 microgram per cubic metre. This clearly indicates that apart from the peak levels, which we noticed in October-November, December-January and May-June, the background pollution levels are way out of the prescribed standards. The reasons for the background pollution may be many, including dust pollution due to heavy construction activity, vehicular pollution, industrial pollution and re-suspension of road dust. Therefore, there has to be action, both to pull down the peak level as well as to bring the background pollution within the limits prescribed.

Dr George further states that he would be submitting a detailed analysis of the data, which has been supplied.

(10) We had required the DPCC to furnish copies of any reports under Section 45 of the Air (Prevention and Control of Pollution) Act, 1981 and any action/prosecution initiated by them during the last five years under the provisions of the said Act. Mr Ralli appearing on behalf of the DPCC submits that there is no report, as, such reports have to be submitted only if asked for by the Central Pollution Control Board and the Central Pollution Control Board have never asked to submit any report under Section 45 of the said Act.

(11) Mr Romil Banniya, who is the DCP (Headquarters) (Traffic), is present. Mr Lao, who is representing the Delhi Traffic Police, is also present. Both have addressed this Court with regard to traffic management in Delhi. It is the concern of everybody that vehicular traffic is managed in a proper way and, as we noted on previous occasions, if idling time is reduced and congestion is reduced from the roads. This would definitely have salutary effects in reduction of pollution in the air. Both Mr Lao and Mr Banniya

have expressed that a comprehensive plan for better traffic management would be worked out. They shall indicate what steps they are taking, particularly, in the fourteen corridors which have been known to have heavy congestion. We keep on repeating and we shall repeat once again that the traffic authorities are not checking the violation of wrong lane driving by the various road users. They are directed to ensure once again that these have to implemented in letter and spirit.

12. Mr Rahul Mehra appearing on behalf of the Government of NCT of Delhi states that in place of the earlier Nodal Officer, Mr S.S.Gill, Special Secretary, Urban Development, Government of NCT of Delhi, would be the nodal person. Mr S.S.Gill is to operate in terms of the directions given by us on 20.10.2015.

13. Affidavits indicating as to whether adequate publicity has been given to the fact that burning of leaves, garbage, plastic and rubber in the open is prohibited and that it causes air pollution were to be filed. Only the DPCC and the PWD have filed their affidavits. The New Delhi Municipal Council, the three Municipal Corporations of Delhi and the Delhi Cantonment Board shall file their affidavits before the next date of hearing. The learned counsel for the NHAI has also been informed that there is a lot of construction work going on, on the Delhi-Faridabad section of Mathura Road and there is a lot of *'malba'* all along the stretch of 20 kms, which is leading to a lot of particulate matter re-suspension in the air as traffic moves along those roads. Remedial action is to be taken by the NHAI. A report be submitted with regard to this before the next date of hearing.

Renotify on 28.01.2016.

All affidavits, which were required to be filed, be filed before 25.01.2016 with advance copies to Mr Kailash Vasdev.

Dasti under signatures of the Court Master.

BADAR DURREZ AHMED, J

SANJEEV SACHDEVA, J

JANUARY 14, 2016
'sn'

ANNEXURE - IV

Material for Affidavit as provided by MoUD vide their e-mail dated 21.01.2016 to MoEF&CC

Annexure-IV

Gmail

MS/NCRPB
Dy. No. 1341/D
Date 28.1.16

Ruchi Gupta <ncrpb.ruchi@gmail.com>

Fwd: Material for Affidavit with regard to WP(C) No.1346/2015

1 message

Raj Kumar Varshneya <rk.varshenya@nic.in> Thu, Jan 28, 2016 at 12:07 PM
To: ruchig.25@gmail.com
Cc: ncrpb.ruchi@gmail.com

MoUD has provided the following material for reply to MoEF&CC, who is the respondent on behalf of UOI. for information please.
Ruchi
28/01/16
Advisor

—— Original Message ——
From: **"Raj Kumar Varshneya"** <rk.varshenya@nic.in>
Date: 22 Jan 2016 12:53:29
Subject: Fwd: Material for Affidavit with regard to WP(C) No.1346/2015
To: ajay digpaul <digpaulassociates@yahoo.co.in>
Cc: Mrinal Kant <mrinal.kant@nic.in>

With reference to your mail dated 20.01.2016 kindly find the required Affidavit alongwith Annexures for further necessary action. Kindly acknowledge receipt.

MS Mtg fd. on in Delhi.
28/01/16

—— Original Message ——
From: **"Raj Kumar Varshneya"** <rk.varshenya@nic.in>
Date: Jan 22, 2016 11:28:39 AM
Subject: Fwd: Material for Affidavit with regard to WP(C) No.1346/2015
To: vivekgoyal <"vivekgoyalcgsc."@gmail.com>
Cc: Mrinal Kant <mrinal.kant@nic.in>

pl. find the annexures to the affidavit

regards raj

29/1/201

—— Original Message ——
From: **"Raj Kumar Varshneya"** <rk.varshenya@nic.in>
Date: Jan 21, 2016 2:38:57 PM
Subject: Material for Affidavit with regard to WP(C) No.1346/2015
To: ajay digpaul <digpaulassociates@yahoo.co.in>, jindal environment <ram.jindal@nic.in>, "jindal, ministry of environment" <rnjindal@yahoo.com>, vivekgoyal <"vivekgoyalcghc."@gmail.com>
Cc: Mrinal Kant <mrinal.kant@nic.in>

JD(RG)
29/1/16

File No. 4/19/2015-DDVI
Government of India
Ministry of Urban Development
(Delhi Division)

Nirman Bhawan, New Delhi
Dated the 21st January, 2016

S/JD(RG)/R
28/1/16

28/Advl Secy/R
29/1/16

To,

Addl D
28/1/16

Sh. R.N.Jindal,
Director(s),
Ministry of Environment, Forests and
Climate Change, Indira Paryavaran Bhawan,
Level-II, Jal, Jor Bagh Road, Ali Ganj,
New Delhi-110003.

Subject :- **Order dated 3rd and 21st December, 2015 in WP (Civil) No.1346/2015-Court on its own Motion vs. Union of India & Ors. And WP**

(Civil) No. 2115/2015-Sudhir Mishra vs. Ministry of Health & Family Welfare & Ors.

Sir,

I am directed to invite reference to previous letter of even no. dated 13/01/2015 and your letter no. Q-18011/11/2015-CPA dated 20th January, 2016, in connection with the above mentioned subject.

2. As directed by the Hon'ble Court the required inputs, with respect to requirements of pollution and avoiding environmental degradation in the Regional Plan and Sub Regional Plans under NCRPB Act, 1985, are sent herewith as per the enclosed draft affidavit. A soft copy of same is also being forwarded to you.

3. As per your discussions with Sh. M.K. Tripathy, Director, MoUD in this regard, since MoEFCC is the respondent on behalf of UOI, you are requested to take further necessary action, in accordance with the directions of the Hon'ble Court in its order dated 21.12.2015 and 14.01.2016, under intimation to this Ministry.

Yours faithfully,

Encl: (i) Material for Affidavit

(ii) Annexures I, II and III

(R.K.Varshneya)
Under Secretary (DD-VI)

Copy to;

1. Shri Vivek Goyal, Advocate, E-317, Greater Kailash-1, New Delhi.
2. Sh. Ajay Digpal, Ajay Digpal & Associates, Chamber No. 138-139, Patiala House Courts, New Delhi.
3. Sh. Sanjeev Sharma, JLO, Delhi Division, MoUD, Nirman Bhawan, New Delhi – with a request to take further follow up in the matter.

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4 attachments

Affidavit.docx
25K

Annexure I-Extracts from Chapter-14 Policies & Proposals.docx
17K

Annexure II-Chapter 14_FNPLTr_IMTP_11.11.10.doc
18909K

Annexure III- List of RRTS.docx
13K

18

Next Date : 4/2/16

IN THE HIGH COURT OF DELHI AT NEW DELHI

W.P. (C) NO. 1346/2015

IN THE MATTER OF:

COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI)	.....	Petitioner
VERSUS		
UNION OF INDIA & ORS.	.....	Respondents

N.D.O.H.:28/01/2016

WRITTEN STATEMENT (SHORT AFFIDAVIT)
ON BEHALF OF UNION OF INDIA

I, R.K. Varshneya S/o Late Shri P. Prasad age 51 years old, presently posted as Under Secretary, Ministry of Urban Development, Nirman Bhawan, New Delhi, do hereby solemnly affirm and declare as under:-

2. That I am in the above official capacity acquainted with the facts of the case from the records and am authorized and competent to sign and verify the present affidavit.

3. That National Capital Region Planning Board [hereinafter called as "the Board"] was created under the provisions of NCR Planning Board Act, 1985 [hereinafter called as "the Act"]. The Act provides for the constitution of a Planning Board for the preparation of a plan for the development of the National Capital Region (NCR). The preamble of the Act has been reproduced below:

"An Act to provide for the constitution of a Planning Board for the preparation of a plan for the development of the National Capital Region and for co-coordinating and monitoring the implementation of such plan and for evolving harmonized policies for the control of land-uses and

development of infrastructure in the National Capital Region so as to avoid any haphazard development of that region and for matters connected therewith or incidental thereto."

4. The Regional Plan prepared by NCRPB, is a broad policy document which provides for policy framework for harmonious and balanced development of the NCR. It lays down policies for various inter-related sectors such as Settlement Pattern, Economic Activity & Fiscal Policy, Transport, Power, Water, Sewerage, Solid Waste Management, Drainage, Irrigation, Shelter, Social Infrastructure, Heritage and Tourism, Environment, Disaster Management, Regional Land Use, etc.

5. By following the procedures and thorough consultation process, the Board prepared the Regional Plan under Section 10 of the NCRPB Act, 1985 with the perspective year 2021 for the NCR which was notified on 17.09.2005 under Section 13 of the aforesaid Act.

6. Regarding Sub-Regional Plan, it is submitted that, as per Section 17 of the Act, the constituent States are required to prepare the Sub-Regional Plans for their respective sub-regions in conformity with the Regional Plan further elaborating the broad policies enshrined in the Regional Plan, at the sub-regional level.

7. Taking the hierarchy of plans in the planning and implementation process, it is submitted that the Regional Plan is prepared by NCRPB for the entire NCR, whereas a Sub-regional Plan which is next in line and in conformity with the Regional Plan is prepared by the participating States for their respective Sub-regions and would show elaboration of the said area. Thereafter, the Master/Development plans are required to be prepared by respective departments of the participating States as per the prevailing Statutes of that particular State in conformity with

the aforesaid two plans for the respective towns in the NCR.

8. In view of the above, it is submitted that the NCR participating States are responsible for finalization of their respective Sub-Regional Plans, after due consideration of the observations made by the Board on the draft Sub-Regional Plan as referred to the Board by that participating State under Section 19 of the Act .

9. Section 20 of the Act, which provides for implementation of the Sub-Regional Plans by the NCR participating states, reads as:

"Each participating State, or, as the case may be, the Union territory shall be responsible for the implementation of the Sub-Regional Plan, as finalised by it under sub-section (3) of section 19, and Project Plans prepared by it."

10. Regional Plan for NCR-2021 (RP-2021) has recognised the need to improve the environmental condition in the region in its various Chapters. Chapter 14 is related to Environment. The policies in this Chapter emphasize the need for carrying out development in the region based on the **Carrying Capacity of the Region** adopting Minimum National Standards. It is also mentioned that the provisions under Environmental Protection Act, 1986 and Rules thereof should be followed in order to protect the environment and address the health requirements of the area, while carrying out activities for the development of the region.

11. The RP-2021 also emphasizes the need for providing more air quality monitoring stations in the region, by the Pollution Control Boards of the NCR participating States because when the Regional Plan-2021 for NCR was prepared, there were only three air quality monitoring

stations in the region. RP-2021, further recommends that the NCR participating States need to maintain the air quality database, regularly review the status and take remedial measures. Proper monitoring of the database will facilitate in following the Carrying Capacity Concept of the Environment while carrying out the development. A copy of the relevant policies & proposals given at Para 14.2 of Chapter-14 of RP-2021, related to Environment are at **Annexure I.**

12. As the disposal of Solid Waste, if it is not done in an environmental friendly manner, also causes air pollution, RP-2021 has laid down policies with regard to effective handling and management of Solid Waste in the NCR, including preparation of detailed Solid Waste Management Plan, Waste Minimization-Recycling/ Recovery of Resources, Identification of Land for Treatment/ Disposal of Waste, etc. Effective implementation of these policies would address the air pollution generated by improper management of solid waste in NCR.

13. RP-2021 has also identified the major natural features as environmentally sensitive areas and has given policies & proposals for their protection and conservation under a broad landuse category of Natural Conservation Zone (NCZ). Such areas include extension of Aravalli ridge in Rajasthan, Haryana and NCT-Delhi, forest areas, the rivers and tributaries of Yamuna, Ganga, Kali, Hindon and Sahibi, sanctuaries, major lakes and water bodies such as Badkal lake, Suraj Kund and Damdama in Haryana Sub-region, Siliserh lake in Rajasthan, etc. Apart from these, ground water recharging areas such as water bodies, ox-bow lakes and paleo-channels have also been identified. These areas are to be further detailed out by the NCR participating States in the Sub-regional Plans and Master/Development Plans. It

may be noted that forest/ green areas as well as water bodies act as carbon sinks by means of absorbing CO_2 and other pollutants and, therefore, effective implementation of the policies & proposals of RP-2021 by the participating States regarding protection and conservation of these natural features as part of NCZ would address, to a great extent, the challenges posed by air pollution.

14. RP-2021 has also laid down detailed policies and proposals to address various aspects/challenges relating to transportation in NCR. It may be noted that the share of vehicular air pollution in NCR is significant. In view of this, detailed policies and proposals of RP-2021 in transportation sector as well as other plans prepared by NCRPB to address the transportation related issues would also have significant impact on air pollution.

15. The policies for development of Transport sector in NCR, as per RP-2021, aim to achieve the following overall objectives:

a) To decongest NCT-Delhi roads, rail and rail terminals by diverting the by-passable traffic from Delhi.

b) To provide linkages amongst Metro/ Regional Urban Settlements in the outlying areas of NCR

c) To connect Metro/ Regional Centres with the Capital by an efficient and effective transport network for facilitating faster movement of traffic among such centres and NCT-Delhi

d) To link the Sub-regional Centres with effective and efficient transport network for facilitating the faster movement of traffic among such centres and higher order settlements.

e) To directly link other urban nodes having maximum attracting and generating characteristics.

16. RP-2021 states that it is recognised and reaffirmed that the solution of the increasing transportation problem lies in development of

settlements outside the NCT-Delhi metropolis at appropriate distance and providing inter-connection between Delhi and settlements thus reducing pressure on Delhi's transport infrastructure. Accordingly, RP-2021 proposes the following:

a) Develop activities keeping in view rail and road linkages in Central NCR having better accessibility and at the same time relieving pressure on the existing transport routes converging at NCT-Delhi.

b) Unrestricted movement of buses, taxis and auto-rickshaws within NCR.

c) Focus on certain inter-state issues (e.g. land acquisition) for workable coordination and evolve an institutional mechanism on priority basis to encourage private participation.

d) Execution without further delays of the Regional Rapid Transport System (RRTS), Expressways and Bypasses.

17. As per the Section 7 (a) of the NCRPB Act, 1985, NCRPB is also mandated to prepare Functional Plans for various components of regional development. NCRPB prepared the "Functional Plan on Transport for NCR" in 2009 with a perspective year 2032 for systematic development of transport network in NCR.

18. The Functional Plan has assessed the level of utilization, potential & deficiencies in the transport system and characteristics of the regional road & rail network for movement of passengers & goods traffic and prepared Integrated Multi-Modal Transportation System for NCR. It has proposed development of Regional Rapid Transit System (RRTS), Mass Rapid Transit Systems (MRTS), Railway, Expressways, Highways, Roads, Integrated Freight Complexes, Logistics Hub, etc. in NCR. Implementation of all the proposals of the Functional Plan especially pertaining to **provisioning/ strengthening of the public**

transport system will result in reduction in travel time, costs and pollution in the NCR. A copy of the proposals given in Chapter 14 of the Functional Plan on Transport for NCR-2032 is at **Annexure-II**.

19. The Functional Plan on Transport for NCR-2032 is proposed to be implemented by 2032 by the concerned State Governments/Central Government Ministries in a phased manner. The copies of the said plan were provided to the concerned departments by the Board for implementation.

20. Subsequent to the preparation of the Functional Plan on Transport-2032, NCRPB has prepared the Feasibility Reports for the three prioritised Regional Rapid Transit System (RRTS) Corridors out of eight RRTS Corridors proposed in the Functional Plan. The list of eight corridors is at **Annexure-III.** The three prioritized corridors are Delhi-Sonepat- Panipat (111 kms.), Delhi-Ghaziabad-Meerut (90 kms.) and Delhi-Gurgaon-Rewari-Alwar (80 kms.). NCRPB has also prepared draft DPR for Delhi-Panipat corridor.

21. National Capital Region Transport Corporation (NCRTC) has been incorporated on 21.08.2013, after obtaining the Cabinet approval on 11.07.2013, with an initial seed capital of Rs.100 crore for designing, developing, implementing, financing, operating and maintaining RRTS in NCR.

22. In addition to above, in order to implement the policy related to unrestricted movement of buses, taxis and auto-rickshaws within NCR, "Reciprocal Common Transport Agreement" among Governments of NCT-Delhi, Haryana, Rajasthan and Uttar Pradesh for unrestricted movement of vehicles in NCR for "Contract Carriage" and "Stage Carriage" were signed on 14.10.2008 and 22.04.2010 respectively.

Under these agreements, vehicles shall use clean fuel (CNG) conforming to prevailing norms in NCR which has direct impact of the reduction of vehicular air pollution in NCR.

23. As the utilization of existing roads has reached a saturation point in many stretches of the roads leading to traffic jams and increased pollution, a conscious effort is required to be made by all the NCR participating States as well as concerned Central Ministries/Departments to implement the proposals of the Functional Plan on Transport for NCR-2032. ***Implementation of proposals related to public transport system such as RRTS, MRTS, Bus Systems, etc. will lead to shifting of people from their private modes to public transport. Timely implementation of the Eastern and Western Peripheral Expressways would reduce vehicular pollution caused by non-destined passenger and goods traffic transiting through Delhi and congesting roads of Delhi.***

24. In view of the above, it is submitted that the Sub-regional Plans are required to be prepared by the NCR participating States as per Section 19 of the NCRPB Act, 1985 and they are required to be implemented by the NCR participating States as per Section 20 of the NCRPB Act, 1985. Therefore, it is humbly submitted that the details regarding the implementation and status of the measures envisaged in Regional Plan & Sub-Regional Plans, related to pollution and environmental degradation, would be available with the participating State Governments and their agencies.

25. Therefore, the deponent on behalf of UOI, craves leave to file additional affidavit/ detailed affidavit as and when directed by this Hon'ble Court or as the necessity arises.

Prayer

In view of the above submissions, it is humbly prayed that this Hon'ble Court may pass such order and further orders, as it deems necessary in the light and circumstances explained above.

Place: New Delhi

DEPONENT

Dated:

Through Counsel

VERIFICATION:

I, the above named deponent, do hereby verify that the contents of the above affidavit are true and correct to the best of my knowledge, derived from the official records and no part of it is false and no material has been concealed therefrom.

Verified at New Delhi on this _____ day of January, 2016.

DEPONENT

~~Annexure-I~~

Extracts from Chapter-14 on Environment of Regional Plan-2021

14.2 POLICIES AND PROPOSALS

Land is the most crucial and critical environment resource. Every land use/activity i.e., housing, transportation, industry, recreation, conservation etc. or their linkages have got environmental impact on air, water, soil etc. and in order to improve the environmental condition in the region following policies and strategies are proposed:

i) Good agricultural land in the region should be protected and conserved. There is substantial surplus capacity in the existing urban areas other than Delhi to accommodate greater number of population. This may reduce the need for unnecessary conversion of good agriculture land to urban uses.

ii) The land use allocation has to be carefully carried out in order to protect and conserve both surface and ground water resources.

iii) Master/Development Plans for the towns in the region should incorporate land suitability analysis for land use allocations, which would identify areas intrinsically suitable for settlement, agriculture, forestry, industry and recreational uses. Further growth in the region should be channelised in the areas, which are only suitable for settlement growth.

iv) The database for air quality, water quality (surface and ground water), noise pollution and land pollution is very poor and need to be created for the region. There are only three air quality monitoring stations in the region. In order to create better database, more air quality monitoring stations are required. A Committee should be setup in each of the Sub-regions of NCR by the respective State Governments to recommend locations of the monitoring station of air and water quality, to regularly review the status and recommend remedial measures. Pollution Control Boards of respective States should monitor the above-cited parameters on a regular basis. The data should be easily accessible to public for awareness.

v) While carrying out activities for the development of the region, provisions under Environmental Protection Act, 1986 and Rules thereof should be followed. Carrying Capacity of the region based on Minimum National Standards should be followed in order to provide a better quality of life to the people in the region. Following factors should be considered:

- Minimal national standards
- The environmental sensitivity of the region
- The carrying capacity of the receiving water bodies and environment
- The existing quality of environment
- The health requirements in the area

vi) Industrial parks/estates with controlled environment and with Combined Effluent Treatment Plant (CETP) should be constructed considering the carrying capacity concept. For the hazardous waste producing industries in the region, land allocation should be done appropriately for Combined Treatment, Storage and Disposal Facility (TSDF). Similarly, State Governments should encourage/adopt efficient and clean technology based power plants to meet the growing power demand for reduction in greenhouse gases (GHG) levels.

vii) Data inputs to check the performance of various parts of NCR in relation to these needs be made and regularly monitored. A Cell in NCRPB be created to perform this task.

viii) The areas/zones mentioned below located in NCR should be conserved/protected:

- Reserved/protected forests
- Forests other than reserved and protected forests
- Monuments-National, State, Local
- Heritage/cultural sites
- Scenic areas
- National parks
- Sanctuaries
- Areas with endangered species-flora and fauna
- Biosphere reserves
- Wetlands
- Resorts/areas of tourist interest
- Water bodies
- Springs/water recharge areas
- Other environmental resource areas

ix) The Ministry of Environment and Forests under Section 3(1) and 3(2) (v) of the Environment Protection Act, 1986 and Rule 5(3)(d) of the Environment (Protection) Rules, 1986 restricts certain activities in specified area of Aravalli Range which are causing environmental degradation in the region and prohibits following process and operations:

a) Location of any new industry including expansion/modernisation;

b) (1) All new mining operations including renewals of mining leases.

(2) Existing mining leases in sanctuaries/national parks and areas covered under Project Tiger; and/or

(3) Mining is being done without permission of the competent Authority.

c) Cutting of trees.

d) Construction of any clusters of dwelling units, farms houses, sheds, community centres, information centres and any other activity connected with such construction (including roads and part of any infrastructure relating thereto)

e) Electrification (laying of new transmission lines)

No such activities should be undertaken in the Aravalli range in NCR.

In some areas carrying out of certain processes and operations without permission is prohibited. These include:

(i) All reserved forests, protected forests or any other area shown as "forest in the land records maintained by the State Government as on the date of this notification in relation to Gurgaon district of the State of Haryana and the Alwar district of the State of Rajasthan.

(ii) All areas shown as:

(a) GairMumkinPahar, or
(b) GairMumkin Rada, or
(c) GairMumkinBched, or
(d) Banjad Beed, or
(e) Rundh.

In the land records maintained by the State Government as on on the date of this notification in relation to Gurgaon district of the State of Haryana and the Alwar district of the State of Rajasthan.

(iii) All areas covered by the notification issued under Section 4 and 5 of the Punjab Land Preservation Act, 1900, as applicable to the State of Haryana in the district of Gurgaon up to the data of this notification.

(iv) All areas of Sariska National Park and Sariska Sanctuary notified under the Wildlife (Protection) Act, 1972 (53 of 1972).

Integrated Multi Modal Transport Plan for NCR

Integrated Multi Modal Transport Plan for NCR

NCR is a highly dynamic region with fast increasing population and activity concentration. It is a highly urbanized and urbanizing region. It is a region of intense movement of people, goods and services. All types of movements – international, national, inter-regional, intra-regional and intra-urban – take place within, to, from and through the region by a variety of modes – roads, railways, bus, metro, IPTs, personal modes and NMVs. The movement size is intense and pattern complex. The need is to plan, develop, operate and manage an integrated, multi-modal system to enable the different movement needs to be performed efficiently, economically and safely.

Integrated Multimodal Transport Plan (IMMTP) has two conceptual components – integration and multi-modality. Integration would need to be ensured at various levels.

- At the first level is the policy integration, Transport Policy needs to blend with the overall and other sector policies of development of the region.
- The next important level is the integration between land use and transport. A region/city is a centre of concentration of people and activities dispersed over a spatial frame, resulting in interactions amongst people and activities interlinked and flows of people and goods enabled by the transport system. This symbiotic relationship needs to be maintained at a high level of efficiency to achieve the vision, goals and objectives of development on an efficient and sustained basis.
- At the third level, it is the integration amongst the sub-systems of the transport system itself. The sub-systems would include users, network, modes, technologies and the environment.

In the context of intense and diverse pattern of travel demand there is a need to have a spectrum of mode choice to serve a particular trip in the most efficient, safe and economic manner. The entry of a large number of modes to service travel demand, if left un-coordinated, results in confusion, unhealthy competition, poor service, inefficiency and negative impacts. Multi-Modal planning and operation envisages assigning a role and sphere of action for each mode, singly or in combination, such that each mode is efficient and prospers, the user gets satisfactory service and the region/city benefits.

In essence the multi-modal system enables a trip to be made using more than one mode with advantages of cost, time, comfort, safety etc. as compared to performing the trip by only one mode. This calls for building appropriate capacities and integration amongst the modes.

The Multi-Modal Transport System (MMTS) meets the needs of the system components. For the **user,** it provides right capacity at right time and place and at right cost. It provides a dependable, comfortable and safe transport service.

For the **Operator,** it lowers the cost of operation, and results in higher profits. It enables high productivity of the vehicles and manpower. It prevents unhealthy competition amongst service providers.

For the **government/region/city,** it enables optimization of scarce resources – capital, land, energy, etc. It creates less pollution and leads to high sustainability. It promotes desirable urban form and structure. It enables access to transport service and thereby to opportunities, to all the people of the region/city on an equitable basis. In short, the MMTS meets the 5 E's – Efficiency, Economy, Energy, Environment and Equity.

There is a wide difference between a Many Modal System and a Multi-Modal system. The critical element in moving from a Many Modal System to a Multi-Modal System is 'integration'.

System Integration would comprise:

- Physical integration
- Operational integration
- Financial integration and
- Institutional integration

The present Plan addresses the physical and institutional integration aspects. Operational integration which would include the service patterns of the selected modes, the fare policy and management needs to be taken care of while operating the component sub-systems.

In a multi-modal system the role, time and areas of operation of each mode needs to be assigned. Roles include operating as a basic system servicing a trip from origin to destination; as a complimentary system to another basic system feeding and extending the catchment area of the later; and as a supplementary system meeting the capacity gap of the other basic system. Every mode needs to perform all roles at some time and place or other. The essence is to allocate the right role and place as best suits the mode's inherent capacity and characteristics.

Planning of a Multi-Modal Transport System is an efficient combination of modes and roles to match the varying needs of demand by time, place and cost. It calls for an institutional and legal framework.

The IMMTP-NCR endeavors to incorporate the principles and aspects of integration and multi-modality in the planning of the transport system allocating capacities, roles and areas of operation for the different modes and promoting appropriate institutions to manage the system supported by enabling legal base.

For preparation of a long term, integrated, multi-modal transport system, extensive surveys and studies have been carried out to appreciate the physical, demographic, economic, social, traffic, road network, bus system, rail system, air transport, intermediate public transport and commuter characteristics of the NCR. The studies have enabled to identify the issues, constraints and potentials of the region and its transport system. Transport Models have been constructed to enable forecast of probable size of travel demand in the Horizon Year. Alternate development scenarios projecting the population and employment size and distribution have been developed. Alternate Transport System comprising combination of road network, rail network, commuter rail service, metro rail, bus system (i/c IPT system) have been conceptualized. Wide options in combination of development scenario and transport network alternatives are possible. The selected combinations have been studied based on resultant travel patterns, evaluated based on relevant criteria and the most optimal alternative selected for further detailing into plan, programmes and projects.

14.1 Travel Demand

Base Year

In 2001, NCR contained a population size of 37.1 million. The population in 2007 (BY) is estimated to be 44.4 million. Urbanization was 56.3% (2001). Traffic surveys have indicated that a total of 8.7 million persons trips and 1.7 million tonnes of goods moved on the road network (2007). In addition are the intense movement by the rail system. The above figures do not include intra-urban movements that take place within the urban areas of the region.

Horizon Year

The population size of NCR, by 2032, the Horizon Year, has been estimated to be 86.6 million. Transport Model for NCR has been constructed. It indicates that by 2032, the road based inter-region trips (EE, IE, EI) will be of the order 21 million person trips – 'Optimistic Scenario' & 15 million person trips – 'Business as Usual scenario'. The road based intra-region trip production will be of the order of 9 million person trips on an average day.

14.2 Integrated Multi Modal Transport Plan –Components

Based on the surveys and studies carried out, an Integrated Multi Modal Transport Plan (IMMTP) has been identified. The IMMTP would help in improving accessibility of and connectivity to major activity locations in NCR and also promote a balanced **high capacity, high quality road and rail network systems**. The main proposals are presented hereunder.

The NCR – IMMTP includes

- Road System
- Bus System
- Bus Terminal System
- Rail System (Commuter)
- Mass Rapid Transit System
- Airport

The sub-sector systems are integrated with each other to provide for seamless transfer amongst each other and extend the accessibility of every location within the region and enable mobility of the people of the region.

14.2.1 Road Network System

Road system forms the most important component of the IMMTP in terms of its extent, spread and access.

The analysis of existing road system of the region has indicated that the extent and spread is good but the quality is lacking. The dimensions of the future travel demand are many and complex. The main characteristics are:

- Large Volume
- Diverse Pattern
- Multi-Modal
- Multi-dimensional (international, inter-city, intra-region, intra-zonal, intra-urban, etc)
- Large size of non-destined traffic with reference to different spatial units – the NCR, the Policy Zones (NCTD & CNCR), and the urban centres.

The proposed Road Network Plan provides for

- High capacity

- High mobility (speed)
- Rational movement pattern (segregation of different movement types at appropriate spatial levels)
- Re-organisation from a predominantly radial pattern oriented to NCTD into a balanced radial-cum-grid pattern for upgrading the accessibility and connectivity of the regional centres.

14.2.1.1 Hierarchy

The Road Network Plan is envisaged in a hierarchical system comprising –

i) Regional Expressways (Inter-urban)
ii) Regional Arterials (which include National Highways)
iii) Regional Sub-arterials (which include State Highways)
iv) Regional Collector Roads (which include Major District Roads) and
v) Regional Access Roads (which include ODR & Village Roads)

14.2.1.2 Road Network Extent

The proposed NCR Road Network extends over 7402 km. This does not include a large extent of ODRs and Village Roads and Urban Roads which are to be identified and planned as part of sub-regional plans and urban Master Plans. The increase in the extent of the network may seem to be small over that of 6157 km in 2007. However there is substantial increase in 1) capacity, from 11,929 lane-km in 2007 to 34,396 lane-km in 2032, and 2) quality and speeds with an extensive network of expressways and upgraded arterials. Table 14.1 provides the details of the Regional Road Network in NCR.

Table 14.1: NCR Regional Road Network-Hierarchy and Extent

Sl No.	Classification	Base Year (2007)		Horizon Year (2032)	
		Length (kms)	Lane-kms	Length (kms)	Lane-kms
1	Expressways			1107	9398
2	Regional Arteries	1102	4408	2046	14894
3	Regional Sub Arteries	1861	3722	786	3144
4	Regional Collectors/Distributor	3194	3799	3480	6960
a)	*MDR*	*1210*	*1815*	*841*	*1682*
b)	*ODRs*	*1984*	*1984*	*2639*	*5278*
	Total	**6157**	**11929**	**7402**	**34396**

Source: Study on Integrated Transportation Plan for NCR

14.2.1.3 Regional Expressways

The Plan envisages development of an extensive Regional Expressways of 1107 km in length with lane length of 9398 kms. The expressways are important to overcome the tyranny of distance between activities and from people dispersed over the regional spatial frame, an avowed objective of the Regional Plan.

The expressways are to be developed as Greenfield expressways with a ROW of 100 m, a design speed of 120 kmph and full access control.

Exclusive High Occupancy Vehicle (HOV) lanes are proposed as part of the expressway cross-section configuration.
The expressways may be developed under PPP mode. The recommended expressway network includes:

- Delhi – Sonipat – Panipat
- Delhi – Bahadurgarh – Sampla - Rohtak
- Delhi – Gurgaon - Manesar – Rewari

- Gurgaon - Faridabad
- Delhi – Faridabad – Ballabgarh – Palwal
  (may be developed along the western bund of river Yamuna as an extension of the NH-Bypass from Kalindi Kunj in Delhi to Faridabad)
- Delhi – Ghaziabad – Hapur
- Dadri – Ghaziabad – Meerut
- Loni – Baghpat (with potential to extend to Baraut and beyond)
- Sonipat – Baghpat – Meerut
- The entire outer grid from Panipat – Gohana – Rohtak – Jhajjar – Rewari – Palwal – Jewar – Bulandshahr – Hapur – Meerut

These are shown in **(Figure 14.1)** given below:

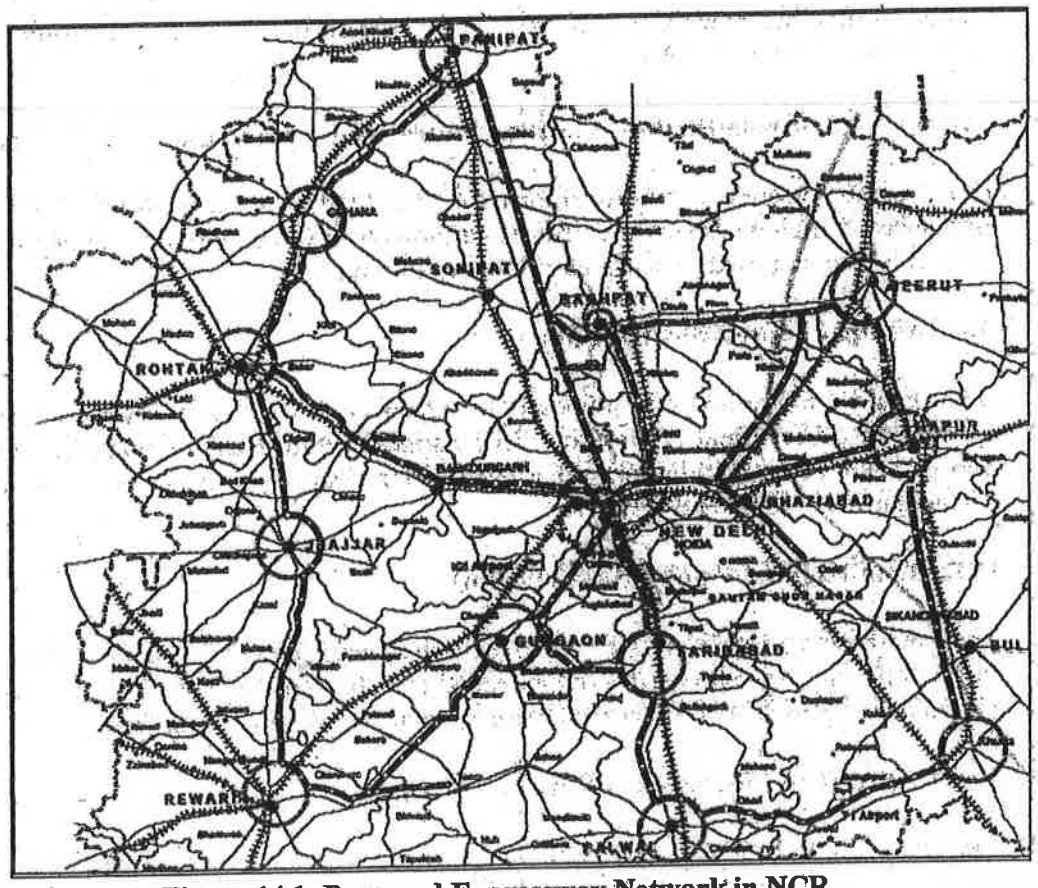


Figure 14.1: Proposed Expressway Network in NCR

The proposed expressways are:

- **Kundli-Manesar-Palwal Expressway (Western Peripheral Expressway) (135.6 km).**

  This Expressway is under construction and runs on the west of Delhi connecting Kundli, Manesar and Palwal. This along with the Palwal-Ghaziabad-Kundli Expressway (Eastern Peripheral Expressway) is envisaged as a bypass system for NCT-Delhi. This will open up development in this part of Haryana Sub-region. However, any development proposed along this corridor should not have direct access on expressway and should be preferably through inter-changes and under-passes with appropriate access control.

- **Palwal-Ghaziabad-Loni-Kundli Expressway (Eastern Peripheral Expressway) (136.0 km)**

  This Expressway, linking Palwal with Ghaziabad and Kundli running on the eastern side of Delhi, completes the ring system around Delhi. Its function is to enable bypass movements avoiding Delhi. It connects to the proposed 2nd International Airport at Jewar and crosses the proposed Yamuna Expressway (Noida-Agra Expressway) near Hodal; and the proposed Ganga Expressway at Dibai.

- **Noida –Agra Expressway (Yamuna Expressway) (65.0 km)**

  Noida-Agra Expressway, renamed as Yamuna Expressway, is a venture of the Government of Uttar Pradesh, under PPP mode. It is under construction and provides a high speed connection between Delhi and other urban centres in the eastern part of CNCR to Agra, the famous tourist place with the Taj Mahal.

- **Greater Noida-Bulandshahr – Varanasi Expressway (Ganga Expressway) (65.0 km)**

  This is another venture of the Government of Uttar Pradesh to link Delhi with Varanasi with a high speed & high quality road corridor and promote development of the western parts of the state. It is also proposed to be developed under PPP mode.

- **Delhi-Panipat Expressway (84.0 km)**

  Delhi-Panipat Expressway is proposed to be developed along the western bank of river Yamuna as a Greenfield Expressway. In its stretch within NCR, it connects Delhi, Kundli, Sonepat and Panipat with each other. In the long run it is envisaged to be extended to Chandigarh via Karnal and Ambala.

- **Delhi-Loni-Baghpat Expressway (31.0 km)**

  The Loni-Baghpat Expressway caters to the rich agricultural belt on the east of river Yamuna. In the long run, it is proposed to be extended to Saharanpur and to Dehradun, the capital of Uttarakhand. This route provides an alternate route to Dehradun from Delhi.

- **Delhi-Ghaziabad-Meerut Expressway (74.0 km)**

  The Delhi-Ghaziabad-Meerut Expressway is on the anvil for a long time. It connects Meerut, the second biggest urban centre in NCR and Delhi with a high speed road corridor. The Expressway also caters to the highly urbanized and fast growing corridor. This has been included in NHDP-VI for implementation by NHAI.

- **Ghaziabad-Hapur Expressway (37.0 km)**

  The Ghaziabad-Hapur Expressway connects Hapur, the major foodgrains trading centre, with Delhi and other parts of NCR. In the long run it has the potential to be extended to Bareilly and Moradabad, the fast growing industrial towns of the state of Uttar Pradesh. The Expressway connects to the proposed eastern arm of the Regional Outer Grid Expressway system.

- **Ghaziabad-Bulandshahr-Khurja Expressway (67.0 km)**

Ghaziabad-Khurja Expressway provides a direct link to Khurja where the proposed Eastern Dedicated Freight Corridor (Rail) passes through. Khurja has great potential for development as a major transportation hub for collection and distribution of goods.

- **Delhi-Faridabad-Ballabgarh-Palwal Expressway (60.0 km)**

Delhi-Faridabad-Palwal Expressway provides a high speed road system for the fast urbanizing corridor. Faridabad-Ballabgarh complex, an important industrial town of NCR, is re-emerging as a fast growing urban centre with metropolitan dimensions. Palwal, located on the cross roads of transport corridors of NCR has great potential for growth. This Expressway also connects Delhi with the proposed 2nd International Airport at Jewar.

- **Delhi-Gurgaon-Manesar-Dharuhera Expressway (79.0 km)**

Delhi-Gurgaon Expressway has already been operationalised. The traffic volume has crossed all expectations. Extension of this Expressway is proposed upto Manesar, a planned industrial centre and to link with KMP Expressway and further on to Rewari, which is emerging as the fast growing industrial complex of NCR alongwith Bhiwadi and Dharuhera. At Dharuhera, the Expressway links with the proposed outer grid expressway. The DGMD Expressway also provides a high degree of accessibility and connectivity to the proposed Haryana SEZ at Jhajjar-Gurgaon districts.

- **Delhi-Bahadurgarh-Rohtak Expressway (70.0 km)**

Rohtak is an important educational and service town in the Haryana Sub Region of NCR. It has the potential to develop as a major metropolitan centre. The Delhi-Rohtak Expressway links with the KMP Expressway at Barahai and the proposed western grid Expressway at Rohtak.

- **Panipat-Rohtak-Rewari Expressway (148 km)**

The Panipat-Rohtak-Rewari (PRR) Expressway is the western part of the proposed outer grid expressway system. It is envisaged, apart from interlinking the urban centres along this part of NCR, to enable non-destined traffic with reference to NCR, to divert and bypass at the regional level. This Expressway provides an attractive, high level of service route to enable the high intensity of road based freight and passenger traffic between north India states and the western India states, particularly the western India ports oriented traffic. This Expressway substitutes the function presently envisaged for KMP Expressway. Considering the projected size of the NCR non-destined traffic, which is estimated to increase from 18,348 vehicle trip in 2007 to 75,234 vehicle trips in 2032, a 4 fold increase, the PRR Expressway corridor assumes great relevance and high importance.

- **Rewari-Palwal-Khurja Expressway (139 km)**

The Rewari-Palwal-Khurja Expressway forms the southern portion of the outer grid Expressway system. This provides connectivity to the proposed 2nd International Airport at Jewar.

- **Khurja-Hapur-Meerut Expressway (86.0 km)**

The Khurja-Hapur-Meerut Expressway forms the eastern portion of the outer grid Expressway system.

- **Meerut-Baghpat-Sonipat Expressway (68.0 km)**

  Meerut-Baghpat-Sonipat Expressway connects the eastern parts of NCR with the western part, on the northern half, of NCR. This forms part of the proposed inner CNCR grid to enable diversion of non-destined traffic with reference to CNCR and NCTD zones.

- **Gurgaon-Faridabad Expressway (34.0 km)**

  Gurgaon and Faridabad are two major urban centres in CNCR zone. There would be intense interactions between them resulting in flows. Presently they are constrained to move mostly through NCTD. The Gurgaon –Faridabad Expressway provides a direct, fast and quality link between the two important centres.

Expressways beyond NCR

The NCR Cell, Uttar Pradesh has suggested expressway from NCR to other parts of the state. They are:

1) Upper Yamuna Expressway from Ponta Sahib to Baghpat
2) Upper Ganga Canal Road from Roorkee to Muradnagar
3) Extension of Ganga Expressway from Narora to Haridwar

As the above expressways run in areas outside NCR, the present study has not considered them as part of NCR expressway network. It is appreciated that some of the expressways of NCR require to be extended beyond NCR to connect important cities outside NCR and form part of the national expressway system. It is recommended that separate studies at the participating state levels be carried out to identify the state expressway network system. It is noted that the National Road Development Plan envisages development of a national expressways of about 15,000 km in length.

14.2.1.4 Development of Regional Arterial Roads

A number of National Highways traverse through the NCR, mostly converging into Delhi. The traffic volume on these road stretches is high and is increasing. The traffic is mixed comprising inter-region, intra-region and intra-urban movements. This mix, apart from heterogeneous modal mix, is causing problems of congestion, delays, accidents and pollution. In addition, continuous urban development is taking place along these highways. NCR Regional Plan-2021 policy also envisages intense planned development along the highways on either side for 500 meter depth, identified as Highway Policy Zone. There is a need to reorganize the road network system to rationalize movement pattern. Some National Highway stretches and some State Highway stretches within NCR are proposed to be developed as Regional Arterials primarily catering the needs of intra regional centres and intra-regional trips.

Amongst the radial highways converging on to Delhi, Delhi-Panipat (NH-1) is part of NHDP North-South Corridor. Delhi-Palwal (NH-2) and Delhi-Gurgaon- Dharuhera-Behror (NH-8) are part of NHDP Golden Quadrilateral. They have already been taken up for widening to 6-lanes as proposed in the Regional Plan-2021.

Ghaziabad-Bulandshahr-Aligarh (NH-91) has been proposed to be developed as 4 lane highway under NHDP.

The other National Highways stretches within the region are proposed to be developed as regional arterials of appropriate capacity. Panipat-Gohana-Rohtak-Rewari-Palwal-Khurja-Hapur-Meerut (NHs,

MDRs & SHs) will form part of the Regional Arterial system and will enable rerouting of inter-regional movements till the expressway network is developed.

The State Highways linking Sonipat-Sampla-Jhajjar, Jhajjar-Gurgaon and Ballabgarh-Dankepur-Gulaothi are proposed to be upgraded as National Highways and widened. They along with some of the expressway links would form the CNCR Grid system.

Alwar is an important regional centre. Its growth has suffered due to poor levels of accessibility compared to other centres. The State Highway stretch between Gurgaon and Alwar is proposed to be upgraded as National Highway and strengthened.

A number of other State Highway stretches are proposed to be upgraded as National Highways and strengthened. They interconnect National Highways (Regional Arterials) and interlink a number of sub-regional urban centres promoting their faster growth.

A number of other State Highway stretches are proposed to be widened to improve sub-regional accessibility and function as regional sub-arterials.

A few of Major District Roads are proposed to be upgraded as State Highways to balance the network hierarchy. Other MDRs are proposed to be widened to function as the Regional Collector/Distributor Road System.

The ODRs/VRs, which will function as Access Roads need to be taken up for strengthening as part of sub-regional plans. **Table 14.2** details the Road Network System Development Plan.

Table 14.2: Road Network System Development Plan

	Categories	Length (Km)	ROW	Type	Phase			
					2008-2012	2013-2017	2018-2022	2023-2032
					I	II	III	IV
	Expressways							
1	Ganga Expressway	65.0	100	Greenfield	6	6	6	8
2	Yamuna Expressway (within NCR)	65.0	100	Greenfield	6	6	8	8
3	Kundli – Manesar – Palwal Expressway (Western Expressway)	135.6	100	Greenfield	6	8	10	10
4	Kundli – Ghaziabad - Palwal Expressway (Eastern Expressway)	136.0	100	Greenfield	6	8	10	10
	Total	401.6						
	Regional Expressways							
1	Delhi – Panipat	69.75	100	Greenfield		4	6	8
2	Delhi –Ghaziabad	15.34	100	Greenfield		4	6	8
3	Ghaziabad – Modinagar – Meerut	33.21	100	Greenfield		4	6	8
4	Ghaziabad – Hapur	25.90	100	Greenfield		4	6	8
5	Delhi – Faridabad –Palwal	44.75	100	Greenfield		4	6	8
6	Gurgaon - Manesar – Daruhera	64.55	100	Greenfield		4	6	8
7	Panipat – Gohana – Rohtak	58.40	100	Greenfield		4	6	8
8	Rohtak – Rewari	80.01	100	Greenfield		4	6	8
9	Rewari – Daruhera - Bhiwadi – Palwal	21.38	100	Greenfield		4	6	8
10	Palwal – Khurja	50.98	100	Greenfield		4	6	8
11	Khurja – Hapur – Meerut	72.44	100	Greenfield		4	6	8
12	Meerut – Baghpat – Sonipat	37.48	100	Greenfield		4	6	8
13	Ghaziabad –Bulandshahr till Dadri	18.17	100	Greenfield		4	6	8
14	Delhi – Baghpat	36.28	100	Greenfield		4	6	8
15	Gurgaon – Faridabad	18.72	100	Greenfield		4	6	8
16	Delhi – Bahadurgarh – Rohtak	57.94	100	Greenfield		4	6	8
	Total Length	705.3						

Source: Study on Integrated Transportation Plan for NCR

Sl. No.	Regional Arterials	Length (M)	ROW	Existing Configuration	I	II	III	IV
1	Delhi – Panipat (NH-1)	84.0	60	6	6	8	10	10
2	Delhi –Ghaziabad (NH-24)	21.0	60	4	6	8	10	10
3	Ghaziabad – Modinagar – Meerut (NH-58)	53.0	60	4	4	6	8	8
4	Ghaziabad – Dadri – Bulandshahr (NH-91)	48.0	60	2	4	6	8	8
	Ghaziabad - Hapur (NH 24)	37.0	60	2	4	6	8	8

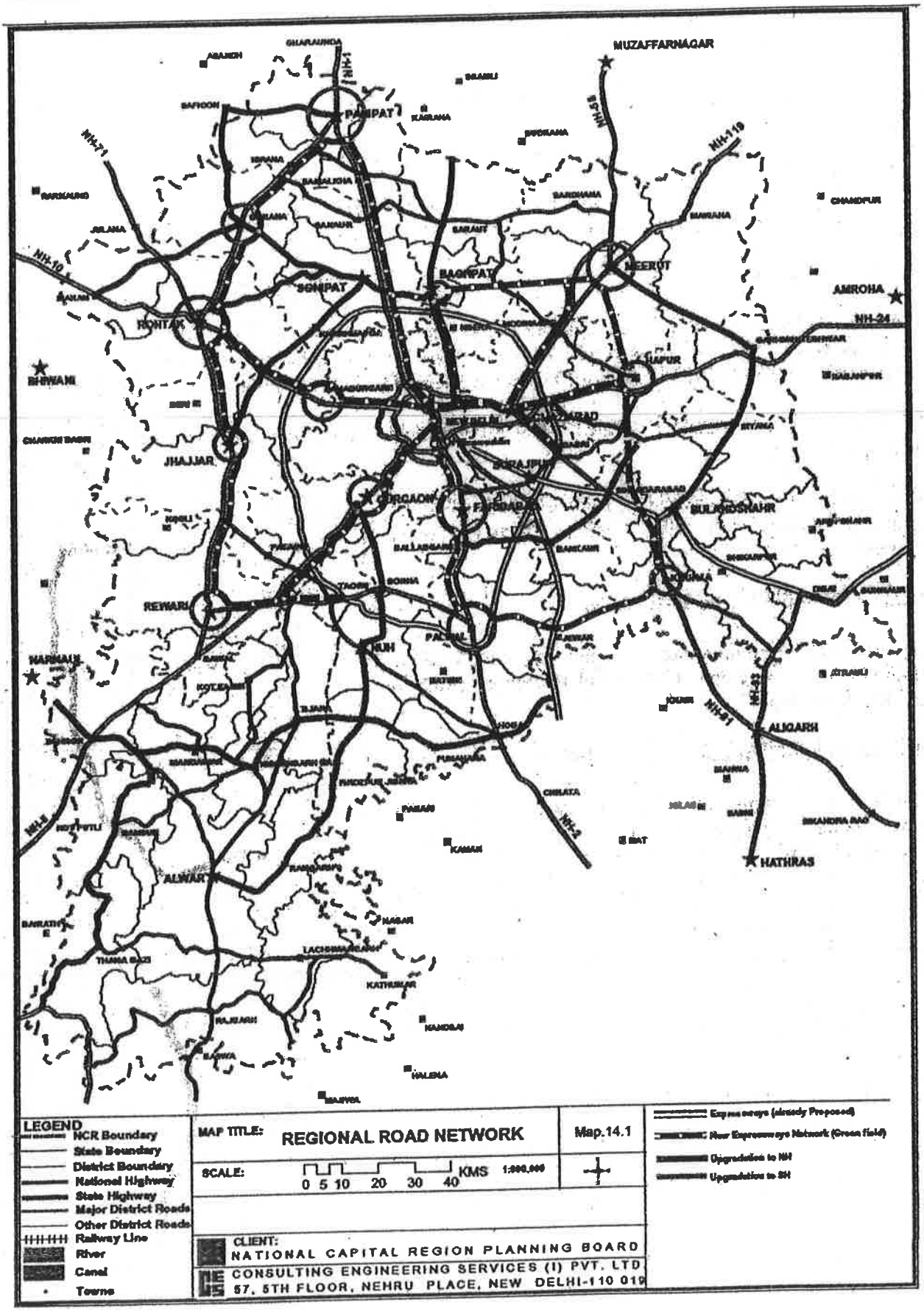
Sl. No.	Regional Arterials	Length (M)	ROW	Existing Configuration	I	II	III	IV
5	Delhi-Faridabad-Ballabgarh-Palwal (NH-2)	60.0	60	4	6	8	10	10
6	Delhi – Gurgaon (NH-8)	30.0	60	8	8	10	10	10
7	Gurgaon - Manesar - Daruhera (NH-8)	49.0	60	4	6	8	10	10
8	Delhi – Bahadurgarh (NH-10)	28.0	60	4	4	6	8	8
9	Bahadurgarh – Rohtak	42.0	60	2	2	4	6	8
10	Panipat – Gohana – Rohtak (NH-71A)	67.0	60	2	2	4	6	8
11	Rohtak – Rewari (NH-71)	80.0	60	2	2	4	6	8
12	Rewari - Palwal (NH-71 B)	83.0	60	2	2	4	6	8
13	Palwal – Khurja	56.0	60	1	2	4	6	8
14	Khurja – Hapur	53.0	60	2	2	4	6	8
15	Hapur – Meerut	33.0	60	2	2	4	6	8
16	Gurgaon – Sohna	23.0	60	6	6	8	8	8
17	Sohna – Alwar	94.0	60	2	2	4	6	6
18	Jhajjar – Gurgaon	48.0	60	2	2	4	6	6
19	Sonepat - Jhajjar	56.0	60	2	2	4	6	6
20	Ballabgarh – Gulavathi	45.0	60	1	1	2	4	6
21	Hodal - Tijara – Behror	133.0	60	1	1	2	4	6
22	Behror – Partapgarh	100.0	60	1	1	2	4	6
23	Meerut - Garhmukteshwar – Bulandshahr	93.0	60	2	2	4	6	6
24	Sonipat – Rohtak	46.0	60	1	1	2	4	4
25	Sonipat - Gohana - Asan Khurd	94.0	60	2	2	4	4	4
26	Gohana – Maham	51.0	60	2	2	2	2	4
27	Palwal – Hodal	33.0	60	6	6	8	10	10
28	Meerut - Muzaffarnagar (till NCR Border)	19.0	60	2	4	6	8	8
29	Rewari – Bawal (NH-71)	11.0	60	2	2	4	6	8
30	Daruhera - Behror	63.0	60	4	6	8	10	10
31	Khurja - Border of NCR to Aligarh	19.0	60	2	4	6	8	8
32	Panipat - Border of NCR (NH-1)	9.0	60	6	8	10	10	10
33	Hapur – Garhmukteswar (NH-24)	35.0	60	2	4	6	8	8
34	Rohtak – Quila Jafargarh (NH-10)	35.0	60	2	2	4	6	8
35	Meerut – Bahsuma (NH-119)	50.0	60	2	2	4	6	6
36	NH - 93	38.0	60	2	2	4	6	6
37	NH - 11 A	37.0	60	2	2	4	6	6
38	Loni - Baghpat - Baraut - Till NCR Border	68.0	60	2	4	6	8	8
39	Rohtak - NCR Border (NH -71)	22.0	60	2	2	4	6	8
	Total	1607						

Source: Study on Integrated Transportation Plan for NCR

Sl. No,	Regional Sub-arterials	Length (M)	ROW	Existing Configuration	I	II	III	IV
1	Khurja – Pahasu – NH -93	35.0	30	IL	2	2	2	4
2	Badarpur – Dadri – Hapur	67.0	30	IL	2	2	4	4
3	Pilana – Binaula	16.0	30	IL	2	2	2	4
4	Barula – Sardhana – Baraut – Ganaur – Shahpur	93.0	30	IL	2	2	2	4
5	Baraut – Samalkha – Naultha	44.0	30	IL	2	2	2	4
6	Bansur – Hajipur – Kishangarh Bas	44.0	30	IL	2	2	2	4
7	Thana Gazi – Malakher – Lachmangarh	90.0	30	IL	2	2	2	4
8	Ajabgarh – Tehla – Rajgarh – Garhi – Lachmangarh	76.0	30	IL	2	2	2	4
9	Ghasoli – Tapukrah	33.0	30	IL	2	2	2	4
10	Samda - Alwar	36.0	30	IL	2	2	2	4
11	Hodal – Nuh – Taoru	56.0	30	IL	2	2	4	4
12	Taoru – Pataudi – Kulana	41.0	30	IL	2	2	4	4
	Total	439						

Source: Study on Integrated Transportation Plan for NCR

Map 14.1 depicts the Regional Road Network.


MUZAFFARNAGAR
PANIPAT
SONIPAT
BAGHPAT
MEERUT
AMROHA
NH-24
NH-10
NH-71
NH-119
NH-58
BHIWANI
JHAJJAR
GURGAON
FARIDABAD
BULANDSHAHR
REWARI
NARNAUL
ALWAR
ALIGARH
HATHRAS
KAMAN
NH-2
NH-91
NH-93
LEGEND
NCR Boundary
State Boundary
District Boundary
National Highway
State Highway
Major District Roads
Other District Roads
Railway Line
River
Canal
Towns
MAP TITLE: REGIONAL ROAD NETWORK
Map.14.1
SCALE:
0 5 10 20 30 40 KMS
1:000,000
Expressways (already Proposed)
New Expressways Network (Green field)
Upgradation to NH
Upgradation to SH
CLIENT:
NATIONAL CAPITAL REGION PLANNING BOARD
CONSULTING ENGINEERING SERVICES (I) PVT. LTD
57, 5TH FLOOR, NEHRU PLACE, NEW DELHI-110 019

14.2.1.5 Urban Expressways

To provide continuity of network and traffic flow, it is important that a network of expressways within each of the urban centres is planned and developed and integrated with the Regional Expressway with interchange facilities. The intra-urban network of each major urban centre within NCR should have a minimum of two axial and one circular expressway network system.

The Master Plan of all the regional urban centres needs to be reviewed and revised to bring them in consonance with the Regional Transport Plan 2032.

14.2.1.6 Urban Bypasses

A number of regional urban centres have planned and developed bypasses to divert non-destined traffic. However, there is a need to plan and develop new bypasses for each urban centre taking into consideration its growth potential upto 2032 and in integration within the Regional Transport Plan.

The new bypasses should be elevated as far as possible to avoid becoming urban arterial road in future.

These urban bypasses would need to be integrated with the Regional Expressways and Regional Arterial Road Systems.

14.2.1.7 Regional Sub-Arterial Roads

Development of the important Regional Sub-Arterial (State Highways) and Regional Collectors/Distributors (MDRs) are detailed below:

Development of Gurgaon – Alwar Highway

Gurgaon-Alwar highway was formerly part of NH-8. With Alwar being developed as a major regional center, the interaction between Alwar and Rajasthan Sub-region with other urban centers and sub-regions would increase. It will also improve the accessibility level of Alwar. It is proposed that the above highway stretch is upgraded as a 6-lane divided carriageway road in the first instance. **(Figure 14.2)**

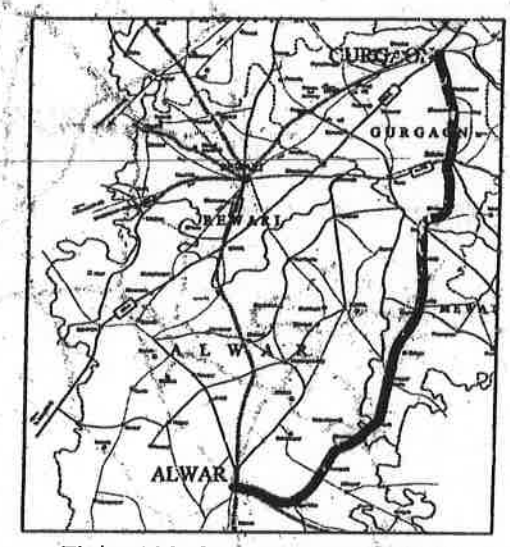


Figure 14.2: Gurgaon-Alwar Highway

Development of Loni-Baghpat-Baraut Highway

The Loni – Baghpat (Saharanpur) highway (SH-57) is an important road in the western part of UP Sub-region. It caters to the rich agricultural belt and provides an alternative route from Delhi to Roorkee & Dehradun via Saharanpur, an important town in U.P. It is proposed to upgrade this road as a 6/8-lane divided carriageway highway. It also merits to be classified as a National Highway. **(Figure 14.3)**

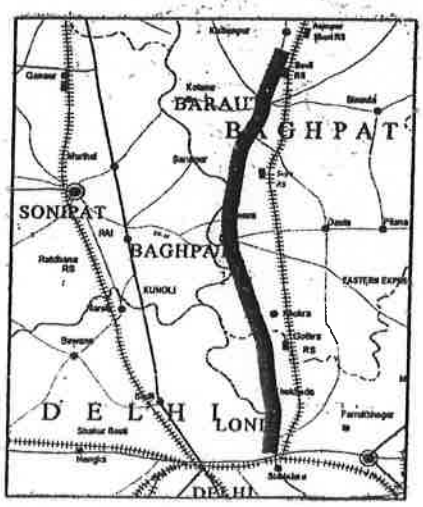


Figure 14.3: Loni – Baraut Highway

Development of Naultha (NH – 71 A) – Samalkha –

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Baraut – Binaula – Sardhana – Daurala (NH – 58) – and extension upto NH-119

This road stretch presently comprises State Highways and Major District Roads and forms the northern east-west link in U.P. sub-region (Meerut and Baghpat Districts) and serves the rich agricultural belt. It also interconnects 4 National Highways (71-A, 1, 58 & 119). The road is proposed to be upgraded as a State Highway and developed as a 4-lane road. **(Figure 14.4).**

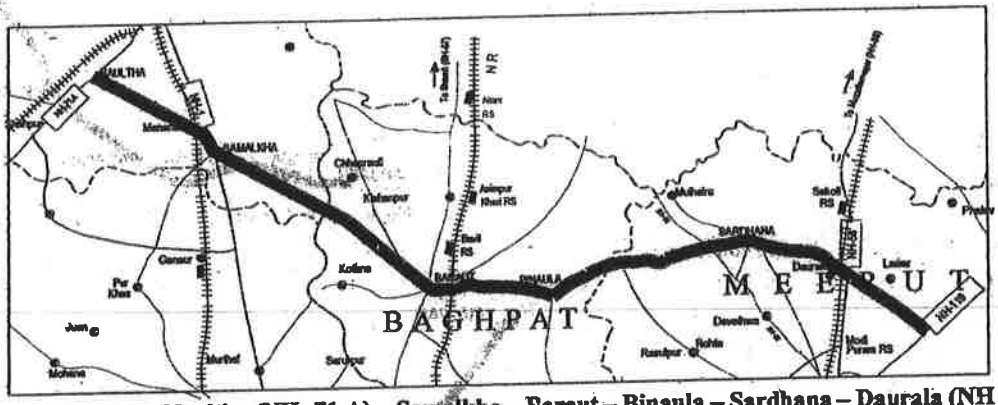

Figure 14.4: Naultha (NH -71 A) – Samalkha – Baraut – Binaula – Sardhana – Daurala (NH – 58)

Development of Meerut – Kithaur – Garhmukteswar – Siana – Saiyad – Bulandshahr – NH-91 – Jewar (to meet Palwal – Khurja road)

This road stretch is presently State Highway and serves the eastern parts of U.P. sub-region and will promote its development. It interconnects 3 National Highways (58, 24 & 91). It also links to the proposed Ganga Expressway and the under development Yamuna Expressway. More importantly, it provides connectivity to the proposed Taj International Airport from the sub-region **(Figure 14.5).** It is proposed to be developed as a 2-lane highway with reservations for development as a 4 / 6 lane highway in the long run.

Figure 14.5: Meerut - Bulandshahr Highway

Development of Bulandshahr – Shikarpur – Ahmadgarh (NH – 93) Road

It is proposed to develop this road as a 2-lane highway with reservations for further upgrading as a 4-lane divided carriageway highway **(Figure 14.6).**

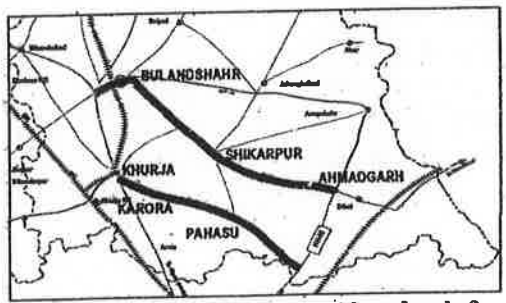

Figure 14.6: Bulandshahr - Ahmedgarh & Khurja – Pahasu Road

Development of Khurja – Karora – Pahasu – NH-93 Road

It would be a State Highway connecting Khurja to NH-93 and would serve the southern part of U.P. sub-region. The road is proposed to be developed as a 2-lane carriageway with reservation for upgrading into a 4-lane divided carriageway road **(Figure 14.6).**

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Development of Ballabgarh (NH-2) – Tigaon – Gharora – Bilaspur – Sikandrabad (NH-91) – Gulavthi (on Bulandshahr – Hapur SH)

This link will enable distribution of traffic destined to Greater NOIDA, Hapur and other regional/sub-regional centers in U.P. Sub-region. It also provides a route to channelise non-destined traffic to NCTD and CNCR towns. **(Figure 14.7).**The road is proposed to be developed as a 4-lane divided carriageway.

Figure 14.7: Ballabgarh-Gulavathi Road

Development of Jhajjar – Farrukhnagar – Dhankot – Gurgaon – Faridabad road

This road stretch is presently part SH and part MDR. It connects Faridabad (NH-2) – Gurgaon (NH-8) with Jhajjar and enables direct interaction amongst them. **(Figure 14.8).** The road is proposed to be developed as 6-lane divided carriageway road.

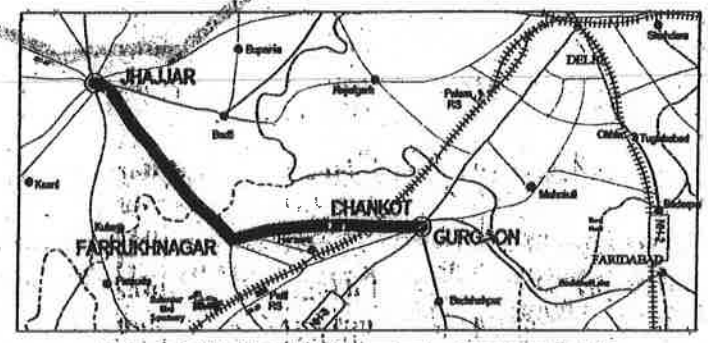

Figure 14.8: Jhajjar – Dhankot – Gurgaon Road

Development of Behror (NH-8) – Mandawan – Harsauli – Kishangarh Bas – Tijara – Nagina – Pinangwan – Punahana –Hodal – Hassanpur – Yamuna Expressway (outside NCR)

This road stretch is partly SH, partly MDR and partly ODR. There are some missing links also. This stretch acts as the southern west-east road corridor serving Rajasthan and southern part of Haryana sub-regions. It interconnects National Highways 8 and 2 and in its eastern end connects to Yamuna expressway. It is an important road to promote development of the south-western parts of NCR.

It is proposed to develop this road as a 2-lane highway in the interim phase with potential for further upgrading into 4/6 lane carriageway road. A major bridge across river Yamuna near Hassanpur needs to be constructed.

Development of Ajabgarh (NH-11 A) – Khoh – Tehla – Rajgarh – Manohari – Garhi – Lachmangarh Road

This road forms the southern most west-east link and serves the Rajasthan Sub-region. It provides connectivity to Jamwa Ramgarh Sanctuary. It is proposed to develop this road stretch to 2-lane carriageway **(Figure 14.9).**

Development of Thana Gazi – Sariska – Malakher – Maujpur – Lachmangarh –Kathumar Road

This stretch primarily consists of SHs, is another west-east road serving the Rajasthan Sub-region. It provides connectivity to Sariska National Park. **(Figure 14.9).** It is proposed to develop the above road stretches as a 2-lane carriageway.

Development of Partapgarh – Thana Gazi – Narayanpur – Bansur – Gunta – Baraud – Behror (NH-8) Road

This stretch acts as the western-most South-North axial road corridor. It connects NH-8 and NH-11 A **(Figure 14.9).** It is proposed to be developed as a 4-lane divided carriageway road. A bridge across river Sota is required to be constructed.

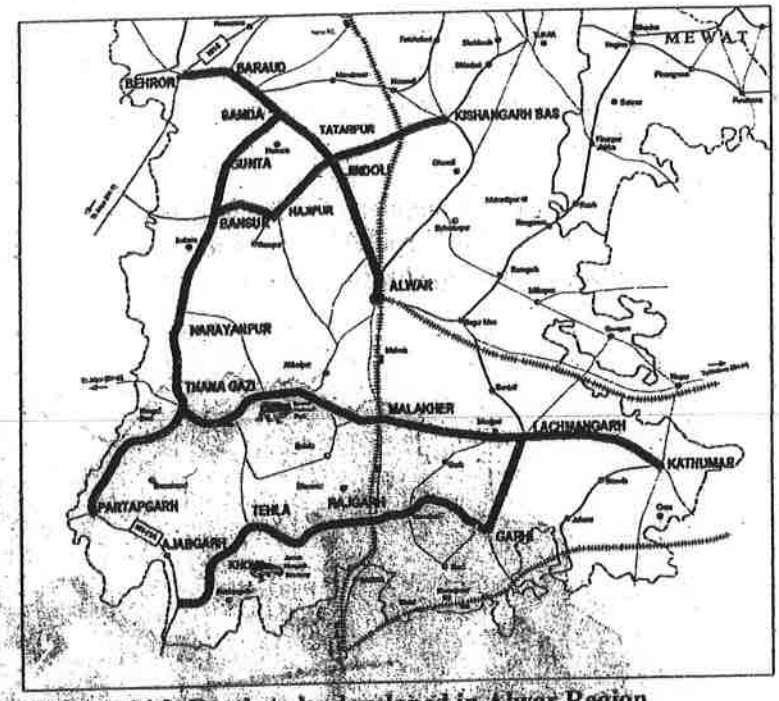

Figure 14.9: Roads to be developed in Alwar Region

Development of Bansur – Hajipur – Jindoli – Kishangarh Bas Road

The road, presently a MDR is proposed to be upgraded as a SH and developed as a 2-lane carriageway.

Development of Samda (of Pratapgarh – Behror road) – Tatarpur – Jindoli – Alwar

This road provides a direct connection from Alwar to NH-8 on the west side of the region. **(Figure 14.9).** It is proposed to develop this road as a 2-lane carriageway road with a scope for expansion to 4/6 lane.

Development of Alwar – Ghasoli – Tijara – Tapukrah – Bhiwadi

This road consists of partly SHs and partly MDR. This links Alwar, a major regional centre with the fast developing Bhiwadi Industrial Complex **(Figure 14.10).** It is proposed to develop the road as a SH with 2-lane carriageway.

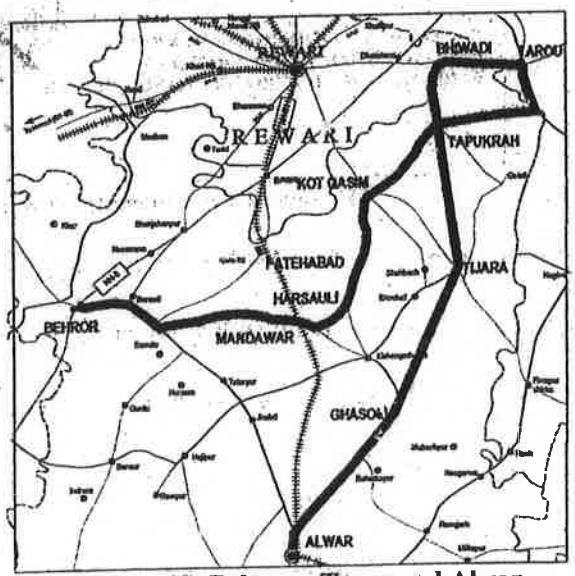

Figure 14.10: Behror – Taoru and Alwar – Bhiwadi Road

Development of Behror – Mandawar – Harsauli – Fatehabad – Kot Qasim – Tapukrah – Taoru

This road presently MDR provides an alternative route to part length of NH-8. It also links the area to the southern arm of the outer grid (NH-71 B) **(Figure 14.10).** It is proposed to upgrade this road stretch as a SH and develop as 2-lane carriageway road.

Development of Kulana – Pataudi –Bahora – Taoru – Nuh – Kot – Hodal Road

The road stretch, presently MDR, links NH-71, NH-71 B (outer grid) and NH-2. It is proposed to upgrade this road stretch as 4-lane carriageway road as a part of SH.

Development of Alternative Link Roads from Gurgaon to Delhi

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The Gurgaon Master Plan (2021) has proposed 2 additional road links from Gurgaon town to Delhi. They are:

- Palam Vihar to Bijwasan-Najafgarh Road to the point where road from Dwarka joins it.
- Road connecting Gurgaon-Mehrauli Road to Nelson Mandela Road near Masoodpur flyover.
- Widening of road connecting Mehrauli-Gurgaon Road with Gurgaon-Faridabad road through Mandi village.

The above road links will augment the much needed connectivity between Gurgaon and Delhi and would bring relief to the perpetual congestion and delays being experienced along the Delhi – Gurgaon expressway (NH-8) **(Figure 14.11).**

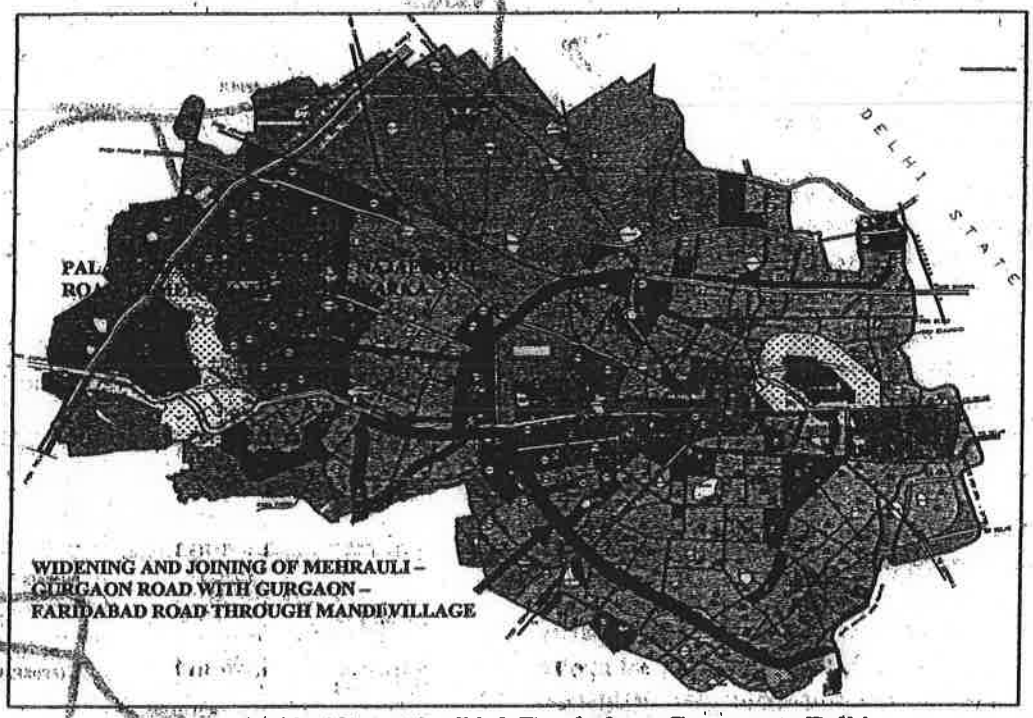

Figure 14.11: Alternative Link Roads from Gurgaon to Delhi

Development of Rajiv Gandhi Education city road at Sonipat

This road is proposed to connect Rajiv Gandhi Education city at Sonipat with Delhi.

Development of Nahar – Kosli – Kasni – Jhajjar

This road is proposed to be developed as a 2-lane carriageway road **(Figure 14.12).**

Development of Jhajjar – Sampla – Kharkhauda – Sonipat

This is an important stretch and is proposed to be developed as a 6-lane divided carriageway road **(Figure 14.12).**

Development of Rohtak –Kilol-Farmana-Sonipat road

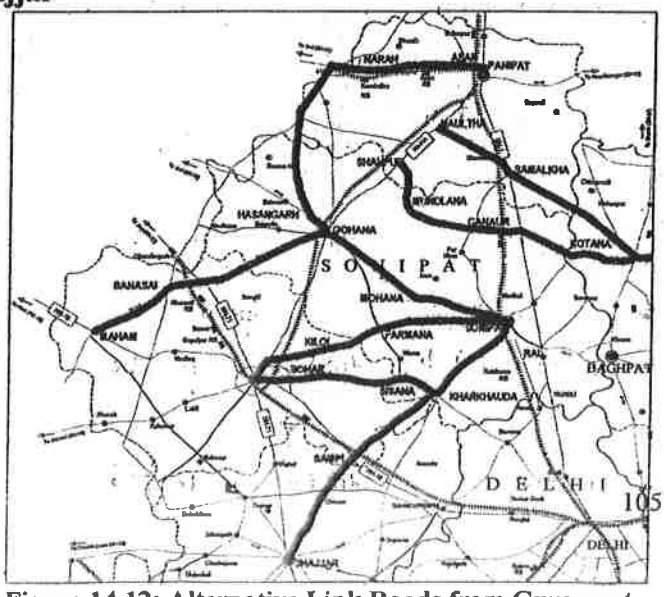

Figure 14.12: Alternative Link Roads from Gurgaon to

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This road, presently MDR, provides a direct link between Rohtak and Sonipat and in continuation links to Baghpat and Meerut. **(Figure 14.12).**

It is proposed to upgrade this road as NH, from Rohtak to Meerut and develop as a 4-lane divided carriageway road in the interim phase with potential for upgradation into 6/8 lane carriageway.

Development of Maham–Banasi – Gohana –Mohana-Sonipat –Rai (NH-1) Road

This road links NHs 10, 71, 71-A and 1 and serves the northern part of Haryana Sub –region. **(Figure 14.12).** It is proposed to develop this road as a 4-lane carriageway road.

Development of Gohana-Hasangarh-Narah-Asan-Panipat Road

This road connects north – west part of NCR **(Figure 14.12).** It is proposed to be developed as a 4-lane Carriageway road.

Development of Rohtak–Bohar–Sisana-Kharkhauda–(Bawana within Delhi) Road

This road stretch provides an alternative Route between Delhi and Rohtak **(Figure 14.12).** It is proposed to develop this road as a 4-lane divided carriageway road.

Development of Shahpur (NH-71 A)-Mundlana-Ganaur-Kotana-Baraut-Binaula-Daurala (NH-58)-NH-119 Road

This road is presently MDR with a missing link between Ganaur and Kotana. This is an important stretch and acts as the northern arm of the outer grid within NCR. It links 4 NHs (71-A,1, 58 and 119). It is proposed to upgrade this stretch as a SH and develop as a 4-lane divided carriageway road **(Figure 14.12).** A bridge across Yamuna at Kotana needs to be constructed. In the long term, the stretch may be upgraded as a NH.

Development of Binaula-Pilana Road

This road is presently MDR. It links northern arm of outer and inner grids. It is proposed to be upgraded it as a SH and develop as a 2-lane carriageway road.

Development of Gurgaon –Sohna road

This road is presently SH connecting NH-8 and 71-B. It provides connectivity to fast developing areas and Sohna. It is proposed to develop this road as a 6- lane divided carriageway road.

Development of Badarpur-GreaterNoida-Dadri-Dhaulana-Pilkhua-Hapur Road

This road stretch links Dadri, the newly developing important industrial and logistics complex directly with Delhi on the west and the proposed Bulandshahr – Meerut expressway on the east. As it connects Yamuna Expressway, it provides a direct link to the proposed Taj International Airport **(Figure 14.13).**

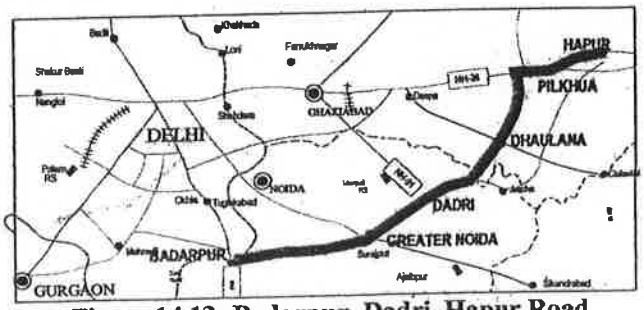

Figure 14.13: Badarpur–Dadri–Hapur Road

The road stretch is presently a MDR with some missing links. It is proposed to develop this

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road as a 4-lane divided carriageway road.

Development of Alwar - Rajgarh (37kms)

This road is proposed to be developed as 4-lane divided carriageway **(Figure 14.14).**

Development of Neemrana – Mandawar (20kms)

On the recommendation of NCR cell, Alwar, Rajasthan, this road is also recommended to upgrade this ODR in to 2 –lane road because of lot of industrial development coming in this region **(Figure 14.15).**

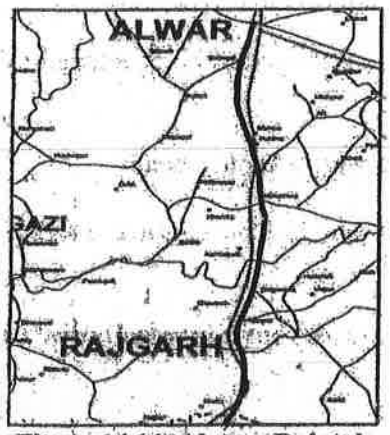

Figure 14.14: Alwar - Rajgarh Road

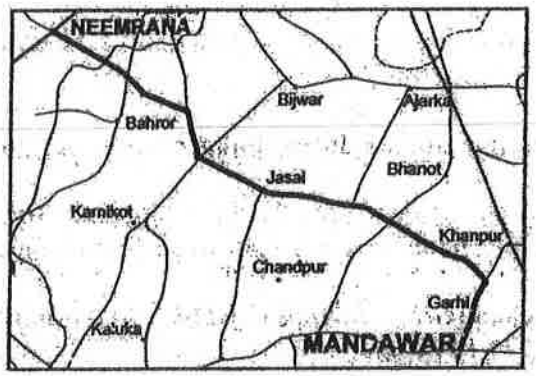

Figure 14.15: Neemrana – Mandawar Road

Development of Hapur – Singuli Ahir (43 km)

On the recommendation of NCR cell, U.P. this road has also been included in our plan to be upgraded in 2 – lane road. This road will act as an alternative route between Hapur and Baghpat **(Figure 14.16).**

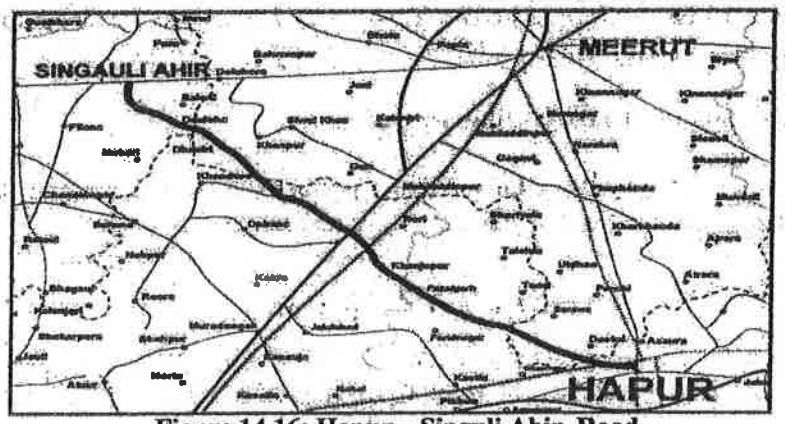

Figure 14.16: Hapur – Singuli Ahir Road

Development of Dasna – Siyana (55kms)

On the recommendation of NCR cell, U.P. this road has been included in the transport plan to be upgraded in 2 – lane road. This road will provide an alternative route to the people moving from Garhmukteshwar to Dasna or Ghaziabad. It can take the load of traffic moving on NH-24 **(Figure 14.17).**

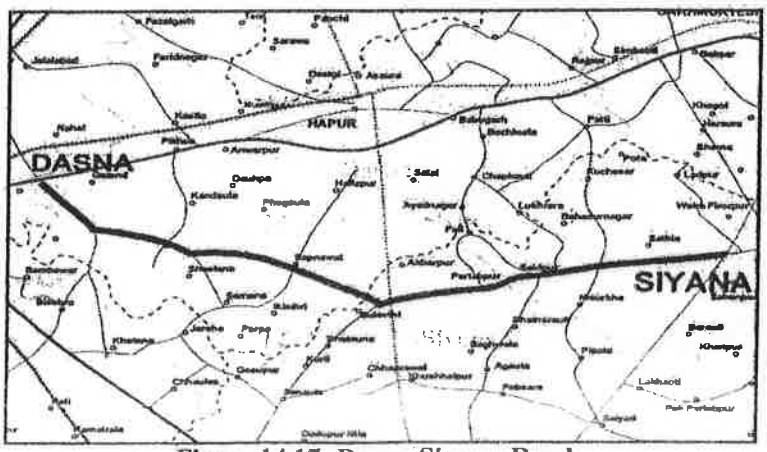

Figure 14.17: Dasna-Siyana Road

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14.2.1.8 Regional Collector/Distributors

An extensive network of existing Major District Roads and upgraded Other District Roads form the Collector/Distributor system. The total extent of this network is 4266 km.

14.2.1.9 High Occupancy Lanes along all Major Regional Roads

The Integrated Multi-modal Transport System lays emphasis on, and accords priority to, the public transport system. To provide priority for movement of road based bus system, it is proposed that dedicated High Occupancy Vehicle (HOV) Lanes of 2 lanes be provided along all the proposed and existing Expressways, National Highways and other major regional Arterial roads/corridors. The HOV lanes would facilitate high efficiency and productivity of the regional bus transport system. While mainly meant for public transport, the HOV lanes may be made accessible for use by private modes having occupancy of more than a fixed number e.g. it could be minimum two or more occupants for private cars. The vehicles in HOV lanes may also be given a concession in toll charges. These measures would promote reduction in the number of personalized modes on the network system.

14.2.1.10 Interchanges

Regional Road Network System is envisaged as a high capacity, high speed, high quality road network. Access control is required to be provided at important intersections between the roads of some class or different classes enabled with full or partial grade separated interchanges. The general policy proposed is as under:

1	Between Expressway & Expressway	Full Interchange
2	Between Expressway & Regional Arterial – (National Highways)	Full or Partial Interchage
3	Between Regional Arterial & Regional Arterial	Partial Interchange
4	Regional Arterial & Regional Collector (State Highway)	Partial Interchange
5	Between Regional Collector & Regional Collector	At Grade (with proper design)

Source: Study on Integrated Transportation Plan for NCR

While the above policy is a general guideline, there may be variations based on traffic volume and other needs. Intersections along expressway networks are listed in **Table 14.3**.

Table 14.3: Proposed Locations of Interchanges in NCR

Sl. No.	Location	Between	Type
1	Kundli	KMP EW x Delhi Peripheral Expressway	Full
2	Kundli	KMP EW X Delhi Peripheral Regional Arterial (NH-1)	Parital
3	Bahadurgarh	KMP EW X Delhi-Rohtak EW	Full
4	Bahadurgarh	KMP EW x Delhi-Rohtak Regional Arterial (NH 10)	Partial
5	Farrukhpur	KMP EW X Jhajjar-Gurgaon CNCR Grid Arterial (NH)	Full
6	Manesar	KMP EW X Delhi-Gurgaon – Dharuhera EW	Partial
7	Taoru	KMP EW x Rewari-Taoru Expressway	Full
8	Taoru	KMP EW x Rewari – Palwal RA x Pataudi – Nuh RC/D	Partial
9	Palwal	KMP EW x Delhi – Peripheral EW	Full
10	Ghori	KMP EX x Palwal-Khurja EW	Full
11	Gharora	PGK EW x Ballabgarh-Sikandarabad RA	Partial
12	Kondli	PGK EW x Yanuna EW	Full
13	Surajpur	PGK EW x Ganga Expressway	Full
14	Dadri	PGK EW x Ghaziabad-Dadri EW x Faridabad-Dardri-Hapur RC/D	Full

Sl. No.	Location	Between	Type
15	Dasna	PGK EW X Ghaziabad-Hapur EW	Full
16	Dasna	PGK EW X Ghaziabad – Hapur RA	Partial
17	Murdnagar	PGK EW x Ghaziabad-Meerut EW	Full
18	Muradnagar	PGK EW x Ghaziabad-Meerut RA (NH-58)	Partial
19	Baghpat	PGK EW x Loni-Baghpat EW	Full
20	Panipiat	Delhi-Panipat EW x Panipat Bypass	Full
21	Panipat	Panipat-Rohtal EW x Panipat Byapss	Full
22	Rohtak	Rohtak Bypass x Rohtak Panipat EW	Full
23	Rohtak	Rohtak Bypass x Rohtak-Delhi EW	Full
24	Rohtak	Rohtak Bypass x Rohtak Jhajjar-Rewari EW	Full
25	Rewari	Rewari Bypass x Rewari – Rohtak EW	Full
26	Rewari	Rewari Bypass x Dharuhera-Taoru EW	Full
27	Rewari	Rewari Bypass x Dharuhera-Taoru EW	Full
28	Gurgaon	Delhi-Gurgaon-Dharuhera EW x Gurgaion –Faridabad EW	Full
29	Faridabad	Delhi-Faridabad-Palwal EW x Faridabad-Gurgaon EW	Full
30	Jewar	Yamuna EW x Palwal-Kheja EW	Full
31	Bulandshahr	Ganga EW x Khurja – Hapur-Meerut EW	Full
32	Hapur	Ghaziabad-Hapur EW x Khurja-Hapur-Meerut EW	Full
33	Meerut	Meerut Bypass x Meerut-Hapur EW	Full
34	Meerut	Meerut Bypass x Ghaziabad-Meerut EW	Full
35	Meerut	Meerut Bypass x Meerut – Baghpat EW	Full

Source: Study on Integrated Transportation Plan for NCR

14.2.1.11 Bypass System around All Major Urban Centers

It is important that intra-regional and inter-regional traffic is segregated from intra-urban traffic. Most of the master plans for regional centers have proposed some systems of bypass roads. However, in the context of higher envisaged growth of the regional urban centers, it is proposed that necessary provisions may be made in the master plans for new bypass systems around each of the urban centre planned and developed with appropriate interchanges recommended in the transport plan. These bypasses should be elevated as far as possible to avoid becoming urban arterial road in future.

14.2.1.12 Integrating and Interfacing Regional and Urban Road Network Systems

While the development of the regional roads would enable high capacity, high speed movement between urban nodes, it is important to ensure that the advantage is not lost when they move within the urban centre to reach their final destination.

It is proposed that each urban centre, as part of its road network master plan, identify an internal network system comprising radial and orbital roads to be developed to expressway standards and integrate with the regional road system so that the destined traffic moves seamlessly to its destination point within the urban center.

Another important aspect is the interfacing of the regional and urban network systems. The intersections forming transition points need to be properly designed, preferably as grade separated interchanges, with appropriate geometric standards.

14.2.1.13 Toll Policy and Toll Plazas

Development of Road Network in NCR needs to be supported by levy of toll on the users. Presently the highway toll policy is to charge the user a part of the benefit he derives due to the improvement. It is levied along a defined section (length) of the road. In the context of NCR the toll policy needs to be formulated on a wider context of promoting equitable development of different spatial parts, ensuring equilibrium flows along the network system and enabling non-destined flows to divert at the regional level. This calls for a differential fare policy which would, for non-destined traffic, make it

economical to move along the Regional Bypass System rather than on the radial routes converging onto Delhi.

Toll plaza location and design are important to ensure full collection and minimize traffic escaping toll. Toll plaza location and number would depend on the policy concept of open-barrier toll system or closed-barrier toll system. The closed-barrier toll system captures all toll facility users, captures the entire revenue stream, provides better enforcement for toll collection and ensures users pay tolls that are directly related to the distance traveled on system.

In selecting a system the cost of toll plaza development and maintenance needs to be balanced against probable revenue loss. Under the closed barrier system toll collection could either be a closed-ticket system or closed-cash system. Toll collection equipment is important in the efficiency of the toll plaza. In the NCR it is recommended that fully automatic Electronic Toll Collection (ETC) system be adopted.

14.2.1.14 Integrated Freight Complexes

A high intensity of goods movement by road and rail systems is envisaged. They include consignments to a variety of destinations within and outside the region. The goods need to be received, stored, sorted and redistributed. Historically, this function is being carried out within or at the periphery of the city central area. Apart from sub-optimal utilization of valuable urban land space, this practice has led to lower productivity of the goods vehicles, high congestion, high costs of handling the goods, environmental degradation, accidents and a number of other issues.

The need is to develop Integrated Freight Complexes (IFCs) at the outer edge of the urban area at the location of interfacing of the regional and urban network systems. Apart from the road system, the IFCs need to be integrated with the regional rail system. IFCs at all the regional urban nodes integrated with the Outer Grid Road/Expressway Systems are proposed. They are namely Sonipat, Baghpat, Bahadurgarh, Ghaziabad, Jhajjar, Gurgaon, Bulandshahr, Palwal and other towns like Alwar, Behror, Shahjahanpur or Neemrana. Master Plans need to be reviewed and revised to provide for their land use allocating adequate extent of land and integrating the same with intra-urban transport network system. The concerned city authorities may make necessary institutional arrangement to set up IFC Co. to plan, develop, operate and manage the city IFCs.

14.2.1.15 Highway Facility Centres

The quality of the road network system is also affected by the user facilities provided along the road stretches. Road side amenities are needed and expected. In the absence of planned provision these facilities will develop in an adhoc manner, encroaching on the road right of way and causing bottlenecks and accidents.

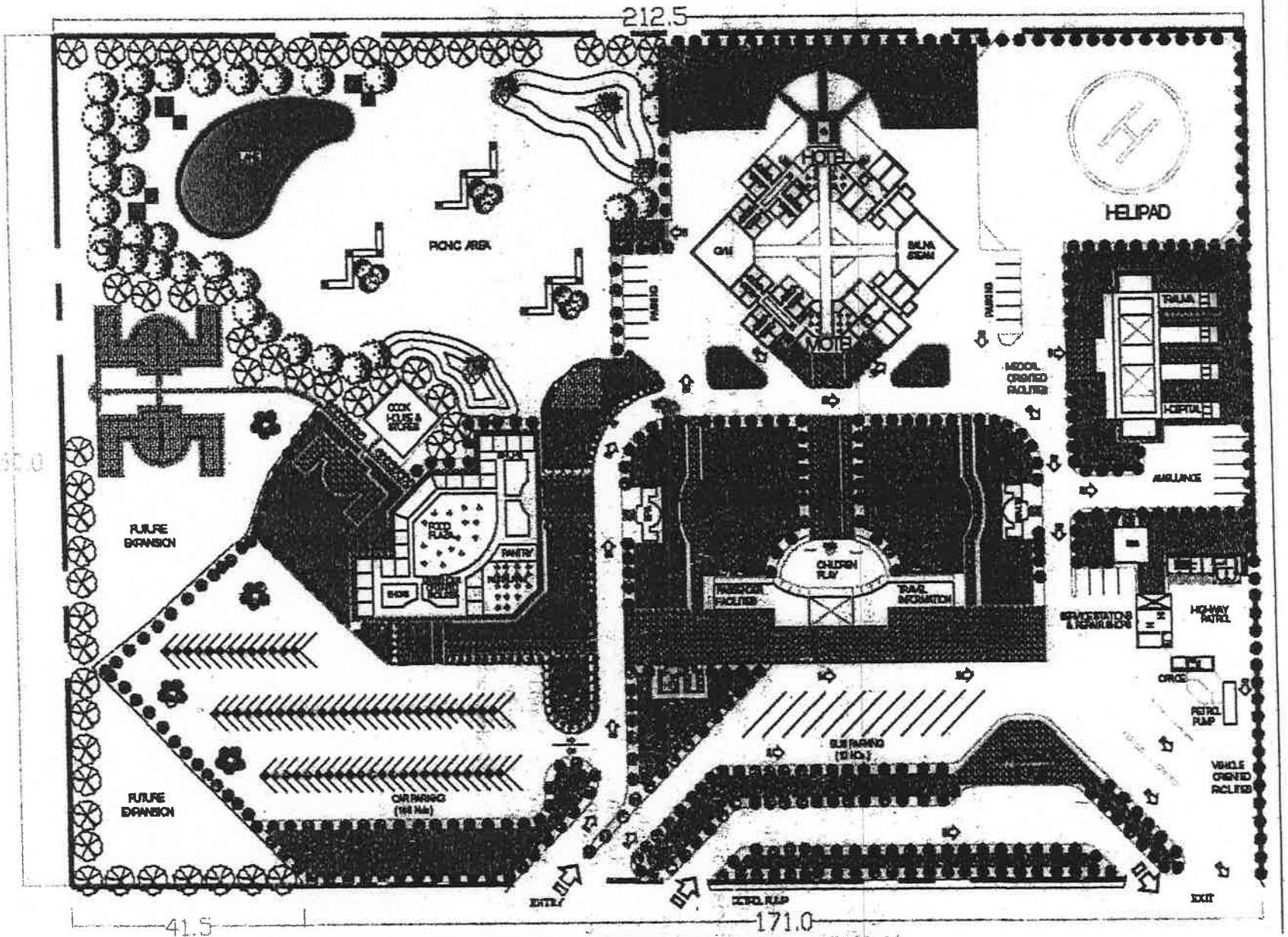
The Highway Facility Centres (HFC) needs to be planned and developed on a comprehensive basis. They need to include parking, fuelling, servicing and repairs, telephone and telecommunication, restaurants and motels, medical, police, godown, weigh bridge, entertainment, banking (ATMs), and a host of other needed services. These HFCs need to be developed along the highways, spread over about 10 to 15 ha, at a spacing of 50-60 km. **Map 14.2** presents a Concept Plan for a HFC.

14.2.1.16 NCR – Highways Facilities Centres Development Company

It is suggested that a 'NCR – Highways Facilities Centres Development Company' may be set up for planning and developing the Facilities Centres on an integrated basis. The SPV would be responsible for land assembly and integrated planning of the Facilities Centres. The individual components of the Centres may be developed and operated by different entrepreneurs.

14.2.1.17 Road Traffic Safety Issues & Strategies

The main reasons for increase in road accidents are attributed to phenomenal increase in vehicle population and introduction of new technology vehicles without making matching improvement in road structure and lack of application of modern traffic control and management tools to tackle the burgeoning traffic problems effectively and efficiently. In addition, India, especially NCR, is undergoing a major change in the causes of mortality accompanied by a rapid motorization and urbanization. A negative externality associated with expansion in road network, motorization and urbanization in NCR has resulted in increase in road related accidents. Today, Road Traffic Injuries (RTIs) are one of the leading causes of deaths, disabilities and hospitalization with severe socio-economic costs and social implications. In fact, road accidents are being seen as an epidemic and perennial disaster.



MAP 14.2 : CONCEPT PLAN FOR HFC

14.2.1.18 Road Safety Scenario of NCR States vis-à-vis India

The Road Safety Scenario of NCR vis-à-vis India (total 28 States and 7 Union Territories) in terms of various parameters is was analyzed in a study in India and the findings of this study are summarized below.

Among 35 States and Union Territories of India, the highest number of Road Accidents per lac population was reported to be **245** for Goa and lowest **4** for Bihar against the national average of **40**. The status of Road Accidents per lac population for NCR States is reported as below:

(a)	Delhi	=	59.5
(b)	Haryana	=	40.4
(c)	Rajasthan	=	37.6
(d)	Uttar Pradesh	=	10.1

Thus, Delhi & Haryana are considered under High Risk Category as the fatality rate exceeds the threshold value of **40**, while Rajasthan & Uttar Pradesh are classified under Low Risk Category as their fatality rate is less than the threshold value.

Similarly, the number of persons killed per lac population was **21.4**, which was observed to be the highest for Dadra & Nagar Haveli and this was lowest zero for Lakshadeep against the national average of **8.6**. The status of NCR States in this context is as follows:

(a)	Delhi	=	12.8
(b)	Haryana	=	14.7
(c)	Rajasthan	=	11.0
(d)	Uttar Pradesh	=	5.5

Among 35 States and Union Territories of India, the National Average of Road Accidents per 10000 vehicles was found to be **59**. This Accident Rate was observed to be the highest for Kerala with **148** and lowest for Lakshadeep with **6**. The status of NCR States in this context is as follows:

(a)	Delhi	=	21.4
(b)	Haryana	=	36.6
(c)	Rajasthan	=	60.6
(d)	Uttar Pradesh	=	28.6

Similarly, the number of persons killed per 10000 vehicles was observed to be the highest for Arunachal Pradesh with **79** and lowest for Lakshadeep with zero against the national average of **12.7**. The status of NCR States in this context is as follows:

(a)	Delhi	=	4.5
(b)	Haryana	=	13.4
(c)	Rajasthan	=	16.9
(d)	Uttar Pradesh	=	15.4

Among 35 States and Union Territories of India, the severity of accidents related to deaths per 100 accidents was observed to be the highest for Uttarakhand with **66** and lowest with **zero** for Lakshadeep against the national average of **22**. The status of NCR States in this context is as follows:

(a)	Delhi	=	21.8
(b)	Haryana	=	36.3
(c)	Rajasthan	=	29.4
(d)	Uttar Pradesh	=	54.3

14.2.1.19 Road Safety Strategies

The following Road Safety Strategies for Accident Prevention, Reduction and Mitigation are proposed to be adopted:

(i) **Proactive Measures** (compatible with hazardous road locations i.e. junctions, non-junction locations and accident prone routes). These proactive measures will comprise preventive and corrective measures for accident prone spots / sites / routes / areas in form of geometric improvement of curves, intersections, provision of additional turning lanes, grade separations, pedestrian underpasses, realignments / bypasses, etc. based on problem diagnosis through safety audit of existing roads supplemented by site investigations. These proactive measures will be proposed on short-term and long-term basis, depending upon various factors such as cause of an accident, implementation timeframe, resource requirements, etc.

(ii) **Reactive Measures** (junctions, non-junction locations, single cause accidents requiring mass action, route action plan requiring corridor improvement, area action plan). These reactive measures will comprise rectification of minor deficiencies such as kinks, presence of sharp curve / broken back curves without adequate tangent length, inadequate sight distances at intersections due to physical obstructions, absence of traffic guidance, control and regulatory signs, road markings, guard posts, guard rails, delineators, pedestrian crossing facilities, etc. in form of traffic guidance, control and management counter measures as required for safe guidance and movement of traffic within the travel way. These counter measures are proposed to be taken on priority basis to improve the safety scenario, e.g. use of retro-reflective tapes for vulnerable vehicles such as bicycles, cycle rickshaws, and other non-motorized vehicles, use of flood lights on rear left hand side of the motorized vehicles for lighting the shoulders, use of guard rails and guard posts at vulnerable locations such as high embankment, sharp curves, structure approaches, etc.; provision of overhead gantry signs for place identification, direction and distance guidance, etc. ; compulsory delineation of the island ends with obstruction markers and delineators, provision of pedestrian facilities at vulnerable locations, heavy punitive action against law offenders / defaulters, especially for helmet use for two-wheelers, safety belt for front car passengers, drunken drivers, speed violators, etc.

(iii) **Mitigation Measures** (organizational measures such as traffic aid posts, highway patrolling, surveillance, communication system, ambulance services, trauma care and management etc.). These measures will be aimed at reducing the severity of accidents by way of emergency help to accident victims through efficient information system, accident reporting and timely treatment at trauma care centers, hospitals, etc.

In order to minimize the number, frequency and severity of accidents in NCR, the following recommendations are made:

i) Adoption of standard designs for Roads & Highways such as basic forms of intersections and their choice, road alignment and vertical profile, visibility at intersections, radii of curves, minimum design features, minimum turning radii, widths of carriageway at junctions, etc.

ii) Design of Expressways, Arterial Roads, Sub-arterial Roads & Collector Roads will specially be based on premise that accidents are bound to take place even if all possible safety measures are taken, i.e. all categories of Roads & Highways should be of forgiving nature and are provided with gentle road-side slopes, safety barriers, guard rails, guard posts, delineators, object / obstruction markers, besides adequate traffic signs with markings, etc.

iii) Adoption of standard designs for appropriate types of grade-separated interchanges for catering to all traffic movements safely

iv) Adoption of sound construction and maintenance practices.

v) Provision of adequate and effective traffic control and safety devices during construction and maintenance activities as it has been observed that the accident rate is generally 1.5 times during these activities as against normal traffic flow conditions

vi) Provision of road side amenities for pedestrians, cyclists and other special road users such as rickshaws, vans, buses, trucks, etc.

vii) In addition, all possible engineering, educational, enforcement, environment management and emergency measures (5 Es) for ensuring highway safety, including training as appropriate should be adopted.

viii) The following initiatives should be taken to enhance road safety:

- Design & Specifications of new roads to be as per International Safety Practices
- Adequate Safety Measures during construction and maintenance of highways
- Adoption of both pro-active and reactive counter measures for enhancing safety of existing highways based on diagnostic analysis.

ix) Adoption of Intelligent Transport Systems (ITS) for design of vehicles, road & road environment and traffic guidance.

The geometric design standards for road network development are given in **Annexure 14.1.** The geometric sections are shown in **Figure 14.27.**

14.2.1.20 NCR Transport Safety Authority/Cell

It is recommended that a Transport Safety Authority/Cell is proposed in each sub-region, independent of functional departments and under the direct charge of the Principal Secretary of the concerned Department in the State Government to be established to conduct Safety Audit of all transport plans, designs and operations. It could be a multi-disciplinary team. Apart from safety audit, it should also conduct detailed study and analysis of any accident that may take place within their respective sub-regions, identify causal factors and recommend guidelines for improved safety. The vision is to move towards zero fatal accidents in NCR.

14.2.2 Bus System

Considering the population growth and settlement pattern of the NCR, its current and projected travel needs, following appreciation of the travel characteristics of the commuters in the NCR and the evaluation of existing public transport services in respect of their Institutional set ups; adequacy of services, their physical and financial performance including utilization of assets; operational profitability, costs and revenues, fares and taxes; etc and analysis of causes of deficiencies, if any, recommendations for operationalisation of providing an adequate, efficient, economical and environmentally sustainable Bus based Public Transport (BPT) system has been made. It includes modal split, buses required and their distribution amongst the sub regions, bus system and bus technology, provisioning of bus depots, repair and maintenance workshops, bus terminals, Bus queue shelters, etc. besides other fiscal reforms. Investments required for development of BPT system, phasing of investments over the period spreading upto the horizon year is proposed. The Funds for investment are expected to be through PPP models. Investment of the order of Rs 37 per person per year is proposed to be made by the government agencies.

14.2.2.1 Demand Forecast for Buses

On the basis of the average intra region (excluding intra urban and inter-state trips) Per Capita Trip Rate (PCTR) of 0.0479 by bus in base year and 0.07968 in horizon year (2032), the average passenger trip length of 51 kms in the base year (as per survey estimates-CES 2007) and 68kms in horizon year; the population projections for the horizon year 2032; and the carrying capacity of 11597 seat kms per

bus per day in base year and 12370 in horizon year; the demand of buses is as estimated in **Table 14.4.**

Table 14.4: Demand assessment of buses for Intra Region Bus Transport Services (excluding intra urban and inter state) in NCR

Demand Estimation		Base yr 2007	Horizon year 2032
a NCR population	lakhs	443.5	866.4
b Bus Pax daily trips		2124587	6900228
c Bus Pax PCTR		0.047905	0.07968
d Bus Pax avg trip lngth kms		51	68
e Total demand	pax kms	108353924	466761044
Supply side			
e.Kms per bus on road/day		349	331.2
f.Avg no of seats in a bus		52	58
g.Avg load factor		0.67	0.7
h. Avg fleet utilisation		0.96	0.92
i. supply per bus held per day			
=e*f*g*h		11673	12370
Buses required		9283	37734

The requirement of buses, for intra region transport services in NCR, is assessed as 9283 for the base year and 37734 buses for the horizon year (refer table above) with the following assumptions:

- the average decadal growth in bus passenger trip length (in the range of 12-13%) on account of the increasing spread of settlements in the NCR,
- the average decadal decline of vehicular utilization of about 2% due to increasing road congestion,
- seating capacity of vehicles increasing to 58 from 52 due to longer vehicles being progressively available,
- optimum fleet utilization of 92% considered against the over utilization of more than 96% in the base year

The above demand levels would significantly increase if inter state travel needs are considered. This demand however has to be serviced both by the NCR as also by other states. In both cases however intra urban travel requirement is excluded.

14.2.2.2 Bus based Public Transport System Development

Based on above analysis, various issues related to the Bus based Public Transport System has been addressed and the recommendations are as follows:

i) Based on travel demand estimates for the bus system in the NCR, the number of buses required is assessed and given in **Table 14.4.** Bus fleets, as per sub region wise requirements, be provided in each of the constituent states of the NCR, mainly under the Public Private Partnership (PPP) system. The supply of buses is proposed to be in equal proportions by the public and the private bus operators.

Bus fleets levels in the NCR may be achieved progressively, in a phased manner, by distributing the additional fleet induction till the horizon year on a near straight line basis over the time span of 5 years each. The details of Estimated Cost and Phasing of BPT System are given in **Table 14.5.**

Table 14.5: Estimated Cost & Phasing of BPT System

Phasing of bus fleets and other Facilities along with cost estimates						
Sl. No.	Description	Periods				Total at the end of the horizon year
		2008-2012	2013-2017	2018-2022	2023-2032	
1	**Bus Fleet level**					
1.1	at the end of terminal year	12000	18000	24000	37734	37734
1.2	at the beginning of the period	0	12000	18000	24000	
1.3	addition during the period	12000	6000	6000	13734	37734
2	**Distribution of Bus fleet bus provider wise**					
2.1	NCRTC Buses	6000	9000	12000	18867	18867
2.1.1	NCRTC Owned buses	3000	4500	6000	9434	9434
2.1.2	NCRTC hired buses	3000	4500	6000	9434	9434
2.2	Private Bus Providers' buses	6000	9000	12000	18867	18867
2.3	Cost of additionasl buses @ Rs 30 Lakhs per bus on an average	360000	180000	180000	412020	1132020
2.4	cost of replacement of buses after every 8 yrs of life Rs in Lakhs	0	216000	252000	581616	1049616
3	**No. of Bus depots @1 depot per 100 buses at the end of the period**	120	180	240	377	377
3.1	no. of bus depots to be added during the perod	120	60	60	137	377
3.2	Land for depot @ 5 acre per depot	600	300	300	687	1887
3.3	Cost Estimates (Rs in Lakhs)					
3.3.1	Land @ Rs100 lakhs per acre	60000	30000	30000	68670	188670
3.3.2	Building cost lumpsome @ Rs 400 lakhs per depot	48000	24000	24000	54936	150936
3.3.3	Equipment @ Rs 100 Lakhs per depot	12000	6000	6000	13734	37734
3.3.4	Total cost of Bus depots Rs in lakhs	120000	60000	60000	137340	377340
4	**Workshops**					
4.1	No. of Workshops @ 1 per 3000 buses expandable to 6000 buses	2	3	4	6	6
4.2	Additional w/shops per period	2	1	1	2	6
4.3	Land required per workshop @ 15 acres per w/shop	30	15	15	34	94
4.4	Cost Estimates (Rs in Lakhs)					
4.4.1	Land for workshops @ Rs 100 lakhs per acre	3000	1500	1500	3434	9434
4.4.2	Buildings for workshops about 20000 sq mtr @ Rs 10000 /sq mtr	4000	2000	2000	4578	12578
4.4.3	Equipments @ Rs 1000 lakhs per w/shop	2000	1000	1000	2289	6289
4.4.4	Total cost of w/shops Rs in Lakhs	9000	4500	4500	10301	28301
5	Total Investment required Rs in Lakhs(2.3+2.4+3.3.4+4.4.4)	489000	460500	496500	1141277	2587277

Source: Study on Integrated Transportation Plan for NCR

Procurement of bus fleets, development of bus depots, workshops, etc. will require a total investment of Rs 25873 crores spread over the period of 25 years is required. Investment in about 75% of the bus fleet additions, its periodic replacements and the corresponding bus depots and workshops would be made by the private sector and through PPP model. Only about 25% of the investment amounting to nearly Rs 6468 crores is proposed to be made by the Government agencies. This investment of Rs 6468 crores is expected to serve an average population of about seven crores during the period of 25 years. Accordingly, investment requirement by the government agencies will be about Rs. 37 lakhs per lakh population per year.

ii) Sub region-wise stage carriage bus permits be provided for the number of buses required in each sub region. The permit conditions/fees etc for buses engaged by the bus corporation be identical for all sub regions. Fiscal incentives such as sales tax holiday / concessional excise duty on purchase of buses by private operators for operation under the bus corporation could bring about enhanced participation of even the private sector's corporate entities. Rationalisation of excise duty on buses, for the vehicle manufactures at par with that applicable to the small scale bus body builders, would encourage acquisition of fully built buses from the vehicle manufactures directly.

These buses built by the vehicle manufacturers are expected to be of appropriate designs and quality.

iii) As non-uniform tax and permit fee structures, amongst the constituent states of the sub regions, does not financially motivate the bus operators towards growth of bus fleets and expansion of operations in such areas, a uniform tax/permit fee structure be worked out and maintained throughout the NCR. Losses if any, by any of the constituent states, on such rationalization of taxes etc be suitably compensated through an agreed mechanism.

iv) Passenger fares, which constitute the main source of revenue for the bus operators, are significantly different in the sub regions of the NCR. Lower fare levels in some regions coupled with high incidence of taxes neither encourage bus operators to operate/expand their services in that area nor do they motivate commuters to travel by bus based public transport. Bus fares should be such as to cost the commuter less than the operational cost of a two wheelers for affordability considerations and for increased patronization of the public transport system by the commuters. The bus fares should be fixed at a level sufficient to cover all costs at optimum physical performance of the operator and to generate surplus for growth etc. for financial sustainability of the public transport operator. Considering the contradicting demands on the system, the fare be worked out for the financial sustainability and growth objective. It could be suitably moderated by the concerned government for affordability and other socio-political considerations. The gap between the two be bridged under the viability gap funding scheme/any other scheme of the government. The fare levels and the cost of travel to the commuter be uniform in the entire sub region.

For the convenience of commuters and for encouraging seamless transfer amongst modes possibility of a single ticket for the journey by all modes be explored. Smart card based ticketing could serve the purpose.

v) Bus Rapid Transit System (BRTS), with adequate and efficient feeder network, using modern buses for high density routes (corridor loads of more than 5000 pphpd) has been proposed based on the route wise travel demand. Buses of varying capacities are recommended for other routes depending upon travel intensities.

Normally 12 meter long ultra low floor buses (of floor height of up to 400 mm) with wide (1200 mm) entry/ exit gates, 2*2 seating layout, high acceleration capability, fitted with air suspension, automatic transmission, etc are the preferred options for the main corridors of NCR, these buses (and or single/double articulated ones) are recommended for the BRTS routes for operation on dedicated road space as also for the NCTD-CNCR routes mainly on account of operational considerations.

On other national /state highways, low floor (650 mm floor height) 12 meters long buses and or standard buses (1150 mm floor height and up to 12 meter length) with wide (800-1200 mm) entry/exit gates,3*2 seating layout, medium to high acceleration capability, etc., are proposed depending upon the road conditions and travel demand intensity.

For the single lane roads, mostly for low level travel demands, smaller buses (mini and micro) be the preferred option for operation on these routes.

CNG buses are proposed for environmental considerations which are as per Reciprocal Common Transport Agreement signed by the NCR constituent states.

Buses of all comfort categories viz ordinary, semi-deluxe and super deluxe in appropriate proportions be selected depending upon travel characteristics of the route/area.

All buses be provided with electronic route-destination display system at three out side locations namely front, rear and entry side of the bus besides one inside the bus on the driver partition panel. These micro processor based systems are proposed to deliver audio- video signals/messages about route number, its destination, next stop, etc for the convenience of the commuters, including differently-abled commuters, at the bus shelter as also for those on board. These systems could also be incorporated on public private participation basis.

All the Buses be equipped with Intelligent Transport Systems (ITS) comprising of GPS / GPRS / related communication and other sub systems for on-line tracking of bus operations besides feeding the Passenger Information System (PIS). The Bus Corporations would create a set of control rooms suitably located in the NCR and adequately equipped with necessary hardware / software for on-line monitoring of buses and providing necessary information to users through IVRS / SMS, etc. Further web based information about operation schedules, seat availability, etc be available for optimal journey planning by the users.

All buses are equipped with hand held Electronic Ticketing / ticket Verification Machines (ETVMs). The ETVMs be GPS/ GPRS compatible for on-line identification of bus stops / fare stages and communication of requisite data (the way bill details, revenue collection etc) to the control rooms periodically. These machines are programmed to work out and pop up the number of passengers on-board at any point of time. Such a data would not only facilitate bus choice making for the passengers waiting enroute on the following bus stops but would also help in checking ticket-less travel.

All buses need to meet the prescribed emission norms, all statutory requirements besides the general bus specs as per AIS 052(or latest).

vi) One bus depot, of about five acre area, per 100 vehicles be planned, at suitable locations, for idle parking, repair and maintenance etc. of buses. Adequately equipped workshops for major repair of buses and reconditioning of bus aggregates are provided at suitable locations for every cluster of up to 3000 buses. While space of about 15 acres be earmarked for each of these workshops, their equipping and operations be undertaken on Public Private Partnership (PPP) basis. The NCR Bus Corporation (NCRBC) could act as the administrative agency for the purpose. Alternatively all vehicles be purchased with annual maintenance contracts with the vehicle manufacturers.

vii) Route structuring and the bus service frequencies on these routes be worked out on considerations of corridor loads, etc.

viii) The operation, repair and maintenance of these buses would call for involvement of a large labour force (generally at the rate of 5-7 persons per bus) duly qualified and trained for undertaking multifarious tasks efficiently. Training institutes for imparting systematic training in various skills particularly driving and repair and maintenance of buses are proposed to be developed across the NCR.

For servicing the growing manpower needs of the bus transport system, possibility of developing regular multi-skill/trade training courses, such as driver-mechanic trade, conductor-clerk-accounting trade, bus electronic-microprocessor-software trade, etc be evolved at the national level and regular certificate courses of 6 to 12 months duration, at par with those conducted by the Industrial Training Institutes in various industrial skills, be explored for ready availability of trained/qualified persons for deployment in the bus transport system.

Driver is the key element for providing a safe bus system. Besides his training as above, he is further trained 'on the job' for acquiring bus specific skills, before actually deploying him for bus operation. His skills be evaluated using a human intervention free driving skill evaluation system to the extent possible.

ix) Another important element for safe and reliable operation of the bus transport system is a well maintained and fully roadworthy bus. For obtaining such buses in the system, on regular basis, their periodic inspection and certification at the well equipped testing workshops preferably using human intervention free inspection facilities is essential. Such facilities therefore need to be designed and provided across the NCR at convenient locations.

x) Taxis and Auto-rickshaws are important mode of transport within the NCR and together they cater to a significant share of the transport demand. They play a crucial role in containing the levels of motorisation, particularly in respect of private vehicles. IPT modes therefore need to be accorded due attention, and necessary programs be initiated to enhance their share of travel demand. The existing fiscal and other policies, not being conducive to the free movement and operation of the IPTs across the NCR, need to be reviewed for uniformity in fares, taxes and permit fees/conditions, etc.

xi) Consultant has suggested to establish an institution at NCR level for formulation of policies, planning for transport services; scheduling of operations; setting standards for facilities, vehicles and the quality of services; facilitate provisioning / contracting of services; monitor and control operational performance etc for developing an adequate, integrated and well coordinated; affordable, safe, reliable; environment friendly and financially sustainable bus based public transport system. They suggested to establish NCR Bus Corporation (NCRBC) at the Central Government level instead of with all the constituent states, the representative of the Central Government, the NCR Planning Board, etc as members amongst others. This corporation be headed by a nominee of the Central Government. The operational jurisdiction of the NCRBC be fixed as whole of the NCR for inter-city services in accordance with the existing provisions of the act.

This suggestion of the Consultant was not agreed by the NCR Constituent States during interaction in the Workshop, therefore, it is proposed to establish such NCR Bus Corporations at Sub-regional levels by the NCR Constituent States to handle the bus based public transport system in respective sub-regions. These Corporations could operate services in other areas/states by mutual agreements. There could be an umbrella forum which includes representatives of the NCR States and take decisions with consensus among all the NCR Constituent States which could meet as & when required to facilitate efficient coordination. This forum/committee could be chaired by Member Secretary, NCR Planning Board.

xii) The capital requirement of these corporations and land for the depots could be arranged by the respective state governments and their development & operations may be undertaken on Public Private Partnership (PPP) concept. As the operational profitability of the buses hired by the RTCs is much better than that of their own buses, it would only be appropriate that the new corporation out-sources the rolling stock from private sector on wet lease and or any other system. This would not only contain the requirement of capital but would also reduce the staff cost of the new entity as high staff costs appear to be the main factor for poor financial performance of the STU owned buses. The corporation may also out-source all other services including bus fare revenue collection from private sector. The corporation would undertake mainly the policy planning, contracting / outsourcing of services, operations planning, setting standards, scheduling, monitoring and controlling of the performance and the quality of the operations etc.

14.2.3 Bus Terminals

Bus terminals constitute a most important component of the bus based road transport system for providing seamless transfer from one mode to another and one route to another as also the necessary passenger amenities and facilities. On the basis of bus fleet requirements; terminal norms and standards; and the quantum of operations, a number of bus terminals are proposed for the NCR. The

size of each terminal is assessed on the basis of intensity of use. Facilities and amenities are provided on the basis of quantum of operations / population size of the cities.

Requirement of bus terminals and other facilities in terms of their numbers, locations, capacities, sizes etc could be accessed through scientifically undertaken travel demand studies and their analysis using various modelling techniques on one hand and the level of passenger amenities to be provided on the other hand.

Normally all intercity, intra-city, intra region and long distance service buses should operate between well developed bus terminals, providing not only necessary amenities to the commuters but also promoting seamless inter-modal transfer.

The function of bus terminal primarily includes processing of vehicles, passengers, etc. with provision of necessary facilities for their smooth flow. The terminal serves as a point and unit where necessary information to user is made available for processing his journey.

14.2.3.1 Main Functions of Bus Terminals

i) A passenger bus terminal broadly needs to perform the functions to meet requirements of the following:

a. Passengers and vehicles
b. Passengers only
c. Vehicles only
d. Crew
e. Management

ii) The functions related to both passengers and vehicles include:
- Concentration
- Loading
- Dispersal
- Unloading

iii) Passenger only oriented functions of the terminal include provision of:
- Passenger platforms to board and alight
- Waiting lounges
- Rest houses / rooms
- Baggage storage facilities
- Basic shopping and commercial facilities
- Utilities, services and amenities
- Information system
- Ticketing facilities
- Shelter from weather
- Communication and postal facilities
- Eating places

iv) The components related to vehicles (bus) only include provision of:
- Bays for loading and unloading
- Idle bus parking spaces
- Facilities related to maintenance
- Information system for movement within terminal

v) The terminal components to meet the needs of crew are:
- Rest rooms
- Information system
- Communication facilities

- Eating places

vi) The terminal facilities for the management in terms of:
- Demand management on account of concentration
- Incurring minimum expenditure
- Development of centralized information
- Ensuring better control
- Operations management-- planning, monitoring and control
- Contracting of services / service providers

14.2.3.2 Standards and norms for Bus Terminals

i) Design Criteria for bus terminals

The design criteria of terminal inter alia include determining the size of terminal and factors to be taken into consideration in planning the facilities and activities. The size of the terminal is primarily governed by the following factors:

- Traffic demand
- Traffic characteristics
- Functions of terminal
- Type, quantum and sophistication of facilities

The other factors to be considered in terminal design by appreciating activity and facility inter-relationship are:

a. Segregation of Terminal and non-terminal traffic;
b. Segregation of Vehicular and pedestrians' traffic and movement;
c. Segregation of Traffic by type, function, and direction;
d. Coordination of different activities in terms of functional and spatial inter-relationship;
e. Provision of good user and vehicular information;
f. Provision of necessary and identified facilities to meet requirement of all user groups;
g. Achieving minimum passenger and vehicular processing time;
h. Achieving overall functional and spatial efficiency;
i. Achieving smooth flow of all types of traffic to and from terminal

ii) Planning Norms and Space Standards for Bus Terminals

Planning norms and space standards further vary with type of bus operations catered by the terminals viz. interstate, intra region, urban or rural as the requirements for them are different. While in an interstate bus terminal the passengers and the crew requires facilities for overnight stay, in an intra city terminal the quantum of passengers handled during peak hour would be much larger than that of the interstate bus terminal. In rural areas on the other hand even provisioning of a few bus shelters with chairs for waiting may serve the purpose.

As per **UDPFI guidelines**, indicative norms for intra city bus terminals are as follows:

Description		Norms
Capacity of an intra city bus terminal	:	1.5 lakh passengers / day
Peak hour load	:	10% of daily passenger load
Occupancy / Bus	:	50 ideal
Time taken for loading	:	6 min; 12 min max

Time taken for unloading	:	3 min; 6 min max

Source: Study on Integrated Transportation Plan for NCR

Space standards for parking facilities for intra city bus terminals are given in **Table 14.6.**

Table 14.6: Space Standards for Parking Facilities for Intra City Bus Terminals

Description	Area / Vehicle sq. mtrs	Area in sq. meters including circulation
a. Bus bays		
Boarding /alighting of Pax		200
Idle Parking per bus	145	200
b. Parking of other Modes		
Car	25	50
Two wheeler	4	12.5
Taxi	16	50
Auto-rickshaw	1.2	3
Cycle	1.2	

Source: Study on Integrated Transportation Plan for NCR

The need for bus terminals arises for all types of operations undertaken by different passenger transport service providers. The quantum and nature of facilities in different types of bus terminals varies with the intensity of vehicles arrival / departures, density of commuters, quantum of intermediate public transport vehicles, peak hour traffic loads, etc.

While the passengers' needs at intra city bus terminals mainly consist of boarding-alighting facilities, bus shelters, and enquiry / ticketing office, wash rooms, etc., the passenger needs at interstate bus terminals would be far more than the intra city bus terminals. In addition, the interstate bus terminals need to have facilities of rest rooms, advance reservation, book stalls, telephone facilities, waiting halls, overnight staying facilities, snack bars, restaurants, and overnight stay facilities for interstate bus crew, idle bus parking facilities besides others generally required at any bus terminal. Intra region bus terminals would need to have facilities in between the above two types of bus terminals.

Bus terminals in comparatively smaller towns and cities in the NCR have to have facilities tending towards the urban bus terminals. The size of the bus terminals should be such as to provide all the above facilities, adequate number of bus bays, adequate parking space for private vehicles, boarding alighting bays for intermediate public transport modes, idle parking facilities for buses awaiting their scheduled departure from bus terminals.

On an average, about one third each of the total area may be taken for terminal built-up space, idle parking, landscaping respectively subject however to local norms.
On the basis of above requirements, the bus terminals in the National Capital Region based on the facilities may be classified as given in the **Table 14.7.**

Table 14.7: Categorization of Bus Terminal based on Amenities and city size

Sr. no.	Amenities / Facilities	Category of terminal / suitable for class of city
1	Drinking water & Hand Pumps	Category 'D'(1-6) "Class V level towns"
2	Lighting & passenger sheds & station	
3	Fans in passenger sheds	
4	Benches & chairs	
5	Display of time table and fare list	
6	Toilets and urinals	

Sr. no.	Amenities / Facilities	Category of terminal / suitable for class of city
7	Suggestions/complaint box	Category 'C1'(1-15) " Block Level Facilities" or "Class IV level cities"
8	Booking and enquiry counter	
9	Canteen/book stalls/general merchant shops	
10	Boarding platform	
11	Stalls	
12	PCO	
13	Passenger lounge	
14	Mini tube well and moulded tank	
15	Idle parking	
16	Public address systems	Category 'C2'(1-18) "Class III level cities"
17	Water cooler	
18	In-out enquiry	
19	Generator	Category 'B' (1-22) "Class II level cities"
20	Administrative office	
21	Driver/ conductors rest room	
22	Private car, scooter rickshaw parking	
23	Television	Category 'A'(1-30) "Class I level cities"
24	AC canteen	
25	AC waiting room	
26	Dormitory	
27	Computerized arrival/ departure	
28	Computerized booking/reservation	
29	Tube well & RCC overhead tank	
30	Cloak room	
31	Tourist information centre	Category 'A plus'(1-35) "Metropolitan Cities"
32	Washing machine	
33	Security room	
34	Passenger Information system	
35	Real Time Information System	

Source: Study on Integrated Transportation Plan for NCR

Considering various operational and other requirements for development of bus terminals, the terminals may be provided as under **(Table 14.8).**

Table 14.8: Suggested Operational and other facilities required in Bus Terminal w.r.t. city size

S. No	Description	Population Range	Type of Terminals				Proposed Size of Terminals (in acres) for FY 2032	Terminal classification on the basis of amenities / facilities
			Inter-state	Intra-region	Urban Services	Other Services		
1	State capitals and Metropolitan Cities	>1000000	✓	✓	✓	X	15	A+
2	Major city centers	>500000	✓	✓	✓	X	10-15	A
3	Class I settlements	>100000	✓	✓	x	X	10-15	A
4	Class II settlements	50000-99999	✓	✓	X	x	5-10	B
5	Class III settlements	20000-49999	✓	✓	X	✓	5	C2
6	Class IV settlements	10000-19999	X	✓	X	✓	3	C1
7	Class V settlements	5000-9999	X	X	X	✓	2	D

Source: Study on Integrated Transportation Plan for NCR

14.2.3.3 Development of Bus Terminals: Recommendations

The development of bus terminals calls for large investments which may be obtained through Public-Private-Participation. The public sector equity in development of bus terminals may be taken as the land value of the bus terminals. The private sector may be required to bring in investments for development of the bus terminals through any of the PPP Models. The operations, management and maintenance expenses for the bus terminals and other facilities are proposed to be met through user charges etc.

Consultant has proposed a separate corporation for planning, designing, development, operations management, monitoring and control of operations, etc of terminals to be established under the RTC act 1950 for each sub-region.

i) **Strategy for Development of bus Terminal and other Facilities**

The strategy for bus terminal development in NCR comprises of – first, an assessment of space for various levels of passenger terminals; second, a hierarchical system of developing terminals in the study area which can cater to traffic in the entire State and third, outsourcing of funds and operations management through PPP. Such terminals would facilitate as an optimal interface of intra-region, intra-sub-region, intra-states and inter-state traffic.

At least one bus terminal with adequate provision for future growth is proposed in every class of city. In class I and above cities, a number of bus terminals @ of one commuter terminal for handling upto 1500 buses per day and peak hour load of 100 buses is suggested. Considering an average alighting / boarding time of about 15 minutes for a bus-a provision of about 50 bus bays at the terminal is proposed besides space for idle parking of buses, parking of private vehicles and IPTs, in addition to the requisite space for public conveniences / passenger amenities etc.

Following above discussions an area of about 2-15 acres is proposed to be allocated for the terminals. In class II/III cities, terminal space of up to 5-10 acres for each of the terminals to handle a peak hour load of about 50/25 buses in the base year with adequate provision for future expansion be provided.

ii) **Category wise requirement and cost estimates of bus terminals**

On the basis of above norms / standards and the class-wise distribution of cities in NCR, the minimum number of bus terminals is 50 as per details given in **Table 14.9**. City-wise categorization of terminals along with the estimates of area requirement is given in **Annexure 14.2**. Estimates of land required and that of the investments in acquisition of land and development/construction of terminals are also given therein. Cost Estimates of Land and construction / development is made on block cost basis.

An investment of Rs 3539 crores for development of bus terminals across the NCR is estimated on PPP model. The total investment may be made in phased manner generally depending upon the induction of the bus fleet. Accordingly the investment be phased as 20%, 20%, 20% and 40% during 2008-12, 2013-2017, 2018-2022, 2023-2032 respectively.

Table 14.9: Category wise number of terminals

Category of terminal	No. of cities	Terminals				
		No.	Land in acres		Cost of Land Rs in Lakhs**	Cost of construction Rs in Lakhs #
			per terminal	Total		
A+	6	10*	15	150	15000	75000
A	29	29	12.5	363	36300	185000
B	8	8	7.5	60	6000	30000
C2	1	1	5	5	500	2500
C1	2	2	3	6	600	3000
Total		50		584	58400	295500
Total investment required Rs in Lakhs						353900
D	others	As per requirement in smaller towns and at the railway stations				

Source: Study on Integrated Transportation Plan for NCR
*Note: *@ 1 per 15 lakhs population of a city (excludes Delhi)*
*** cost of land taken as Rs 100 Lakhs per acre on an average*
 # cost of buildup space taken @ Rs 500 lakhs per acre of terminal area as lump sum.

iii) Bus stations at Railway Stations

Bus bays @ of one Bus bay for peak hour load of upto 200 rail passengers (assuming that 50% of rail commuters would travel by buses for access to/dispersal from the railway stations) be planned at the Railway stations besides idle parking space for buses, parking area for IPTs, private vehicles, etc. This provision is expected to facilitate seamless transfer of commuters between Rail – road modes. A space of about 200 square meters be earmarked for every bus bay and the bus circulation needs. Parking space for idle buses, IPTs and the NMTs be also provided at each of the stations.

iv) Bus Stops and Bus Shelters

For convenience of commuters boarding buses en-route, suitable bus shelters are proposed at the main bus stops as also at the route ends on PPP concept. The proposed NCRTC (Bus Terminals) is expected to take up this activity as well. Alternatively the bus providers may be entrusted the task of developing bus shelters in their respective areas allowing them the commercialization of such shelters for revenue earning. Permission of land owning agencies in any case would be required.

v) Operations Management and Maintenance (O & M) of Bus Terminals

Although the private investor brings in the investment for development of the bus terminal facilities, he may not have adequate expertise and or significant interest in (O&M) of the bus terminals in view of insignificant revenue potential there-from. (O&M) of bus terminals is proposed through a third agency on PPP concept following a process of transparent and competitive bidding. The Operations Management & Maintenance (O&M) agency would not only carry out the day-to-day operations of the bus terminals, but would also maintain the facilities available at the bus terminals. This O&M agency would be allowed to raise additional revenues by way of:

- User charges from the bus providers / operators / all other users of bus terminals
- Parking charges from all types of vehicles
- Advertisement in the bus terminal area (except that reserved for the Real Estate Developer), wherever permitted by applicable laws
- Renting out shops, offices, etc. in the bus terminal operational area allotted to the new Corporation

14.2.3.4 Public Private Partnership Options for Development of Bus Terminals and Other Facilities – Concepts and their Evaluation

Public Private Partnership or PPP is a mode of implementing government programmes / schemes in partnership with the private sector. The term private in PPP encompasses all non-government agencies such as the corporate sector, voluntary organizations, self-help groups, partnership firms, individuals and community based organizations. PPP moreover, subsumes all the objectives of the service being provided earlier by the government, and is not intended to compromise on them. Essentially, the shift in emphasis is from delivering services directly, to service management and coordination. The roles and responsibilities of the partners may vary from sector to sector. While in some schemes/projects, the private partner may have significant involvement in regard to all aspects of implementation; in others Private Operator may have only a minor role.

Development of bus terminals and other facilities for the mass passenger road transport system in the NCR, under the PPP model, involves the following main activities:

- Assessment of total requirement of bus terminals, their location, sizes and the quantum of facilities/ amenities needed.
- Planning for phased development
- Preparation of detailed feasibility reports
- Preparation of detailed Designs of various facilities at different locations and their approvals by the competent agency.
- Contracting Real Estate Developers for construction of all facilities and the build up area in the terminals, its maintenance and commercialisation, etc.
- Detailed operations planning and management for terminal
- Out-sourcing operations and maintenance of terminals besides those of other assets
- Out-sourcing of commercial exploitation activities (e.g. renting of spaces, kiosks, parking areas, etc) of the above assets through a competitive and transparent bidding process
- Coordinating activities of various service providers
- Over all management of terminals and other facilities
- Development and management of Passenger Information Systems through PPP concepts
- Developing Management Information Reports periodically
- Any other activity related to above tasks

The above activities are proposed to be performed by an independent agency under the overall control of the Government to avoid any bias between public and private bus operators. Accordingly Bus Terminal Corporations could be established by the NCR Constituent States for each sub-region.

14.2.4 Rail System

14.2.4.1 Rail Network in NCR

NCR has a fairly developed rail network system. They are mainly radial lines converging into Delhi. The rail system caters for long distance, destined and through, traffic both passenger and goods on mixed corridors. As far as intra – regional movements in NCR are concerned, the role of railways is to cater to the large and increasing commuter travel demand. While presently, the commuter movement is mainly between Delhi and regional towns, over a period of time, there would also be very huge demand for such movements amongst the regional centers. **Figure 14.18** shows the rail network in Delhi area and surroundings.

Indian Railways, as the prominent carrier of goods and passengers, do face conflicting demands of long distance/medium distance travelers' vis-à-vis short distance and commuter traffic on one hand and fast vis-à-vis stopping passenger trains on the other. Indian Railways strive to meet the aspirations of upper class passengers of Shatabadi/Rajdhani as well as the basic needs of mobility of rural and townships populace. On the same infrastructure, they try to fulfill the requirement of agriculture, industry and other sectors of economy. With growing aspirations, trade is now demanding guaranteed transit. Hence, in their planning process, Indian Railways have not been, broadly, able to concentrate on Regional/local commuter traffic exclusively. The issues of punctuality, reliability of service, comfort, seamless operation, reduction in waiting time , and physical transfer from one mode to another, and above all affordability of tariff (or economic viability for the railways) are equally vital in determining the socially and individually preferred mode of travel. Absence of exclusive and dedicated corridors for passenger/commuter or segregation of freight and passenger corridors has been one of the main constraints to channelise resources exclusively on regional passenger traffic. Indian Railways' line capacity around Metro cities including Delhi has been predominantly saturated. Signaling up-gradation and electrification of certain sections do take place at time and pace, which fits into national priorities, considering over all availability of resources and relative importance of works. This also applies to creation of infrastructure related to terminals and rolling stock.

Existence of surface crossings needing rail-over-rail flyovers, level crossings (manned/unmanned), need of reversal of train direction, change of traction, speed differential between various types of trains running on the same section, maintenance blocks and existence of junction stations are other problems affecting provision of better commuter services in NCR. Line Capacity of Indian Railways, especially around Metro Cities, has been under severe pressure and is over-saturated.

Railways, in their normal development plans, have taken up a number of programmes for augmentation of capacities along the different corridors which also forms the part of proposals in the Regional Plan-2021. Ongoing projects on existing corridors whether by way of additional tracks, signaling, up gradation, augmentation of amenities on traffic facilities, etc. will help NCR commuters in the interim period. However, the final remedy will be manifest only after additional dedicated corridors are created, as travel demand is likely to rise tremendously. Offloading of goods traffic as a result of creation of DFC, on certain segments will also go a long way to help NCR commuter primarily on Delhi – Palwal, Delhi – Rewari and Delhi Junction -Khura sections. Phases and stages of RRTS may not be identical for each corridor in the intervening periods; adjustments of services can be made to maintain some satisfactory levels. But norms of planning process of IR may not suffice and meet the aspirations of NCR population. Issues of additional funding and minimum level of services would be their for accelerated pace of infrastructure creation. Details of projects already taken up by Indian Railways in the National Capital Region are at **Annexure 14.3.**

14.2.4.2 Issues

i) **Need for Integrated Planning:** In view of rapidly increasing population, enhanced requirement of mobility and resultant travel demand, there is a need of greater cohesion in planning and execution of rail system in National Capital Region. It is the right time to review and reconsider the movement pattern of suburban commuters, intercity passengers within NCR, long distance passenger operation originating / terminating into National Capital and voluminous freight traffic. During the last one decade, railways have already started thinking, de novo about configuration of network as well as segregation of freight and passenger. This has resulted into sanctioning of Eastern and Western Dedicated Freight Corridor, directional coaching terminals (viz. Anand Vihar, Holambi Kalan, Bijwasan and Shakurbasti, etc.). Augmentation of line capacity by way of quadrupling of Palwal-Tughlakabad, Sahibabad-Anand Vihar, Ghaziabad-Aligarh sections as well as 6 lines entering into Delhi and New Delhi Areas are also part of schemes. To cater to suburban like passengers, EMU/MEMU operation may be extended to all the radials and EMU Car sheds planned along with acquisition of rolling stock.

ii) **Need for New Suburban Terminals:** It is expected that some freight handling terminals viz. Shakurbasti, Subzi Mandi and Delhi Kishan Ganj will undergo major changes and freight will get shifted to outskirts of NCTD. Space thus created can be utilized for creating suburban terminal. RITES report had recommended New Tilak Bridge as a NCR commuter hub. With DMRC alignment coming in that area new suburban terminal will have to be found. Tuglkabad, Okhla, Shakurbasti, Subzi Mandi, Delhi Kishan Ganj and Patel Nagar Junction can be explored to fill the gap. Considering the maximum routes can have access to Shakurbasti, it may prove to be an ideal location for suburban terminal. Other locations can be explored for mini suburban terminal.

iii) **Need of dedicated regional corridors:** Apart from the road and MRTS network, significant and substantial demands for low cost fast train services within NCR need to be met by augmentation of existing rail network. In this direction, all the 8 radials need to be electrified and provided with automatic and modern signaling. All the radials need to have independent double line electrified corridor for running of commuter trains by way of operation of EMUs. As seamless operation of Metro and Indian Railways trains does not appear to be feasible now, a smooth and fast transfer of passengers on the two networks is essential. Integrated ticketing need be experimented to save lot of time and effort. This can be done along with adequate junction arrangements and planning traveling facilities appropriately.

iv) **Smooth Transfer of Passengers:** With the establishment of Anand Vihar and sanctioning of Bijwasan, Holambi Kalan and Shakurbasti coaching terminals (apart from the existing 4 passenger terminals at Delhi, New Delhi, Nizamuddin and Sarai Rohilla), and Delhi Metro touching some of them , the conceptual plan of 70s and early 80s can get materialized in near future.

v) **Review of Freight & Coaching Complexes at same location:** Though the Railways have plans to have integrated freight terminals at Holambi Kalan and Bijwasan, they need to be reviewed keeping the future needs of NCT as well as NCR. Segregation of the two streams is recommended strongly.

vi) **Exploring new ways of financing:** NCR Rail Network Corporation need to be conceived to develop infrastructure for an efficient safe and sustainable railway system in NCR to provide comfortable and friendly service to the commuters on the lines of Mumbai Rail Vikas Nigam (MRVC). The financial model could be equity participation and sharing of cost among the constituent States or any other financial model which could be explored by the concerned agency/corporation. Market borrowings could also be resorted to with the consent of all participating agencies.

14.2.4.3 Travel Demand and Loadings by Corridors

An extensive Regional Rapid Transit System has been conceived along with the Regional Road Network as an integrated network, for assignment of intra-region passenger traffic by public transport (road & rail). The modal share of regional rail system has been estimated to be 12.8%. The passenger demand by HY is 1.7million passenger trips per day. It is noted that this represents only the intra-region passenger trips that may be considered as the daily commuter travel demand. The inter-region trips are not considered, but are estimated to be 3.5 lakhs in the region. They need to be inducted to visualize the overall loading on the recommended RRTS. The estimated rail corridor commuter trip loadings along each of eight corridors of the RRTS, by the HY(2032) is given in **Table 14.10.** Section-wise travel demand for RRTS corridors is given **Annexure 14.4 (i-ix).**

Table 14.10: Travel Demand & Average Trip Length on RRTS Corridors

S.No.	Line	Length (kms)	Travel Demand in the year 2032 (Passenger Trips per Day)	Average Trip Length (kms)
1a	Delhi – Ghaziabad	20.0	385586	8.60
1b	Ghaziabad – Meerut	47.0	115692	16.32
2	Delhi – Rewari – Alwar	158.0	608643	24.77
3	Delhi – Faridabad – Palwal	60.0	214123	20.81
4	Ghaziabad – Khurja	83.0	229134	12.67
5	Delhi – Sonipat – Panipat	89.0	273264	26.64
6	Delhi – Bahadurgarh– Rohtak	70.0	81388	30.00
7	Delhi – Ghaziabad – Hapur	57.0	114213	14.75
8	Shahadra – Baraut	56.0	48223	20.47

Source: Study on Integrated Transportation Plan for NCR

14.2.4.4 Prioritization of RRTS Corridors with Costing

While all the rail corridors of the RRTS are important to cater to the commuter needs of the region, considering the constraints of money and stages of development, prioritization has been undertaken. This is based on traffic demand, trend of population and activities distribution, important programmes already on hand and other factors.

Table 14.11: Prioritisation & Cost of RRTS Corridors

Order of Priority	Corridor	Length including Delhi Urban Area (km)	Approximate cost of dedicated RRT infrastructure in NCR including Delhi Urban Area without Rolling Stock (in millions)
1	Delhi - Ghaziabad -Meerut	67.0	Rs 13400
2	Delhi - Gurgaon – Rewari - Alwar	158.0	Rs 31600
3	Delhi – Faridabad – Ballabgarh - Palwal	60.0	Rs 12000
4	Ghaziabad – Khurja	83.0	Rs 16600
5	Delhi – Sonipat - Panipat	89.0	Rs 17800
6	Delhi - Bahadurgarh - Rohtak	70.0	Rs 14000
7	Delhi - Ghaziabad-Hapur	57.0	Rs 11400
8	Delhi-Shahadra-Baraut	56.0	Rs 11200
	Total	**640.0**	**Rs128000**

Source: Study on Integrated Transportation Plan for NCR
**Rs 200 million per km (for double line) has been broadly estimated*
***Cost of length between Delhi – GZB has been taken once in GZB – Hapur line*

The broad costs of rolling stock for RRTS have been worked out with the following assumptions:

i. The trains will run at 10 minutes frequency in the peak period and 20 minutes frequency in the non-peak period.
ii. The peak period has been assumed to be between 6hrs and 10hrs and between 18 to 21 hrs. This works out to 7 hrs in a day.
iii. The non-peak period is assumed to be 10 hrs to 18 hrs and 21 hrs to 24 hrs. It works to to 11 hrs in a day.
iv. In all, approximately 160 rakes would be required.
v. Maximum speed of the trains has been taken as 100 kmph, while the average speed has been taken as 50 kmph.
vi. The trains will run with 6 coach EMU rake including 2 motor coaches and 4 trailer coaches in each rake. The cost of the motor coach has been worked out to Rs 2 crores each while the trailer coach has been assumed to be Rs 50 lakhs.
vii. A spare 7.5% has been assumed.
viii. A workshop would be established at the cost of Rs 250 crores.
ix. In all, 320 motor coaches and 640 trailer coaches would be required.
x. When the whole infrastructure will be in place, rakes are likely to give us an output of 500 km per day.

Table 14.12: Corridor-wise cost of Rolling Stock on RRTS

Sl. No.	Corridor	Length (Kms)	Rolling Stock Cost (including Spares)

			(Rs in million)
1	New Delhi/Delhi – Palwal	60	1370
2	New Delhi/Delhi – Panipat	89	1920
3	New Delhi/Delhi – Rohtak	70	1670
4	New Delhi/Delhi – Rewari (Alwar)	158	2500
5	New Delhi/Delhi – Shahadra – Baraut	56	1300
6	New Delhi/Delhi– Ghaziabad – Khurja	83	1780
7	New Delhi/Delhi– Ghaziabad – Hapur	57	1420
8	New Delhi/Delhi– Ghaziabad– Meerut	67	1510
	Total	**640**	**13470**

Source: Study on Integrated Transportation Plan for NCR

14.2.4.5 NCR Transport Corporation

Management of Rail Network and its operation within NCR is very complex. The long and short distance passenger and goods services are under the Indian Railways Zonal management. The Dedicated Freight Corridors may come under a distinct management unit of Indian Railways for operation. The operation of the NCR – Regional Rapid Transit System (NCR – RRTS) for commuter services calls for intense and dedicated management. It is recommended that a NCR Transport Corporation (NCRTC), on the lines of Mumbai Rail Vikas Corporation, may be set up as a SPV for overall development of Integrated Multi-Modal Transport System including Commuter Rail and feeder bus services for commuter in NCR. Its objective would be;

i) To develop/strengthen the existing urban / suburban rail infrastructure and other multi-modal transport services to improve connectivity in NCR.
ii) Commercial utilization of land and air space to supplement resources to fund its activities; and
iii) To coordinate with Central Government i.e. Ministry of Urban Development; Indian Railways and NCR Planning Board and Governments of NCT-Delhi, Haryana, Rajasthan and U.P. and other related agencies and evolve and execute suitable plans for the development of Suburban Rail System of NCR i.e. Regional Rapid Transit System (RRTS).
iv) To operationalise the RRTS and other transport services in coordination with the stake holders.

Funds for implementation of 8 suburban rails projects included in RRTS and other related works shall be arranged by the NCRTC through its equity holders, market borrowings and other sources.

14.2.4.6 Regional Orbital Rail Corridor

Regional Plan-2021 for NCR proposed an Orbital Rail corridor around Delhi parallel to proposed Peripheral Expressway which is under implementation. This corridor was envisaged to enable bypassing of a number of trains, presently passing through Delhi and to provide commuter services to the proposed urbanization along this corridor. Indian Railway has proposed Delhi-Mumbai Freight Corridor which also passes through NCR and will reduce the non-destined freight movement to Delhi and part of NCR. In view of this, the Regional Orbital Rail Corridor (RORC) was reviewed and as an alternative, Panipat-Gohana-Rohtak-Jhajjar-Rewari-Palwal-Khurja-Hapur-Meerut- Baraut-Panipat rail corridor is proposed to serve as Regional Orbital Rail Corridor (RORC). In this RORC, rail link between Panipat-Gohana-Rohtak and Khurja-Hapur-Meerut are existing rail links and rail link Rohtak-Jhajjar-Rewari is under execution. Survey for Rewari-Palwal-Khurja rail link and Meerut-Baraut-Panipat is in progress. This revised RORC would serve as a regional commuter service corridor as it inter-connects metro, regional and sub-regional centres in NCR and also provides for

corridor for bypassing the freight traffic. This will increase the accessibility and potential for growth in NCR.

It is proposed that Indian Railways may take up implementation of Rewari-Palwal-Khurja and Meerut-Baraut-Panipat corridors to complete the outer orbital corridor and provide necessary commuter rail services. Section-wise passenger demand is summarized below:

Table 14.13: Regional Orbital Rail Corridor Passenger Demand

Sl No.	Section	Length (km)	No. of Stations	Passenger Trips per day
1	Panipat – Gohana – Rohtak (existing)	75.0	3	40005
2	Rohtak – Jhajjar – Rewari (under execution)	80.2	3	16110
3	Rewari – Palwal – Khurja (new)	129.5	3	129284
4	Meerut – Hapur – Khurja (existing)	66.0	3	94330
5	Meerut – Panipat (new)	85.6	3	25505

Source: Study on Integrated Transportation Plan for NCR

The corridor-wise station and section loadings are given in **Annexure 14.5 (i-vi).**

It is proposed that the new lines on these corridors be initially single lines with electrification and colour light signaling with a plan to expand. With Khurja-Hapur-Meerut and Shakurbasti-Rohtak sections getting electrified, Rohtak-Panipat branch may also be sanctioned for electrification. Present traffic density may not appear to justify it. However, to obviate the problems related to multi-tractions and change of tractions in the region, it is suggested that all legs of RORC be electrified. They are also proposed to be fit to run MEMU/ EMU progressively.

Table 14.14: Cost of Development of Regional Orbital Rail Corridor

S. No.	Regional Orbital Corridor	Length (kms)	Cost excluding Rolling Stock (in millions)
1.	Panipat - Meerut (new)	86	4708
2.	Meerut - Khurja (existing)	-	-
3.	Khurja - Palwal (new)	54	2943
4.	Palwal - Bhiwadi - Rewari (new)	76	4180
5.	Rewari - Rohtak (under construction)	80	4411
6.	Rohtak - Gohana - Panipat	-	-
	Total	296	16242

Source: Study on Integrated Transportation Plan for NCR

14.2.4.7 Inner Regional Orbital Rail Corridor/Other New Rail Lines

i) Inner Regional Orbital Rail Corridor

In addition to RORC, five other rail lines within NCR are proposed to strengthen the connectivity of the rail system which will form Inner Regional Orbital Rail Corridor (IRORC). These rail lines could also form the part of RRTS. They are:

a) Sonipat-Kharkhauda-Sampla-Jhajjar (56 Kms)

It is proposed to link Sonipat with Jhajjar via Kharkhauda and Sampla. This line in continuation with the other proposed lines would form a tangential rail corridor to the CNCR. This corridor would be developed to operate both goods and passenger train services.

b) Jhajjar - Gurgaon (40 Kms)

A large SEZ has been proposed between Gurgaon and Jhajjar. It would generate intense commuter and fright traffic. It is proposed to develop a rail link between Jhajjar and Gurgaon, connecting the proposed Rohtak –Jhajjar Rewari rail line and the Delhi-Gurgaon–Jaipur–Ahmedabad-Mumbai route. The rail line may skirt the proposed SEZ. The above line may be developed under PPP mode.

c) Gurgaon - Faridabad - Dadri (53 Kms)

The Jhajjar-Gurgaon rail line is proposed to be extended upto Faridabad, connecting the two major urban nodes and linking it with Delhi–Bhopal-Chennai rail line route from Faridabad. It is proposed to be further extended to Dadri to link with Ghaziabad – Aligarh line and the proposed DFC terminal at Dadri. The above two rail lines would also cater to the intense commuter movement in this part of CNCR.

d) Meerut - Sonipat (66 Kms)

It is also proposed to connect Sonipat with Meerut.

e) Dadri – Ghaziabad - Meerut

The missing rail link in IRORC is between Dadri-Ghaziabad and Ghaziabad-Meerut which could be used from the RRTS Corridors to complete the orbit.

Both these Orbital Rails i.e. RORC and IRORC will connect most of the metro and regional centres in NCR.

ii) **Other New Rail Lines**

Sonipat - Gohana - (Jind) (51 km within NCR):

This line has been proposed to connect Jind, an important town in Haryana, with other NCR towns. It is already sanctioned and is under execution.

The estimated commuter passenger travel demand, apart from freight traffic, along these corridors/lines is given in **Table 14.15** and cost of development of IRORC is given in **Table 14.16.**

Table 14.15: Passenger Travel Demand on IRORC

S. No.	Corridor	Passengers per day
1.	Sonipat – Gohana	10282
2.	Sonipat – Meerut	22727
3.	Sonipat –Jhajjar	203750
4.	Jhajjar - Gurgaon	12420
5.	Gurgaon – Faridabad – Dadri	187981

Source: Study on Integrated Transportation Plan for NCR

Table 14.16: Cost of Development of IRORC

S. No.	Corridor	Length (kms)	Cost excluding Rolling Stock (in millions)
1	Sonipat - Jhajjar	56	3091
2	Jhajjar - Gurgaon	40	2189
3	Gurgaon - Faridabad	28	1557
4	Faridabad - Dadri	25	1359
5	Meerut - Baghpat - Sonipat	65	3614
6	Sonipat – Gohana - Jind	51	2825
	Total	265	14635

Source: Study on Integrated Transportation Plan for NCR

14.2.4.8 Cost Estimate

Total estimated cost for development of the proposed Regional Rapid Transit System (RRTS), Regional Orbital Rail Corridor (RORC) and Inner Regional Orbital Rail Corridor (IRORC) is Rs. 1,72,347 millions (cost of rolling stock is included while calculating cost for RRTS but excluded in other lines). Details are given in **Table 14.17.**

Table 14.17: Estimated Cost of Development of RRTS, RORC & IRORC

S.No.	Scheme	Estimated Cost (Rs. Millions)
i)	Regional Rapid Transit System (including rolling stock cost)	1,41,470
ii)	Regional Orbital Rail Corridor	16,242
iii)	Inner Orbital Rail Corridor & New lines	14,635
	Total Cost	1,72,347

Source: Study on Integrated Transportation Plan for NCR

14.2.4.9 Logistics Hubs/Inland Container Depots/ Yards

NCR is a high intense goods movement region. A large volume of goods, of all types move into/out of the region for consumption, storage and distribution. Import/export traffic from the northern region moves into the region for modal transfer. The NCR also produces goods of various types which need to move within and to other regions. Intensity of goods movement will get further intensified with the development of the two Dedicated Freight Corridors which traverse through the region and meet at Dadri. An extensive rail yard is being developed at Dadri. Presently there are a number of Inland Container Depots (ICDs) along existing rail network at

- Loni
- Dadri
- Tuglakabad
- Faridabad
- Patli
- Garhi Harsaru

In addition, an extensive Logistics Hub/Container Yard also needs to be developed at Dadri. Such yards and hubs need to be developed also at other locations within the region.
Logistics Park is proposed at Dadri where Western and Eastern Dedicated Freight Corridors are proposed to interest each other. However, considering the development prospects of CNCR of which Dadri is a part, major constraints may arise for receipt and evacuation of goods from Dadri to different originating & destination points by road system. Also, availability of land for various related needs may prove to be difficult and costly. It is suggested interlinking the two DFCs at Khurja and development of Logistics Park and other related facilities may be planned and developed at this location too. With the proposed Regional Expressway and Rail Systems in NCR, it will be more efficient to receive and distribute the goods traffic to & from Khurja. However, the final locations could be finalized after detailed survey to be carried out by the implementing agencies in consultation with the concerned State Authorities. The proposed tentative location of Logistic hubs, Orbital Rail Corridor and proposed DFC are shown in **Map 14.3** . Proposed tentative locations of distribution centres are as follows:

- Greater Noida
- Asaoti/ Pirthala
- Daruhera
- Rewari (along western DFC)
- Rohtak (along ORC)
- Panipat (along ORC)
- Meerut (along ORC)
- Hapur (along ORC)

- Khurja (along eastern DFC)

14.2.5 Regional Mass Rapid Transit System (MRTS)

14.2.5.1 Delhi Metro Rail System

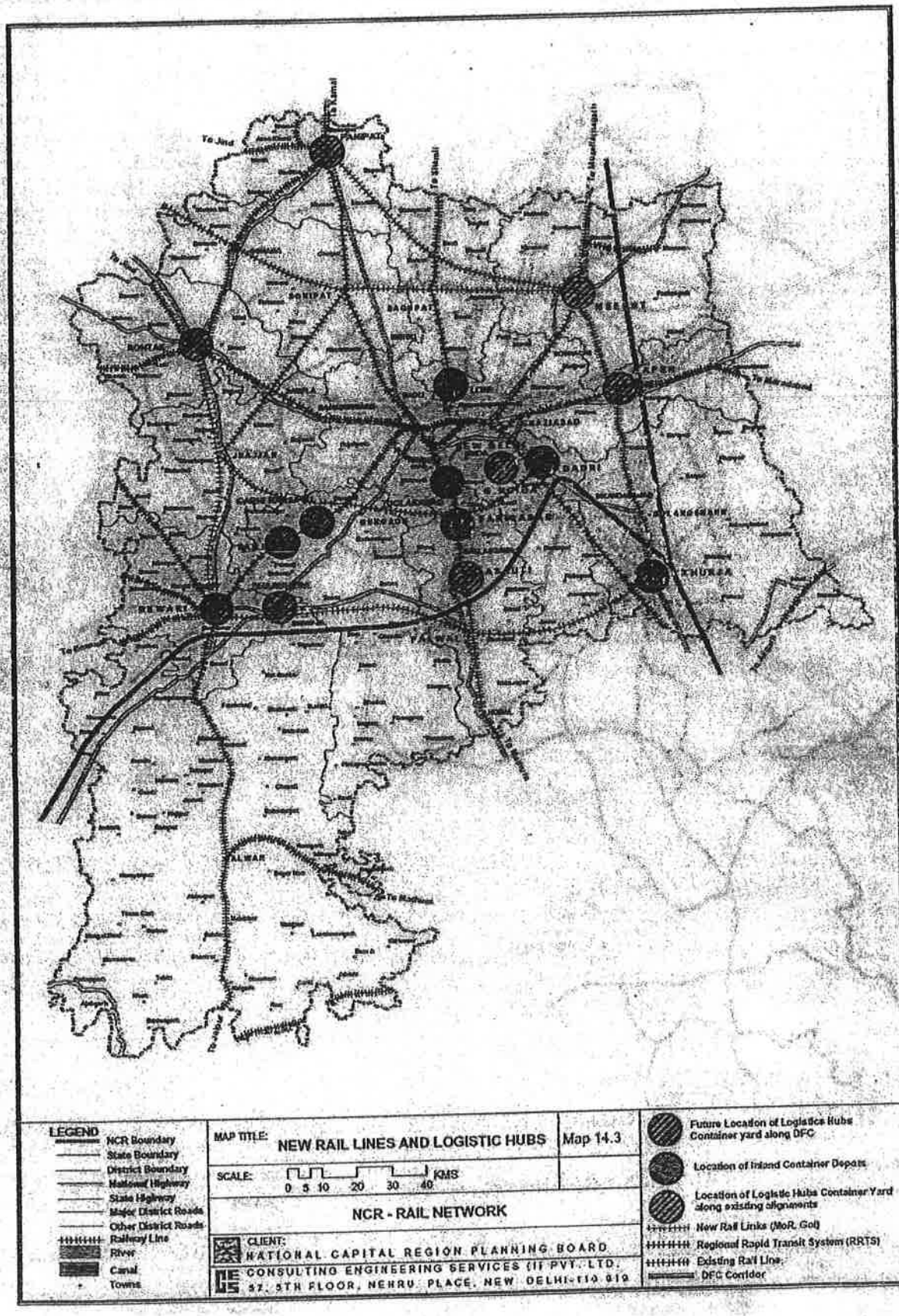
Regional Plan-2021 for NCR proposed the extension of Delhi Metro Rail System to NCR towns. Accordingly, it has been extended to Noida and is proposed to be extended to Gurgaon, Ghaziabad, Faridabad, Bahadurgarh and Greater Noida by Delhi Metro Rail Corporation. The work on Gurgaon corridor is in progress.

14.2.5.2 Mass Rapid Transit System in NCR

Regional Plan-2021 for NCR proposed Mass Transport System for commuters and also recommended high density location and development of population and activities, upto a depth of 500 m on either side of the regional highways designated as Highway Policy Zone. Delhi-Mumbai Industrial Corridor which passes through NCR also proposes to develop industrial areas on both the sides of dedicated Freight Corridor proposed by Indian Railway. All these developments would result in high intensity urban/industrial corridors with intense movement of people. These movements will be alike to intra urban movements – high volume, predominantly for work and education purpose, short trip length and highly oriented to public mass transport. It is proposed to provide MRTS in the Regional Centres & Sub-regional Centres along the proposed Regional Arterial road corridor to accelerate the process of development. The corridors proposed are as follows:

- Noida–Greater Noida–Jewar (65.0 km)
- (Badli) Sonipat-Panipat (42.0 km)
- Ghaziabad-Meerut (42.0 km)
- Ghaziabad-Hapur (35.0 km)
- Faridabad-Palwal (33.0 km)
- Gurgaon-Rewari (39.0 km)
- Bahadurgarh – Rohtak (40.0 km)

The Transport Plan for NCR 2032 showing all study proposal w.r.t. Road, Rail, MRTS, RRTS are shown in **Map 14.4.**


LEGEND
NCR Boundary
State Boundary
District Boundary
National Highway
State Highway
Major District Roads
Other District Roads
Railway Line
River
Canal
Towns
MAP TITLE: NEW RAIL LINES AND LOGISTIC HUBS
Map 14.3
SCALE: 0 5 10 20 30 40 KMS
NCR - RAIL NETWORK
CLIENT: NATIONAL CAPITAL REGION PLANNING BOARD
CONSULTING ENGINEERING SERVICES (I) PVT. LTD.
57, 5TH FLOOR, NEHRU PLACE, NEW DELHI-110 019
Future Location of Logistics Hubs Container yard along DFC
Location of Inland Container Depots
Location of Logistic Hubs Container Yard along existing alignments
New Rail Links (MoR, GoI)
Regional Rapid Transit System (RRTS)
Existing Rail Line
DFC Corridor
SONIPAT
PANIPAT
BAGHPAT
MEERUT
BAHADURGARH
JHAJJAR
GHAZIABAD
DADRI
REWARI
KHURJA
ALWAR

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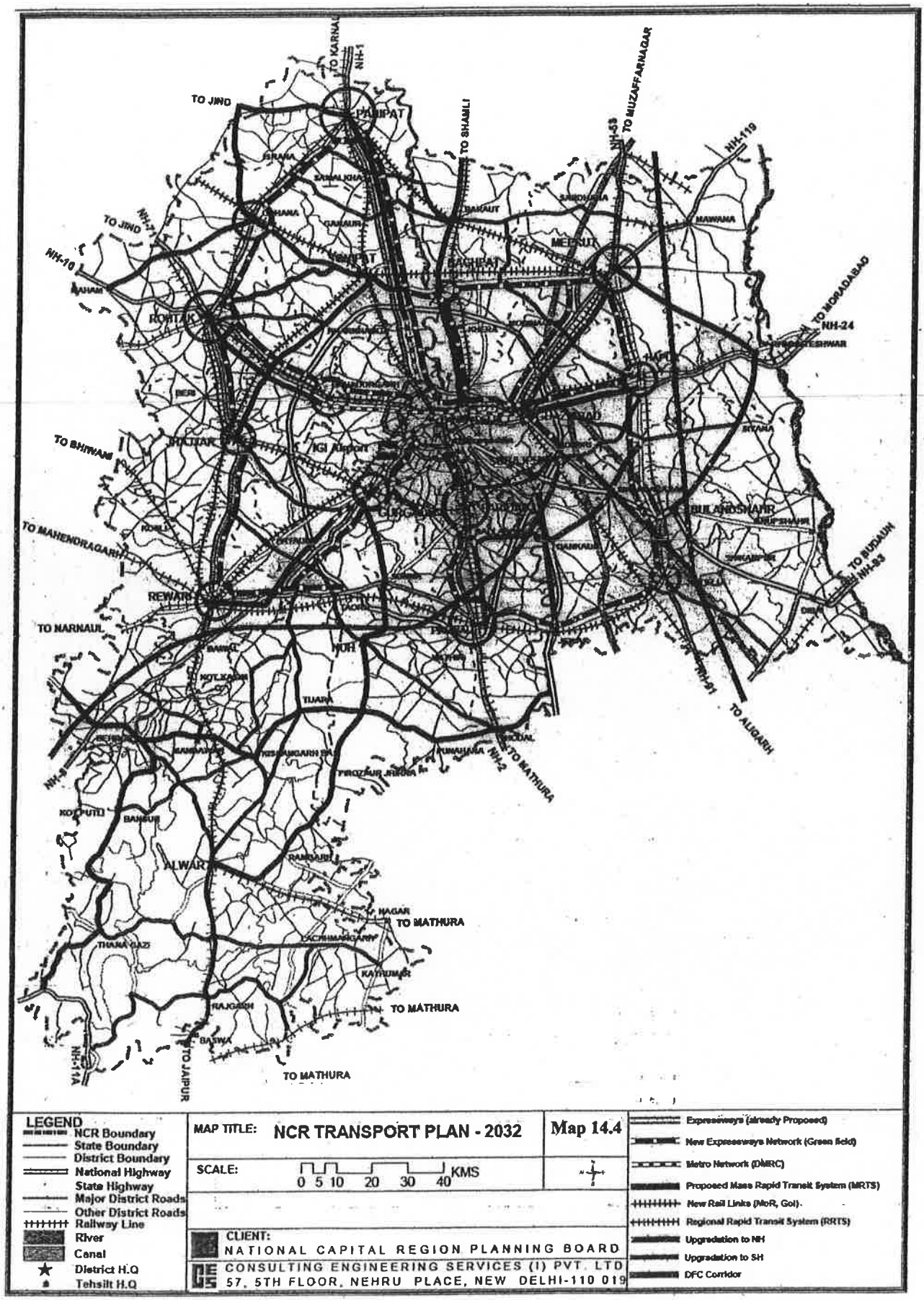
TO KARNAL
NH-1
TO JIND
PANIPAT
TO SHAMLI
NH-58
TO MUZAFFARNAGAR
NH-119
SONIPAT
BAGHPAT
MEERUT
MAWANA
NH-10
ROHTAK
TO MORADABAD
NH-24
TO BHIWANI
DELHI
GURGAON
KGI Airport
BULANDSHAHR
TO MAHENDRAGARH
REWARI
TO NARNAUL
TO BUDAUN
NH-93
NH-91
TO ALIGARH
TIJARA
NH-2
TO MATHURA
BANSUR
ALWAR
HAGAR
TO MATHURA
TO MATHURA
NH-11A
TO JAIPUR
LEGEND
NCR Boundary
State Boundary
District Boundary
National Highway
State Highway
Major District Roads
Other District Roads
Railway Line
River
Canal
District H.Q
Tehsil H.Q
MAP TITLE: NCR TRANSPORT PLAN - 2032
Map 14.4
SCALE: 0 5 10 20 30 40 KMS
CLIENT:
NATIONAL CAPITAL REGION PLANNING BOARD
CONSULTING ENGINEERING SERVICES (I) PVT. LTD
57, 5TH FLOOR, NEHRU PLACE, NEW DELHI-110 019
Expressways (already Proposed)
New Expressways Network (Green field)
Metro Network (DMRC)
Proposed Mass Rapid Transit System (MRTS)
New Rail Links (MoR, GoI)
Regional Rapid Transit System (RRTS)
Upgradation to NH
Upgradation to SH
DFC Corridor

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14.2.5.3 Travel Demand on Mass Rapid Transit System (MRTS)

The travel demand on the MRTS for NCR is estimated to be 1.2 million passengers per day. This estimate does not include commuters travelling within the city. MRTS is proposed as an elevated system along the Regional Arterial corridors. It may be noted that Faridabad, Gurgaon – Manesar, Ghaziabad, Noida, Sonipat, Greater Noida and Meerut are likely to cross 2 million to 4 million mark in population by 2032. In case, MRTS as an option is ruled out for any reason, regional road arteries will have to take the burden and personalized mode of transport will be preferred by the users, creating imbalance.

14.2.5.4 Phasing of MRTS in NCR

The development of MRTS in NCR is proposed to be implemented in four phases as under:

Phase I (2010-2013)	:	Surveys, preparation of DFRs and resource mobilization
Phase II (2013-2017)	:	• (Badli-Delhi) – Sonipat • (Shastri Park, Delhi) – Loni • (Dilshad Garden, Delhi) – Ghaziabad (Bus Adda) • Noida City Centre – Greater Noida • (Badarpur, Delhi) – Faridabad • Rajiv Chowk, Gurgaon – Manesar • (Dwarka, Sector 21, Delhi) – Rajiv Chowk (Gurgaon) • (Mundka, Delhi) – Bahadurgarh
Phase III (2018-2022)	:	• Sonipat-Panipat • Ghaziabad-Meerut • Faridabad-Palwal-Jewar (TIA) • Manesar-Rewari • Bahadurgarh-Rohtak
Phase IV (2023-2032)	:	• Loni-Baghpat • Ghaziabad Bus Adda – Hapur • Ghaziabad-Bulandshahr-Khurja

14.2.5.5 Institution

Appropriate Institutional arrangement will have to be made to develop and operate the NCR MRTS. The options could be DMRC or NCRTC or any other suitable institution.

14.2.6 Air Transport

14.2.6.1 International/Domestic Airports

Presently Indira Gandhi International Airport is the only airport providing air service in the NCR and is being upgraded by DIAL. It was handling 20 million passengers in 2007. As per DIAL's projections given in Study Report, it is expected to touch 50 million mark by 2015-16, 82.7 million passengers by 2026 and will touch 100 million mark by 2036. Accordingly, the IGI Airport will be upgraded by DIAL. As per OD pattern of air passengers, 75.75% passengers originate from Delhi, 18.75% from rest of NCR and 5.5% from beyond NCR.

The air traffic growth and air transport development has been facilitated by the Open Air Sky Policy adopted by the Government of India and the facilitating Civil Aviation Policy (CAP), the mission of

which is 'to maintain a competitive civil aviation environment which ensures safety and security in accordance with international standards, promotes efficient, cost-effective and orderly growth of air transport and contributes to social and economic development of the country'. The CAP envisages promotion and growth of air transport through a number of measures which include setting up of Facilitation Committees, establishing a regulatory framework in the form of a statutory autonomous Civil Aviation Authority (CAA), encouraging private sector participation in various aspects of air transport system development, ensuring world class airport infrastructure capacity, permitting development of Greenfield airports permitting foreign equity participation, promoting development of small airports, permitting single engine aircraft of seating capacity upto 10 seats for passenger and cargo flights, and a host of other facilitating measures.

Government of Uttar Pradesh has proposed an International Airport at Greater Noida (Jewar) as a greenfield airport which is under consideration by the GoI. It is proposed to handle traffic of 40 million passengers per annum. There are at present some constraints like restriction of a second airport within an aerial distance of 150 km from existing one and the contractual terms with DIAL, the private sector agency who have been awarded the development, operation and management of Delhi International Airport. As per OD pattern of air passengers about 24% passengers coming from rest of NCR & beyond NCR area. Some part of these passengers could get the benefit of this Airport. Apart from this, a part of Delhi-Mumbai Freight Corridor and Delhi-Mumbai Industrial Corridor (DMIC) will also be near this Airport area which could also take the benefit if this Airport is developed.

14.2.6.2 Aerotropolis

There is a great scope for development of an aerotropolis complex near the Greater Noida Airport at Jewar. A number of air transport related functional complexes could be located in this area and a New Town of reasonable size could be planned and developed.

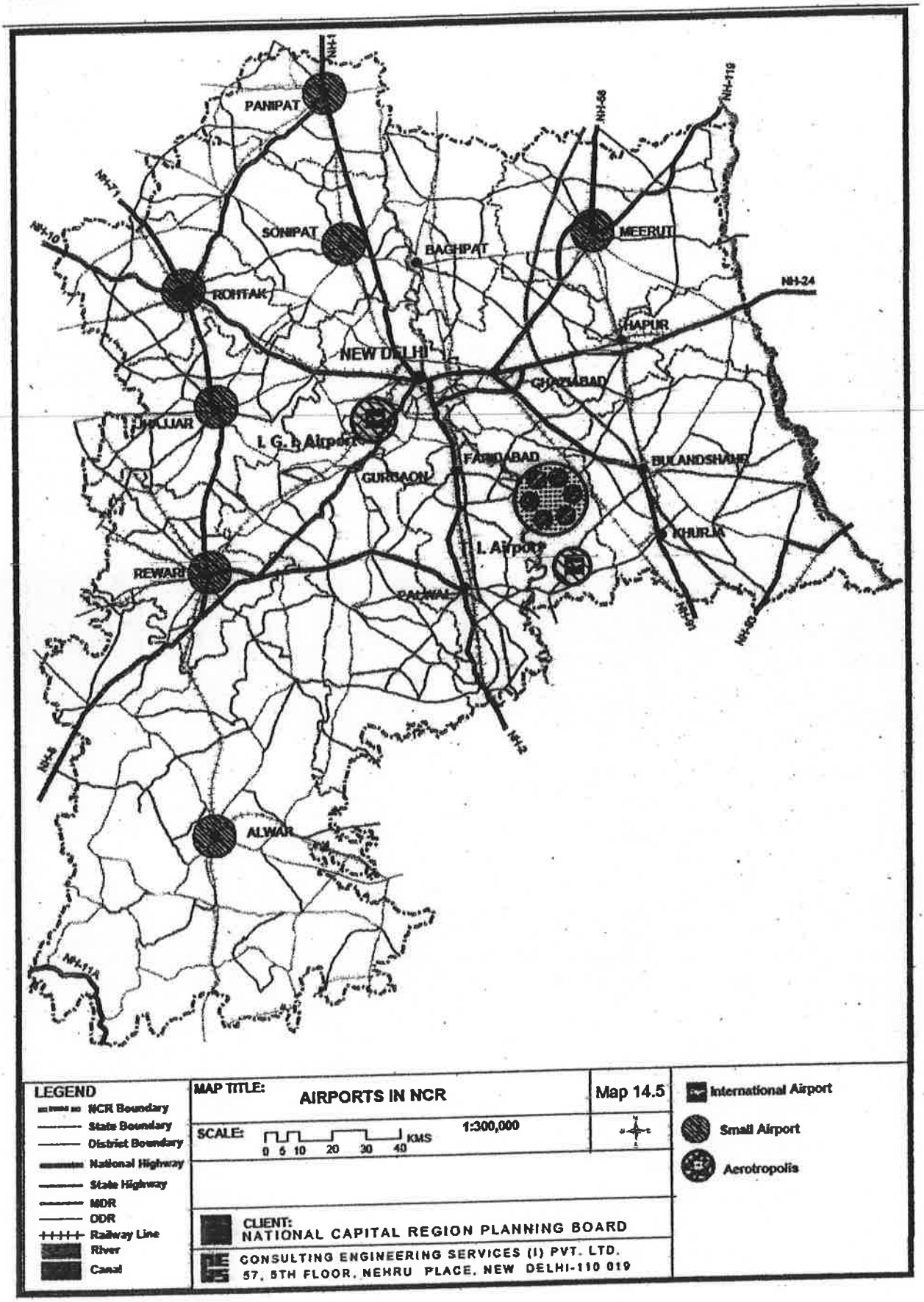
14.2.6.3 Domestic Airport at Jhajjar

Government of Haryana is considering a Domestic Airport at Jhajjar. This forms part of the mega Haryana SEZ at Jhajjar-Gurgaon. This location is very close to IGIA and will need detailed examination of operational and legal aspects apart from its viability.

14.2.6.4 Smaller Airports

NCR being a high activity area, there is a scope for developing smaller airports in some of the major urban centres within it. These would facilitate movement of business executive in smaller private aircrafts avoiding delays along the road system. The potential centres are Meerut, Rewari, Alwar, Rohtak, Sonipat and Panipat. However, their consideration will need detailed examination.

Map 14.5 depicts the proposed airports in NCR.


PANIPAT
SONIPAT
BAGHPAT
MEERUT
ROHTAK
GHAZIABAD
NEW DELHI
I. G. I. Airport
GURGAON
FARIDABAD
BULANDSHAHR
KHURJA
I. Airport
REWARI
PALWAL
ALWAR
NH-1
NH-58
NH-119
NH-24
NH-71
NH-10
NH-2
NH-5
NH-11A
LEGEND
NCR Boundary
State Boundary
District Boundary
National Highway
State Highway
MDR
ODR
Railway Line
River
Canal
MAP TITLE:
AIRPORTS IN NCR
Map 14.5
SCALE:
0 5 10 20 30 40 KMS
1:300,000
International Airport
Small Airport
Aerotropolis
CLIENT:
NATIONAL CAPITAL REGION PLANNING BOARD
CONSULTING ENGINEERING SERVICES (I) PVT. LTD.
57, 5TH FLOOR, NEHRU PLACE, NEW DELHI-110 019

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~~Annexure-III~~

List of Regional Rapid Transit System Corridors proposed in the Functional Plan on Transport for NCR-2032

Sl.No.	Regional Rapid Transit Corridor	Length (km)
1	Delhi – Sonipat–Panipat	111.0*
2	Delhi - Ghaziabad -Meerut	90.0*
3	Delhi - Gurgaon – Rewari - Alwar	180.0*
4	Delhi - Hapur	57.0
5	Delhi – Khurja	83.0
6	Delhi – Ballabgarh - Palwal	60.0
7	Delhi- Baghpat- Baraut	56.0
8	Delhi- Rohtak	70.0

** As per Feasibility Study of RRTS*

ANNEXURE - V

Executive Summary and Chapter 6 of the "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi"

Annexure-5

Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi

(Final Report: Air Pollution component)

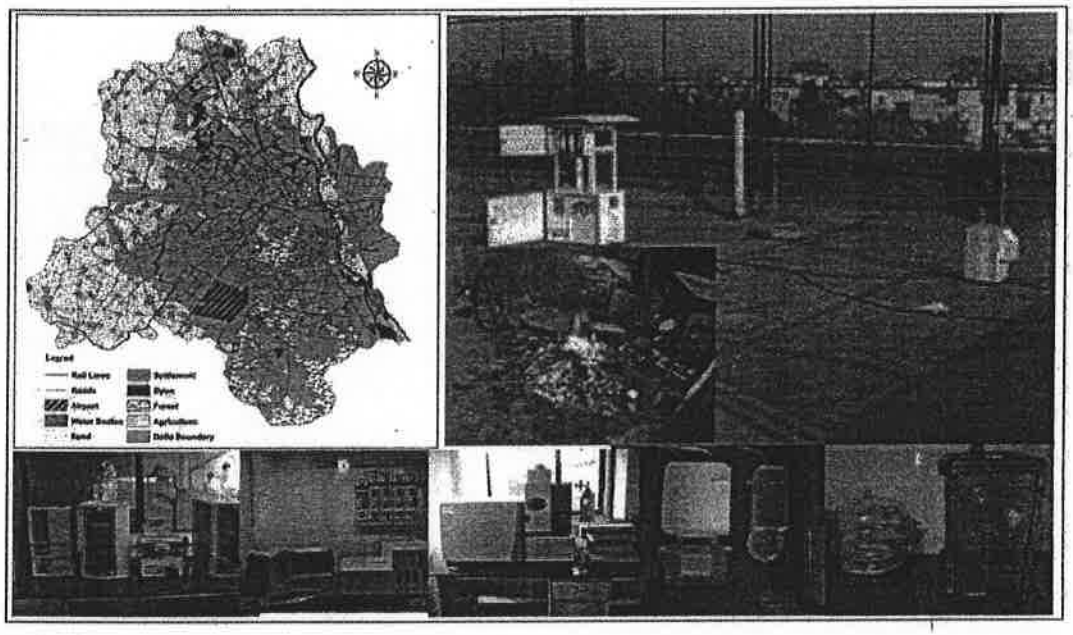
Submitted to

Department of Environment

Government of National Capital Territory of Delhi

and

Delhi Pollution Control Committee, Delhi



Mukesh Sharma; PhD and Onkar Dikshit; PhD

Professors, Department of Civil Engineering

Indian Institute of Technology Kanpur, Kanpur- 208016

January 2016

Executive Summary

Since the enactment of the Air Act 1981, air pollution control programs have focused on point and area source emissions, and many communities have benefited from these control programs. Nonetheless, most cities in the country still face continuing particulate non-attainment problems from aerosols of unknown origin (or those not considered for pollution control) despite the high level of control applied to many point sources.

To address the air pollution problem in the city of Delhi by identifying major air pollution sources, their contributions to ambient air pollution levels and develop an air pollution control plan, Government of National Capital Territory of Delhi (NCTD) and Delhi Pollution Control Committee (DPCC), Delhi have sponsored this project "Comprehensive Study on Air Pollution and Green House Gases in Delhi" to IIT Kanpur. The project has the following specific major objectives:

- Identify and inventorize emission sources (industry, traffic, power plants, local power generation, small scale industries etc.) in Delhi.
- Chemical speciation of particulate matter (PM) and measurement of other air pollutants;
- Perform receptor modeling to establish the source-receptor linkages for PM in ambient air;
- Project emission inventories using mathematical models taking into account vehicle population/ improvements in vehicle technology, fuel quality changes and other activities having impact on ambient air quality
- Identification of various control options and assessment of their efficacies for air quality improvements and development of control scenarios consisting of combinations of several control options; and
- Selection of best control options from the developed control scenarios and recommend implementation of control options in a time-bound manner.

This study has five major components (i) air quality measurements, (ii) emission inventory, (iii) air quality modeling, (iv) control options and (v) action plan. The highlights of these components are presented below.

Air Quality: Measurements

Air quality sites were categorized based on the predominant land-use pattern (Table 1) to cover varying land-use prevailing in the city. PM_{10} (particulate matter of size less than or equal to 10 μm), $PM_{2.5}$ (particulate matter of size less than or equal to 2.5μm), SO_2, NO_2, CO, OC (organic carbon), EC (elemental carbon), Ions, Elements and PAHs (poly aromatic hydrocarbons) were considered for sampling and measurements. The air quality sampling was conducted for two seasons: winter (2013-14) and summer (2014).

Table 1: Description of Sampling Sites in Delhi

S. No.	Sampling Location	Site Code	Description of the site	Type of sources
1.	DAV School, Dwarka	DWK	Residential	Domestic cooking, vehicles, road dust
2.	Delhi Technical University, Rohini	RHN	Residential and Industrial	Industries, Domestic cooking, DG sets, vehicles, road dust, garbage burning
3.	Envirotech, Okhla	OKH	Industrial	Industries, DG sets, vehicles, road dust
4.	Indian Spinal Injuries Centre, Vasantkunj	VKJ	Residential cum commercial	Domestic cooking, DG sets, vehicles, road dust, garbage burning, restaurants
5.	Arwachin International School, Dilshad Garden	DSG	Industrial	Industries, DG sets, vehicles, road dust
6.	DTEA School, Pusa Road New Delhi	PUS	Residential cum commercial	Domestic cooking, DG sets, vehicles, road dust, garbage burning, restaurants

Based on the air quality measurements in summer and winter months and critical analyses of air quality data (Chapter 2), the following inferences and insights are drawn for understanding current status of air quality. The season-wise, site specific average air concentrations of PM_{10}, $PM_{2.5}$ and their compositions (Tables 2.14 (a, b, c, d) and 2.16 (a, b, c, d)) have been referred to bring the important inferences to the fore.

- Particulate pollution is the main concern in the city where levels of PM_{10} and $PM_{2.5}$ are 4-7 times higher than the national air quality standards in summer and winter months.

- The chemical composition of PM_{10} and $PM_{2.5}$ carries the signature of sources and their harmful contents. The chemical composition is variable depending on the size fraction of particles and the season. The PM levels and chemical composition are discussed separately for two seasons.

Summer - PM_{10}

The overall average concentration of PM_{10} in summer season is over 500 $\mu g/m^3$ against the acceptable level of 100 $\mu g/m^3$.

The crustal component (Si + Al + Fe + Ca) accounts for about 40 percent of total PM_{10} in summer. This suggests soil and road dust and airborne flyash are the major sources of PM_{10} pollution in summer. The coefficient of variation (CV) is about 0.25, which suggests the sources are consistent all around the city forming a layer which envelopes the city. The areas of DSG and OKH have the highest crustal fraction (around 44% of total PM_{10}). It is difficult to pinpoint the crustal sources as these are wide spread and present all around in Delhi and NCR and are more prominent in summer when soil and ash-ponds (active or abandoned) are dry and high speed winds make the particles airborne. It was observed that in summer the atmosphere looks whitish to grayish which can be attributed to the presence of large amounts of flyash and dust particles in the atmosphere.

The second important component is the secondary particles (NO_3^- + SO_4^{-2} + NH_4^+), which account for about 13 percent of total PM_{10} and combustion related total carbon (EC+OC) accounts for about seven percent. The secondary particles are formed in the atmosphere because of reaction of precursor gases (SO_2, NOx and NH_3) to form NO_3^-, SO_4^{-2}, and NH_4^+. The combustion related contribution is relatively less in PM_{10} in summer.

The Cl^- content in PM_{10} in summer is also consistent at 4-6 percent, which is an indicator of burning of municipal solid waste (MSW).

Summer - $PM_{2.5}$

The overall average concentration of $PM_{2.5}$ in summer season is around 300 $\mu g/m^3$ against the acceptable level of 60 $\mu g/m^3$.

The crustal component (Si + Al + Fe + Ca) accounts for about 20 percent of total $PM_{2.5}$. This suggests soil and road dust and airborne flyash is a significant source of $PM_{2.5}$ pollution in summer. The CV is about 0.23, which suggests the source is consistent all around the city. The area of OKH has the highest crustal fraction around 28% of total $PM_{2.5}$.

The second important component is secondary particles ($NO_3^- + SO_4^{-2} + NH_4^+$), which account for about 17 percent of total $PM_{2.5}$ and combustion related total carbon (EC+OC) accounts for about nine percent; both fractions of secondary particles and combustion related carbons account for a larger fraction in $PM_{2.5}$ than in PM_{10}. All three potential sources, crustal component, secondary particles and combustion contribute consistently to $PM_{2.5}$ in summer.

The Cl^- content in $PM_{2.5}$ in summer is also consistent at 4-10 percent, which is an indicator of burning of municipal solid waste (MSW) and has a relatively higher contribution to $PM_{2.5}$ than that to PM_{10}.

Winter - PM_{10}

The overall average concentration of PM_{10} in winter season is around 600 $\mu g/m^3$ against the acceptable level of 100 $\mu g/m^3$.

The crustal component (Si + Al + Fe + Ca) accounts for only 13% (much less compared to 40 percent in summer). This suggests soil and road dust and airborne flyash have reduced significantly in PM_{10} in winter. The coefficient of variation (CV) is about 0.36, which suggests the crustal source is variable and not as consistent as it was in summer.

The most important component is the secondary particles ($NO_3^- + SO_4^{-2} + NH_4^+$), which account for about 26 percent of total PM_{10} and combustion related total carbon (TC = EC + OC) accounts for about 19 percent; both fraction of secondary particles and combustion related carbons have increased in winter and account for 45 percent of PM_{10}.

The Cl^- content in PM_{10} in winter is also consistent at 4-10 percent, which is an indicator of burning of municipal solid waste (MSW) and has a relatively higher contribution in winter.

Winter - $PM_{2.5}$

The overall average concentration of $PM_{2.5}$ in winter is 375 $\mu g/m^3$ against the acceptable level of 60 $\mu g/m^3$. The crustal component is reduced dramatically to only 3.5 percent in $PM_{2.5}$ in winter.

The single important component is the secondary particles (NO_3^- + SO_4^{-2} + NH_4^+), which account for about 28 percent of total $PM_{2.5}$ and combustion related total carbon (EC+OC) accounts for about 23 percent; both secondary particles and combustion related carbon are consistent contributor to $PM_{2.5}$ at about 51 percent having CV of 0.22.

The Cl^- content in $PM_{2.5}$ winter is also consistent at 7 percent, which is an indicator of burning of municipal solid waste (MSW); which is relatively higher in winter than in summer

It was observed that in winter the atmosphere looks very hazy and characterized by smoky and unhealthy air. The consistent and major contributors appear to be secondary particles and combustion related emission with modest contribution of burning of MSW.

Potassium levels

In general potassium levels are high and at the same time highly variable; 18 to 7 $\mu g/m^3$ in PM_{10} and 15 to 4 $\mu g/m^3$ in $PM_{2.5}$. In general potassium level is less than 2 $\mu g/m^3$. Potassium is an indicator of biomass burning and high levels and variability (CV ~ 0.66) show large biomass burning and it is variable. Highest potassium levels (~ 15 $\mu g/m^3$) were seen in the beginning of November and early winter perhaps due to crop residue burning in Punjab and Haryana. Potassium levels stabilize around 4 $\mu g/m^3$ (which is also high) in rest of the winter months suggesting the biomass burning is prevalent throughout winter, locally and regionally.

NO_2 levels

NO_2 levels in winter are high and they do exceed national air quality standard of 80 $\mu g/m^3$ at a few locations; more frequently at PUS sampling site. In addition, high levels of NO_2 are expected to undergo chemical transformation to form fine secondary particles in the form of nitrates, adding to high levels of existing PM_{10} and $PM_{2.5}$. SO_2 levels in the city were well within the air quality standard.

General inferences

Levels of PM_{10}, $PM_{2.5}$ and NO_2 are statistically higher (at most locations) in winter months than in summer months by about 25-30 percent. In general air pollution levels in ambient air (barring traffic intersections) are uniform across the city suggesting entire city is stressed under high pollution; in a relative sense, OKH is most polluted and PUS followed by DWK is the least polluted for PM pollution.

The CO levels are well within the ambient air quality standard during summer while at PUS, the concentration exceeds the standards during peak traffic hours in winter.

The entire city is enveloped by pollution layer all around with contribution from multiple sources within Delhi, nearby region and even from long distances.

It is to be noted that OC3/TC ratio is above 0.22 and highest among ratio of fraction of OC to TC (Chapter 2). It suggests a significant component of secondary organic aerosol is formed in atmosphere due to condensation and nucleation of volatile to semi volatile organic compounds (VOCs and SVOCs), which again suggests emissions within and outside of Delhi.

Total PAH levels (14 compounds; particulate phase) in winter is very high at 80 ng/m^3 and B(a)P at 8 ng/m^3 (annual standard is 1 ng/m^3); the comparison with annual standard is not advisable due to different averaging times. However, PAH levels in summer drop significantly to about 15 ng/m^3.

In a broad sense, air is more toxic in winter than in summer as it contains much larger contribution of combustion products in winter than in summer months.

During Diwali days, PM levels nearly double from the average level and organic content of PM increases more than twice. It is noteworthy that levels of potassium and barium, the main components of fire crackers can increase by about ten times.

- Limited sampling was undertaken in summer and winter seasons at three sites in NCR (Noida, Gaziabad and Faridabad), as a part of other study that indicated the levels in Delhi and NCR are similar and comparable; it suggests that air pollution levels could be contiguously high in the NCR. To get a further insight into this matter, a sampling of PM, SO_2 and NO_2 was also carried out winter season (2014 -15) and as expected levels in Delhi and NCR were comparable.

In a broad sense, fractions of secondary particles of both PM_{10} and $PM_{2.5}$ in two seasons were consistent and need to be controlled for better air quality in Delhi and NCR. Combustion sources, vehicles, biomass burning and MSW burning are other consistent sources in winter and require a strategy to control these sources. In summer, air quality cannot be improved unless we find effective control solutions for soil and road dust, fly ash re-suspension, concrete batching and MSW burning.

Emission Inventory

The overall baseline emission inventory for the entire city is developed for the period November 2013 to June 2014. The pollutant wise contribution is shown in Figures 1 to 3. Spatial Distribution of pollutant Emissions from all sources is presented in Figure 4.

The total PM_{10} emission load in the city is estimated to be 143 t/d (based on average annual activity data). The top four contributors to PM_{10} emissions are road dust (56%), concrete batching (10%), industrial point sources (10%) and vehicles (9%); these are based on annual emissions. Seasonal and daily emissions could be highly variable. For example, fugitive road and soil dust re-suspension from ash pond and emission from concrete batching will be significantly lower in winter than in summer. The estimated emission suggests that there are many important sources and a composite emission abatement including most of the sources will be required to obtain the desired air quality.

$PM_{2.5}$ emission load in the city is estimated to be 59 t/d. The top four contributors to $PM_{2.5}$ emissions are road dust (38 %), vehicles (20 %), domestic fuel burning (12 %) and

industrial point sources (11%); these are based on annual emissions. Seasonal and daily emissions could be highly variable.

NOx emissions are even higher than PM_{10} emission ~ 312 t/d. Nearly 52 % of emissions are attributed to industrial point source (largely from power plants) followed by vehicular emissions (36%) that occur at ground level, probably making it the most important emission. DG sets contributes 6% to NOx emission and is followed by Aircraft emission (2%). NOx apart from being a pollutant itself, it is important component in formation of secondary particles (nitrates) and ozone. NOx from vehicles and from industry are potential sources for controlling of NOx emissions.

SO_2 emission load in the city is estimated to be 141 t/d. Industrial point sources account for above 90 percent of total emission; most of the emissions are from power plants. It appears there may be a need to control SO_2 from power plants. SO_2 is known to contribute to secondary particles (sulfates).

Estimated CO emission is 387 t/d. Nearly 83 % emission of CO is from vehicles, followed by domestic sources 7 %, MSW burning 3% and about 3 % from industrial point source. Vehicles could be the main target for controlling CO for improving air quality with respect to CO.

Spatial variation of emission quantity suggests that for PM_{10}, $PM_{2.5}$, CO and NOx, the central down town area, north and east of the city show higher emissions than other parts.

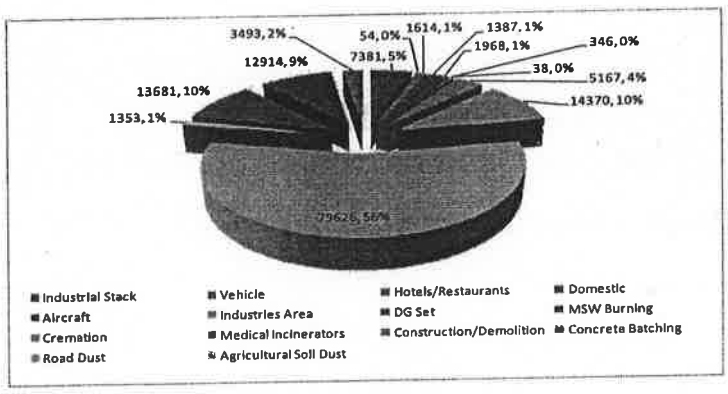


Figure 1: PM_{10} Emission Load of Different Sources in the City Of Delhi

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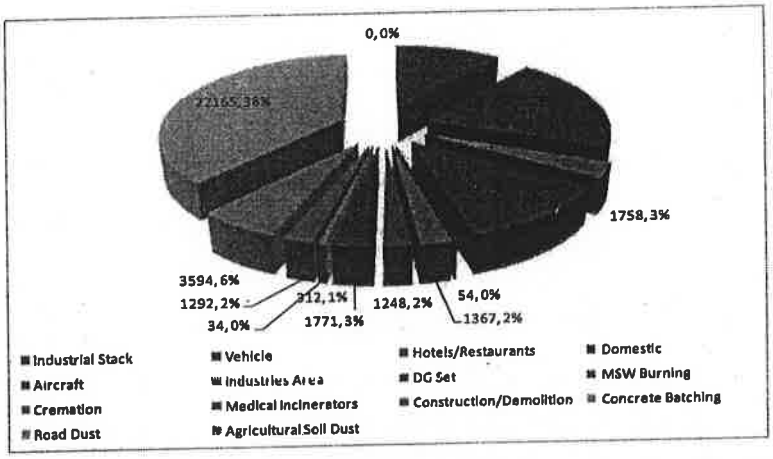

Figure 2: $PM_{2.5}$ Emission Load of Different Sources in the City Of Delhi

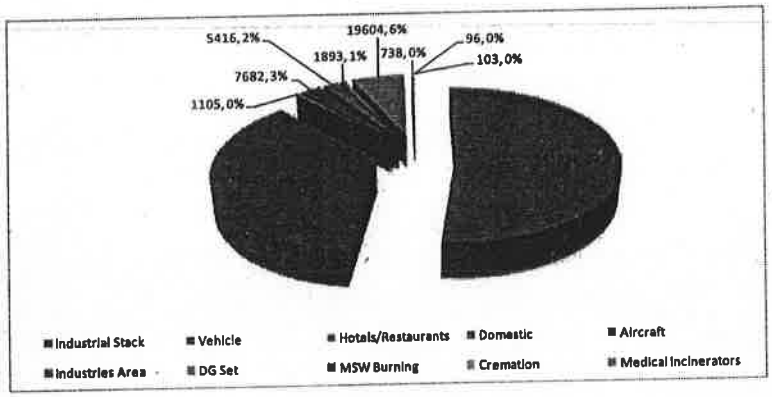

Figure 3: NOx Emission Load of Different Sources in the City Of Delhi

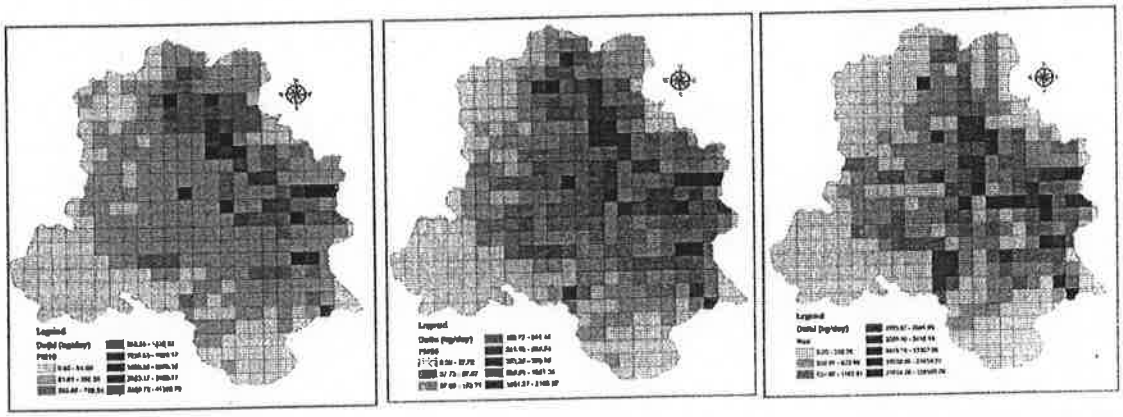

Figure 4: Spatial Distribution of PM_{10}, $PM_{2.5}$ and NOx Emissions in the City of Delhi

Air Quality Modeling

Receptor Modeling

Based on the CMB (chemical mass balance) modeling results (Figures 5 and 6) and their critical analyses, the following inferences and insights are drawn to establish quantified

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source-receptor impacts and to pave the path for preparation of action plan. Tables 4.17 to 4.20 (in Chapter 4), show season-wise, site specific average source contribution to PM_{10} and $PM_{2.5}$, and these tables are frequently referred to bring the important inferences to the fore.

- The sources of PM_{10} and $PM_{2.5}$ contributing to ambient air quality are different in summer and winter.

  The winter sources (% contribution given in parenthesis for PM_{10} - $PM_{2.5}$ to the ambient air levels) include: secondary particles (25 - 30%), vehicles (20 - 25%), biomass burning (17 – 26%), MSW burning (9 - 8%) and to a lesser extent soil and road dust. It is noteworthy, in winter; major sources for PM_{10} and $PM_{2.5}$ are generally the same. A significant contribution in secondary nitrate is from vehicles. It is estimated that secondary nitrate particles of vehicles origin contribute to 3% of total $PM_{2.5}$ in ambient air that makes average vehicle contribution to $PM_{2.5}$ at about 28%.

  The summer sources (% contribution given in parenthesis for PM_{10} - $PM_{2.5}$ to the ambient air level) include: coal and flyash (37 - 26%), soil and road dust (26 – 27%), secondary particles (10 - 15%), biomass burning (7 - 12%), vehicles (6 – 9%) and MSW burning (8 – 7%). It is noteworthy, in summer also, the major sources for PM_{10} and $PM_{2.5}$ are generally the same.

- The two most consistent sources for PM_{10} and $PM_{2.5}$ in both the seasons are secondary particles and vehicles. The other sources on average may contribute more (or less) but their contributions are variable from one day to another. Most variable source was biomass burning followed by MSW burning. Soil and road dust and coal and flyash sources were consistent for PM_{10} but it was not true for $PM_{2.5}$.

- Consistent presence of secondary and vehicular PM_{10} and $PM_{2.5}$ across all sites and in two seasons, suggests these particles encompass entire Delhi region as a layer.

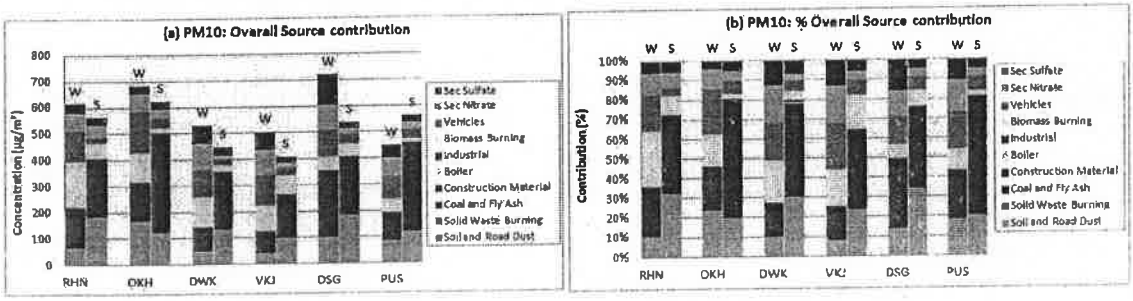
- Similar to the above point, in summer, consistent presence of soil and road dust and coal and flyash particles encompass entire Delhi region as a layer.

- Coal and flyash and road and soil dust in summer contribute 26-37% to $PM_{2.5}$ and PM_{10}. It is observed that in summer the atmosphere looks whitish to grayish

indicating presence of large amounts of flyash and dust; re-suspension of dust appears to be the cause of large contribution of these sources. This hypothesis can be argued from the fact that the contribution of flyash and road dust reduces significantly both in PM_{10} and $PM_{2.5}$ in winter when winds are low and prevalent atmospheric conditions are calm.

- The contribution of the biomass burning in winter is quite high at 17% (for PM_{10}) 26% (for $PM_{2.5}$). Biomass burning is prohibited in Delhi and it is not a common practice at a large scale. The enhanced concentration of PM in October-November is possibly due to the effect of post-monsoon crop residue burning (CRB). It can be seen that the biomass contribution in PM_{10} in the month of November could be as high as 140 $\mu g/m^3$ and about 120 $\mu g/m^3$ for $PM_{2.5}$ (mean of contribution in entire winter season: 97 $\mu g/m^3$ and 86 $\mu g/m^3$ respectively). In all likelihood, the PM from biomass burning is contributed from CRB prevalent in Punjab and Haryana in winter. The back trajectory analyses suggest that the CRB and other biomass emissions may be transported to Delhi from the sources upwind of Delhi (in NW direction). There is an immediate need to control or find alternatives to completely eliminate CRB emissions to observe significant improvement in air quality in Delhi. However, contribution of sizeable biomass burning to PM in December and January indicates to local sources present in Delhi and nearby areas.

- The contribution of MSW burning may surprise many persons. The recent study by Nagpure et al. (2015) has estimated 190 to 246 tons/day of MSW burning (~2–3% of MSW generated; 8390 tons/day). It is clearly seen that MSW burning is a major source that contributes to both PM_{10} and $PM_{2.5}$. This emission is expected to be large in the regions of economically lower strata of the society which does not have proper infrastructure for collection and disposal of MSW.



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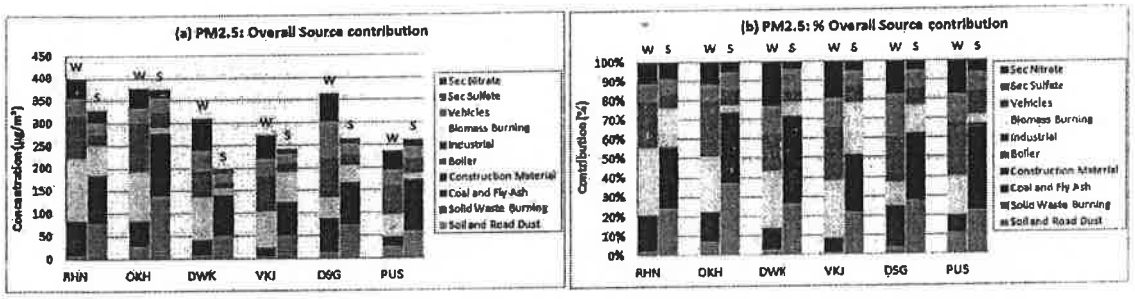
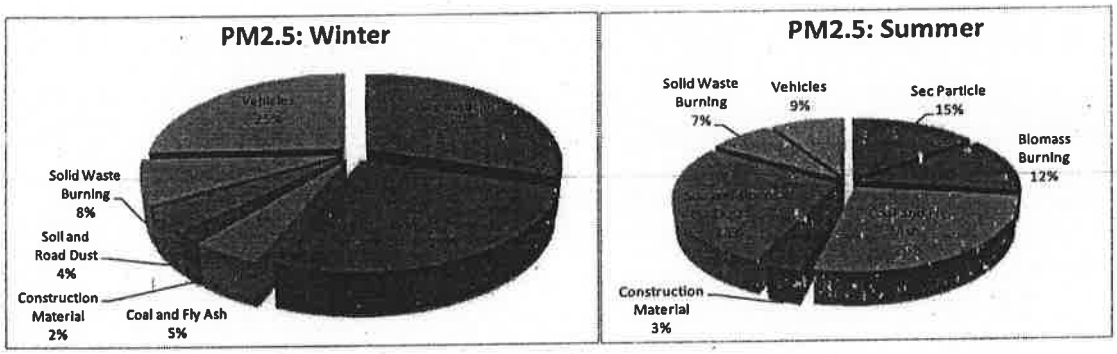


Figure 5: Overall Results of CMB Modeling for PM_{10} and $PM_{2.5}$ at six sites



*Solid waste burning refers to MSW burning

Figure 6: City level source contribution to ambient air $PM_{2.5}$ levels

Dispersion Modeling

A liner relationship between observed and model-computed levels of PM_{10} and $PM_{2.5}$ in winter months with R-square, 0.53 – 0.88 shows that model describes the physics of dispersion and captures the impact of emission quite well.

What is interesting to note is that the best fit lines have very high intercepts for PM_{10} (170 $\mu g/m^3$) and $PM_{2.5}$ (100 $\mu g/m^3$). Since model performance in terms linear association is established for observed and computed concentrations, the large intercept concentration can be attributed to the background pollution in Delhi that appears to be contributed from outside Delhi. In other words, almost about one-third of pollution in PM levels can be attributed to emissions from outside Delhi. This analysis makes it clear that pollution control will have to focus both inside and outside Delhi for improvements in air quality not only in Delhi but also in NCR.

Control Options

The detailed analysis of PM and NOx control options is given in Chapter 6. The proposed control options are summarized below.

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- Hotels/Restaurants

  There are approximately 9000 Hotels/Restaurants in the city of Delhi, which use coal (mostly in tandoors). The PM emission in the form of flyash from this source is large and contributes to air pollution. It is proposed that all restaurants of sitting capacity more than 10 should not use coal and shift to electric or gas-based appliances.

- Domestic Sector

  Although Delhi is kerosene free and 90% of the households use LPG for cooking, the remaining 10% uses wood, crop residue, cow dung, and coal for cooking (Census-India, 2012). The LPG should be made available to remaining 10% households to make the city 100% free from solid fuels.

- Coal and flyash

  In summer, coal and fly ash contribute about 30 percent of PM_{10} and unless sources contributing to flyash are controlled, one cannot expect significant improvement in air quality. It appears that these sources are more of fugitive in nature than regular point sources. However, two large power plants in city are also important sources of flyash. Probably the major part is re-suspension of flyash from flyash ponds (in use or abandoned) which are not maintained properly and become dry in summer. Flyash emission from hotels, restaurants and tandoors also cause large emissions and requires better housekeeping and proper flyash disposal.

- MSW burning

  One of the reasons for burning MSW is lack of infrastructure for timely collection of MSW and it is conveniently burned or it may smolder slowly for a long time. In this regard, infrastructure for collection and disposal (landfill and waste to energy plants) of MSW has to improve and burning of MSW should be banned completely.

- Construction and Demolition

  The construction and demolition emission can be classified as temporary or short term. In city like Delhi which is high in urban agglomeration, these activities are frequent. It can be seen from Chapter 3 that this source is the third most contributor to area source emission in PM_{10} and importantly it is a consistent source all

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through the year. The control measures for emission may include: wet suppression, wind speed reduction (for large construction site), proper disposed of waste, proper handling and storage of raw material and store the waste inside premises with proper cover. At the time of on-road movement of construction material, it should be fully covered.

- Ready Mix Concrete Batching

  The ready mix concrete is used for construction activities. As large amount of flyash emission is also expected from this source because pozzalan cement used in the process has about 35 percent flyash in it. The control measures include: wind breaker, bag filter at silos, enclosures, hoods, curtains, telescopic chutes, covering of transfer points and conveyer belts.

- Vehicular pollution

  This source is the second largest source and most consistently contributing source to PM_{10} and $PM_{2.5}$ in winters. Various control options include the implementation of BS VI, introduction of electric and hybrid vehicles, traffic planning and restriction of movement of vehicles, retro-fitment in diesel exhaust, improvement in public transport etc have been proposed and their effectiveness has been assessed.

- Soil and road dust

  In summer, this source can contribute about 26% to PM_{10} and $PM_{2.5}$. The silt load on some of the Delhi's road is very high and silt can become airborne with the movement of vehicles, particularly in dry summer season. The estimated PM_{10} emission from road dust is over 65 tons per day. Similarly soil from the open fields gets airborne in summer. The potential control options can be sweeping and watering of roads, better construction and maintenance, growing plants, grass etc. to prevent re-suspension of dust.

- Industries and Diesel Generator Sets

  Industries: Several measures have been taken to control emissions in the industry (including relocation), especially in small and medium size industries. However, it is recommended industries use light diesel oil (LDO) and high speed diesel (HSD) of sulphur content of 500 ppm or less in boilers or furnaces, if not already being used;

expected PM control will be about 15 to 30 % from this source and SO_2 emissions will become negligible.

Diesel Generator Sets: The primary pollutants from internal combustion engines are oxides of nitrogen and PM. For Delhi and NCR, the sulphur content should be reduced to 500 ppm in HSD (if not already in use) as has been done for vehicles; a reduction of 15 to 30% of PM emission from this source is expected. It will have a major impact on reduction of SO_2 and secondary particles. The DG sets should be properly maintained and regular inspection should be done. All efforts should be made to minimize uses of DG sets and regular power supply should be strengthened. Since small DG sets are used at the ground level and create nuisance and high pollution, it is recommended that all DG sets of size 2 KVA or less should not be allowed to operate; solar powered generation, storage and inverter should be promoted.

- Secondary particles

What are the sources of secondary particles, the major contributors to Delhi's PM? These particles are expected to source from precursor gases (SO_2, and NO_x) which are chemically transformed into particles in the atmosphere. Mostly the precursor gases are emitted from far distances from large sources. For sulfates, the major contribution can be attributed to large power plants and refineries. The NW wind is expected to transport SO_2 and transformed it into sulfates emitted from large power plants and refineries situated in the upwind of Delhi. However, contribution of NO_x from local sources, especially vehicles and power plants can also contribute to nitrates. Behera and Sharma (2010) for Kanpur have concluded that secondary inorganic aerosol accounted for significant mass of $PM_{2.5}$ (about 34%) and any particulate control strategy should also include control of primary precursor gases.

There are 13 thermal power plants (TPP) with a capacity of over 11000 MW in the radius of 300km of Delhi, which are expected to contribute to secondary particles. Based on the study done by Quazi (2013), it was shown that power plants contribute nearly 80% of sulfates and 50% nitrates to the receptor concentration. A calculation assuming 90% reduction in SO_2 from these plants can reduce 72% of sulphates. This will effectively reduce PM_{10} and $PM_{2.5}$ concentration by about 62 $\mu g/m^3$ and 35 $\mu g/m^3$ respectively. Similarly 90% reduction in NO_x can reduce the nitrates by 45%. This will effectively reduce PM_{10} and $PM_{2.5}$ concentration by

about 37 $\mu g/m^3$ and 23 $\mu g/m^3$ respectively. It implies that control of SO_2 and NO_x from power plant can reduce PM_{10} concentration approximately by 99 $\mu g/m^3$ and for $PM_{2.5}$ the reduction could be about 57 $\mu g/m^3$.

- Secondary Organic Aerosols

  The contribution of secondary organic aerosols (SOA) in Delhi has not been done. However, Behera and Sharma (2010) have estimated that the SOA is about 17 percent of total $PM_{2.5}$ in Kanpur, another city in Ganga basin. This implies that emissions of VOCs (volatile organic compounds) need to be controlled both in and outside of Delhi, as SOA can be formed from VOC sources at far distance from the receptor. It is recommended that all petrol pumps in Delhi should install vapour recovery system to reduce VOC emissions both at the time of dispensing petrol/diesel but also at the time of filling of storage tank at the petrol pumps.

- Biomass burning

  The enhanced concentration in October-November is possibly due to the effect of post-monsoon crop residue burning (CRB). The CRB should be minimized if not completely stopped. All biomass burning in Delhi should be stopped and strictly implemented. Managing crop residue burning in Haryana, Punjab and other local biomass burning is important. Potential alternatives to CRB: energy production, Biogas generation, commercial feedstock for cattle, composting, conversion in biochar, Raw material for industry

Action Plan

The study recommends that the following control options for improving the air quality, these must be implemented in a progressive manner.

- Stop use of Coal in hotels/restaurants
- LPG to all
- Stop MSW burning: Improve collection and disposal (landfill and waste to energy plants)
- Construction and demolition: Vertically cover the construction area with fine screens, Handling and Storage of Raw Material (completely cover the material), Water spray and wind breaker and store the waste inside premises

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with proper cover. At the time of on-road movement of construction material, it should be fully covered.

- Concrete batching: water spray, wind breaker, bag filter at silos, enclosures, hoods, curtains, telescopic chutes, cover transfer points and conveyer belts
- Road Dust : Vacuum Sweeping of major roads (Four Times a Month), Carpeting of shoulders, Mechanical sweeping with water wash
- Soil Dust: plant small shrubs, perennial forages, grass covers
- Vehicles:
    - Retro Fitment of Diesel Particulate Filter
    - Implementation of BS – VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNG)
    - Inspection/ Maintenance of Vehicles
    - Ultra Low Sulphur Fuel (<10 PPM)); BS-VI compliant
    - 2-Ws with Multi Point Fuel Injection (MPFI) system or equivalent
    - Electric/Hybrid Vehicles: 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws: New residential and commercial buildings to have charging facilities
- Industry and DG Sets:
    - Reduce sulphur content in Industrial Fuel (LDO, HSD) to less than 500 PPM
    - Minimize uses, uninterrupted power supply, banning 2-KVA or smaller DG sets
- De-SOx-ing at Power Plants within 300 km radius of Delhi
- De-NOx-ing at Power Plants within 300 km radius of Delhi
- Controlling Evaporative Loss during fuel unloading and re-fueling through Vapour Recovery System at petrol pumps
- Managing crop residue burning in Haryana, Punjab and other local biomass burning, Potential alternatives: energy production, Biogas generation,

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commercial feedstock for cattle, composting, conversion in biochar, Raw material for industry

- Wind Breaker, Water Spraying, plantation, reclamation

It appears that even with implementation of all control options (Tables 6.1: Chapter 6), the national air quality standards will not be achieved for PM_{10} (100 $\mu g/m^3$) and $PM_{2.5}$ (60 $\mu g/m^3$). With implementation of all control options in Delhi, expected PM_{10} concentration (including emissions from outside Delhi) would be 200 $\mu g/m^3$ and for $PM_{2.5}$ it would be 115 $\mu g/m^3$. As a next step towards attaining air quality standards, since the NCR is a contiguous area with similarities in emitting sources, it is proposed that the control options (developed for Delhi: Tables 6.1) are implemented for the entire NCR. With the implementation of control options in Delhi as well as NCR, the overall air quality in Delhi will improve significantly and expected PM_{10} levels will be 120 $\mu g/m^3$ and $PM_{2.5}$ will be 72 $\mu g/m^3$. In addition to the above control options, some local efforts will be required to ensure that city of Delhi and NCR attain the air quality standards all through the year and possibly for many years to come.

The above analyses are based on air quality modeling results and calculations by simplifying some factors. The action plan will certainly be effective in a broad sense and air quality standard will be attained and health and aesthetic benefits will be enjoyed by all citizens in NCR including Delhi. The overall action plan that will ensure compliance with air quality standards for PM_{10} (100 $\mu g/m^3$), $PM_{2.5}$ (60 $\mu g/m^3$) and NO_2 (80 $\mu g/m^3$) is presented Table 1.

It may be noted that this study on air quality management is comprehensive that provides insight into air quality measurements, emission inventory, source-receptor impact analyses, dispersion modeling, identification of control options, their efficacies and action plan for attaining air quality standards. It was observed that NCR is a contiguous extension of activities similar to that of NCTD. The pollution levels in NCR were also similar to that of NCTD. It is expected the findings and action plan of this study are applicable for NCR and will bring air quality improvement in the entire region. In view of limited financial resources, it is suggested that no separate or repetitive study is required in NCR and Delhi for re-establishing source-receptor impacts; the focus should be early implementation of action plan.

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Table 1: Action Plan for NCT of Delhi

Source	Option No.	Description Option	2016	2017	2018	2019	2020-2023	Percent improvement in AQ
Hotels/ Restaurants	1	Stop use of Coal						80.56
Domestic Cooking	2	LPG to all						50.00
MSW Burning	3	Stop MSW burning: Improve collection and disposal (landfill and waste to energy plants)						100.00
Construction and Demolition	4	Vertically cover the construction area with fine screens						50.00
		Handling and Storage of Raw Material: completely cover the material						
		Water spray and wind breaker						
		Store the waste inside premises with proper cover						
Concrete Batching	5	Water Spray						40.00
		Wind Breaker						
		Bag Filter at Silos						
		Enclosures, Hoods, Curtains, Telescopic Chutes, Cover Transfer Points and Conveyer Belts						
Road Dust and Soil dust	6.1	Vacuum Sweeping of major roads (Four Times a Month)						70.00
		Carpeting of shoulders						
		Mechanical sweeping with water wash						
	6.2	plant small shrubs, perennial forages, grass covers in open areas						--
Vehicles	7.1	Electric/Hybrid Vehicles: 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws wef July 2017: New residential and commercial buildings to have charging facilities						50.0
	7.2	Retrofitment of Diesel Particulate Filter: wef July 2018						
	7.3	Implementation of BS – VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNG): wef January 2019						
	7.4	Inspection/ Maintenance of Vehicles						
	7.5	Ultra Low Sulphur Fuel (<10 PPM); BS-VI compliant: wef January 2018						

Source	Option No.	Description Option	2016	2017	2018	2019	2020-2023	Percent improvement in AQ
	7.6	2-Ws with Multi Point Fuel Injection (MPFI) system or equivalent: wef January 2019						
Industry and DG Sets	8.1	Reduce sulphur content in Industrial Fuel (LDO, HSD) to less than 500 PPM						30.00
	8.2	Minimize uses, uninterrupted power supply, Banning 2-KVA or smaller DG sets						--
Secondary Particles	9.1	De-SOx-ing at Power Plants within 300 km of Delhi						90.0
	9.2	De-NOx-ing at Power Plants within 300 km of Delhi						90.1
Secondary Organic Aerosols	10	Controlling Evaporative emissions: Vapour Recovery System at petrol pumps (Fuel unloading and dispensing)						80.0
Biomass Burning	11	Managing crop residue burning in Haryana, Punjab and other local biomass burning, Potential alternatives: energy production, biogas generation, commercial feedstock for cattle, composting, conversion in biochar, Raw material for industry: wef July 2016						90.0
Fly Ash	12	Wind Breaker, Water Spraying, plantation, reclamation						--

Notes: for implementation year 2016 may begin from July 2016

Note (1) The above plan is also effective for control of PM_{10}. The expected reduction is about 81% in PM_{10}. (2) The model computed concentrations are 9-month average. Specific reduction in winter or summer can be estimated from source apportionment in chapter 4 (refer to Tables 4.17 to 4.20).

* Vehicle growth rate calculated for 2019. It is assumed 80% of the vehicles added per year will go out of vehicle fleet because of being 15 years (or more) old.

**Air quality standards cannot be achieved unless stringent measures are also taken at sources outside Delhi. It is recommended that the above actions are implemented in NCR, else 24-hr $PM_{2.5}$ levels are likely to exceed 110 $\mu g/m^3$.

Acknowledgments

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Chapter 6

Control options, Analyses and Prioritization for Actions

6.1 Air Pollution Scenario in the City of Delhi

The city of Delhi has a complex urban environment with respect to air pollution and faces severe air pollution of PM_{10}, $PM_{2.5}$ and NO_2. There are several prominent sources within and outside Delhi contributing to PM_{10}, $PM_{2.5}$ and NO_2 in ambient air; these pollutants can be taken as surrogate of other pollutants also, as most of the pollutants coexist and have common sources. The Chapter 5 has focused on dispersion modeling and has revealed that there are significant emitting sources both inside and outside Delhi. In other words, an integrated pollution control approach in the region can only improve the air quality. Chapter 3 presents the emission inventory and Chapter 4 describes the contributions of sources to the ambient air concentrations. Based on the comprehensive source apportionment study, the sources of PM_{10} and $PM_{2.5}$ contributing to ambient air quality are different in summer and winter. The highlights of source apportionment study are presented below.

The winter sources (% contribution given in parenthesis for PM_{10} - $PM_{2.5}$) include: secondary particles (25 - 30%), vehicles (20 - 25%), biomass burning (17 – 26%), MSW burning (9 - 8%) and to a lesser extent soil and road dust. It is noteworthy, in winter; major sources for PM_{10} and $PM_{2.5}$ are generally the same.

The summer sources (% contribution given in parenthesis for PM_{10} - $PM_{2.5}$) include: coal and fly ash (37 - 26%), soil and road dust (26 – 27%), secondary particles (10 - 15%), biomass burning (7 - 12%), vehicles (6 – 9%) and MSW burning (8 – 7%). It is noteworthy, in summer also, the major sources for PM_{10} and $PM_{2.5}$ are generally the same.

Although sources contributing to summer and winter air pollution are different but the overall action plan should include control of all sources regardless of season. This chapter presents various air pollution control options and their effectiveness in improving the air quality. At the end of the chapter, a time sensitive action plan is presented.

6.2 Source Control Options

It may be noted that air polluting sources are plenty and efforts are required for every sector/source. In addition, there is a need to explore various options for controlling air pollutants for increased emission in future. A list of potential control options that includes technological and management interventions is presented in Tables 6.1 and 6.2 for $PM_{2.5}$ and NO_2 respectively. The assessment of efficacies of control options and development of these tables are outcome of thorough modelling exercise and further analyses and interpretation to arrive at improvements in ground level air quality throughout the city. The description of control options is given below.

Table 6.1: Contro! Options, Emission Load and Reductions in $PM_{2.5}$

A. Immediate Actions (for details see sections 6.2.1 to 6.2.12)

Source	Option No.	Description Option	Existing $PM_{2.5}$ (kg/day)	Controlled $PM_{2.5}$ (kg/day)	Mean Modeled Concentration (µg/m³) Averaging time: Oct-June		
					Existing $PM_{2.5}$	Controlled $PM_{2.5}$	Percent Change
Hotels/ Restaurants	1	Stop use of Coal	1758	675	3.60	0.70	80.56
Domestic Cooking	2	LPG to all	6940	4111	7.20	3.60	50.00
MSW Burning	3	Stop MSW burning: Improve collection and disposal (landfill and waste to energy plants)	1771	0	1.80	0.00	100.00
Construction and Demolition	4	Vertically cover the construction area with fine screens	1292	646	0.80	0.40	50.00
		Handling and Storage of Raw Material: completely cover the material					
		Water spray and wind breaker					
		Store the waste inside premises with proper cover					
Concrete Batching	5	Water Spray	3594	1797	2.00	1.20	40.00
		Wind Breaker					
		Bag Filter at Silos					
		Enclosures, Hoods, Curtains, Telescopic Chutes, Cover Transfer Points and Conveyer Belts					
Road Dust and Soil dust	6.1	Vacuum Sweeping of major roads (Four Times a Month)	22165	6649	36.00	10.80	70.00
		Carpeting of shoulders					
		Mechanical sweeping with water wash					
	6.2	Plant small shrubs, perennial forages, grass covers in open areas	--	--	--	--	--
	Sub Total (A)				**51.4**	**16.7**	**67.5**

Notes: (1) The above plan is also effective for control of PM_{10}. The expected reduction is about 67% in PM_{10}. (2) The model computed concentrations are 9-month average. Specific reduction in winter or summer can be estimated from source apportionment in chapter 4 (refer to Tables 4.17 to 4.20).

Table 6.2: Control Options, Emission Load and Reductions in $PM_{2.5}$ (Continued...)

B. Time-bound Actions (for details see sections 6.2.1 to 6.2.12)

Source	Option No.	Description Option	Existing $PM_{2.5}$ (kg/day)	Controlled $PM_{2.5}$ (kg/day)	Mean Modeled Concentration (µg/m³) Averaging time: Oct-June		
					Existing $PM_{2.5}$	Controlled $PM_{2.5}$	Percent Change
Vehicles	7.1	Electric/Hybrid Vehicles: 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws wef July 2017: New residential and commercial buildings to have charging facilities	11623	5808	33.2	16.6	50.0
	7.2	Retrofitment of Diesel Particulate Filter: wef July 2018					
	7.3	Implementation of BS – VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNG): wef January 2019					
	7.4	Inspection/ Maintenance of Vehicles					
	7.5	Ultra Low Sulphur Fuel (<10 PPM); BS-VI compliant: wef January 2018					
	7.6	2-Ws with Multi Point Fuel Injection (MPFI) system or equivalent: wef January 2019	--	--	--	--	--
Industry and DG Sets	8.1	Reduce sulphur content in Industrial Fuel (LDO, HSD) to less than 500 PPM	1743	1220	3.93	2.751	30.00
	8.2	Minimize uses, uninterrupted power supply, Banning 2-KVA or smaller DG sets	--	--	--	--	--
Secondary Particles	9.1	De-SOx-ing at Power Plants within 300 km of Delhi	--	132438	38.5	3.9	90.0
	9.2	De-NOx-ing at Power Plants within 300 km of Delhi	--	153349	25.2	2.5	90.1
Secondary Organic Aerosols	10	Controlling Evaporative emissions: Vapour Recovery System at petrol pumps (Fuel unloading and dispensing)	--	--	40.1	8.0	80.0
Biomass Burning	11	Managing crop residue burning in Haryana, Punjab and other local biomass burning, Potential alternatives: energy production, biogas generation, commercial feedstock for cattle, composting, conversion in biochar, Raw material for industry: wef July 2016	--	--	84.0	8.4	90.0
Fly Ash	12	Wind Breaker, Water Spraying, plantation, reclamation	--	--	--	--	--
	Sub Total (B)				**224.9**	**42.2**	**81.3**
	Total (A+B)				**276.3**	**58.9**	**78.7**
Contribution in concentration from outside local sources**					**59**	**13.0**	**78.0**
Overall Total					**335.3**	**71.8**	**78.6**

Notes: (1) The above plan is also effective for control of PM_{10}. The expected reduction is about 81% in PM_{10}. (2) The model computed concentrations are 9-month average. Specific reduction in winter or summer can be estimated from source apportionment in chapter 4 (refer to Tables 4.17 to 4.20).

* Vehicle growth rate calculated for 2019. It is assumed 80% of the vehicles added per year will go out of vehicle fleet because of being 15 years (or more) old.

**Air quality standards cannot be achieved unless stringent measures are also taken at sources outside Delhi. It is recommended that the above actions are implemented in NCR, else 24-hr $PM_{2.5}$ levels are likely to exceed 110 µg/m³

Table 6.3: Control Options, Emission Load and Reductions in NOx

Source	Option Number	Description Option	Existing NO_2 (kg/day)	Controlled NO_2 (kg/day)	Percent Change
Hotels/Restaurants	1	Stop use of Coal	1103.0	502.5	54.4
Domestic Cooking	2	LPG to all	7682.0	7047.5	8.3
MSW Burning	3	Stop MSW burning: Improve collection and disposal (landfill and waste to energy plants)	738.0	0.0	100.0
Vehicles	4.1	Electric/Hybrid Vehicles: 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws wef July 2017: New residential and commercial buildings to have charging facilities	113443.0	111264.0	1.9
	4.2	Implementation of BS – VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNG): wef January 2019	119607.0	116558.3	2.5
	4.3	Inspection/ Maintenance of Vehicles	-	-	-
	4.4	Ultra Low Sulphur Fuel (<10 PPM); BS-VI compliant: wef January 2018	-	-	-
	4.5	2-Ws with Multi Point Fuel Injection (MPFI) system or equivalent: wef January 2019	-	-	-
Power Plants	5.1	De-NOx-ing at Power Plants within Delhi	161612.0	32322.4	80.0
Total			--	--	**34**

It is expected that with the implementation of control options, the overall NOx emission will reduce by 34%. This implies that average concentration of NOx will reduce to about 55 $\mu g/m^3$ and air quality standard of NOx will be achieved throughout the Delhi city.

6.2.1 Hotels/Restaurant

There are approximately 9000 Hotels/Restaurants in the city of Delhi, which use coal (mostly in tandoors). The PM emission in the form of flyash from this source is large (Chapter 3) and contributes to air pollution. It is proposed that all restaurants of sitting capacity more than 10 should not use coal and shift to electric or gas-based appliances. A careful examination shows that about 67 % reduction of PM_{10} (2142 kg/d) and $PM_{2.5}$ (1083 kg/d) emission from this source can be achieved by stopping uses of coal. It may be seen that coal and flyash is the largest contributing sources in summer and this action is expected to reduce ambient air concentration by 2.7 $\mu g/m^3$ and 2.9 $\mu g/m^3$ in PM_{10} and $PM_{2.5}$ respectively.

6.2.2 Domestic Sector

Although Delhi is kerosene free and 90% of the households use LPG for cooking, the remaining 10% uses wood, crop residue, cow dung, and coal for cooking (Census-India, 2012). The LPG should be made available to remaining 10% households to make the city 100% LPG-fueled. This action is expected to reduce 55% of PM_{10} (3270 kg/d), 50% of $PM_{2.5}$ (2829 kg/d) and 4% of NOx (635 kg/d) emissions from domestic sector. This reduction in emission will reduce the ambient air concentration by 4.4 $\mu g/m^3$ and 3.6 $\mu g/m^3$ in PM_{10} and $PM_{2.5}$ respectively.

6.2.3 Municipal Solid Waste (MSW) Burning

The MSW burning is wide spread in Delhi and NCR, more frequent in winter. A recent study by Nagpure et al. (2015) in Delhi has estimated 190 to 246 tons/day of MSW burning (~2–3% of MSW generated; 8390 tons/day). The presence of chloride (see chapter 2) in the ambient air indicates that along with MSW, plastics and tyres burning could also be taking place in some areas. The estimated emissions are: 2000 kg/d of PM_{10} and about 1800 kg/d of $PM_{2.5}$. MSW burning contributes to nearly 10% of PM_{10} and $PM_{2.5}$ in ambient air (Chapter 4) in winters. Any form of garbage burning should be strictly stopped and monitored for its compliance. It will require development of infrastructure (including access to remote and congested areas) for effective collection of MSW and disposal at landfill site. The other viable option due to space constraint is to use Waste to Energy technology with effective flue gas control system to dispose of MSW. A complete ban on MSW burning can almost bring the emissions from this source to zero and one can see an improvement of 5-10 percent in air quality.

6.2.4 Construction and Demolition

The construction and demolition emission can be classified as temporary or short term. In city like Delhi which is high in urban agglomeration, these activities are frequent. It can be seen from Chapter 3 that this source is the third most contributor to area source emission in PM_{10} and importantly it is a consistent source all through the year. The control measures for emission may include:

- Wet suppression (Figure 6.1)
- wind speed reduction (for large construction site) (Figure 6.2)
- Waste should be properly disposed. It should not be kept lying near the roads as it may contribute to road dust emission.
- Proper handling and storage of raw material: covered the storage and provide the wind breakers
- vehicle cleaning and specific fixed wheel washing on leaving site and damping down of haul routes
- Actual construction area is covered by fine screen
- No storage (no matter how small) of construction material near road side (up to 10 m from the edge of road)

The suggested control measures will reduce the emission by 50%. This reduction in emission will reduce the ambient air concentration by 1.6 $\mu g/m^3$ (Sharma, 2010). This will also reduce the road dust and fly ash contribution to ambient air concentration.

6.2.5 Ready Mix Concrete Batching

The ready mix concrete is used for construction activities. In city like Delhi which is high in urban agglomeration, these activities are frequent. It can be seen from chapter 3 that this source is the third most contributor to total PM_{10} emission. As large amount of flyash generation is also expected from this source because pozzalan cement is used in the process has about 35 percent fly ash in it. The control measures include:

- Wet suppression (Figure 6.1)
- Wind speed reduction (Figure 6.2)
- The transfer of pozzalan cement and other material to silos is one of the major emission sources in the plant, and installation of fabric filter should be compulsory.

- Waste should be properly disposed. It should not be kept lying near the roads as it may contribute to road dust emission.
- Proper handling of raw material (loading, unloading, storage, etc).
- Vehicle cleaning and specific fixed wheel washing on leaving site and damping down of haul routes.
- All transfer points and conveyer belts should be covered
- Telescopic chute should be used for dropping the raw material

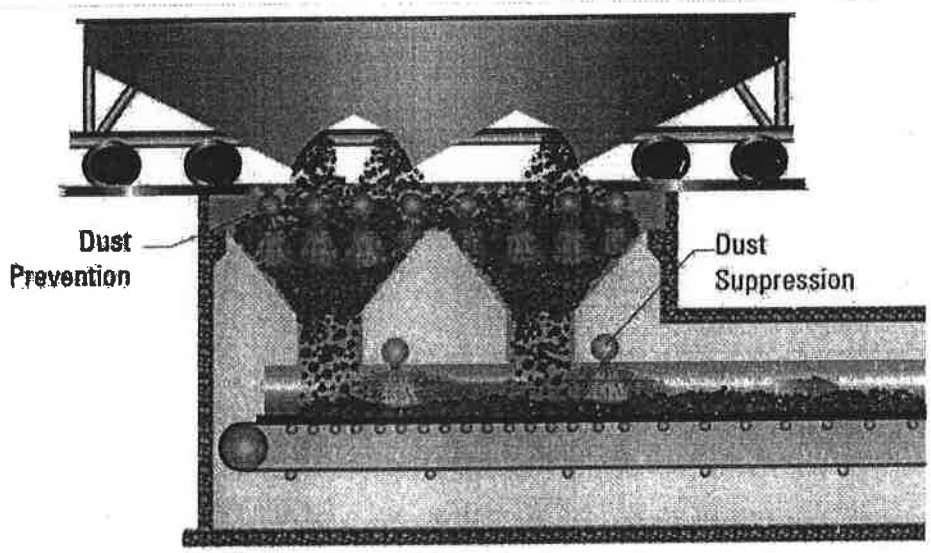

Figure 6.1: Suppression System III (Moisture is added to the material to prevent dust as it is transferred from the hopper car to the hopper bin. Sprays are also used to capture airborne dust as the material moves down the conveyor line) (Sharma, 2013)

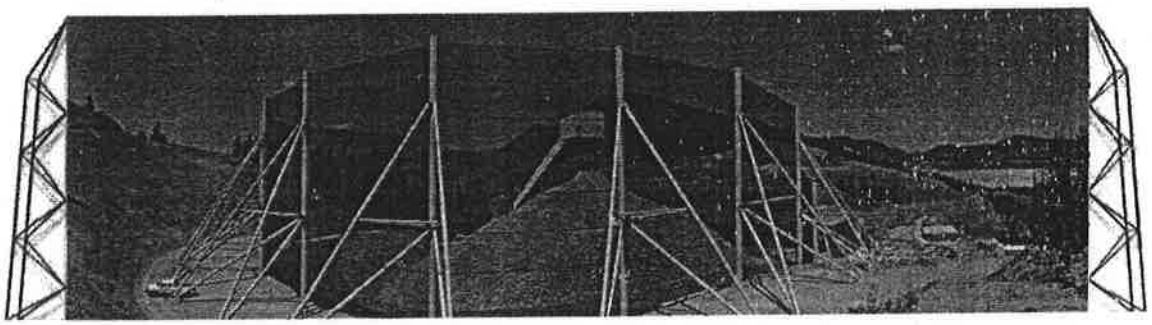

Figure 6.2: Windscreen for dust control (Sharma, 2013)

The introduction of fabric filter will reduce the emission by 96% emissions from the silo. This will also reduce the road dust and fly ash contribution to ambient air concentration.

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6.2.6 Road Dust

It can be seen from chapters 3 and 4, that the road dust emission and its contribution to ambient air concentration is consistent and it is one of the largest sources of PM_{10} and $PM_{2.5}$ in summer. It was assumed that the observed silt load on road was the result of one month of accumulation. The following control measures are evaluated and suggested to reduce the dust emissions on major roads:

1. Mechanical sweeping with water wash: The road dust PM_{10} emission estimated is 79 ton/day and it depends on the season and moisture on the road. This emission will be maximum in summer and least in monsoon. Efficiency of mechanical sweeping has been reported as 55% (Amato et al., 2010). If the sweeping of the main roads is done twice a month, the road dust emission will be reduced by 23% and if the frequency is increased to four times in a month, then the road dust emission will be reduced by 52%. This reduction is likely to reduce the ambient air concentration of PM_{10} by 71 $\mu g/m^3$ in summer.
2. Vacuum assisted Sweeping: The efficiency of vacuum assisted sweeping is taken as 90% (Amato et al., 2010). If the sweeping is done twice a month, the road dust emission will be reduced by 42% i.e road dust emission at the end of the month will be 46 ton/day. If the frequency of sweeping is increased to four times in a month, then the road dust emission will be reduced by 71% i.e. road dust emission at the end of the month will be 24 ton/day. This reduction is likely to reduce ambient air concentration of PM_{10} by 93 $\mu g/m^3$ in summer.
3. It is more important that condition of the roads is maintained properly and paved wall to wall. Broken roads are source of silt accumulation and particle generation.
4. Soil dust could be part of road dust also. It is recommended that open fields should be kept slightly wet and small shrubs are planted to prevent drift of dust in summer.

6.2.7 Vehicles

It can be seen from Chapters 3 and 4 that the vehicle emission and their contribution to ambient air concentration is the significant to PM_{10} and $PM_{2.5}$ both in winter and summer. In winter, on average vehicles can contribute 25% to $PM_{2.5}$ and at certain locations this contribution could be above 35%. In summer, vehicular contribution is masked by other prominent sources. There is a significant contribution of diesel vehicles (trucks, buses, LCVs

an cars etc) to PM_{10}, $PM_{2.5}$ and NOx. Therefore, control measures have focused on advanced technological intervention for diesel vehicles.

1. Retro-fitment of Diesel Particulate Filter (DPF): These filters have PM emission reduction efficiency of 60-90%. If the diesel vehicle entering in the city has been equipped with DPF, there is a reduction of 40% emission. This reduction in emission will reduce the ambient air concentration by 10 $\mu g/m^3$.
2. Introduction of Electric/Hybrid Vehicles: If electrical and hybrid vehicles are introduced, it is assumed that by January 2017, 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws will be electric/hybrid vehicles. The percentage reduction in emission estimated to be 2.3 %. If we assume additional multiplier of 1.5 to electrical and hybrid vehicles of January 2017, the reduction in PM emission will be about 4.5% and net improvement in air quality by about 1-2 $\mu g/m^3$.
3. It is recommended that the sulphur content in diesel should be brought down to 10 ppm or less by end of 2018. This ultra-low sulphur fuel will reduce PM_{10} and $PM_{2.5}$ emissions from vehicles by about 6 percent.
4. If the above points (1,2,3) are implemented as scheduled, then there is an effective reduction of 51 percent of total vehicular emissions.
5. The effectiveness and usefulness of accelerated implementation of BS VI has been analysed. It is important to introduce BS VI as both PM and NO_x emissions are expected to reduce significantly. Introduction of BS VI will reduce PM_{10} and $PM_{2.5}$ emission by 2.4 $\mu g/m^3$ for the introduction year (2019). The reduction in NO_2 control will help in reducing secondary nitrates and will also prevent formation of ozone.
6. Introduction of 2-Ws with Multi Point Fuel Injection (MPFI) or simply referred to as Fuel Injection system: This option was not assessed but it can impart significant reduction in emission from 2-Ws. It is recommended to introduce this technology from January 2018.
7. Vehicular emission norms/standards are enforced for the new vehicles at the factory. PUC checks are the means to check emissions from on road vehicles. Emissions from in-use vehicles also depend on the maintenance and up keep of vehicles. There is a need to ensure that vehicles are properly maintained as per the recommendation of the manufacturer. In this regard, it is proposed that each vehicle manufacturing company should have its own service centers in sufficient number to cater to the need of their vehicles in the city. The automobiles manufacturing company owned service centers

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(AMCOSC) should be fully equipped for complete inspection and maintenance of vehicles ensuring vehicles conforming to emission norms and fuel economy after servicing.

8. For the long-term sustenance of the air quality, the vehicular population should stabilize to the level of number of vehicle at the end of 2019, as vehicular emission reduction in Tables 6.1 and 6.2 are up to December 2019.

6.2.8 Industries and Diesel Generator Sets

Industries

Several measures have been taken to control emissions in the industry (including relocation), especially in small and medium size industries. It is however recommended industries use light diesel oil (LDO) and high speed diesel (HSD) of sulphur content of 500 ppm or less in boilers or furnaces. Expected PM control will be about 15 to 30 % from this source and SO_2 emissions will become negligible. No new polluting industry should be allowed in Delhi.

Diesel Generator Sets

For Delhi and NCR, the sulphur content should be reduced to 500 ppm in HSD and LDO to be used in DG sets. A reduction of 15 to 30% of PM emission from this source is expected from present emission of about 1400 kg/d, if sulphur content is brought down to 500 ppm. It will have major impact on reduction of SO_2 and secondary particles. The DG sets should be properly maintained and regular inspection should be done. Emission limit prescribed by CPCB in Environment (Protection) (Third Amendment) Rules, 2013, should be strictly followed (MoEF, 2013).

All efforts should be made to minimize uses of DG sets and to strengthen regular power supply. Since small DG sets are used at the ground level and create nuisance and high pollution. It is recommended that all DG sets of size 2 KVA or less should not be allowed to operate; solar powered generation, storage and inverter should be promoted.

6.2.9 Secondary Particles: Control of SO_2 and NO_2 from Large point sources

What are the sources of secondary particles, the major and consistent contributors to Delhi's PM? These particles source from precursor gases (SO_2 and NO_x), which are chemically

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transformed into particles in the atmosphere. Mostly, the precursor gases are emitted from far distances from large sources. For sulfates, the major contribution can be attributed to large power plants and refineries. The prevalent wind from north-west and south-east can bring in the secondary sulfates and nitrates from large power plants and refineries almost from all sides in Delhi. However, contribution of NO_2 from local sources, especially vehicles and power plants can also contribute to nitrates. Behera and Sharma (2010) for Kanpur have concluded that secondary inorganic aerosol accounted for significant mass of $PM_{2.5}$ (about 34%) and any particulate control strategy should also include control of primary precursor gases. In Delhi, estimated contribution of secondary particles in $PM_{2.5}$ is 30% and requires strict controls. What is even more significant, controlling secondary particles through control of SO_2 and NO_x will benefit the entire NCR and just not Delhi.

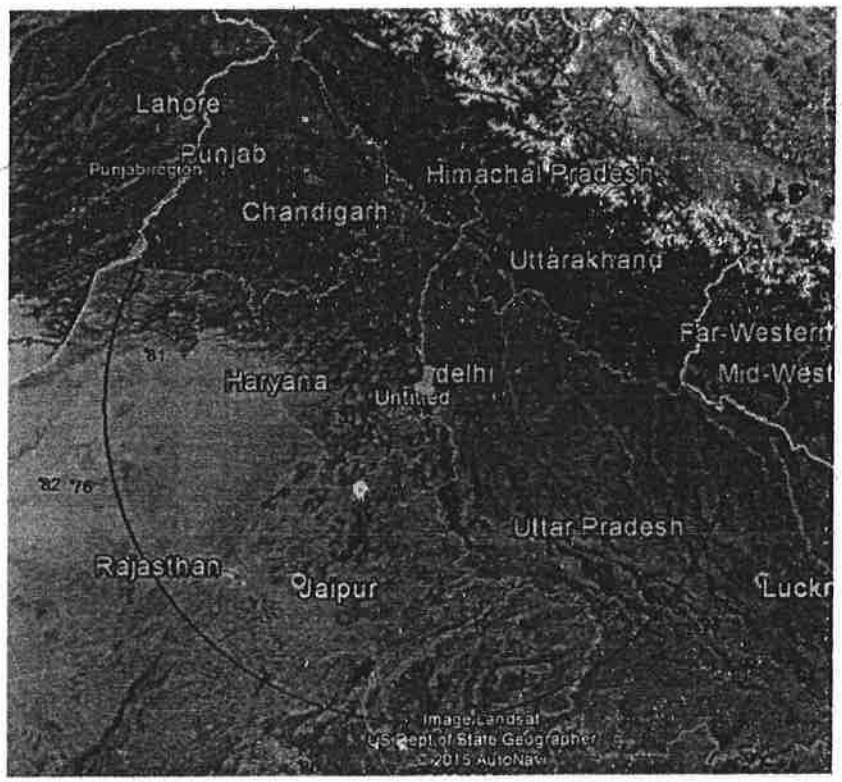

Figure 6.3: Locations of thermal power plants (Numerical number indicates TPPs)

There are 13 thermal power plants (TPPs) (Figure 6.3) with a total capacity of over 11000 MW within the radius of 300 km from Delhi, which are expected to contribute to secondary particles. Based on the study done by Quazi (2013), it was shown that power plants contribute nearly 80% of sulfates and 50% nitrates to the receptor concentration. A calculation assuming 90% reduction in SO_2 from these plants can reduce 72% of sulphates.

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This will effectively reduce PM_{10} and $PM_{2.5}$ concentration by about 62 $\mu g/m^3$ and 35 $\mu g/m^3$ respectively. Similarly 90% reduction in NO_x can reduce the nitrates by 45%. This will effectively reduce PM_{10} and $PM_{2.5}$ concentration by about 37 $\mu g/m^3$ and 23 $\mu g/m^3$ respectively. It implies that control of SO_2 and NO_x from power plant can reduce PM_{10} concentration approximately by 99 $\mu g/m^3$ and for $PM_{2.5}$ the reduction could be about 57 $\mu g/m^3$.

SO_2 removal technologies include wet flue gas desulfurization (FGD), dry FGD utilizing a spray dryer absorber and dry adsorbent (lime and lime stone) injection. Most SO_2 removal processes are engineered oxidation systems which transforms calcium sulfite ($CaSO_3$) formed by the SO_2 removal process to calcium sulfate ($CaSO_4$: gypsum). In a De-NOx-ing (removal of NO_2) system, NO_2 is reduced by ammonia (NH_3) or urea to nitrogen and water. Based on economic considerations, a suitable reducing agent can be selected out of ammonia like materials. This process is called Selective Catalytic Reduction (SCR). SCR De-NOx-ing system consists of reactor, injection system and catalyst.

6.2.10 Secondary Organic Aerosols

The contribution of secondary organic aerosols (SOA) in Delhi has not been assesssed. However, Behera and Sharma (2010) have estimated that the SOA is about 17 percent of Total $PM_{2.5}$ in Kanpur, another city in Ganga basin. We have assumed 12% of PM_{10} is SOA based on $PM_{10}/PM_{2.5}$ ratio. This implies that emissions of VOCs (volatile organic compounds) need to be controlled both in and outside of Delhi, as SOA can be formed from VOC sources at far distance from the receptor. It is recommended that all petrol pumps in Delhi should install vapour recovery system to reduce VOC emissions both at the time of dispensing petrol/diesel but also at the time of filling of storage tank at the petrol pump. In addition, the VOC sources should be controlled in all industry producing, handling and using solvents in Delhi and NCR. It is also recommended that VOC free paints to be used in painting works.

6.2.11 Biomass Burning

India being an agrarian country produces a huge amount of crop residue annually, both on field and off-field, which is estimated to be about 500-550 million tons (Mt) (Indian Agricultural Research Institute, 2012). Rice crop contributes 36% of total crop residue whereas wheat contributes 22%. Traditionally, these residues are used for feeding cattle,

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composting, thatching roofs in rural areas, and fuel for domestic and industrial uses. Uttar Pradesh (60 Mt) is the largest generator of crop residue followed by Punjab (51 Mt) and Haryana (28 Mt). According to a study conducted by Pathak et al. (2010) and from the calculations based on IPCC coefficients, total crop residue burnt per year in the country is estimated to be over 90 million tones.

In Punjab and Haryana about 80% of rice residue was burned in situ; in Uttar Pradesh it was about 25%. In Punjab, Haryana and Uttar Pradesh, 23% of wheat and 25% of sugarcane trash is burnt in the field (Indian Agricultural Research Institute, 2012).

Combine harvesters are used for harvesting both rice and wheat crops, especially in Punjab, Haryana and Uttar Pradesh. About 80% of straw is left on the field on using combine harvesters, most of which end up being burnt. The time gap between harvest of rice crop and sowing of wheat crop in Punjab, Haryana, and Uttar Pradesh during October-November is typically 15-20 days. In this short time span, farmers prefer burning the straw in the field, which is quick, easy, and economical, rather than incorporating it for soil enrichment or harvesting it for any other use. Wheat straw being a highly valued cattle fodder is largely removed. Consequently, huge amount of paddy straw is burned on the open field during October-November. The practice is known as stubble burning. Though crop residue burning (CRB) is banned in these regions, practice still continues. At present, about 70-80 Mt of rice residue is disposed of through open field burning (Gadde et al., 2009; Badarinath et al., 2009, 2006). The thick cloud of smoke emitted causes atmospheric pollution and poor air quality at local, global and regional scale and poses serious threat to human health (Kaskaoutis, 2014). This emission of CRB can certainly impact air quality in Delhi and other cities in the Gangetic plane.

The CMB modelling (Chapter 4) has clearly identified biomass burning as an important contributor to Delhi's PM_{10} and $PM_{2.5}$. The data of Mayapuri air quality station, maintained by CPCB has been analysed and interpreted for 2005 to 2013. From the equation, concentration $C = k.(Q/(u.H))$, it can be seen that concentration is inversely proportional to mixing height (H) and wind speed (u). It is found that mixing height in Delhi during post-monsoon is about 800m and that during winter is about 500m (CPCB, 2002). Also, the wind speed is found to be the same during both the periods. At Mayapuri air quality station (Figure 6.4) which shows a sudden increase in PM_{10} concentration from the latter half of October to the first half of November, after which it drops gradually during winter. Therefore, from the

above equation it can be concluded that emission rate (Q) during post monsoon (Oct – Nov) is greater than that during winter ($Q_{PoM}/Q_W > (H_{PoM} * u_{PoM})/(H_W * u_W)$), thus increased Q is attributed to CRB and peak in November is the impact of CRB in air quality of Delhi.

The enhanced concentration in October-November is possibly due to the effect of post-monsoon crop residue burning. It can be seen that the biomass contribution in PM_{10} in the month of November could be as high as 140 $\mu g/m^3$ and about 120 $\mu g/m^3$ for $PM_{2.5}$. There is an immediate need to control perhaps completely eliminate CRB emissions to see any effective improvement in air quality in Delhi.

A second peak is observed in the pre-monsoon season from second half of March to first half of May. It is plausible to assume that the pre-monsoonal rise in concentration is caused by the dust transport by North-Westerly and Westerly winds (Mishra and Shibata, 2012), with possible contribution from the crop residue burning during pre-monsoon season.

Alternatives to biomass burning

Alternatives to biomass burning include removal of the straw from the field and its use for other economic activities: energy production, biogas generation, commercial feedstock for cattle, composting, conversion in biochar, raw material for industry (John A., 2013).

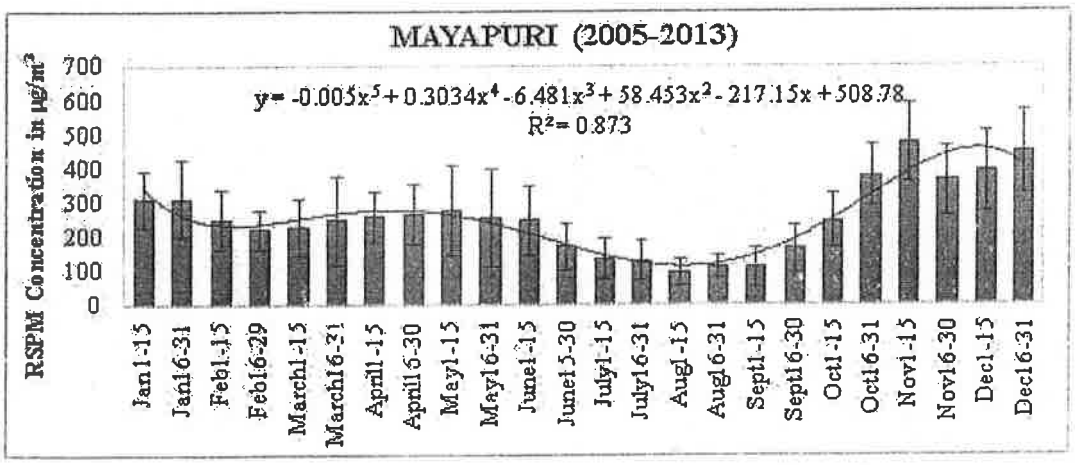

Figure 6.4: Seasonal Variation of PM_{10}

6.2.12 Fly Ash

This study has identified that fly ash is a major contributor especially to PM_{10} in summer. This implies that there is more windborne fly ash in the atmosphere. In the earlier discussions in this chapter, control at other sources (hotels/restaurants and rapid mix plants)

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were the analysed. In use or abandoned fly ash ponds are also contributing to PM pollution. There is a possibility of contribution of flyash from brick kilns operating outside Delhi. The following actions are proposed to reduce the fly ash emissions.

Preventing the wind from entraining the dust particles can be accomplished by keeping the wind from blowing over the material. This can be done by confinement or by wind control or by developing a dense green belt all around the ash pond.

Reduction in wind speed, and therefore reduction in emissions can be achieved using one or more of the many diverse forms of windscreen in addition to enclosing the dust area. Commercial windscreens are portable and can be placed in front, on top, or any desired position in respect to a source (Figure 6.2).

The most effective was to avoid fly ash getting airborne is to keep the entire pond moist and possibly maintained about 1mm of water layer over the entire fly ash pond.

6.3 Action Plan and Concluding Remarks

It appears that even with implementation of all control options (Table 6.1), the national air quality standards will not be achieved for PM_{10} (100 $\mu g/m^3$), and $PM_{2.5}$ (60 $\mu g/m^3$). With implementation of all control options in Delhi, expected mean PM_{10} concentration (including emissions from outside Delhi) is 198 $\mu g/m^3$ and for $PM_{2.5}$ it is 117 $\mu g/m^3$. It may be recalled from Chapter 5 that sources outside the Delhi (excluding secondary particles) contribute about 100 $\mu g/m^3$ of PM_{10} and 59 $\mu g/m^3$ of $PM_{2.5}$ in Delhi. As a next step towards attaining air quality standards, since the NCR is a contiguous area with similarities in emitting sources, it is proposed that the control options (developed for Delhi: Table 6.1) are implemented for the entire NCR. With the implementation of control options in Delhi as well as NCR, the overall air quality in Delhi will improve significantly and expected mean PM_{10} levels will be 120 $\mu g/m^3$ and $PM_{2.5}$ will be 72 $\mu g/m^3$. In addition to the above control options, some local efforts will be required to ensure that city of Delhi and NCR attain the air quality standards all through the year and possibly for many years to come.

The above analyses are based on air quality modelling results and calculations by simplifying some factors. The action plan will certainly be effective in a broad sense and air quality standard will be attained and health and aesthetic benefits will be enjoyed by all citizens in NCR including Delhi. The overall action plan that will ensure compliance with air quality

standards for PM_{10} (100 $\mu g/m^3$), $PM_{2.5}$ (60 $\mu g/m^3$) and NO_2 (80 $\mu g/m^3$) is presented in Table 6.3.

It may be noted that this study on air quality management is comprehensive that provides insight into air quality measurements, emission inventory, source-receptor impact analyses, dispersion modeling, identification of control options, their efficacies and action plan for attaining air quality standards. It was observed that NCR is a contiguous extension of activities similar to that of NCTD. The pollution levels in NCR were also similar to that of NCTD. It is expected the findings and action plan of this study are applicable for NCR and will bring air quality improvement in the entire region. In view of limited financial resources, it is suggested that no separate or repetitive study is required in NCR and Delhi for re-establishing source-receptor impacts; the focus should be on early implementation of action plan.

Table 6.4: Action Plan for NCT of Delhi

Source	Option No.	Description Option	2016	2017	2018	2019	2020-2023	Percent improvement in AQ
Hotels/ Restaurants	1	Stop use of Coal						80.56
Domestic Cooking	2	LPG to all						50.00
MSW Burning	3	Stop MSW burning: Improve collection and disposal (landfill and waste to energy plants)						100.00
Construction and Demolition	4	Vertically cover the construction area with fine screens						50.00
		Handling and Storage of Raw Material: completely cover the material						
		Water spray and wind breaker						
		Store the waste inside premises with proper cover						
Concrete Batching	5	Water Spray						40.00
		Wind Breaker						
		Bag Filter at Silos						
		Enclosures, Hoods, Curtains, Telescopic Chutes, Cover Transfer Points and Conveyer Belts						
Road Dust and Soil dust	6.1	Vacuum Sweeping of major roads (Four Times a Month)						70.00
		Carpeting of shoulders						
		Mechanical sweeping with water wash						
	6.2	plant small shrubs, perennial forages, grass covers in open areas						--
Vehicles	7.1	Electric/Hybrid Vehicles: 2% of 2-Ws, 10% of 3-Ws and 2% 4Ws wef July 2017: New residential and commercial buildings to have charging facilities						50.0
	7.2	Retrofitment of Diesel Particulate Filter: wef July 2018						
	7.3	Implementation of BS – VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNG): wef January 2019						
	7.4	Inspection/ Maintenance of Vehicles						
	7.5	Ultra Low Sulphur Fuel (<10 PPM); BS-VI compliant: wef January 2018						

Source	Option No.	Description Option	2016	2017	2018	2019	2020-2023	Percent improvement in AQ
	7.6	2-Ws with Multi Point Fuel Injection (MPFI) system or equivalent: wef January 2019						
Industry and DG Sets	8.1	Reduce sulphur content in Industrial Fuel (LDO, HSD) to less than 500 PPM						30.00
	8.2	Minimize uses, uninterrupted power supply, Banning 2-KVA or smaller DG sets						--
Secondary Particles	9.1	De-SOx-ing at Power Plants within 300 km of Delhi						90.0
	9.2	De-NOx-ing at Power Plants within 300 km of Delhi						90.1
Secondary Organic Aerosols	10	Controlling Evaporative emissions: Vapour Recovery System at petrol pumps (Fuel unloading and dispensing)						80.0
Biomass Burning	11	Managing crop residue burning in Haryana, Punjab and other local biomass burning, Potential alternatives: energy production, biogas generation, commercial feedstock for cattle, composting, conversion in biochar, Raw material for industry: wef July 2016						90.0
Fly Ash	12	Wind Breaker, Water Spraying, plantation, reclamation						--

Notes: for implementation year 2016 may begin from July 2016

(1) The above plan is also effective for control of PM_{10}. The expected reduction is about 81% in PM_{10}. (2) The model computed concentrations are 9-month average. Specific reduction in winter or summer can be estimated from source apportionment in chapter 4 (refer to Tables 4.17 to 4.20).

* Vehicle growth rate calculated for 2019. It is assumed 80% of the vehicles added per year will go out of vehicle fleet because of being 15 years (or more) old.

**Air quality standards cannot be achieved unless stringent measures are also taken at sources outside Delhi. It is recommended that the above actions are implemented in NCR, else 24-hr $PM_{2.5}$ levels are likely to exceed 110 $\mu g/m^3$.

SUPPLEMENTARY AGENDA NOTES

Special Meeting of the Board

20.12.2016 at 10.00 A.M.

Hall No. 1, Ground Floor, VigyanBhawan,

Maulana Azad Road, New Delhi

National Capital Region Planning Board

Ministry of Urban Development

New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi

Phone: - 24603138, Fax: - 24642163

LIST OF SUPPLEMENTARY AGENDA ITEM FOR THE SPECIAL MEETING OF THE NATIONAL CAPITAL REGION PLANNING BOARD TO BE HELD ON 20.12.2016 AT VIGYAN BHAWAN, NEW DELHI

SUPPLEMENTARY AGENDA ITEM NO. 1

COMPLIANCE OF THE DECISIONS OF 36TH MEETING OF THE NCR PLANNING BOARD HELD ON 15.06.2016 IN THE MATTER OF RESOLVING ISSUES RELATED TO DRAFT REVISED REGIONAL PLAN-2021, DEFINITION OF FOREST AND ARAVALLI HILLS AND INTER-STATE CONNECTIVITY

SUPPLEMENTARY AGENDA ITEM NO.1: COMPLIANCE OF THE DECISIONS OF 36TH MEETING OF THE NCR PLANNING BOARD HELD ON 15.06.2016 IN THE MATTER OF RESOLVING ISSUES RELATED TO DRAFT REVISED REGIONAL PLAN-2021, DEFINITION OF FOREST & ARAVALLI HILLS AND INTER-STATE CONNECTIVITY

1.1 The matters related to resolving issues pertaining to (i) draft revised Regional Plan-2021, (ii) definition of Forest & Aravalli Hills and (iii) Inter-state connectivity were discussed and deliberated by the Board in its 36th meeting held on 15.06.2016. In the meeting, it was decided by the Board that Secretary (UD) will hold meetings to resolve the said issues. A copy of the minutes of the 36th meeting of the NCR Planning Board is at (**Annexure-SA-1/I**).

1.2 The details of Agenda Items, respective decisions and compliance report are as under:

i) **Sub-Item No. 3(ii) of Agenda Item No. 2** relating to ***"Issues conveyed by PMO on the draft revised RP-2021 for NCR and Draft Sub-Regional Plan for Haryana Sub-region of NCR 2021".***

In the matter, the following was decided by the Board:

"After detailed deliberations, Board decided that a meeting under the chairmanship of Secretary (UD), Govt. of India be held to resolve the issues."

Action Taken:

A meeting was held under the chairmanship of Secretary (UD), Govt. of India on 07.09.2016 to discuss and resolve the issue relating to the draft revised Regional Plan-2021. The said meeting was attended by the officers of MoEF&CC, MoUD and NCRPB and minutes (**Annexure-SA-1/II**) of the meeting were circulated vide Board's letter dated 21.09.2016.

In the meeting, the observations of MoEF&CC were deliberated in detail and the decisions taken are reproduced as under:

" a) *MoEF&CC is agreeable to the provisions as proposed by NCRPB with respect to target of 20% as forest & tree cover and red category industries, as given at Annexure-II of the Minutes;*

b) The Regional Plan prepared by NCRPB gives broad policy guidelines. Accordingly, the RP-2021 for NCR notified in 2005, contains policies relating to landuse, including the NCZ, which is broadly shown at 1:50k scale Map prepared by NRSC. NCR participating States are required to further elaborate these broad landuses on lower scale Maps under their respective Sub-Regional Plans and under the Master/Development Plans. Therefore, the observation of MoEF&CC regarding detailed mapping & delineation of ecologically sensitive areas will be addressed by the NCR Participating States under their respective Sub-Regional Plans and Master/Development Plans, and not by NCRPB in the Regional Plan;

c) With respect to MoEF&CC's suggestion regarding stipulating definition of individual components of NCZ and putting forward a methodology for identification and delineation of environmentally sensitive areas in the Regional

Plan, it was noted that the matter has already been addressed in a separate meeting held under the chairmanship of Secretary, MoUD, Govt. of India on 16.08.2016, wherein the issues related to finalization of definition of 'forest', 'Aravalli' and 'ground water recharging areas', have been resolved; and

d) *MoEF&CC may communicate their consent/acceptance on the above within a reasonable time from the date of issue of the Minutes of the meeting, so that further necessary action with respect to notification/publication of the draft revised RP-2021 can be initiated."*

Consent/confirmation from MoEF&CC is awaited. The matter is being pursued with MoEF&CC.

ii) **Agenda Item No. 3** relating to ***"Finalisation of definition of Forest"***

In the matter, the following was decided by the Board:

"A meeting shall be convened by MoUD with MoEF&CC to resolve the issues related to definition of forests and Aravalli Hills at the earliest wherein representatives from Govt. of Rajasthan, Haryana and NCT-Delhi will also be invited."

Action Taken:

Two meetings were held under the chairmanship of Secretary (UD), Govt. of India on16.08.2016 and 16.09.2016 to discuss and resolve the issues related to finalisation of definition of 'forest' and 'Aravalli Hills'. The said meetings were attended by the officers of MoEF&CC, MoUD, NCRPB and representatives of Govt. of Rajasthan, Haryana, U.P. & NCT-Delhi and minutes (**Annexure-SA-1/III**) of the said meetings were circulated vide Board's letter dated 03.10.2016.

In the meetings, after extensive deliberations, it was *inter alia* concluded that *Natural Conservation Zone (NCZ) has been clearly spelt out in the RP-2021. The components of NCZ, including 'forest', 'Aravalli' and 'ground water recharging areas', are to be governed by various Statutes/Rules/Notifications of MoEF&CC, other Central Government Ministries/Departments and Orders of the Supreme Court and High Courts issued from time to time. In this regard, it may be noted that the Notification dated 7th May, 1992 issued by the MoEF&CC defines "specified areas" of the Aravalli Range in Gurgaon District of the State of Haryana and Alwar District of the State of Rajasthan (as on the date of the said Notification). These "specified areas" are to be included while identifying/delineating 'Aravalli' in entire NCR.*

iii) **Supplementary Agenda No.1** regarding ***"Issues related to implementation of inter-state connectivity roads/ linkages in NCR".***

In the matter, the following was decided by the Board:

"The matter will be examined holistically, in a separate meeting under the chairmanship of Secretary, MoUD to resolve the issues of inter-state connectivity between Haryana, U.P. and Delhi."

Action Taken:

Two meetings were held under the chairmanship of Secretary (UD), Govt. of India on 04.08.2016 to discuss and resolve the issues related to implementation of inter-state connectivity roads/ linkages in NCR. The said meeting was attended by the officers of

all concerned agencies and minutes (**Annexure-SA-1/IV**) of the said meeting were circulated vide Board's letter dated 19.09.2016. Subsequently, a follow-up meeting was also held on 05.12.2016 to review the action taken on the decisions of the previous meeting held on 04.08.2016. In the follow-up meeting it was brought out that the matters relating to most of the inter-state connectivity roads/ linkages have been resolved and the work is being expedited. However, in a few cases where certain matters are yet to be resolved directions have been given to the concerned NCR participating State and the implementing agencies.

Action Point:

The matter is placed before the Board for information.

SUPPLEMENTARY AGENDA ITEM NO. 2

FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF JUDICATURE AT ALLAHABAD GIVEN VIDE JUDGEMENT DATED 21.06.2016 IN THE MATTER OF RAGHURAJ SINGH Vs. STATE OF UP & 10 ORS. [CIVIL MISC. PUBLIC INTEREST LITIGATION NO. 29004 of 2016]

SUPPLEMENTARY AGENDA ITEM NO. 2: **FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF JUDICATURE AT ALLAHABAD GIVEN VIDE JUDGEMENT DATED 21.06.2016 IN THE MATTER OF RAGHURAJ SINGH Vs. STATE OF UP & 10 ORS. [CIVIL MISC. PUBLIC INTEREST LITIGATION NO. 29004 of 2016]**

2.1 Shri Raghuraj Singh had filed a Public Interest Litigation (PIL) in the Hon'ble High Court of Judicature at Allahabad [Raghuraj Singh Vs. State of UP & 10 Ors., Civil Misc. Public Interest Litigation No. 29004 of 2016 under Article 226/227 of the Constitution of India]. While disposing of the said PIL, the Hon'ble High Court of Judicature at Allahabad gave the following directions vide Judgment dated 21.06.2016 **(Annexure-SA-2/I):**

> *"...Regarding the complaint of the petitioner in the matter of construction activity [being] undertaken by the Okhla Industrial Development Authority contrary to the provisions of the National Capital Region Planning Board Act, 1985 it is noted that such complaint can be made under Section 29(2) of the said Act before the NCR Board. The Board after investigation can issue appropriate direction in view of the aforesaid statutory provision.*
>
> *We, therefore, **dispose of** the present writ petition with a direction to the NCR Board to take appropriate decision on the complaint made after affording due opportunity of hearing to the parties concerned within a **period of eight weeks** from the date of production of certified copy of this order".*

2.2 In the aforesaid PIL, State of U.P. through Principal Secretary, Urban Planning and Development and the following 10 other Public Authorities were made respondents:

i. National Capital Region Planning Board through its Member Secretary;
ii. New Okhla Industrial Development Authority through its Chief Executive Officer;
iii. Greater Noida Industrial Development Authority through its Chief Executive Officer;
iv. Yamuna Expressway Industrial Development Authority through its Chief Executive Officer;
v. Ghaziabad Development Authority through its Vice-Chairman and Secretary;
vi. Meerut Development Authority through its Vice-Chairman and Secretary;
vii. Hapur Pilakhuwa Development Authority through its Vice-Chairman and Secretary;
viii. Bulandshahr Development Authority through its Vice-Chairman and Secretary;
ix. Khurja Development Authority through its Vice-Chairman and Secretary;
x. Baghpat-Baraut-Khekra Development Authority through its Vice-Chairman and Secretary

2.3 Subsequently, Shri Raghuraj Singh submitted an application dated 08.07.2016 **(Annexure-SA-2/II)** alongwith a certified copy of the aforesaid Order dated 21.06.2016, for necessary action to the NCR Planning Board. NCRPB Secretariat, vide letter dated 22.07.2016 forwarded the said application to Govt. of U.P. with a request to examine the matter for appropriate action and provide para-wise comments to the Board, so that a hearing can be held in the matter. Subsequently a reminder was also sent on 05.08.2016 and further all concerned stakeholders (i.e. Govt. of U.P., NCR Planning and Monitoring Cell, U.P. and the concerned

Development Authorities) were again requested to submit the para-wise comments/reply in a meeting held on 30.08.2016, so that a hearing can be held in the matter.

2.4 Subsequently, replies/comments on the application of Shri Raghuraj Singh dated 08.07.2016 were received from Govt. of U.P. and concerned Development Authorities and based on their written submissions, hearings were held with the applicant Shri Raghuraj Singh and his team on 20.10.2016; with Govt. of U.P. (Housing and Urban Planning Department and Industrial Development Department); NCR Planning and Monitoring Cell, Uttar Pradesh and concerned Development Authorities on 21.10.2016 and a Joint Hearing was also held on 09.11.2016, on the request of the concerned parties. Representatives of NCRPB Secretariat were also directed to be present in the hearings.

2.5 Accordingly, the appropriate draft decisions/ directions on the complaint made after affording due opportunity of hearing to the parties concerned, are placed at **Annexure-SA-2/III.**

Action Point:

i) The appropriate draft decisions/directions on the complaint, based on the hearings held on 20.10.2016, 21.10.2016 and 09.11.2016 with Raghuraj Singh, Govt. of U.P. and concerned Development Authorities in U.P. sub-region, placed at Annexure-SA-2/III, are placed for approval.

ii) Govt. of U.P. and the concerned Development Authorities may be directed to comply with the aforesaid decisions/directions.

SUPPLEMENTARY ANNEXURES

SUPPLEMENTARY ANNEXURES

TO

SUPPLEMENTARY AGENDA NOTES

Special Meeting of the Board

20.12.2016 at 10.00 A.M.

Hall No. 1, Ground Floor, VigyanBhawan,

Maulana Azad Road, New Delhi

National Capital Region Planning Board

Ministry of Urban Development

New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi

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LIST OF SUPPLEMENTARY ANNEXURES

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SUPPLEMENTARY ANNEXURE - SA-1/I

Minutes of the 36th meeting of the NCR Planning Board

MINUTES OF THE
36TH MEETING OF THE
NCR PLANNING BOARD

Meeting held on 15.06.2016 at Hall no. 1, Ground Floor, Vigyan Bhawan, Maulana Azad Road, New Delhi

National Capital Region Planning Board
Ministry of Urban Development (Govt. of India)
New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi
Phone: - 24603138, Fax: - 24642163

Minutes of the 36th Meeting of the NCR Planning Board held on 15.06.2016 under the chairmanship of Shri M. Venkaiah Naidu, Union Minister of Urban Development, Housing & Urban Poverty Alleviation, Parliamentary Affairs and Chairman, NCR Planning Board

(i) 36th Meeting of the NCR Planning Board was held on 15.06.2016 at 04:00 P.M in Hall No.1, Ground Floor, Vigyan Bhavan, New Delhi under the chairmanship of Shri Venkaiah Naidu, Union Minister for Urban Development, Housing & Urban Poverty Alleviation, Parliamentary Affairs and Chairman, NCR Planning Board. List of participants is at **Annexure-I.**

(ii) Member Secretary, NCR Planning Board welcomed the Chairman, NCR Planning Board, Members of the Board and officers from Central Ministries and participating State Governments. He stated that NCR poses huge challenges in planning and development owing to its vast area, multi-state region, rapid pace of urbanisation, unprecedented population pressure, environmental degradation, scarcity of water, etc. He informed that with an objective to guide the participating States in two challenging aspects, namely Economic Development and Drainage, NCRPB has prepared two Functional Plans that would be helpful in ensuring holistic development in the region.

(iii) Chairman, NCR Planning Board stated that the arrangement of NCR Planning Board is a unique arrangement of its kind and has today become a model of inter-state regional cooperation and development in the country. He further stated that NCT Delhi, the core of the NCR, is one of the five major urban agglomerations in the World. With a total population of 16.87 million, as per 2011 census, Delhi is the second largest metropolis of the country which had experienced high growth rate in the 80's and 90's with an unprecedented population influx. The population growth rate of Delhi has come down from 47% in 1991-2001 to 21.2% during the last decade 2001-11. What is even more heartening is that Delhi Sub-region's population growth rate has been the lowest among all the four Sub-regions of NCR. This proves that the objectives of setting up the NCR Planning Board are on their way of being achieved. He informed that the level of urbanisation in NCR is 62.6%, which calls for special attention to address its infrastructural as well as environmental challenges. The level of urbanisation in NCR is higher than that of Tamil Nadu, which is the most urbanised State in India in 2001-11 at 48.45%. This scale of urbanisation is unprecedented in India.

Chairman added that the Regional Plan-2021 prepared in 2005, was reviewed and revised in a widely consultative process and subsequently the Board deliberated on the various policies & proposals of the revised Regional Plan-2021 in its 34th Meeting and in the Special Meeting. He expressed sincere gratitude to all the stakeholders for their invaluable suggestions, which have truly enriched the Plan. He further added that all these suggestions have suitably been addressed in the draft revised Regional Plan-2021 and presently certain comments of the Ministry of Environment, Forests and Climate Change (MoEF&CC) are being discussed. He requested the MoEF&CC to expedite the matter so that the draft revised Regional Plan-2021 can be finalised at the earliest.

Chairman stated that in order to translate the broad policies and proposals of the Regional Plan into ground reality, it is imperative that the next hierarchy Plans, i.e. the Sub-Regional Plans are prepared and finalised by the NCR Participating State Governments. He informed that all the participating State Governments have already prepared the Sub-Regional Plans-2021 for their respective sub-regions. For Uttar Pradesh sub-region, the Sub-Regional Plan was finalised by Govt. of U.P. in 2013. In case of Haryana sub-region, Govt. of Haryana already prepared the draft Sub-Regional Plan and observations of the Board were communicated. He requested Govt. of Haryana to address the observations of the MoEF&CC in their Sub-Regional Plan and submit the amended draft Sub-Regional Plan to the MoEF&CC. He also requested MoEF&CC to expeditiously examine the same and confirm, once they receive it, so that the Sub-Regional Plan can be finalised by Govt. of Haryana and the PMO can be informed. As regards Rajasthan sub-region, he added that the draft Sub-Regional Plan was considered by the Board in its last meeting and observations were conveyed to Govt. of Rajasthan. Subsequently, Govt. of Rajasthan has finalised the Sub-Regional Plan-2021. With respect to NCT-Delhi, Master Plan for Delhi-2021 will be treated as Sub-Regional Plan for Delhi after inter-connectivity issues with the adjoining States are addressed.

Chairman further stated that since the last Board meeting, the Board has prepared two Functional Plans, namely Functional Plan for Economic Development of NCR and Functional Plan on Drainage for NCR in consultation with the NCR participating States. These two Functional Plans have been prepared to guide the participating States in the two very pertinent yet challenging aspects, namely, fostering holistic balanced economic development and ensuring sustainable drainage management. Both the aspects are extremely crucial for growth and balanced development of NCR. He congratulated the Board's Secretariat for accomplishing the task of preparing two Functional Plans in just one year and requested the participating States to implement the policies & proposals in their respective sub-regions.

Chairman informed that one of the major transport projects conceived by the NCR Planning Board, Regional Rapid Transit System (RRTS), which will change the development scenario in NCR, is in advanced stage. He further informed that draft Detailed Project Report (DPR) for the Delhi-Panipat Corridor has been prepared and for the remaining two corridors, namely, Delhi-Meerut and Delhi-Rewari-Alwar are in the advance stages of finalisation. National Capital Region Transport Corporation (NCRTC) has been incorporated for implementation of RRTS projects in NCR and Managing Director of NCRTC has already been appointed.

Chairman stated that the initiatives for development for physical and social infrastructure by the NCRPB, both in the NCR as well as in the Counter Magnet Areas, has continued and as decided in the last Board Meetings, participating States have already begun taking benefits of these low interest rates. NCRPB has provided financial assistance for 295 infrastructure projects worth Rs. 27,309 crores upto March, 2016. Actual loan disbursement upto March, 2016 was Rs. 7,222 crores. While expressing his pleasure he informed that the Board has sanctioned loan of more than Rs. 3100 crores in a single meeting for infrastructure development Projects for the first time which includes loan of

more than Rs.1500 crores for metro project in Noida in Uttar Pradesh. He stated that as the Metro Projects are very capital intensive and have long gestation period which need support from financial institutions to make them viable. As a first step in this direction, Board has decided to consider an increase in loan repayment period from 10 years to 20 years, including moratorium period of 5 years for repayment of principal, as a policy for all existing and new Metro Projects, which will be discussed during the meeting.

Chairman, while urging the States to take more benefit of the low interest rates for facilitating the physical and social infrastructure projects in their respective States, stated that NCRPB loans are most attractive amongst all the market borrowing instruments available to the States. He further mentioned that in order to appropriately price NCRPB's loan assistance to the participating States, Board has proposed to reduce its interest rates further which would also be discussed in Board's meeting. Chairman congratulated the officers of the Board for maintaining its track record of 100 percent recovery of loans and sought whole-hearted support from the participating States in the endeavour of the Board to ensure growth and balanced development in the region.

(iv) The speech of Hon'ble Shri ManoharLal, Chief Minister, Haryana was circulated in the meeting and copy is at **Annexure-II.**

(v) The Agenda Items were taken up for discussion thereafter, as below:

1. **AGENDA ITEM NO. 1: CONFIRMATION OF THE MINUTES OF THE 35th MEETING OF THE NCR PLANNING BOARD HELD ON 09.06.2015**

Board confirmed the Minutes of the 35th Meeting of the Board held on 09.06.2015.

(Action: NCRPB)

2. **AGENDA ITEM NO. 2: ACTION TAKEN REPORT ON THE DECISIONS OF THE 35TH MEETING OF THE NCR PLANNING BOARD HELD ON 09.06.2015**

Item No. 2 (iii): Status Note on Assistance by Asian Development Bank (ADB) and KfW (German Development Bank) to NCRPB.

Matter was taken up separately at Agenda Item No. 5.

Item No. 3(i): Confirmation of Minutes of the 34th Meeting of the NCR Planning Board

Member Secretary informed that the Govt. of U.P. in last Meeting of the Board raised a point that the term "to the extent possible" which was recorded in the statement of the representative of Govt. of U.P. in the Minutes of the 34th meeting of the Board was not said by the representative of Govt. of U.P. and needs to be deleted from the Minutes. The matter has been examined with respect to verbatim of the said meeting and it has been found that the term "to the extent possible" was recorded.

It has been communicated to the Govt. of U.P. on 07.01.2016. However, the Chairman stated that the minute should capture the intent & spirit of the speaker and having regard to this there should be no objection in deleting the remarks as requested by the Government of UP.

Minister for Vocational and Skill Development, Govt. of U.P. stated that the Sub-Regional Plan (SRP) -2021 for U.P., which is currently in-force, was approved by the Board in 2013. He further added that Yamuna Expressway Industrial Development Authority is part of the approved SRP-2021 for U.P. sub-region. However the same has been shown as agricultural land in the revised Regional Plan-2021 thereby leading to a factual error. He further requested that instead of the terminology, the background and the context for which the terminology has been used may be considered and that the proposals of the approved Sub-Regional Plan-2021 for U.P. should be accepted in completeness.

Advisor, NCRPB informed that a Regional Plan is an umbrella plan which gives policies for the NCR. As per the hierarchy of planning, the policies and proposals of the RP-2021 are to be further elaborated in the SRPs by the respective State Governments. Regional Plan-2021 has identified 7 Metro and 11 Regional Centres and incorporated the landuses of only these towns. Apart from these, as per a policy in the Regional Plan, the States can identify more towns in their respective Sub-Regional Plans. However, if all the towns are elaborated in the Regional Plan, then there is no use of a Sub-Regional Plan.

After detailed deliberations, Chairman, NCRPB stated that there is no objection in the concern raised by Govt. of U.P. and that more than the terminology, the broader issue should be understood.

Item No. 3(ii): Issues conveyed by PMO on the draft revised RP-2021 for NCR and Draft Sub-Regional Plan for Haryana Sub-region of NCR 2021.

Member Secretary, NCRPB informed that with respect to the revised RP-2021, there are only following three views/comments/suggestions of MoEF&CC which are to be resolved now.

(i) Mapping and delineation of forests and other ecologically sensitive areas be completed before the DRRP-2021 is finalized.

(ii) Target of 20% of total geographical area of NCR as forest and tree cover.

(iii) Red category industry be set up on the identified industrial areas away from urbanisable zones and transfer of existing red category industries, especially those falling in urbanisable areas to such industrial areas identified for red category industries.

He further informed that the matter was also deliberated in the 65th meeting of Planning Committee held on 28.04.2016 and subsequently in a meeting with MoEF&CC on 05.05.2016. In line with the discussion held in the said meeting on 05.05.2016, NCRPB Secretariat, on 06.05.2016, has already sent amended formations in the draft revised RP-2021 to MoEF&CC. He also stated that NCRPB has been following up with MoEF&CC and efforts are being made to resolve the matter with

MoEF&CC in a months' time. Further, he requested Govt. of Haryana to expedite the work related to the SRP for Haryana sub-region.

Additional Chief Secretary (ACS), Town & Country Planning Department (T&CPD), Govt. of Haryana informed that the ground truthing exercise for the nine districts as contained in the Sub-Regional Plan-2021 for Haryana sub-region has been completed. He further informed that the work of preparation of geo-referenced maps of the NCZ, as per the findings of the ground truthing exercise, has been assigned to Haryana Space Application Centre (HARSAC) and the entire process is expected to be completed in another two months of time. After completion of the said exercise, the final Report along with Maps on the NCZ delineation exercise and the amended SRP-2021 will be forwarded to MoEF&CC for obtaining confirmation, in about 3-4 months.

Chairman enquired from the representatives of MoEF&CC if they have any view/comment/ suggestion in this regard.

Inspector General (Forests), MoEF&CC stated that once the final report of NCZ delineation alongwith the geo-referenced Maps are received from Govt. of Haryana, the same will be examined and observations of MoEF&CC, if any, will be communicated/ discussed with Govt. of Haryana.

ACS, T&CPD, Govt. of Haryana further stated that the issues relating to definition of 'forest' and 'Aravalli' need to be resolved, in order to finalise the delineation exercise of NCZ, which is mentioned at **Agenda Item No. 10.**

Chairman suggested that instead of sending correspondences, the States and their departments should hold joint meetings to discuss and resolve matters expeditiously.

After detailed deliberations, Board decided that a meeting under the chairmanship of Secretary (UD), Govt. of India be held to resolve the issues.

(Action: MoUD, MoEF&CC & NCRPB)

Item No. (5): Status of Financing of Projects by NCR Planning Board

Member Secretary, NCRPB informed that as per decision of the Board the matter regarding applicability of ceiling of FRBM Act on loans to be disbursed by NCRPB to agencies of Govt. of U.P. was sent to Ministry of Urban Development seeking clarification from Ministry of Finance. Ministry of Urban Development has raised certain issues and sought clarifications which were forwarded to Govt. of U.P.

Secretary (UD), MoUD informed that Board has provided options to avail loan against Bank guarantee. Only those cases where loan is routed through State Government budget or where Government Guarantee is provided fall under FRBM Act. Minister, Govt. of UP informed that they have proposed to follow Bank Guarantee route for their metro rail project of NMRC.

In view of above facts, the matter was resolved unanimously.

Item No. (6): Status Note on Assistanee by Asian Development Bank (ADB) and KfW (German Development Bank) to NCRPB

Matter was taken up separately at Agenda Item No.5

Item No. 7(ii): Sub-Regional Plan for Haryana Sub-region

Matter was discussed at Item No. 3(ii) above.

Item No. 7(iii): Sub-Regional Plan for Rajasthan Sub-Region

Board noted the status.

Item No. 7 (iv): Sub-Regional Plan for Delhi Sub-Region

GNCT-Delhi and DDA were requested to expedite.

Item No. 8.1: Inclusion of Jind and Karnal districts of Haryana in NCR

Board noted the status.

Item No. 8.2: Inclusion of Muzaffarnagar district of U.P in NCR

Board noted the status.

State Minister, Govt. of UP requested that Shamli, which was a tehsil in the erstwhile Muzaffarnagar district, should also be included in NCR. He informed that a proposal for the same has already been sent to NCRPB through the Chief Minister, U.P.

Member Secretary, NCRPB stated that Govt. of U.P. has constituted a Committee for examination of the proposals for inclusion of various districts in NCR, namely, Shamli, Mathura, Aligarh, etc. However, no final decision of the Committee was received by the Board.

Advisor, NCRPB informed that the recommendation of Govt. of U.P., on the basis of which Muzaffarnagar district was included in NCR, did not include Shamli district.

Chairman directed that the process for examination of inclusion of Shamli and Mathura districts may be expedited.

(Action: Govt. of U.P.)

Item No. 8.2(ii): Delineation Study for NCR

Member Secretary, NCRPB stated that in pursuance of the Board's direction given in its 35th meeting, a Committee was constituted vide Order dated 10.08.2015. Two meetings of the Committee were held and the recommendations of the Committee are placed in the Agenda. Board noted the recommendations of the Committee.

After detailed discussions and deliberations, Chairman directed to send the recommendations of the Committee to the participating States for their views/comments and place the matter before the Board in its next meeting after examination of the same.

(Action: NCRPB)

Item No. (9): Status of Regional Rapid Transit System (RRTS) for NCR

(ii) Report of the Committee of Experts (CoE) on Delhi-Meerut RRTS corridor

Board noted that MoRT&H vide Gazette Notification S.O.183(E) dated 20.01.2016 omitted the stretch from Ghaziabad to Meerut (erstwhile NH-58) from the list of National Highways.

State Minister, Govt. of U.P. requested that now the work for Delhi-Meerut RRTS Corridor should be carried out expeditiously.

Addl. Secretary (UD), MoUD informed that Managing Director, NCR Transport Corporation (NCRTC) has been appointed and the task will be taken up by the Corporation as soon as it starts functioning.

After detailed discussions and deliberations, Chairman directed that as MoRT&H has no stake in the project and no other issues need to be resolved, the work on preparation of DPR may be carried out as per the alignment approved in the Feasibility Report.

(Action: NCRPB, NCRTC)

(iv) Committee to examine feasibility of connecting Delhi-Gurgaon-Rewari-Alwar RRTS from SNB Urban Complex to Sotanala RHCO Industrial Area instead of connecting to Alwar and (v) to examine the pros and cons of realignment of the Delhi-Alwar and Delhi-Panipat RRTS Corridors in Haryana sub-region about one km away from the NH.

After detailed discussions and deliberations, the Board agreed with the recommendations of the Committee and approved the following:

(a) Detailed Project Report (DPR) for Delhi-Gurgaon-Rewari-Alwar RRTS Corridor will be finalised as per the alignment approved in the Feasibility Report and subsequent

modifications in the alignment in Haryana Sub-region, as approved by the Consultancy Review Committee (CRC)/ Sub-committee to the Task Force for RRTS in NCR.

(b) Feasibility Report cum DPR for the alignment of Spur from SNB Urban Complex to Sotanala RIICO Industrial Area will be prepared by NCRTC.

(c) The project will be implemented in following three phases:

Phase-1	*Delhi-Gurgaon-Rewari-SNB Urban Complex*
Phase-2	*SNB Urban Complex-Sotanala RIICO Industrial Area*
Phase-3	*SNB Urban Complex-Alwar*

(d) DPR for Delhi-Sonipat-Panipat RRTS Corridor will be prepared as per the alignment finalised in the Feasibility Report.

(Action: NCRPB, NCRTC)

Item No. (10): Delineation of Natural Conservation Zone (NCZ) in the sub-regions of NCR by the participating States

Haryana Sub-Region:

The matter was discussed at Item No. 3(ii) above.

Govt. of Uttar Pradesh, Rajasthan and NCT-Delhi:

Board noted the status. The matter was further discussed in detail at Agenda No. 10.

Item No. (11): Delegation of Powers to the Chairman of the Planning Committee and Member Secretary, NCR Planning Board under Section 32 of the NCR Planning Board Act, 1985 for the finalisation and approval of the Functional Plans under Section 16 of the NCR Planning Board Act, 1985

Board noted the status.

Item No. (12): Enhancement of Delegation of Financial Powers to Member Secretary, NCRPB in respect of appointment of Consultant/ Advisor/Expert under Section 32 of the NCRPB Act, 1985

Board noted the status.

Item No. (13): Any other item with the approval of Chairman - Govt. of Haryana and MoRT&H were requested to expedite the implementation of Western Peripheral Expressway (Kundli-Manesar-Palwal Expressway) and Eastern Peripheral Expressway respectively.

Chief Secretary, Govt. of Haryana informed the Board that the section of Western Peripheral Expressway from Palwal to Manesar has been commissioned and opened to public in the first week

of April and work on section from Manesar to Kundli has been awarded and target date of completion is August, 2018.

Chief General Manger, NHAI informed the Board that the work of the Eastern Peripheral Expressway (EPE) has been awarded in six packages and construction has already begun in all these six sections. He further informed that the expected date of completion of the EPE is July, 2018.

Board noted the status.

3. AGENDA ITEM NO. 3: APPROVAL OF ITEMS RELATING TO STATUTORY PROVISIONS

Agenda Item No. 3.1: Approval of Annual Report and Audited Annual Accounts for the Financial Year 2014-15

The matter is ratified by the Board.

Agenda Item No. 3.2: Annual Statement of Outstanding Loans and Advances disbursed by the Board during the year 2014-15 as per Rule 47(1) of NCRPB Rules, 1985

Board Noted the Status.

Agenda Item No. 3.3: Annual Statement of Outstanding Loans/Advances received by the Board during the year 2014-15 as per Rule 47(2) of NCRPB Rules, 1985

Board Noted the Status

Agenda Item No. 3.4: Approval of Budget Estimates for the Financial Year 2016-17 under "Plan (Revenue) and Non-Plan (Revenue)" head as per Rule 29 of the NCRPB Rules, 1985

The Budget Estimates for the Financial Year 2016-17 both under the head "Plan and Non Plan" were approved and the Board authorised the Member Secretary, NCRPB to perform functions as proposed in the agenda.

(Action: NCRPB)

4. AGENDA ITEM NO.4: STATUS OF FINANCING OF PROJECTS BY NCR PLANNING BOARD

Board noted the status. Board directed the States to look into the delay in completion of some of the projects and to expedite such projects.

Chairman further advised the representatives from NCR participating States to prepare and submit more infrastructure development projects for financial assistance from NCRPB, helping in the implementation of Plans.

(Action: NCR participating States)

5. AGENDA ITEM NO. 5: STATUS NOTE ON ASSISTANCE BY ADB & KFW TO NCRPB

i) Member Secretary, NCRPB informed that ADB funding has come to halt as two road up-gradation (widening & strengthening) projects being implemented by PWD (B&R), Haryana have been undertaken on the land, where the title is not in the name of Govt. of Haryana and no compensation was paid to the *title holders*. ADB has taken this matter seriously and considers it as non-compliance to the Social Safeguard policy of the ADB. Member Secretary further informed that several reminders have been issued to the Govt. of Haryana but no confirmation has been received till date.

ii) Chief Secretary, Govt. of Haryana informed that the two roads i.e., Gohana-Sisana road in RD 21.500 to 24.000 KM and in RD 24.974 to 27.780 KM (Sonepat road project) and Gurgaon-Chandu-Badli are under their adverse possession as the roads were existing for more than 50 years. In such condition Govt. of Haryana had two options:

a. To accept the ADB recommendation and make payment of compensation to the *title holders*. However, he further highlighted that giving compensation to the *title holders* in these cases will set the example and there are lots of projects like canal and other projects which have been built on similar grounds as private owners of that time have handed over the land to the Govt. for development of the area. Therefore, Government of Haryana decided not to agree with this option.

b. The other option was to go to the Court. He added that they have made the matter partly sub-judice by filing 15 cases. He further informed that out of 15 court cases, the matter was decided in favour of Govt. of Haryana in 06 cases whereas verdict in 04 cases went against Govt. The decision in the remaining 05 cases is still pending. However, where the case was decided in favour of the Government, the private owners have gone in appeal and wherever it was against the Government, the Government has gone in an appeal.

iii) Member Secretary stated that there is no issue in the road stretches where the matter is sub-judice. However, the issue is in the disputed stretches where neither the Govt. nor the private owners have gone to the Court. He added that Govt. of Haryana needs to file for mutation of those lands, in the entire road stretch, wherever it is in their adverse possession. Secretary (UD) suggested that if verdict is against Govt. of Haryana, they can go for an appeal in the court.

After discussions & deliberations, it was decided that Govt. of Haryana will expedite and take appropriate action in the matter wherever land is in adverse possession and resolve the on-going Social Safeguard issues.

(Action: Govt. of Haryana)

Regarding KfW loan, Member Secretary informed that initially the schemes under the KfW loan could not take off and now most of the schemes are in advance stage of implementation; Board's Secretariat has made a request to KfW through Department of Economic Affairs (DEA) to extend the timeline of the loan up to December 2018. It has been forwarded by DEA to KfW.

(Action: NCRPB)

6. AGENDA ITEM NO.6: GRIEVANCE REDRESSAL POLICY FOR NATIONAL PENSION SCHEME IN NCRPB.

Board approved the Grievance Redressal Policy of National Pension Scheme for the employees of NCRPB as proposed in the Agenda. It also approved the nomination of Director (A&F) as Chief Grievance Redressal Officer and Finance & Accounts Officer as Grievance Redressal Officer for the New Pension Scheme for the subscribers in NCRPB.

(Action: NCRPB)

7. AGENDA ITEM NO. 7: REVISION OF INTEREST RATES ON FINANCIAL ASSISTANCE GIVEN BY THE NCR PLANNING BOARD IN URBAN DEVELOPMENT PROJECTS TO THE NCR PARTICIPATING STATES AND CMA STATES

i) Member Secretary, NCRPB apprised the Board about the proposed reduction in the interest rates based on the scientific study carried out by the Consultant/Financial Advisor of NCRPB.

ii) Chief Minister, Haryana stated that Board had earlier recognized power sector as one of the priority sector, therefore, the interest rate for this sector should also be reduced to 7% which is at par with the other priority sector projects. Additional Chief Secretary, T&CPD, Govt. of Haryana stated that power sector was brought under the category of priority sector in the 34th meeting of the Board and requested to bring it back to the same category.

iii) Member Secretary, NCR Planning Board stated that in case of Power Sector projects there are other Financial Institutions like Rural Electrification Corporation and Power Finance Corp. extending loans at the interest rates ranging between 10.50% to 12.25% p.a. which is much higher as compared NCRPB's rate of interest. The interest rates being offered by the Board for Power sector are even lower than G-Sec rates and State Development Loans.

iv) Minister PWD, GNCT Delhi stated that RBI is reducing interest rates gradually and suggested to reduce NCRPB interest rate further by 0.5%.

v) Member Secretary, NCRPB informed that project financing by NCRPB is the cheapest source of funding for the NCR participating States. NCRPB has further reduced it ranging between 0.5% and 0.75% based on the study. In addition to this, Board is also providing 0.25% rebate in interest rates for timely repayment of loan. Board is also providing 15% of project cost as grant for water supply & sanitation projects which have long gestation period and have very low returns. These incentives and grant component further lowers the cost of borrowings for the NCR participating States and their implementing agencies.

vi) Chairman stated that any further reduction cannot be committed without examining the pros and cons. He further stated that the reductions which have been made are good and Members should appreciate the same.

After discussions and deliberations, Board approved the proposals as given in Para 7.8 and 7.9 of the Agenda which are re-produced below:

a) Revised Interest rates to be charged by the NCRPB:

Sl. No.	*Type of Project*	*Rate of Interest per annum*	
		Current	*Revised*
1	*Priority Infrastructure Projects: Water Supply, Sewerage, Solid Waste Management, Drainage, Metro/ Rapid Rail, Road, ROB, RUB, Expressways, Affordable/ EWS Housing*	*7.50%*	*7.00%*
2	*Power Sector Projects: Generation, Transmission & Distribution*	*7.50%*	*7.50%*
3	*Land Development: Residential /Industrial Projects, Commercial & Office Buildings, Social Infrastructure viz. Technical/Medical Institutes, etc.*	*9.25%*	*8.50%*

**These rates shall be applicable for all fresh releases of loan instalments both for ongoing as well as new projects.*

*** Rebate of 0.25% in interest rate for timely payment of loan instalments, strictly as per repayment schedule, shall be available.*

****Grant in aid upto 15% of the sanctioned project cost for water supply and sanitation projects on completion subject to fulfilment of terms & conditions laid down by the Board shall be continued.*

b) In case the interest rates in capital market move upwards thereby increasing the cost of borrowing of the Board, the interest charged on the loans to the State Govt. may also be revised upwards. The interest rates shall be reviewed regularly keeping in view the Capital Market conditions, Borrowings program and financial position of the Board.

(Action: NCRPB)

8. AGENDA ITEM NO. 8: ACTION TAKEN BY NCRPB ON THE JUDGEMENT OF THE HON'BLE HIGH COURT OF DELHI DATED 30.09.2014 IN WP (C) 5559 OF 2013 IN THE MATTER OF RAGHURAJ SINGH VS. UNION OF INDIA & ORS.

Member Secretary, NCRPB informed that the Secretariat of the NCRPB has complied with the orders of the Hon'ble High Court of Delhi. He further requested the NCR participating States to follow the directions given by the Hon'ble High Court of Delhi and the recommendations of the 65th Planning Committee as given in Para 8.16 of the Agenda.

Chairman, NCRPB also requested the NCR Participating State Govts. to comply with the orders of the Hon'ble High Court of Delhi.

(Action: NCR Participating States)

9. AGENDA ITEM NO. 9: PREPARATION OF SUB-REGIONAL PLANS FOR THE NEWLY ADDED DISTRICTS IN NCR AND EXTENSION OF FINANCIAL ASSISTANCE BY NCR PLANNING BOARD TO THE PARTICIPATING STATES FOR INFRASTRUCTURE PROJECTS IN THESE DISTRICTS

i) Member Secretary, NCRPPB apprised the Board that the preparation of Sub-Regional Plans (SRPs) for the newly added districts and integrating the same with their respective SRPs is pending for quite some time. This work is to be carried out by the NCR participating States. He further informed that the matter of extending financial assistance by NCRPB to the participating State Governments for preparation of SRPs for the newly added districts was discussed in the 65th meeting of the Planning Committee, wherein the participating States requested to provide 100% reimbursement of the cost of preparation of the respective SRP through Consultant. Board need to take a view in this regard however, the work has to be completed in three months time.

ii) Chairman stated that whereas it is the responsibility of the participating State Government to prepare the Sub-Regional Plan, appropriate assistance to the participating States can be provided. However, the work has to be completed in three months.

iii) Minister of Urban Development & Housing, Govt. of Rajasthan stated that they will prepare the SRP for the newly added district, however, he requested to provide funds for development of infrastructure in the meantime as it was done earlier in case of Alwar.

iv) Additional Secretary, MoUD stated that unless the SRPs are prepared, funding for the projects cannot be provided which is in line with the provisions of the NCRPB Act, 1985. He mentioned that Hon'ble Punjab & Haryana High Court has also observed in this regard in one of the matters.

v) On the insistence of the Minister, Govt. of Rajasthan, Member Secretary, NCRPB stated that legal opinion will be taken in the matter.

After discussions and deliberations, following decisions were taken:

a) NCRPB will reimburse 100% consultancy cost for the preparation of Sub-Regional Plans for the newly added districts and thereafter integrating the same with the overall respective Sub-Regional Plans. The work has to be completed within three months.

b) Financial assistance for infrastructure development projects for the newly added districts of NCR will be extended by NCRPB only after the finalization of the SRPs by the respective NCR participating State Governments.

c) NCRPB will obtain the legal opinion with regard to funding of projects without preparation of SRPs for the newly added districts.

(Action: NCR Participating States & NCRPB)

10. AGENDA ITEM NO. 10: FINALIZATION OF DEFINITION OF 'FOREST'

i) Member Secretary, NCRPB stated that the finalization of definition of "Forest" is pending with MoEF&CC for quite some time and requested representative of MoEF&CC to present the current status.

ii) Inspector General (Forest), MoEF&CC apprised the Board that a committee has been constituted by their Ministry under the chairmanship of Secretary, MoEF&CC and they have already formalized different parameters in this regard. He added that the finalization of definition of "Forest" will take some more time.

iii) Chief Minister, Haryana showed his concern on the problems being faced because of the delay in finalization of definition of Forest and its severity at ground level. He mentioned that because of this Social Forestry is also being discouraged, as trees being grown by people in their privately owned land are being declared as Forest and henceforth making people skeptical about growing trees. Therefore, it is imperative to finalise the definition of Forest at the earliest. He further added that clarity on Gairmumkin Pahad is also a crucial matter which needs to be addressed. Chief Secretary, Haryana informed that they had meeting with Secretary, MoEf&CC in June 2015 and they were assured that definition of "Forest" will be finalized soon. Principal Secretary to Chief Minister, Govt. of Haryana also showed his concern about finalization of definitions of "Forest and Aravalli".

iv) Inspector General (Forest), MoEF&CC clarified that MoEF&CC is considering different aspects of forests and they will see that plantations are not really included in the definition of 'forest'. On a query from Chairman, he stated that Aravallis are recorded as Gairmumkin Pahad in the revenue records which are non-arable lands.

v) Secretary, MoUD stated that the issue of definition of "Forest" has been creating difficulty not only for Haryana but for many other States in the country. It actually stands on one ruling of the

Hon'ble Supreme Court order wherein the "Forest" is to be considered as per its dictionary meaning. He suggested convening a meeting with Secretary, MoEF&CC to resolve the issues related to definition of "Forest and Aravalli" wherein representatives from Govt. of Rajasthan, Haryana and NCT-Delhi shall be invited.

vi) Chief Minister, Haryana stated that they are concerned about protection of environment and have provided a buffer of 500 mtr. around Mangar Bani to save the forests.

vii) Chairman, NCRPB stated that the ground level reality should be kept in mind while finalizing the definition of 'Forest' and that the development and environment should go hand in hand.

viii) State Minister, Govt. of UP informed that Govt. of UP has completed the exercise while preparing the Sub-Regional Plan-2021 of U.P. sub-region which was finalised in 2013. The proposed land use map of U.P. in the SRP-2021 is a Geo-referenced map wherein the boundaries of conservation zones i.e. forest cover, wild life sanctuaries, ridge, river, etc. were already marked based on ground truthing. He further mentioned that decision taken by the Board in its Special meeting held for the purpose of Sub-Regional Plan for Haryana Sub-Region-2021 in 2015 regarding the delineation of NCZ area may not be applicable for UP sub-region and requested that the same should not be imposed on them.

ix) Advisor, NCRPB informed the Board that as per the earlier decision of the Board in its Special Meeting, NCZ is to be delineated by each NCR participating State based on the detailed ground truthing along with verification of State revenue records, after which the SRPs will stand amended.

x) Additional Chief Secretary, T&CPD, Govt. of Haryana clarified that, the Regional Plan 2021, notified in 2005, was prepared on the basis of the 1999 satellite imageries. There were certain issues pertaining to demarcation of NCZ. Hence it was decided by the Board that in order to clearly ascertain areas under NCZ, a detailed ground truthing exercise must be undertaken by the NCR participating States.

xi) Chairman, NCRPB stated that the matter should be examined.

xii) Additional Chief Secretary, Govt. of Rajasthan stated that the NCZ delineation cannot be done without the definition of 'forest' and 'Aravalli'. He further stated that clarity will also be required for another component of NCZ which is the ground water recharging areas.

xiii) Minister Urban Development, Govt. of Rajasthan requested the Board to file a rejoinder in a matter related to NCZ pending with NGT. He stated that a similar request was also made in the last Board meeting but rejoinder has not been filed.

xiv) Member Secretary, NCRPB stated that a legal opinion in the matter will be taken.

xv) Chairman, NCRPB stated that if necessary a rejoinder may be filed.

After detailed discussions and deliberations, following decisions were taken:

(i) MoEF&CC to expedite the finalization of the definition of 'forest'.

(ii) A meeting shall be convened by MoUD with MoEF&CC to resolve the issues related to definition of forests and Aravalli Hills at the earliest wherein representatives from Govt. of Rajasthan, Haryana and NCT-Delhi will also be invited.

(iii) Legal opinion with regard to filing of rejoinder in the matter related to NCZ pending with NGT may be obtained and if necessary, a rejoinder may be filed.

(Action: MoEF&CC, NCRPB and NCR participating States)

11. AGENDA ITEM NO. 11: CONSIDERATION OF RECOMMENDATION OF THE STANDING COMMITTEE ON URBAN DEVELOPMENT FOR AMENDMENTS OF NCRPB ACT, 1985 TO EMPOWER NCRPB FOR DIRECT MONITORING AND KEEPING A VIGILANT EYE OVER THE DEVELOPMENTS AT SITES IN THE NCR

Member Secretary, NCRPB stated that the Standing Committee on Urban Development on 'Demands for Grants (2015-16)' of the Ministry of Urban Development has recommended for amendments of the NCRPB Act,1985 to empower NCRPB for direct monitoring and keeping a vigilant eye over the developments at sites in the NCR so that there is no violation of the Regional Plan. Rajya Sabha Committee on Petitions in its 146th Report, in 2013 had also recommended that NCRPB Act, 1985 may be amended to strengthen its powers to reach the Board beyond advisory role. He further mentioned that Hon'ble High Court of Delhi in WP (C) 5559 of 2013, in the matter of Raghuraj Singh Vs. Union of India & Ors. vide its judgment dated 30.09.2014 had also directed the NCRPB to monitor and be vigilant of the development at site in the NCR. Therefore, the matter and observations on the same are placed before the Board for a decision regarding the way forward for amending the NCRPB Act, 1985.

The matter was discussed and deliberated in detail and it was observed by the Board that the current provisions of the NCRPB Act, 1985 are robust and it has sufficient powers.

Hence, the Board decided that no amendment is to be made in the NCRPB Act, 1985.

(Action: NCRPB)

12. AGENDA ITEM NO. 12: EXTENSION OF THE GENERAL POOL ACCOMMODATION FACILITY TO ALL THE STAFF/OFFICERS OF THE BOARD

It was decided that the matter may be referred to the Ministry of Urban Development separately.

(Action: NCRPB)

13. AGENDA ITEM NO. 13: REVISION OF DELEGATION OF POWERS RELATING TO MEMBER SECRETARY

Board approved the Agenda relating to revision of delegation of Powers to the Member Secretary, NCRPB as Chairman of Project Sanctioning & Monitoring Group-II and for the appointment of part-time Advisors/Experts/Consultants.

(Action: NCRPB)

14. SUPPLEMENTARY AGENDA 1: ISSUES RELATED TO IMPLEMENTATION OF INTER-STATE CONNECTIVITY ROADS/ LINKAGES IN NCR

Member Secretary, NCRPB informed that Govt. of Haryana has requested for facilitating certain road links which will improve inter-state connectivity between Haryana, U.P. and Delhi.

Additional Chief Secretary, T&CPD, Govt. of Haryana made a presentation regarding the inter-state connectivity issues.

After detailed discussions and deliberations, the Board decided that the matter will be examined holistically, in a separate meeting under the chairmanship of Secretary, MoUD to resolve the issues of inter-state connectivity between Haryana, U.P. and Delhi.

(Action: MoUD, NCRPB and NCR participating States)

15. SUPPLEMENTARY AGENDA 2: INCREASE IN LOAN REPAYMENT PERIOD IN RESPECT OF METRO RAIL PROJECTS TO BE FINANCED BY NCR PLANNING BOARD

After detailed discussions and deliberations, Board approved the proposal for increase in the loan repayment period from 10 years to 20 years, including moratorium period of 5 years for the repayment of principal, for all existing and new metro rail projects to be funded by NCRPB as a policy.

(Action: NCRPB)

16. SUPPLEMENTARY AGENDA 3: AMENDMENT IN RECRUITMENT RULES FOR THE POST OF CHIEF REGIONAL PLANNER OF THE NCR PLANNING BOARD.

Board approved the Agenda relating to amendment in recruitment rules for the post of Chief Regional Planner of the NCR Planning Board.

(Action: NCRPB)

17. ANY OTHER ITEM WITH THE APPROVAL OF THE CHAIRMAN

i) Minister Urban Development, Govt. of Rajasthan raised the issue of low population density in the towns of Rajasthan sub-region. He stated that the population density of towns falling in Rajasthan sub-region, is only 60-100 persons per hectare (PPH), which is lower as compared to the population density norms (120 PPH) as proposed in the Regional Plan-2021 for NCR. He added that people of these towns prefer plotted development rather than multi-story development. He mentioned that a Notice has been issued by the Board in the matter. He further stated that the population density norms of the Regional Plan-2021 will be incorporated in the Master Plans of the towns in future. He requested the Chairman to withdraw the said Notice. ACS, Govt. of Rajasthan added that a reply to the Notice has been sent by the Govt. of Rajasthan.

ii) Chief Minister, Haryana stated that the conditions for funding of projects by ADB and KFW are so stringent that in order to fulfil their conditions, the cost of tender goes up disproportionately.

iii) Chairman, NCRPB stated that *who-so-ever* gives funding, he would put his conditions. He suggested that Govt. of Haryana may send a note in this regard which will be appropriately conveyed to the DEA.

The meeting ended with a vote of thanks to the Chair.

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Annexure-I

List of Participants

Chairperson	
1.	M.Venkaiah Naidu, Hon'ble Minister for Urban Development, Housing & Urban Poverty Alleviation and Parliamentary Affairs, Govt. of India
Members	
2.	Shri Manohar Lal Khattar, Hon'ble Chief Minister, Govt. of Haryana
3.	Shri Rajpal Singh Shekhawat, Hon'ble Minister Urban Development and Housing Department, Govt. of Rajasthan
4.	Shri Abhishek Mishra, Hon'ble Minister Vocational Education & Skill Development, Govt. of Uttar Pradesh - *representing Hon'ble Chief Minister, Govt. of Uttar Pradesh*
5.	Shri Satyendar Jain, Hon'ble Minister PWD, Govt. of NCT-Delhi - *representing Hon'ble Chief Minister, Govt. of NCT-Delhi*
6.	Shri Rajiv Gauba, Secretary, Ministry of Urban Development, Govt. of India
7.	Shri Depinder Singh Dhesi, Chief Secretary, Govt. of Haryana
8.	Shri K.K. Sharma, Chief Secretary, Govt. of NCT-Delhi
9.	Shri B.K. Tripathi, Member Secretary, NCR Planning Board
10.	Shri Sada Kant, Principal Secretary, Housing & Urban Development Department, Govt. of Uttar Pradesh - *representing Chief Secretary, Govt. of Uttar Pradesh*
11.	Shri P. Raghavendra Rao, Addl. Chief Secretary, Town and Country Planning, Govt. of Haryana
Additional Co-opted Members	
12.	Shri Rajiv Ranjan Mishra, Joint Secretary, Ministry of Housing Urban & Poverty Alleviation, Govt. of India - *representing Secretary, Ministry of Housing & Poverty Alleviation*
13.	Shri K.K. Joadder, Chief Planner, Town & Country Planning Organisation, Ministry of Urban Development, Govt. of India
Co-opted Member	
14.	Shri D.K. Sinha, IG (Forest), Ministry of Environment, Forest & Climate Change, Govt. of India - *representing Secretary, Ministry of Environment, Forest & Climate Change*
Special Invitees	
15.	Shri D. S. Mishra, Additional Secretary (UD), Ministry of Urban Development, Govt. of India
16.	Shri Ashok Jain, Additional Chief Secretary, Urban Development & Housing Department, Govt. of Rajasthan
17.	Shri Sarvagya Kumar Srivastava, Principal Secretary (PWD), Govt. of NCT-Delhi
18.	Shri R. Meenakshi Sundaram, Principal Secretary (Housing), Govt. of Uttarakhand
19.	Shri Vinay Kumar Singh, MD designate National Capital Region Transport Corporation Limited (NCRTC)
20.	Dr. K Venugopala Rao, Group Head, Urban NRSC/ISRO, National Remote Sensing Centre, Govt. of India, Hyderabad - *representing Director, NRSC, Hyderabad*

21.	Shri S.P. Pathak, Commissioner (Planning), Delhi Development Authority - *representing Vice - Chairman, DDA*
22.	Shri S.K. Sharma, Chief Engineer (Ganga), Irrigation Department, Govt. of Uttar Pradesh - *representing Principal Secretary, Irrigation Department, Govt. of Uttar Pradesh*
23.	Shri Rakesh Jadon, Chairman, SADA-Gwalior, Govt. of Madhya Pradesh - *representing Principal Secretary, Urban Development & Environment Department, Govt. of Madhya Pradesh*
24.	Shri Pankaj Bawa, Senior Town Planner, Govt. of Punjab – *representing Principal Secretary, Housing & Urban Development, Govt. of Punjab*
Govt. of India	
25.	Shri Suresh Kumar. S, PS to Hon'ble Minister for Urban Development
26.	Shri K.K. Aggarwal, ED / Works Planning, Ministry of Railways
27.	Dr. B.S. Singla, CGM (NHAI), Ministry of Road Transport & Highways
28.	Shri P.C. Dhasmana, Deputy Secretary (Delhi Division), Ministry of Urban Development
29.	Shri Raj Kr. Varshneya, Under Secretary, Delhi Division, Ministry of Urban Development
Govt. of NCT-Delhi/ Delhi Development Authority	
30.	Shri G. Sudhakar, Secretary to Hon'ble Minister, Health & PWD
31.	Shri Vijender Kumar, Deputy Commissioner (Transport)
32.	Shri A.K. Shukla, Chief Conservator Forest, Department of Forests & Wild Life
33.	Shri S.M. Ali, Secretary, Environment & Forest
34.	Shri Rajesh Kumar Jain, Director (Planning), DDA
Govt. of Haryana	
35.	Shri Amit Jha, Principal Secretary, Forests
36.	Shri Rajesh Khullar, PS to Hon'ble Chief Minister, Haryana
37.	Shri Rajneesh Garg, ADC to Hon'ble Chief Minister, Haryana
38.	Shri Anand M. Sharan, Principal Resident Commissioner
39.	Shri Kamal Kumar, Chief Coordinator Planner, NCR Planning & Monitoring Cell
40.	Shri Rakesh Manocha, Engineer-in-Chief, P.W.D.
41.	Shri Hitesh Sharma, Deputy Town Planner, NCR Planning & Monitoring Cell
42.	Shri M.D. Sinha, Conservator of Forests, Gurgaon
43.	Shri Satish Mehra, PRO, PR Department
44.	Shri Bijender Kumar, Asstt. PRO, PR Department
45.	Shri Satish Kumar, Research Officer, NCR Planning & Monitoring Cell
46.	Shri Vivek Saxena, APRO, Haryana Bhawan
Govt. of Uttar Pradesh	
47.	Shri Alok Sinha, Commissioner, Meerut Division, Meerut, Uttar Pradesh
48.	Shri D.K. Sinha, Additional Municipal Commissioner, Ghaziabad Nagar Nigam
49.	Shri Ajay Kumar Mishra, Chief Town & Country Planner, Town & Country Planning

	Department
50.	Shri Vijoy Bhushan Dubey, Senior Planner, Town & Country Planning Department
51.	Shri M.B. Dubey, OSD to Hon'ble Minister for Vocational Education & Skill Development, Uttar Pradesh
52.	Shri A.K. Tyagi, NCR Planning & Monitoring Cell
53.	Shri Manoj Kumar, Assistant Architect, NCR Planning & Monitoring Cell
54.	Shri Durn Kumar, SDO, Irrigation Department
Govt. of Rajasthan	
55.	Shri A. Chaturvedi, Chief Town Planner (NCR), NCR Planning & Monitoring Cell
56.	Shri Anil Pathria, Senior Town Planner (NCR), NCR Planning & Monitoring Cell
57.	Shri G.N. Bhatt, Additional Director, Information & PR
CMA-Patiala, Punjab	
58.	Shri Saurabh Gupta, Chief Conservator of Forests (HQ)
CMA-SADA Gwalior, Madhya Pradesh	
59.	Shri Manoj Srivastava, SE, SADA Gwalior
NCR Planning Board Secretariat	
60.	Shri Rajeev Malhotra, Advisor
61.	Shri Sushil Purohit, Director (Administration & Finance)
62.	Ms. Ruchi Gupta, Joint Director (Technical)
63.	Shri Nabil Jafri, Deputy Director (GIS)
64.	Shri P.K. Jain, Finance & Accounts Officer
65.	Shri Partha Pratim Nath, Deputy Director (Technical)
66.	Shri Abhijeet Samanta, Deputy Director (PMC)
67.	Ms. Neelima Majhi, Assistant Director (Technical)
68.	Shri Naresh Kumar, Assistant Director (Technical)
69.	Shri Yashwant Namasami, Assistant Director (Technical)
70.	Shri Harsh Kalia, Assistant Director (Admn.)
71.	Shri Sushil Katariya, Assistant Director (Estt.)
72.	Shri Shireesh Sharma, Assistant Director (Finance)
73.	Shri Ramesh Dev, Assistant Director (Technical)
74.	Shri Satyabir Singh, Assistant Director (Technical)

36M DM

ANNEXURE - II

Speech

of

SHRI MANOHAR LAL
CHIEF MINISTER, HARYANA

FOR THE

36th MEETING

OF

NATIONAL CAPITAL REGION PLANNING BOARD

HALL NO. 1, GROUND FLOOR, VIGYAN BHAWAN,
MAULANA AZAD ROAD, NEW DELHI
JUNE 15, 2016

Hon'ble Union Minister of Urban Development Sh. Venkaiah Naidu Ji, Hon'ble Minister of State for Urban Development Sh. Babul Supriyo Ji, Hon'ble Chief Ministers, members of the National Capital Region Planning Board and Senior officers of the Government of India and States !

1 I am happy to participate in the 36th meeting of NCR Planning Board which is working for the harmonious and balanced development of the National Capital Region. The fact that the cities in the neighbourhood of NCT of Delhi, particularly those in Haryana, have recorded significant decadal population growth rates, indicates the progress made in checking of migration to Delhi and in facilitating reverse migration.

2 Haryana covers nearly 47% of the total area of the NCR and over 57% of our area falls in the NCR. We have completed the exercise of delineation of natural conservation zones in each of our nine districts for which the Sub Regional Plan was finalised in the year 2014. The confirmed NCZ areas in the Haryana Sub Region are spread over 61,765 hectares. Another 12,820 hectares are kept in the category of 'status yet to be determined' due to the delay in finalising the definition of forest and lack of clear criteria to demarcate Aravalli areas for conservation purposes. Haryana Space Application Centre is currently undertaking the work of geo-referencing the NCZ areas, after which the maps will be submitted to MoEFCC and the NCRPB, alongwith amended SRP 2021. I request the Hon'ble Chairman to impress upon the MoEFCC the need for early finalization of the definition of "Forest". The Board should also quickly constitute an "Expert Committee" to lay down the criteria for demarcating "Aravalli" conservation zones.

3 I thank the Hon'ble Chairman for notifying Karnal and Jind districts of the State as the new entrants to NCR. We are keen to develop these newly added districts, alongwith Mahendragarh and Bhiwani which were earlier included in the Sub Region, with liberal

financial assistance of the Board. As preparing the Sub Regional Plan for the new areas is a time consuming exercise, I suggest that the Board may extend financial assistance for various development projects in the newly added districts based on approved development plans without insisting on SRP. I will like to mention here that the Board has released Rs.7222 crore till March, 2016 as loan assistance out of which we have availed Rs.5387 crore, which is about 75% of the total loan assistance. It is a matter of satisfaction that 160 projects have already been completed and 30 are on-going.

4 The projects approved by the NCRPB under funding by ADB/ Kfw stipulate very stringent eligibility conditions for the bidders in the tender documents. This restricts the number of bidders, thereby limiting competition and leading to quoting of substantially higher rates in comparison to similar works being executed under the State Plan. The State may, therefore, be allowed flexibility in fixing eligibility conditions for the bidders in projects approved by the NCRPB, as per the rules/procedures/ instructions, being followed by the State agencies.

5 ***Road connectivity between Delhi and National Capital Region (NCR) towns of Haryana:*** The issue of improved connectivity between Delhi and NCR towns of Haryana, has been discussed at various meetings convened by the Ministry of Urban Development, Govt. of India. However, the progress achieved in execution of approved linkages, is sluggish. In the "Happening Haryana Summit" held in the month of March, 2016, the Hon'ble Finance Minister, Govt. of India emphasised the need for early construction of alternative routes between Delhi and NCR. During the Summit, the Hon'ble Minister for Road Transport, Highways & Shipping, Govt. of India announced a new six lane Gurgaon byepass road, originating from Mehrauli-Gurgaon road and going through the outer peripheral roads proposed in the Final Development Plan of Gurgaon-Manesar Urban Complex-2031AD and terminating near

NSG campus, Manesar in NH-8, would taken up on priority. The State Government has already conveyed its consent for the same. The following important links also need to be fast tracked:

i. Declaration of Northern Peripheral Road/Dawarka Expressway as National Highway – the State Government has already conveyed its consent to the Ministry of Road Transport and Highways.

ii. Acquisition and construction of a link road connecting Nelson Mandela 'T' point near Vasant Kunj Flyover with the MG Road, which is already incorporated in Zone 'J' of Master Plan, Delhi.

iii. Widening of link road between Mehrauli road near Andheria Mor in Delhi to Gurgaon-Faridabad road near Gwal Pahari through Gadaipur & Mandi Villages of Delhi.

iv. Construction of 75 mtr. wide road link in the Delhi area between sector-109 & 114 of GMUC-2031AD & connecting Gurgaon area with Nazafgarh road.

v. 13.235 km proposed Kalindi bye-pass road from Kalindi (Delhi) to Faridabad along Agra canal (the ownership of land belongs to UP Govt.).

vi. Link between Rajiv Gandhi Education City to UER-II road shown in Zone P-II Delhi through 60 mtr wide road which has already been incorporated in the plan of Zone P-II Delhi by PWD, NCT Delhi.

vii. Widening of Bawana-Auchandi road upto Haryana border to connect with Kharkhauda which has already been incorporated in Zone 'N' of Master Plan Delhi.

6 *Power:* we are witnessing exponential demand for power in the Haryana Sub Region. About 60% of the State's expenditure on power infrastructure is spent in the Sub Region. We are planning to invest about Rs. 3000 crore in power sector in Sub Region, during

next three years. This includes investment in Smart Grid in Gurgaon city amounting to Rs. 1200 crore, for which 25% grant is expected from the Central Govt. I request NCR Planning Board to fund the balance investment in the project in the interest of consumers of the Haryana Sub Region.

All the sanctioned projects for strengthening of generation, transmission and distribution system in the State, funded by the Board have been successfully completed. At present, two schemes of HVPN, for an investment of Rs.115 crore, are pending for approval from the NCRPB. The Board in its meeting held on 18.11.2015, decided that in case of power projects, the DPRs are required to be got approved from the Power Finance Corporation / Rural Electrification Corporation Ltd. I would urge for a review of their requirement on grounds of conflict of interest since both these agencies also provide loan for power projects. Specifically the DPRs were sent to REC in January, 2016 for both these projects.

I urge upon the Board to ensure that power projects are approved within two to three months of submission of DPRs so that the benefit of low cost funding may have maximum impact.

7 *Transport:*

Out of 6.3 lakh transport vehicles in Haryana, about 5 lakh are registered within the towns of Haryana Sub-Region of NCR. The road worthiness of the transport vehicles is important to promote road safety. The State Govt. has set up a fully automated inspection and testing centre at Rohtak for checking the road worthiness of transport vehicles. There is need to establish three more such centres at Gurgaon, Faridabad and Karnal to reduce pollution in the NCR, besides ensuring the safety of the road users. I request for an assistance of Rs. 60 crore as grant by the NCR Planning Board for this purpose.

The Hon'ble Supreme Court of India has issued directions regarding the plying of only CNG fuel taxis in the NCR under the City Taxi Scheme by 31st March, 2016. The Environment Pollution (Prevention and Control) Authority (EPCA), constituted by the Hon'ble Apex Court is coordinating with the NCR States for formation of a NCR-wide taxi scheme. To provide a seamless taxi scheme for the NCR, I suggest that :

i. A uniform regime for operation of taxis in the entire NCR may be devised with single registration and issue of permits. The home State could register these taxis and grant them permit valid for the entire NCR area, after charging a centralized fee, on annual basis.

ii. CNG rates in the NCR area should be uniform.

iii. Uniform rates of VAT may be charged in the NCR area on fuel and other elements of the taxi scheme, wherever applicable.

iv. Uniform rates/ fare to be charged by these taxis.

8 *Connectivity*

(i) *From KMP to Indira Gandhi International Airport:*

A 135 Km long KMP Global Corridor has been envisaged in the State of Haryana from Palwal to Kundli. This expressway is 100 mtr wide with 100 mtr green belt on both sides. The Manesar-Palwal section of KMP (52.33 km long) has been made functional on 5th April, 2016. The work on the Kundli-Manesar section is under way and likely to be completed by August, 2018. At present, there is no proposal to link KMP with Indira Gandhi International Airport. Since a large part of the traffic on the KMP would be heading for the International Airport, there is an urgent need to explore the possibility of connecting KMP to the Delhi Airport through the AIIMS-II/Cancer Hospital at Badsa.

(ii) *Construction of Orbital Rail Corridor:*

Land for 50 mtr wide Orbital Rail Corridor has been reserved by Haryana towards the Delhi side along KMP Global Corridor. Since Palwal-Manesar section of the KMP Global Corridor has already been completed and completion of the remaining section is expected soon, the decision relating to the acquisition/ funding of this Corridor may be taken by the Board at the earliest.

(iii) *Development of MRTS from Gurgaon to Bawal forming part of MBIR:*

HSIIDC has notified 465 acres of land for undertaking construction of MRTS from Gurgaon to Integrated Multimodal Logistic Hub, Bawal forming part of Development Plan of MBIR, with a route length of 120 Km. The total cost for the project is expected to be about Rs. 44000 crore, including land acquisition cost of about Rs. 2000 crore. The Board is requested to grant soft loan for early implementation of this project.

9 *Water:* Haryana is a water deficit State with respect to both surface and ground water resources. River Yamuna is the major source of surface water for Haryana with more than half of the State, including the areas falling in the National Capital Region, receiving water from this river. Availability of water in River Yamuna is declining gradually. This is not only a cause of concern for Haryana but also for the National Capital region as a whole as major water requirement of the region, including that of Delhi, is dependent on this river. Delhi's drawl of water from Haryana is resulting in reduction of Haryana's legitimate water share from Yamuna, thereby causing extreme hardship to the people of the State. Despite depleting inflows in River Yamuna, Haryana has been meeting with the drinking water needs of Delhi from its own share. Haryana also carries water share of Delhi from Ravi Beas and Yamuna waters through Canal network whose Operation and Maintenance costs are huge. Delhi is neither paying charges for extra raw water nor for

O&M. At present Rs. 94.00 Crores is due from Delhi, on account of supplying extra raw water and Rs. 56.57 Crore for O&M Charges. Thus, a total of Rs. 150.57 Crores is outstanding against Delhi. I would urge the Board to step in and get these pending payments released from Delhi. However, the problem of acute shortage of water can be addressed to some extent on completion of the proposed three Dams at Renuka, Kishau & Lakhwar on river Yamuna and its tributaries. Here, I would like to place on record our sincere gratitude to the Hon'ble Prime Minister for according approval for investment of Rs. 4000.00 crores for construction of Lakhwar Dam. I would also urge the Board to assume a more proactive role and take up the matter with Govt. of India for expeditious execution of these projects. Moreover, since drinking water to Delhi cannot be the responsibility of Haryana alone, I would also request the other States of Northern India, including Punjab, to come forward and contribute their share to fulfill the drinking water requirement of the National Capital.

I may further point out that the large dry and arid areas of Districts Faridabad, Palwal and Mewat of Haryana falling in the National Capital Region are being deprived of their legitimate share in Yamuna water due to non release of due share of Haryana in Yamuna waters at Okhla. Upper Yamuna River Board is planning to install Telemetry System at different points on River Yamuna for accurate assessment of flow in the River. This will help us get water as per our share in Gurgaon Canal for the dry and arid areas of these districts. This problem of short supplies downstream Okhla Barrage is further compounded due to discharge of untreated sewage and industrial effluents in the stretch of the river passing through Delhi territory. The water being supplied presently is totally unfit for human as well as animal consumption. Although the National Green Tribunal is seized of the issue, yet the Board may issue appropriate directions in the matter and monitor the steps being taken by the concerned States. I would urge the Board to find

an early solution to this serious problem affecting the people of the National Capital Region, with the cooperation of all the Member States.

10 Finally, I would like to express my sincere gratitude to the Hon'ble Chairman for having given me this opportunity to share my views in this august gathering. I am confident that today's deliberations would yield positive results. With mutual cooperation, we should be able to develop NCR as an excellent model of regional development.

Thanking You,

Jai Hind !

54404—T. & C.P.—H.G.P., Chd.

SUPPLEMENTARY ANNEXURE - SA-1/II

Minutes of the meeting held under the chairmanship of Secretary (UD), Govt. of India on 07.09.2016

राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION PLANNING BOARD
प्रथम तल, कोर–IV बी/1st Floor, Core - IV B
भारत पर्यावास केन्द्र/India Habitat Centre
लोधी रोड, नई दिल्ली–110 003 / Lodhi Road, New Delhi-110 003
शहरी विकास मंत्रालय/Ministry of Urban Development
दूरभाष/Phone : 24642284, 24642287, फैक्स/Fax : 24642163

BY SPEED POST/ EMAIL

No. K-14011/15/2014-NCRPB (Vol.III)

Date: 21.09.2016

Subject: Minutes of the meeting held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 07.09.2016 at 10:00 A.M. to discuss and resolve issues relating to the draft revised Regional Plan-2021.

A meeting was held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 07.09.2016 at 10:00 A.M. in the Conference Room 123-C, Nirman Bhawan, New Delhi to discuss and resolve issues relating to the draft revised Regional Plan-2021.

2. Minutes of the meeting are enclosed for your kind information and necessary action.

Yours faithfully,

Ruchi 21/9/16

(Ruchi Gupta)
Joint Director
(Technical)

Enclosed: As above.

To,

1. Secretary, Ministry of Environment, Forest & Climate Change (MoEF&CC), Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi- 110003
2. Inspector General (Forests), Ministry of Environment, Forest & Climate Change (MoEF&CC), Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi- 110003
3. Joint Secretary, Ministry of Environment, Forest & Climate Change (MoEF&CC), Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi- 110003
4. Director, Delhi Division, Ministry of Urban Development, Nirman Bhawan, Maulana Azad Road, New Delhi-110011

Copy to:

1. PPS to Secretary, Ministry of Urban Development, Nirman Bhavan, New Delhi-110011
2. PPS to Additional Secretary, Ministry of Urban Development, Nirman Bhavan, New Delhi-110011
3. PS to Member Secretary, NCR Planning Board
4. PA to Advisor, NCR Planning Board

Copy also to:

1. Shri Nabil Jafri, Dy. Director (GIS), NCR Planning Board
2. Shri Partha Pratim Nath, Dy. Director (Technical), NCR Planning Board
3. Ms. Nilima Majhi, Assistant Director (Technical), NCR Planning Board
4. Shri Naresh Kumar, Assistant Director (Technical), NCR Planning Board

Minutes of the meeting held under the Chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 07.09.2016 at 10.00 A.M. in the Conference Hall (Room No. 123-C), Nirman Bhawan, New Delhi to discuss and resolve issues relating to the draft revised Regional Plan-2021

1. Chairman welcomed the participants and requested Member Secretary, NCR Planning Board to open the discussion. List of participants is at **Annexure-I.**

2(a) Member Secretary, NCR Planning Board briefed the participants about the agenda of the meeting. He informed that the status of finalization of the draft revised Regional Plan-2021 was placed before the NCR Planning Board in its 36th meeting held on 15.06.2016 and after detailed deliberations, the Board decided that ***"a meeting under the chairmanship of Secretary (UD), Govt. of India be held to resolve the issues".***

(b) He informed that the revised Regional Plan-2021 for NCR was earlier approved by the Board in its 34th Meeting held on 20.01.2014 for notification under Section 13 of the NCRPB Act, 1985.Subsequently, Board re-visited some of the policies and proposals of the revised Regional Plan-2021 in its Special Meeting held on **25.04.2014**. This was in view of the direction received from the Prime Minister's Office (PMO) wherein it was conveyed that ***"no final decision on the proposed Regional Plan-2021 and Sub-Regional Plan (SRP)-2021 of Haryana should be taken until the issues raised by MoEF&CC are fully resolved and a compliance report is sent to PMO."***

(c) He further informed that subsequent to the aforesaid Special Meeting of the Board, several rounds of communications/consultations between NCRPB/ MoUD and MoEF&CC have taken place from time to time in order to resolve the issues and now there are only three observations of MoEF&CC on which consensus between MoEF&CC and the Board is yet to be reached. Summary of these is as under:

i) Mapping and delineation of forests and other ecologically sensitive areas be completed before the draft revised Regional Plan-2021 (RP-2021) is finalized;

ii) Target of 20% of total geographical area of NCR as forest and tree cover; and

iii) Red category industry be set up on the identified industrial areas away from urbanisable zones and transfer of existing red category industries, especially those falling in urbanisable areas to such industrial areas identified for red category industries.

(d) He said that today's meeting is to resolve the above three issues.

3. Advisor, NCR Planning Board mentioned that a meeting was held under the chairmanship of Additional Secretary (UD), Govt. of India on 12.04.2016 to resolve the above issues. Subsequently, another meeting was held with MoEF&CC on 05.05.2016. He also informed that based on the decisions/discussions during these meetings, suitable amendments were made in the draft revised RP-2021 and sent to MoEF&CC vide email dated 06.05.2016 and subsequent letter dated 11.05.2016, with a request to examine the proposed amendments and to provide consent regarding the same.

4(a) Inspector General (Forest), MoEF&CC stated that the proposed provision with respect to target of 20% as forest & tree cover [para 2(c)(ii) above] is acceptable to MoEF&CC. He also stated that the proposed provision with respect to red category industries [para 2(c)(iii) above] is

also acceptable. However, confirmation will be sought from the IA division of MoEF&CC in this regard. The proposed provisions were noted during the meeting, which are at **Annexure-II**.

(b) He, however, stated that as regards mapping and delineation of forests and other ecologically sensitive areas [para 2(c)(i) above], the Regional Plan should stipulate the definition of individual components of Natural Conservation Zone (NCZ) and put forward a methodology for identification and delineation of environmentally sensitive features, which is common across the four constituent States of NCR.

5(a) Advisor, NCRPB explained that the Regional Plan is a broad policy document at macro level, which gives policies and proposals for growth and balanced development of NCR. The NCRPB Act, 1985 mandates that the Regional Plan ***"shall include the policy in relation to land-use and the allocation of land for different uses."***

(b) He also stated that as per Section 17*(3)* of the NCRPB Act, 1985, the Sub-Regional Plan (which is to be prepared by the respective NCR participating State Government) is to elaborate the Regional Plan and Section 17*(3) (a)* provides for reservation of areas for specific land-uses which are of the regional or sub-regional importance.

(c) In view of this, the mapping exercise of the RP-2021as well as the draft revised RP-2021 has been carried out by National Remote Sensing Centre, Hyderabad (NRSC) using the satellite imageries. The broad landuses shown in the RP-2021 and draft revised RP-2021 are to be detailed out by the NCR participating State Govts. in the lower hierarchy Plans, such as Sub-Regional Plans, Master/Development Plans, etc.

(d) He informed that the matter of mapping and delineation of the ecologically sensitive areas was extensively deliberated in the Special Meeting of the Board held on **25.04.2014**, wherein it was decided that ***"NCZ in NCR be delineated by each participating State based on detailed ground truthing, along with verification of State revenue records.....Thereafter, the SRPs would stand amended."***

(e) He stated that the suggestion of MoEF&CC regarding mapping and delineation of ecologically sensitive areas would require collection &collation of plot-specific landuse data, including the revenue details, which can be undertaken only by the NCR Participating States at the Sub-Regional Plan level, in view of the above mentioned direction of the Board.

6. While citing an example of such directions for detailed mapping and delineation at plot level by the State, Deputy Director (Tech.), NCRPB informed that the Notification dated 07th May, 1992 issued by the MoEF&CC regulates certain processes and operations in "specified areas" of the Aravalli Range in Gurgaon District of the State of Haryana and Alwar District of the State of Rajasthan (as on the date of the said Notification). In Section 2 of the subsequent Notification dated 29th November, 1999 issued by the MoEF&CC, it was mandated that ***"the State Government concerned shall initiate steps to prepare a Master Plan for the development of the area covered by the Notification S.O. 319 (E) dated 07th May, 1992 integrating environmental concerns and keeping in view the future landuse of the area."*** He also informed that in pursuance of this, Govt. of Rajasthan has identified and delineated the said "specified areas", i.e. the categories of land in Alwar District as part of the Environmental Master Plan (Alwar District) for areas covered under the Aravalli Notification dated 07th May, 1992. Therefore the detailed mapping and delineation

exercise which involves ground truthing and verification of revenue records, are to be carried out by the State Govts.

7. After detailed discussions and deliberations, the following decisions were taken:

(a) MoEF&CC is agreeable to the provisions as proposed by NCRPB with respect to target of 20% as forest & tree cover and red category industries, as given at Annexure-II of the Minutes;

(b) The Regional Plan prepared by NCRPB gives broad policy guidelines. Accordingly, the RP-2021 for NCR notified in 2005, contains policies relating to landuse, including the NCZ, which is broadly shown at 1:50k scale Map prepared by NRSC. NCR participating States are required to further elaborate these broad landuses on lower scale Maps under their respective Sub-Regional Plans and under the Master/Development Plans. Therefore, the observation of MoEF&CC regarding detailed mapping & delineation of ecologically sensitive areas will be addressed by the NCR Participating States under their respective Sub-Regional Plans and Master/Development Plans, and not by NCRPB in the Regional Plan;

(c) With respect to MoEF&CC's suggestion regarding stipulating definition of individual components of NCZ and putting forward a methodology for identification and delineation of environmentally sensitive areas in the Regional Plan, it was noted that the matter is being separately addressed as per the directions of 36th meeting of NCR Planning Board.

(d) MoEF&CC may communicate their formal consent/acceptance as discussed in para 7 (a) and (b) above, so that further necessary action with respect to notification/publication of the draft revised RP-2021can be initiated.

The meeting ended with the vote of thanks to the Chair.

****

Annexure-I

List of participants

Sl. No.	Name & Designation	
Ministry of Urban Development, Govt. of India		
1.	Shri Rajiv Gauba, Secretary, MoUD, Govt. of India	**In chair**
2.	ShriDurgaShanker Mishra, Additional Secretary(UD), MoUD, Govt. of India	
NCRPlanning Board		
3.	Shri BK Tripathi, Member Secretary	
4.	Shri Rajeev Malhotra, Advisor	
5.	Ms. Ruchi Gupta, Joint Director (Tech.)	
6.	Shri Nabil Jafri, Deputy Director (GIS)	
7.	ShriParthaPratimNath, Deputy Director (Tech.)	
8.	Ms. NilimaMajhi, Assistant Director (Tech.)	
9.	Shri Naresh Kumar, Assistant Director (Tech.)	
Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India		
10.	Shri D.K. Sinha, Inspector General (Forests), Forest Conservation Division	

Proposed Provisions in the draft revised RP-2021 to address the observations of MoEF&CC

1. Target of 20% of total geographical area of NCR as forest and tree cover:

Proposed provision at Para 17.4.3 (iii) under Broad Policies (text in *italics* denotes addition):

"In view of the existing green areas (3.3%) in 2012 which have declined from 4.3% in 1999, it is imperative to bring more areas under forest and plantation. *Regional Plan stipulates that 20% of the total area of NCR should be brought under forest and tree cover, as envisaged in the National Forest Policy for plain areas. NCR participating State Governments should strive to achieve this target in a phased manner by adopting the following measures:*

a) The entire Aravalli Range spread in Rajasthan, Haryana and NCT-Delhi sub-regions of NCR including its foothills upto appropriate extent should be conserved for ground water recharge and to maintain overall environmental balance. Afforestation of land parcels in the Aravalli Range, having scarce vegetation, should be done by the NCR participating State Governments.

b) Forests, National Parks and Sanctuaries should be conserved as per the provisions of the prevailing laws/policies. Wherever possible, plantation/afforestation should be done to increase the forest/tree cover.

c) Plantation/afforestation should be carried out and maintained along the river banks, natural drainage channels, wetlands, irrigation canals, etc.

d) Lakes, water bodies including village ponds and other groundwater recharging areas should be preserved to maintain availability of water and ground water recharge. Also, a green buffer should be created and maintained around lakes, water bodies and village ponds to protect them from encroachments and to increase the overall tree cover. The concerned local bodies/agencies and community such as Municipalities, Gram Panchayats, eco-clubs, NGOs, Resident Welfare Associations (RWAs), etc. should be involved in such tasks.

e) Plantation/afforestation should be carried out and maintained on the wastelands, village common lands and along the road sides & railway lines involving all concerned agencies and community such as eco-clubs of schools, Resident Welfare Associations (RWAs), etc. After plantation/ afforestation these areas should be conserved as Green Areas/Forest Areas. Besides carrying out & maintaining plantation, efforts should also be made to avoid conversion of village common lands or cattle grazing grounds to other developmental activities, as far as practicable.

f) Canopy cover in Reserve and Protected Forests needs to be improved through determined afforestation and conservation programmes. Afforestation drives in Reserve Forests should be done by the Forest Department of the respective NCR participating State."

2. Red category industry be set up on the identified industrial areas away from urbanisable zones and transfer of existing red category industries, especially those falling in urbanisable areas to such industrial areas identified for red category industries

The following provision has been added as sub-para (vii) under para 14.6.5:

"While preparing the Master Plans/ Development Plans and demarcating the urbanisable area boundaries in the sub-regions of NCR, the respective NCR constituent State Governments should ensure that the industries (especially red categories industries) should be located in the most optimum/strategic manner in suitably planned industrial areas, taking into consideration the future growth directions and economic profile of the settlement(s), so that the adverse environmental impacts of industries on the settlement, can be minimized.For existing and proposed industrial areas, prevailing Statutes/ Rules/ Notifications/ Guidelines of MoEF&CC, other Central Government Ministries/ Departments/ Boards and directions of the NGT and higher Courts, issued from time to time, are to be complied with."

SUPPLEMENTARY ANNEXURE - SA-1/III

Minutes of the meetings held under the chairmanship of Secretary (UD), Govt. of India on 16.08.2016 and 16.09.2016

राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION PLANNING BOARD
BY SPECIAL MESSENGER/SPEED POST/FAX
4थम तल, कोर–IV बी/1st Floor, Core - IV B
भारत पर्यावास केन्द्र/India Habitat Centre
लोधी रोड, नई दिल्ली–110 003 / Lodhi Road, New Delhi-110 003
शहरी विकास मंत्रालय/Ministry of Urban Development
दूरभाष/Phone : 24642284, 24642287, फैक्स/Fax : 24642163

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F. No. K-14011/88/2016-NCRPB

Dated: 03.10.2016

Sub: Minutes of the meeting held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 16.08.2016 at 11.30 a.m. and 16.09.2016 at 5.30 p.m. at Nirman Bhawan to discuss and resolve issues related to finalization of definition of 'Forest' & 'Aravalli Hills'

Sir,

Please find enclosed the minutes of the meeting held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 16.08.2016 at 11.30 a.m. and 16.09.2016 at 5.30 p.m. at Nirman Bhawan to discuss and resolve issues related to finalization of definition of 'Forest' & 'Aravalli Hills', for information and necessary action.

Encl.: As above.

Ruchi 03/10/16

(Ruchi Gupta)
Joint Director (Technical)
Tel. No. 24628179

To:

1. Secretary, Ministry of Environment, Forest & Climate Change (MoEF&CC), Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi- 110003.
2. Additional Chief Secretary, Town & Country Planning Deptt., Govt. of Haryana, Haryana Mini Secretariat, Sector -17, Chandigarh-160017, Haryana.
3. Principal Secretary, Housing & Urban Planning Department, Govt. of U.P.,3rd Floor, Bapu Bhawan, Uttar Pradesh Secretariat, Lucknow-226001, U.P.
4. Principal Secretary, Urban Development & Housing Department, Govt. of Rajasthan, Rajasthan Secretariat, Jaipur-302005, Rajasthan.
5. Principal Secretary (PWD), Govt. of NCT-Delhi, 5th Level, B Wing, Delhi Secretariat, I.P. Estate, New Delhi 110 002.

Copy to:

1. Inspector General (Forests), Forest Conservation Division, Ministry of Environment, Forest & Climate Change (MoEF&CC), Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi-110003.
2. Commissioner, NCR Planning & Monitoring Cell, Govt. of Uttar Pradesh, 2nd Floor, Nagar Nigam Bhawan, Near Navyug Market, Ghaziabad, Uttar Pradesh-201001
3. Commissioner (Planning), Delhi Development Authority, 5th Floor, Vikas Minar, I.P. Estate, New Delhi-110002
4. The Chief Coordinator Planner, NCR Planning and Monitoring Cell, 3rd Floor, HUDA Complex, Sector-6, Panchkula, Haryana-134109
5. The Chief Coordinator Planner, NCR Planning & Monitoring Cell, Govt. of Uttar Pradesh, 2nd Floor, Nagar Nigam Bhawan, Near Navyug Market, Ghaziabad, Uttar Pradesh-201001

जारी/Issue 3/10/16
दिनाँक/Date
हस्ताक्षर/Signature

O/C

6. Chief Town Planner (NCR), Town & Country Planning Deptt., Govt. of Rajasthan, Nagar Niyojan Bhawen, JLN Marg, Jaipur, Nr. Birla Temple, Rajasthan 302001 Telefax: 0141-2563702
7. Director, Delhi Division, Ministry of Urban Development, Nirman Bhawan, Maulana Azad Road, New Delhi-110011.
8. Dr. K Venugopala Rao, Group Head, Urban Studies & Geoinformatics, National Remote Sensing Centre, Department of Space, Govt. of India, Balanagar, Hyderabad-500625.
9. PSO to Secretary, Ministry of Urban Development, Nirman Bhawan, Maulana Azad Road, New Delhi-110011.
10. PS to Additional Secretary (UD), Ministry of Urban Development, Nirman Bhawan, Maulana Azad Road, New Delhi-110011
11. PS to Member Secretary, NCR Planning Board, 1st Floor, Core-4B, India Habitat Centre, Lodhi Road, New Delhi-110003.

Copy also to:

1. Shri Rajeev Malhotra, Advisor, NCR Planning Board
2. Shri Nabil Jafri, Dy. Director (GIS), NCR Planning Board
3. Shri Partha Pratim Nath, Dy. Director (Technical), NCR Planning Board
4. Ms. Nilima Majhi, Asstt. Director (Tech.), NCR Planning Board
5. Shri Naresh Kumar, Assistant Director (Technical), NCR Planning Board
6. Shri Ramesh Dev, Assistant Director (Technical), NCR Planning Board

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MINUTES OF THE MEETING HELD UNDER THE CHAIRMANSHIP OF SECRETARY, MINISTRY OF URBAN DEVELOPMENT, GOVT. OF INDIA ON 16.08.2016 AT 11.30 A.M. AND 16.09.2016 AT 5.30 P.M. IN THE CONFERENCE ROOM (NO. 123-C), NIRMAN BHAWAN TO DISCUSS AND RESOLVE ISSUES RELATED TO FINALIZATION OF DEFINITION OF 'FOREST' & 'ARAVALLI HILLS'

1. Chairman welcomed the participants and requested the Member Secretary, NCRPB to open the discussion. List of the participants is at Annexure-I and II.

2. Member Secretary, NCRPB briefed the participants about the agenda of the meeting. He explained that the NCR Planning Board in its 36th meeting held on 15.06.2016 had asked that "a meeting shall be convened by MoUD with MoEF&CC to resolve the issues related to definition of forests and Aravalli Hills at the earliest wherein representatives from Govt. of Rajasthan, Haryana and NCT-Delhi will also be invited."

3(a) A short presentation on the issues was made by Advisor, NCRPB. He said that as per the mandate of the NCR Planning Board Act, 1985 u/s 10 (2) the Regional Plan (RP) has to indicate the manner in which the land in the NCR shall be used, whether by carrying out the development or by conservation or otherwise. He further mentioned that the Regional Plan prepared by NCRPB is a broad policy document. Regional Landuse has been shown in the RP-2021 on the satellite imageries based maps prepared by the National Remote Sensing Centre (NRSC) at 1:50,000 scale. He further stated that in para 17.4.3 of Chapter-17 of the RP-2021 notified in 2005, *"the major natural features, identified as environmentally sensitive areas, are the extension of Aravalli ridge in Rajasthan, Haryana and NCT-Delhi, forest areas, the rivers and tributaries of Yamuna, Ganga, Kali, Hindon and Sahibi, sanctuaries, major lakes and water bodies such as Badkal lake, SurajKund and Damdama in Haryana Sub-region and Siliserh lake in Rajasthan etc."* have been demarcated as Natural Conservation Zone (NCZ). Similarly, *"ground water recharging areas such as water bodies, ox-bow lakes and paleo-channels have also been identified"*. He added that these areas are to be further detailed out in the Sub-Regional Plans (SRPs) and Master/Development Plans and the broad policies for these zones are to be incorporated appropriately in the aforesaid lower hierarchy Plans by the participating State Governments. Hence, the detailed mapping, earmarking exact use of a particular piece of land is to be carried out in these lower hierarchy Plans.

(b) He informed that in the Special Meeting of the Board held on 25.04.2014, it was decided that *"NCZ in NCR be delineated by each participating State based on detailed ground truthing, along with verification of State revenue records. This exercise should be carried out by a team of Officers consisting of NRSC, participating State Governments and NCRPB within 30 days. Thereafter, the SRPs would stand amended."*

(c) Based on the above directions, he informed, that Terms of Reference (ToR) with six components of NCZ were issued on 12.08.2014 to all participating States to carry out the delineation of NCZ in the SRPs.

(d) He further informed that in the subsequent meeting of the Board, i.e. in the 35th meeting held on 09.06.2015, it was decided that *"the point no. (vi) of Para-2 of the ToRs approved by MoUD, which reads as follows, should be deleted:*

> *Proposed Green Areas/ Forest Areas on the Wastelands, which include Gullied Land, Salt affected Land, Waterlogged, Barren and Rocky Areas."*

(e) He further mentioned that as per decision taken in the aforesaid 35th meeting of the Board, *"representative of NCR Planning Board is excluded from the Team to carry out the delineation exercise for NCZ as well as from the Sub-Committees constituted for Ground Truthing by the State Govts."*

(f) He added that the Board while deliberating on the draft SRP for Haryana Sub-region of NCR-2021 in the said 35th meeting decided that *"Govt. of Haryana will prepare the final report along with Maps on the NCZ delineation exercise and amend the SRP-2021 and forward the same to MoEF&CC. MoEF&CC will examine the same and confirm whether their views/ comments/ suggestions have been addressed/ incorporated in the SRP-2021. Subsequently, a Compliance Report will be sent to PMO by Govt. of Haryana through MoUD, Govt. of India and a copy will also be submitted to the Board's Secretariat"*.

(g) He stated that the present meeting is in this context. He said that during the last meeting (36th meeting held on 15.06.2016) of the Board, Govt. of Haryana raised issues related to definition of 'forest', 'Aravalli hills/ range' and 'ground water recharging areas' w.r.t. the said delineation exercise and after detailed discussions, the Board gave the aforecited direction as mentioned at para 2 above.

4 (a) With respect to the definition of 'forest', Additional Chief Secretary (ACS), Town & Country Planning Department (T&CP), Govt. of Haryana stated that MoEF&CC is learnt to have prepared a definition of 'forest', pursuant to the direction of the Hon'ble Supreme Court. He further stated that in the absence of a final definition of 'forest', areas having trees and which apparently seem like 'forest' as per dictionary meaning, have been categorized by Govt. of Haryana as "status yet to be decided" for the time being. He requested that the definition of 'forest' may be finalized by MoEF&CC expeditiously, so that the delineation of NCZ may be completed.

(b) As regards 'Aravalli Range/ Hills', he added that the expression 'Aravalli Range/Hills' does not exist in the revenue records, whereas as per the direction of the Board given in its Special Meeting held on 25.04.2014, NCZ is to be delineated "based on detailed ground truthing, along with verification of State revenue records". However, hills or land parcels associated with hills are recorded as *Gair Mumkin Pahar* and its variants in the revenue record. He stated that 'Aravalli Range/Hills' are present in Gurgaon, Mewat, Faridabad, Rewari, Mahendragarh and Bhiwani districts of Haryana sub-region of NCR, whereas the 1992 Notification issued by MoEF&CC with regard to prohibiting carrying on certain processes and operations in Aravallis, except with Central Government's prior permission, is applicable only for the then district Gurgaon (including part of district Mewat) of Haryana sub-region of NCR. He stated that in the absence of any existing definition of 'Aravalli', all lands which are recorded as *Gair Mumkin Pahar* in the revenue records, have also been categorized by the Govt. of Haryana, as the aforementioned "status yet to be decided". He informed that within Aravalli range/ridge, there exist certain pockets, which are recorded as *Gair Mumkin Pahar*, but other uses such as agriculture, roads, buildings, etc. are prevalent for a considerable time or have come up over a period of time. Therefore, even though the land is recorded as *Gair Mumkin Pahar*, categorization of these lands as 'Aravalli' may not be practical or in accordance with ground realties.

(c) ACS, T&CP, Govt. of Haryana further added that the NCZ areas in the RP-2021 were mapped based on the satellite imageries of 1999. However, since then, lot of developments have taken place with permission/ approval by various Competent Authorities.

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5. ACS, Forest & Wildlife Department, Govt. of Haryana stated that it is possible that during preparation of the Regional Plan-2021, features such as hills, johad, etc. were existing at various locations, but at present such features do not exist.

6. Chief Town Planner (CTP), NCR Planning & Monitoring Cell, Rajasthan, informed that Govt. of Rajasthan has assigned the work of demarcation of Aravallis to Forest Survey of India (FSI). The report is awaited. On a query from the Chairman, he informed that Govt. of Rajasthan has finalized the SRP for Rajasthan sub-region of NCR-2021(Alwar) utilizing NCZ boundaries, prepared by NRSC, given in RP-2021 for NCR, notified in 2005.

7 (a) Chief Conservator, Forest, Govt. of NCT-Delhi stated that 'Aravalli' and the 'Ridge Areas' are demarcated by the Geological Survey of India (GSI) in NCT-Delhi. He further added that as per the directions of the Hon'ble Supreme Court in the matter of M.C. Mehta Vs. Union of India and T.N. Godavarman Vs. Union of India, the ridge has been defined in NCT-Delhi.

(b) As regards the 'forest' areas, he added that land parcels of 2.5 acres (one hectare)area and having 100 numbers of trees of natural growth are considered as 'forest' in NCT-Delhi. He further mentioned that all areas categorized as *GairMumkinPahar* have been declared as ridge / forest. The Regional Park shown in the Master Plan for Delhi-2021 includes the ridge area.

8 (a) Inspector General (IG), Forest, MoEF&CC informed that FSI is carrying out the work of Aravalli definition/demarcation for two districts of Rajasthan. He added that a similar exercise has been carried out for the ridge area of Delhi. He stated that the parameters for defining Aravallis cannot be different for different States. Hence, Forest Survey of India (FSI) and Geological Survey of India (GSI) should work together for delineation of Aravallis. He added that MoEF&CC has directed FSI to formulate criteria for the delineation of Aravallis and groundwater recharging areas, which will be applicable to all States. FSI will be submitting their report shortly.

(b) Further, with regard to preparation of definition of 'forest' by MoEF&CC, IG (Forest) mentioned that MoEF&CC is in the process of finalizing the definition.

(c) While referring to categorization of various components of NCZ, IG (Forest), MoEF&CC stated that 'Aravalli' should be considered as an integrated environmental system, and not merely as hills/ridge. He stated that rainwater flows from the hills to the foothills and thus the contiguous foothills are extremely important from the perspective of ground water recharge. The entire eco-system also supports wide variety of flora and fauna. Therefore, the entire eco-system is to be identified, delineated and conserved in an integrated manner.

9. Advisor, NCRPB informed that the provision for conserving natural features including Aravallis in NCR was there in the Regional Plan-2001 notified in 1989 and it was subsequently included in Regional Plan-2021 notified in 2005 which was prepared in extensive consultations with the NCR participating States, Central Ministries/ Departments concerned and experts. He further added that in one of the matters related to mining activity in Aravalli Hill range& ridge, Hon'ble Supreme Court in 2004 (12 SSC 118) has held in its Judgement that Aravalli Hill Range has to be protected at any cost. It has also recognized the presence of Aravalli Hills in Faridabad district of Haryana. He further mentioned that a Notification was issued by MoEF&CC on 7th May, 1992, wherein 'Aravalli' is clearly explained for the districts of Gurgaon in the State of Haryana and Alwar in the State of Rajasthan (as on the date of the said Notification) for regulating certain processes and operations in "specified areas" of the Aravalli Range. He added that the areas under the "specified

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areas" as provided in the Table of the said Notification dated 07th May, 1992 may be included while identifying/ delineating 'Aravalli' in entire NCR.

10. After detailed discussions and deliberations, the following conclusions emerged:

i) NCZ has been clearly spelt out in para 17.4.3 of the RP-2021, as has been quoted in para 3 of the minutes.

ii) The Regional Plan prepared by NCRPB gives broad policy guidelines. RP-2021 notified in 2005, contains a broad delineation of NCZ at 1:50,000 scale Map prepared by NRSC.

iii) NCR participating States are required to further elaborate the components of NCZ under the Sub-Regional Plans on lower scale Maps based on revenue records and ground truthing.

iv) The components of NCZ, including 'forest', 'Aravalli' and 'ground water recharging areas', are to be governed by various Statutes/Rules/Notifications of MoEF&CC, other Central Government Ministries/Departments and Orders of the Supreme Court and High Courts issued from time to time. In this regard, it may be noted that the Notification dated 7th May, 1992 issued by the MoEF&CC defines "specified areas" of the Aravalli Range in Gurgaon District of the State of Haryana and Alwar District of the State of Rajasthan (as on the date of the said Notification). These "specified areas" are to be included while identifying/delineating 'Aravalli' in entire NCR.

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ANNEXURE-I

LIST OF THE PARTICIPANTS ON 16.08.2016

1.	Shri Rajiv Gauba, Secretary, Ministry of Urban Development, Govt. of India - **In Chair**
2.	Shri B.K.Tripathi, Member Secretary, NCR Planning Board
3.	Shri D.S. Mishra, Addl. Secretary, Ministry of Urban Development, Govt. of India
	Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India
4.	Shri D.K. Sinha, Inspector of General (FC), MoEF&CC, Govt. of India
	Government of Haryana
5.	Shri P. Raghavendra Rao, Addl. Chief Secretary, Town & Country Planning Department, Government of Haryana.
6.	Shri R.R. Jowel, Addl. Chief Secretary, Forest & Wildlife Deptt., Govt. of Haryana
7.	Dr. (Mrs.) Amarinder Kaur, IFS, PCCF, Forest & Wildlife Deptt., Govt. of Haryana
8.	Shri Vivek Saxena, Addl. Resident Commissioner & CGM, HFDC, Govt. of Haryana
9.	Shri M.D. Sinha, CF (South Circle), Forest & Wildlife Deptt., Gurgaon, Govt. of Haryana
10.	Shri Jaswant Singh, Chief Coordinator Planner (NCR), T&CP Deptt., Govt. of Haryana
	Government of Uttar Pradesh
11.	Shri V.B. Dubey, Chief Coordinator Planner, NCR Planning & Monitoring Cell, Town & County Planning Deptt., Govt. of U.P
12.	Shri H.V. Girisha, D.C.F., Govt. of Uttar Pradesh, Gautam Budh Nagar, U.P.
	Government of Rajasthan
13.	Shri Arun Chaturvedi, Chief Town Planner (NCR), T&CP Department, Govt. of Rajasthan
14.	Shri Anil Pathria, Sr. Town Planner, (NCR), T&CP Department, Govt. of Rajasthan
	Govt. of NCT Delhi
15.	Shri A.K. Shukla, Chief Conservator Forest, Forest Deptt., New-Delhi
16.	Dr. P.K. Tripathi, Director (Horticulture), O/o The Engineer-in-Chief, PWD, Govt. of NCT-Delhi, 13th Floor, MSO Building, New Delhi
17.	Shri S.R. Kinra, Director (P), O/o The Engineer-in-Chief, PWD, Govt. of NCT-Delhi, 12th Floor, MSO Building, I.P Estate, New Delhi
	DDA
18.	Shri S.P. Pathak, Commissioner (Plg.), DDA, Vikas Minar, New Delhi
19.	Shri Shripal, Pr. Commissioner, DDA, Vikas Minar, New Delhi
20.	Shri Rajesh Kumar Jain, Director (Plg.), DDA, Vikas Minar, New Delhi
21.	Shri R.D. Bhardwaj, DD(H), DDA, Vikas Minar, New Delhi
22.	Shri Kunwar Pal Singh, AD(H), DDA, Vikas Minar, New Delhi
	NRSC, Hyderabad
23.	Dr. K. Venugopal Rao, Group Head, NRSC, Hyderabad
	NCRPB
24.	Shri Rajeev Malhotra, Advisor, NCRPB
25.	Ms. Ruchi Gupta, Joint Director (Tech.), NCRPB
26.	Shri Nabil Jafri, Dy. Director (GIS), NCRPB
27.	Shri Partha Pratim Nath, Dy. Director (T), NCRPB.
28.	Shri Naresh Kumar, Asstt. Director (T), NCRPB.
29.	Shri. Ramesh Dev, Asstt. Director (T), NCRPB
30.	Shri Satyabir Singh, Asstt. Director (T), NCRPB

ANNEXURE-II

LIST OF THE PARTICIPANTS ON 16.09.2016

1.	Shri Rajiv Gauba, Secretary, Ministry of Urban Development, Govt. of India - **In Chair**
2.	Shri B.K.Tripathi, Member Secretary, NCR Planning Board
3.	Shri D.S. Mishra, Addl. Secretary, Ministry of Urban Development, Govt. of India
4.	Shri P.C. Dhasmana, Deputy Secretary (DD), Ministry of Urban Development, Govt. of India
	Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India
5.	Shri D.K. Sinha, Inspector of General (FC), MoEF&CC, Govt. of India
6.	Shri Nisheeth Saxena, Sr. AIGF (FC), MoEF&CC, Govt. of India
	Government of Haryana
7.	Shri R.R. Jowel, Addl. Chief Secretary, Forest & Wildlife Deptt., Govt. of Haryana
8.	Shri Arun Gupta, Director General, Town & Country Planning Department, Government of Haryana.
9.	Shri VivekSaxena, Addl. Resident Commissioner & CGM, HFDC, Govt. of Haryana
10.	Shri M.D. Sinha, CF (South Circle), Forest & Wildlife Deptt., Gurgaon, Govt. of Haryana
11.	Shri Jaswant Singh, Chief Coordinator Planner (NCR), T&CP Deptt., Govt. of Haryana
	Government of Uttar Pradesh
12.	Shri V.B. Dubey, Chief Coordinator Planner, NCR Planning & Monitoring Cell, Town & County Planning Deptt., Govt. of U.P
	Government of Rajasthan
13.	Shri ArunChaturvedi, Chief Town Planner (NCR), T&CP Department, Govt. of Rajasthan
	Govt. of NCT Delhi
14.	Dr. P.K. Tripathi, Director (Horticulture), O/o The Engineer-in-Chief, PWD, GNCT-Delhi, New Delhi
15.	Shri TarunJohri, Conservator Forest, Forest Deptt., New-Delhi
	DDA
16.	Shri S.P. Pathak, Commissioner (Plg.), DDA, Vikas Minar, New Delhi
17.	Shri M.K. Tyagi, Director (Horticulture), DDA, Vikas Minar, New Delhi
18.	Shri Gajendra Singh, Director (Horticulture), DDA, Vikas Minar, New Delhi
19.	Shri Rajesh Kumar Jain, Director (Plg.), DDA, Vikas Minar, New Delhi
20.	Shri R.D. Bhardwaj, DD(H), DDA, Vikas Minar, New Delhi
21.	Shri Anil Kumar Bindlish, EE/ND-I, DDA, Vikas Minar, New Delhi
22.	Shri Mukesh Kumar Nasher, AE/ND-I, DDA, Vikas Minar, New Delhi
23.	Shri S.S. Rathi, JE/ND-I, DDA, Vikas Minar, New Delhi
	NCRPB
24.	Shri Rajeev Malhotra, Advisor, NCRPB
25.	Ms. Ruchi Gupta, Joint Director (Tech.), NCRPB
26.	Shri Nabil Jafri, Dy. Director (GIS), NCRPB
27.	Shri Partha Pratim Nath, Dy. Director (T), NCRPB.
28.	Shri Naresh Kumar, Asstt. Director (T), NCRPB.
29.	Shri Ramesh Dev, Asstt. Director (T), NCRPB

SUPPLEMENTARY ANNEXURE - SA-1/IV

Minutes of the meeting held under the chairmanship of Secretary (UD), Govt. of India on 04.08.2016

राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION PLANNING BOARD
प्रथम तल, कोर–IV बी/1st Floor, Core - IV B
भारत पर्यावास केन्द्र/India Habitat Centre
लोधी रोड़, नई दिल्ली–110 003 / Lodhi Road, New Delhi-110 003
शहरी विकास मंत्रालय/Ministry of Urban Development
दूरभाष/Phone : 24642284, 24642287, फैक्स/Fax : 24642163

TOP PRIORITY

BY SPEED POST/
EMAIL

No. K-14011/76/2016-NCRPB

Date: 19.09.2016

Subject: Minutes of the meeting held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 04.08.2016 at 04:30 P.M. to resolve issues related to implementation of various inter-state connectivity roads/linkages among the NCR participating States

A meeting was held under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 04.08.2016 at 04:30 P.M. in the Conference Room 123-C, Nirman Bhawan, New Delhi to resolve issues related to implementation of various inter-state connectivity roads/linkages among the NCR participating States.

2. Minutes of the meeting are enclosed for your kind perusal and necessary action. It is requested that Action Taken Report in this regard may be furnished to the Board by 05.10.2016.

3. The next meeting in this regard is scheduled to be held on 27.10.2016 at 11.00 a.m. under the chairmanship of Secretary, Ministry of Urban Development, Govt. of India in the Conference Room 123-C, Nirman Bhawan, New Delhi.

19/9/16

हस्ताक्षर/Signature

Yours faithfully,

Ruchi 19/9/16

(Ruchi Gupta)
Joint Director (Technical)

Enclosed: As above.

To,

1. **Secretary,** Ministry of Road Transport & Highways, Transport Bhavan, 1, Sansad Marg, New Delhi-110 001 – {email: secy-road@nic.in}
2. **Chairman,** National Highways Authority of India (NHAI), G 5&6, Sector-10, Dwarka- 75, {email: chairman@nhai.org}
3. **Addl. Chief Secretary to Govt. Haryana**, Town & Country Planning Department, Haryana Mini Secretariat, Sector-17, Chandigarh-160017 {email: acstcphry@gmail.com}
4. **Principal Secretary**, Housing & Urban Planning Department, Govt. of Uttar Pradesh, Bapu Bhawan, Vidhan Sabha Marg, Lucknow, Uttar Pradesh-226001 {email: awas@up.nic.in}

5. **Principal Secretary,** Irrigation Department, Govt. of Uttar Pradesh, 6th Floor, Bapu Bhawan, U.P. Secretariat, Lucknow, Uttar Pradesh-226001(U.P.) {email: psecup.irrig@nic.in, 2236839,2237162}
6. **Principal Secretary cum Engineer-in-Chief,** Public Works Department (PWD), Govt. of NCT-Delhi, NCR Planning & Monitoring Cell, 5th Level, "B" Wing, Delhi Sachivalaya, New Delhi-110002 {email: pspwd@nic.in, Fax-23392295}
7. **Vice Chairman,** Delhi Development Authority, Vikas Sadan, INA, New Delhi-110023 {email: vcdda@dda.org.in, 24697900,24699479}.
8. **Commissioner,** NCR Planning and Monitoring Cell (UP),Town & Country Planning Deptt., Navyug Market, Commercial Building, II Floor, Ghaziabad-201001, U.P {email: ncrcellup@gmail.com }
9. **C.E.O.,** New Okhla Industrial Development Authority (NOIDA), Main Administrative Building, Sector-6, NOIDA, Disst: Gautam Budh Nagar-201301{email: ceo@noidaauthorityonline.com, 2422160, 2422239}
10. **Chief Town & Country Planner,** Town & Country Planning Department, Govt. of Uttar Pradesh, T.C.G./1-A-V5, Vibhuti Khand, Gomti Nagar, Utar Pradesh-226010. {email: ctcpup@gmail.com}
11. **Chief Coordinator Planner,** NCR Planning and Monitoring Cell, Govt. of Haryana, HUDA Complex, Sector-6, Panchkula, Harayna-134108{email: ccpncr1.haryana@gmail.com}
12. **Chief Coordinator Planner,** NCR Planning and Monitoring Cell (UP),Town & Country Planning Deptt., Navyug Market, Commercial Building, II Floor, Ghaziabad-201001, U.P.
13. **Addl. Commissioner (Planning),** UTTIPEC, 2nd Floor, Vikas Minar, New Delhi- 110002. {email: acplguttipecgisdda@gmail.com, Tele-fax 011-23379042 }
14. **Senior Town Planner (Faridabad),** HUDA Complex, Sector-12, Faridabad-121007, Haryana {email: stp.faridabad.tcp@gmail.com}

Copy To:

1. **PPS to Secretary,** Ministry of Urban Development, Nirman Bhavan, New Delhi-110011{email: secyurban@nic.in }
2. **PPS to Additional Secretary,** Ministry of Urban Development, Nirman Bhavan, New Delhi-110011{email: as_ud_mud@nic.in }
3. **PS to Member Secretary,** NCR Planning Board
4. **PA to Advisor,** NCR Planning Board

Minutes of the meeting held under the Chairmanship of Secretary, Ministry of Urban Development, Govt. of India on 04.08.2016 at 04:30 P.M. in the Conference Room 123-C, Nirman Bhawan, New Delhi to resolve issues related to implementation of various inter-state connectivity roads/linkages among the NCR participating States

Chairman welcomed the participants and requested Member Secretary, NCR Planning Board to open the discussion. List of participants is at **Annexure-I.**

2. Member Secretary, NCR Planning Board briefed the participants about the agenda of the meeting. He explained that the issues related to implementation of various inter-state connectivity roads/linkages were placed before the NCR Planning Board in its 36th meeting held on 15.06.2016 and after detailed discussions and deliberations, the Board decided that **"the matter will be examined holistically, in a separate meeting under the chairmanship of Secretary, MoUD to resolve the issues of inter-state connectivity between Haryana, U.P. and Delhi."**

3. Detailed presentation was made by the NCR Planning Board and each link was discussed. Certain projects/proposals were grouped because they were inter-related. Details of the deliberations and decisions taken are as under.

4(a) Kalindi by-pass road from Ashram Chowk, Delhi to Faridabad By-pass (Sl. No. I of the Background Note) [Refer Map-A; Link-1]

i) It was observed that for construction of this by-pass road, land measuring about 43 hectare is required, which is in the territory of Govt. of NCT-Delhi, but under the ownership of Irrigation Department, Govt. of U.P. Out of this 43 hectare, 42.82 hectare of land is to be transferred by Govt. of U.P. to GNCT-Delhi, whereas for remaining 0.18 hectare, permission for construction from Govt. of U.P. is required.

ii) Chief Engineer (Yamuna), Irrigation Department, Govt. of U.P. stated that since the proposed alignment passes through residential and non-residential areas under the ownership of Govt. of U.P., the matter of transfer of land to Govt. of NCT-Delhi has not yet been decided. He also informed that presently water from River Yamuna is supplied to the Badarpur Thermal Power Plant (BTPP) through the Old Agra Canal and construction of the proposed road on stilts in the bed of Old Agra Canal may disrupt the hydraulics, which may affect the supply of water to BTPP. He, however, stated that presently, water is supplied to BTPP only twice or thrice in a year and therefore, if it is conveyed to Govt. of U.P. that the same is not required anymore, permission for construction of stilts in the bed of Old Agra Canal can be granted by Govt. of U.P.

iii) Principal Secretary, PWD, GNCTD stated that the impact of the proposed road on hydraulics/flow of the canal has been examined by Govt. of NCT-Delhi and it was observed that the proposed road will not affect the canal hydraulics/flow during or after construction.

iv) Vice Chairman, DDA informed that the alignment of the proposed road has already been approved by Unified Traffic & Transportation Infrastructure (Planning & Engineering) Centre (UTTIPEC), DDA.

After detailed discussions, Chairman directed the PWD, GNCTD to send the detailed proposal of this road to the Irrigation Department, Govt. of U.P. and thereafter discuss and resolve the matter.

{Action: PWD, Govt. of NCT-Delhi and Irrigation Department, Govt. of U.P.}

(b) Construction of second bridge on Yamuna River near Kalindi Kunj-NOIDA (120m. downstream) (Sl. No. XII of the Background Note) [Refer Map-A; Link-2] and

(c) Elevated road along Shahdara drain-alignment from Chilla Regulator (near Mayur Vihar), Sector-14A to MP-3 road (Mahamaya Flyover) in Noida (Sl. No. XIII of the Background Note) [Refer Map-A; Link-3]

i) It was observed that the Governing Body of UTTIPEC in its 52nd meeting has taken a view that from traffic and transportation perspective, the proposed Kalindi by-pass road [para 4(a) above] is inter-related with proposals at para 4(b), 4(c) and the Multi-Modal Integration of the Phase-III Metro Station at Kalindi Kunj (under construction). In view of the same, the proposals at para 4(b) and 4(c) were not approved by UTTIPEC in view of the pending transfer of land by Govt. of U.P. to GNCT-Delhi for the aforementioned Kalindi by-pass road.

ii) Vice Chairman, DDA informed that in addition to the above, the proposed elevated road along Shahdara drain was not approved, in view of the existing policy of Delhi Govt. for not covering drains.

iii) Project Engineer, NOIDA informed that since the proposed road is elevated, it would not require covering of the drain and the piers will not affect the hydraulics/flow of the drain.

Chairman directed that UTTIPEC, DDA may consider the proposals in their next meeting, in view of the above information.

{Action: UTTIPEC, DDA}

5(a) 80 m Dwarka Link in Zonal Plan K-II connecting Gurgaon (through NPR having a width of 150 m with 30 m wide green belt) (Sl. No. II of the Background Note) [Refer Map-A; Link-4]

i) It was noted that UTTIPEC, DDA has conveyed that DDA is in process of acquiring the land within Delhi.

ii) Additional Chief Secretary (ACS), Town & Country Planning Department (TCPD), Govt. of Haryana informed that this project/proposal has recently been declared as National Highway by the Hon'ble Union Minister of Road Transport and Highways (MoRT&H). He also mentioned presently the NH-8 (re-designated as NH-48) is the only major road for traffic between Delhi and Gurgaon/Haryana and hence, the proposed link would ease traffic load on the existing NH-8, once constructed.

iii) General Manager, National Highways Authority of India (NHAI) informed that a Consultant has already been appointed for preparation of a Detailed Project Report (DPR) for this project/proposal.

Chairman directed the concerned agencies to expedite.

{Action: DDA and NHAI}

(b) 75 m wide road link connecting Gurgaon area with Najafgarh road (Sl. No. IV of the Background Note) [Refer Map-A; Link-5]

i) It was observed that UTTIPEC, DDA has conveyed that due to the proximity to the aforementioned NPR [para 5(a)], this link is not desirable and therefore not agreed.

ii) Vice Chairman, DDA, however, informed that since the proposed road would further ease traffic congestion on Delhi-Gurgaon border, the proposal will be discussed in the next Working Group meeting and subsequently in the Governing Body meeting of the UTTIPEC, DDA.

Chairman directed that DDA may consider the proposal in their next meeting.

{Action: UTTIPEC, DDA}

6. Mehrauli-Gurgaon Road to be developed as NH-236 (Sl. No. III of the Background Note) [Refer Map-A; Link-6]

i) ACS, TCPD, Govt. of Haryana informed that this proposal has been declared as National Highway recently by the Hon'ble Union Minister for Road Transport and Highways. He said that the proposal would provide an alternative route between Manesar and Delhi bypassing Gurgaon and therefore would ease traffic on NH-8 (re-designated as NH-48).

ii) General Manager, NHAI informed that in-principle approval for declaring the proposed road as National Highway has been received from the MoRT&H. Appointment of consultant for preparation of DPR is underway.

Chairman directed NHAI to expedite.

{Action: NHAI}

7. Existing Gurgaon-Mehrauli road linking Nelson Mandela T-point (Near Vasant Kunj Flyover) through Delhi ridge (Sl. No. V of the Background Note) [Refer Map-A; Link-7]

i) It was observed that a road is proposed in the Master Plan for Delhi-2021, connecting Nelson Mandela T-point at Vasant Kunj with the existing Gurgaon-Mehrauli road along the existing Ridge. Govt. of Haryana has proposed a modified alignment of this road through the Ridge, in order to reduce the travel time. However, this would require statutory clearances.

ii) ACS, TCPD, Govt. of Haryana requested that the road as proposed in the Master Plan for Delhi-2021 be constructed at the earliest, since it is already approved and no statutory clearances are required.

iii) Vice Chairman, DDA stated that the matter for construction of the proposed link through ridge may be examined/pursued. Meanwhile, the proposed Master Plan road, as mentioned above, may be expedited.

Chairman directed the concerned agencies to expedite.

{Action: PWD, Govt. of NCT-Delhi and DDA}

8. Upgrading Gwal Pahari Mandi Gadaipur- Jaunpur road up to Andheria Mor in Delhi (Sl. No. VI of the Background Note) [Refer Map-A; Link-8]

i) ACS, TCPD, Govt. of Haryana informed that the portion of this link from Gurgaon-Faridabad road till border of NCT Delhi has been constructed by Govt. of Haryana and the link needs to be upgraded within NCT Delhi.

ii) Principal Secretary, PWD, GNCTD informed that it is learned that there are issues related to land acquisition in the stretch within NCT Delhi. Upon query from the Chairman, he stated that formal process for land acquisition is yet to be initiated by GNCTD.

Chairman directed that GNCTD may initiate the land acquisition process within NCT Delhi expeditiously.

{Action: Govt. of NCT-Delhi}

9. Bawana Auchandi Marg to be extended as SH-18, Haryana (Sl. No. VIII of Background Note) [Refer Map-A; Link-9]

i) Vice Chairman, DDA informed that the link has been incorporated in the Master Plan for Delhi-2021 and is being incorporated in the Zonal Development Plans.

ii) While referring to the observation raised by Comptroller and Auditor General (CAG), he clarified that DDA cannot construct roads other than its own proposals and/or in areas/townships developed by it. In view of this, he stated that PWD, GNCTD is the implementing agency in this case. He also informed that feasibility report for the link would have to be submitted by PWD, GNCTD to UTTIPEC, DDA for approval.

Chairman directed that DDA should write to PWD, GNCTD requesting to take necessary action with regard to implementation of this project.

{Action: DDA and PWD, Govt. of NCT-Delhi}

10. Road from Ring Road (Inder Lok Metro Station) & existing Yamuna Canal Link Road up to Haryana Border (Sl. No. IX of the Background Note) [Refer Map-A; Link-10]

i) Principal Secretary, PWD, GNCT Delhi stated that land for the proposed road is in possession of Irrigation Department, Govt. of Haryana. PWD, GNCTD can construct the road, once permission for construction is received from Govt. of Haryana.

ii) ACS, TCPD, Govt. of Haryana stated that the matter will be taken up with Irrigation Department, Govt. of Haryana to resolve any issues.

Chairman directed Govt. of Haryana to take action expeditiously.

{Action: Govt. of Haryana}

11. 60 m wide road from Education City, Kundli needs to be linked to Delhi and incorporated in the Zonal Plan of Zone P-II (Sl. No. VII of the Background Note) [Refer Map-A; Link-11]

i) ACS, TCPD, Govt. of Haryana informed that the road would provide alternate connectivity to the proposed Rajiv Gandhi Education City, Kundli from Delhi. Presently, the NH-1 (re-designated as NH-44) is the only existing major road connecting the Education City with Delhi and this adds to congestion on the NH-1 (re-designated as NH-44). He further informed that the road has been constructed within Haryana and a very small portion of about 1 km. needs to be constructed within NCT Delhi upto UER-I.

ii) Vice Chairman, DDA informed that there are substantial land acquisition issues involved in UER-I, owing to which its status is not certain and therefore, it may not be fruitful to connect any inter-state road with UER-I.

Chairman directed DDA and Govt. of Haryana to discuss the matter bilaterally and to arrive at a decision/resolution.

{Action: DDA and Govt. of Haryana}

12(a) UER-I, Delhi to Khekra City till NH-57in U.P. (Sl. No. X of the Background Note) [Refer Map-A; Link-12] and

(b) UER-II, Delhi to Tronica City till NH-57 in U.P. (Sl. No. XI of the Background Note) [Refer Map-A; Link-13]

i) It was noted that the proposals are to connect Khekra City and Tronica City in Uttar Pradesh by connecting UER-I and UER-II respectively with the SH-57 in U.P. The said proposals also involve construction of bridges over River Yamuna.

ii) Vice Chairman, DDA informed that both these links have been incorporated in the Master Plan for Delhi-2021 and are being incorporated in the Zonal Development Plans. He, however, stated that PWD, GNCTD is yet to submit Feasibility Report for the same to UTTIPEC.

iii) Chief Engineer, PWD, U.P. stated that land for the proposed roads are in Delhi and requested that the Feasibility Study be carried out by GNCTD at the earliest.

iv) Principal Secretary, PWD, GNCTD stated that in view of the uncertainty over construction of UER-I, as already discussed, these proposals may not be feasible for the time being and in view of this, GNCTD has not yet initiated the Feasibility Studies.

Chairman directed DDA and Govt. of U.P. to discuss the matter to arrive at an alternate solution.

{Action: DDA and Govt. of U.P.}

13 (a) Bridge connecting Sector 149-A & 150, Noida with Tilori Village, Faridabad (Sl. No. XIV of the Background Note) [Refer Map-A; Link-14] and

(b) Bridge connecting Sector 168 & 167-A, Noida with Lalpur Village, Faridabad (Sl. No. XV of the Background Note) [Refer Map-A; Link-15]

i) It was noted that the proposals are to connect Faridabad and Noida/Greater Noida. It was also noted that the proposed bridges will provide connectivity with Gurgaon through the existing Gurgaon-Faridabad road.

ii) With respect to the bridge at para 13(a) above, it was observed that a draft MOU has already been prepared by NOIDA and the same has been sent to Govt. of Haryana. However, the MOU is yet to be signed between NOIDA/Govt. of U.P. and Govt. of Haryana.

iii) ACS, TCPD, Govt. of Haryana informed that during preliminary discussions, it was agreed in-principle to share the cost of the bridges equally between Govt. of U.P. and Govt. of Haryana. It was also agreed in-principle that the cost of the approach roads falling in Haryana and Uttar Pradesh would be borne by Govt. of Haryana and Govt. of Uttar Pradesh/NOIDA respectively. However, the draft MOU prepared by NOIDA has stipulated that the entire cost, i.e. the cost of the bridges and the approach roads, would be shared equally between Govt. of U.P. and Govt. of Haryana, which has not been agreed by Govt. of Haryana. The same has been informed to NOIDA.

Chairman directed that Govt. of Haryana and Govt. of U.P./NOIDA may discuss the matter to arrive at a consensus/resolution.

iv) Regarding the bridge at para 13(b) above, Project Engineer, NOIDA informed that the proposal of Bridge connecting Sector 168 & 167-A, Noida with Lalpur Village, Faridabad is part of the proposed Faridabad-NOIDA-Gurgaon (FNG) road. He also informed that Govt. of U.P. has sent a proposal to the MoRT&H for declaring it as a National Highway. In view of this, construction of FNG is not being taken up by NOIDA presently.

Chairman directed that Govt. of U.P./NOIDA and Govt. of Haryana may take up the matter with MoRT&H expeditiously.

{Action: Govt. of Haryana, NOIDA and NHAI}

Chairman also directed that a D.O. Letter may be sent to the Secretary, MoRT&H requesting information/status relating to roads/linkages concerning MoRT&H namely Northern Peripheral Road (NPR) in Gurgaon; proposed road from Andheria Mor, Delhi to NSG complex, Manesar, and Faridabad-NOIDA-Gurgaon (FNG) road.

{Action: NCRPB}

14. Bridge over Yamuna between Chhaprauli and Hathwada (Village Panipat, Haryana) (Sl. No. XVI of the Background Note) [Refer Map-A; Link-16]

i) It was informed in the meeting that the bridge and its approach roads are yet to be constructed owing to delay in land acquisition and issues raised by Govt. of Haryana.

ii) ED, HSRDC and Chief Engineer, PWD (B&R), Haryana informed that the delay is due to difficulty in land acquisition as per the new Land Acquisition Act. He further informed that a Committee headed by the Deputy Commissioner, Panipat has been constituted in the matter.

iii) Chief Engineer, West Zone, PWD, Meerut, Govt. of U.P. informed that the portion of the road falling in U.P. has already been approved by Govt. of U.P. He also informed that approval from Govt. of Haryana is awaited, even though an MoU regarding sharing of costs was already signed between Govt. of Haryana and Govt. of U.P.

Chairman directed that Govt. of Haryana may expeditiously pursue land acquisition. Govt. of Haryana and Govt. of U.P. may carry forward the work as per the MOU.

{Action: Govt. of Haryana and Govt. of U.P.}

15. Chairman concluded that inter-state connectivity is required for seamless travel in NCR, which is a prerequisite for ensuring balanced development in the region. He requested all stakeholders to work in a spirit of cooperation to resolve the pending issues expeditiously and arrive at a conclusion at the earliest, preferably before the next meeting in the matter.

16. It was decided that the **next meeting** would be held on **27.10.2016 at 11.00 a.m.** in the **Conference Room, 123-C, Nirman Bhawan, New Delhi.**

The meeting ended with the vote of thanks to the Chair.

Enclosures: *Map-A*

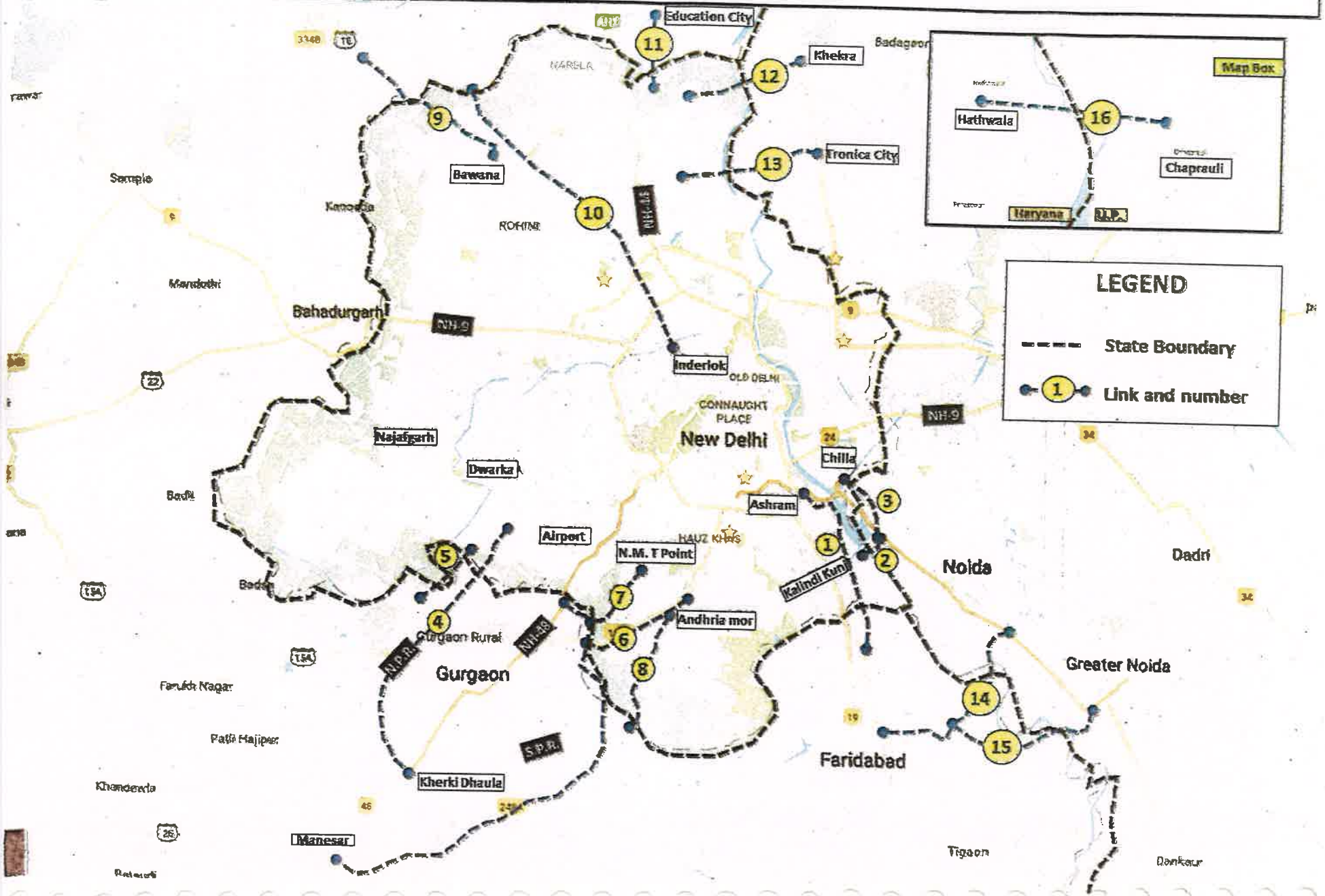
****

Annexure-I

List of participants

Sl. No.	Name & Designation	
MoUD		
1.	Shri Rajiv Gauba, Secretary, Ministry of Urban Development, Govt. of India	In chair
2.	Shri D.S. Mishra, Additional Secretary(UD), Ministry of Urban Development, Govt. of India	
NCRPB		
3.	Shri BK Tripathi, Member Secretary	
4.	Shri Rajeev Malhotra, Advisor	
5.	Ms. Ruchi Gupta, Joint Director (Tech.)	
6.	Shri Nabil Jafri, Deputy Director (GIS)	
7.	Shri Partha Pratim Nath, Deputy Director (Tech.)	
8.	Ms. Nilima Majhi, Assistant Director (Tech.)	
9.	Shri Yashwanth Namasani, Assistant Director (Tech.)	
10.	Shri Naresh Kumar, Assistant Director (Tech.)	
11.	Shri Ramesh Dev, Assistant Director (Tech.)	
12.	Shri Satyabir Singh, Assistant Director (Tech.)	
DDA		
13.	Shri Arun Goel, Vice Chairman, Delhi Development Authority	
14.	Shri S.P. Pathak, Commissioner (Plg.), DDA	
15.	Shri S. Das, Additional Commissioner (Plg.), UTTIPEC, DDA	
16.	Shri A.K. Garg, Chief Engineer (Project), DDA	
Govt. of Haryana		
17.	Shri P. Raghavendra Rao, Additional Chief Secretary, Town & Country Planning Department	
18.	Shri Neeraj Gupta, ED, HSRDC and Chief Engineer PWD (B&R), Haryana	
19.	Shri Jaswant Singh, Chief Coordinator Planner, NCR Planning & Monitoring Cell, Haryana	
20.	Shri N.S. Chauhan, STP, Faridabad	
Govt. of Uttar Pradesh		
21.	Shri Sudhanshu Kumar, Chief Engineer, West Zone, UP PWD, Meerut, U.P.	
22.	Shri Ram Avtar Sharma, Superintending Engineer, UP PWD Meerut Circle, Meerut, U.P.	
23.	Shri V.B. Dubey, Chief Coordinator Planner, NCR Planning & Monitoring Cell, UP, Ghaziabad	
24.	Shri Ajay Kumar Mishra, Chief Town & Country Planner, Govt. of U.P.	
25.	Shri Gulesh Chand, Chief Engineer (Y), Okhla, U.P. Irrigation Department	
26.	Shri V.K. Rawal, APE, Noida Authority, NOIDA	
27.	Shri R.S. Raghaw, P.E-9, Noida Authority, NOIDA	
28.	Shri S.C. Mishra, P.E., NOIDA	
29.	Shri Manoj Kumar, Asst. Architect, NCR Planning & Monitoring Cell, Ghaziabad	
Govt. of NCT of Delhi		
30.	Shri Sarvagya Srivastava, Principal Secretary, PWD, GNCT Delhi	
NHAI		
31.	Shri Dinesh Yadav, General Manager, NHAI	

Map-A: Inter-State connectivity roads/linkages among the NCR participating States discussed during the meeting on 04.08.2016



SUPPLEMENTARY ANNEXURE - SA-2/I

Allahabad High Court Judgment dated 21.06.2016

IN THE HIGH COURT OF JUDICATURE AT ALLAHABAD

CIVIL MISC. PUBLIC INTEREST LITIGATION NO.

29004 OF 2016

[Under Article 226/227 of the Constitution of India]

District : **GAUTAM BUDH NAGAR**

Raghuraj Singh son of late Shri Ramchander Sigh,
Resident of D-2, Bishanpura, Sector 58, Noida-201301.
District Gautam Budh Nagar. ----------**Petitioner**

Versus

1. State of U.P., through Principal Secretary
Urban Planning and Development,
Government of U.P.
Lucknow.

2. National Capital Regional Planning Board
Through its Member Secretary
First Floor, Core-IV B
India Habitat Centre
Lodhi Road
New Delhi- 110003

3. New Okhla Industrial Development Authority
Through its Chief Executive Officer,
Administrative Block,
Sector-6, Noida.

4. Greater Noida Industrial Development Authority,
Through its Chief Executive Officer,
169, Chitvan Estate,
Sector Gama Greater Noida City,
Gautambudh Nagar-201310.

5. Yamuna Expressway Industrial Development Authority
Through its Chief Executive Officer, First Flooor,
Commercial Complex,Block P-2, Sector Omega-1,
Greater Noida City-201308.

6. Ghaziabad Development Authority,
through its Vice Chairman and Secretary,
Vikas Path Near Old Bus Stand,
Ghaziabad-201001.

7. Meerut Development Authority
through its Vice Chairman and Secretary
Civil Lines, Vikas Bhawan,
Meerut-250003.

8. Hapur Pilakhuwa Development Autority
through its Vice Chairman and Secretary
Preet Vihar, Delhi Road
Hapur-245101.

9. Bulandshahr Development Authority
through its Vice Chairman and Secretary
Yamuna Puram, Bhood Choraha
Bulandshahr, Uttar Pradesh.

10. Khurja Development Authority
through its Vice Chairman and Secretary
Kalindi Kunj, Main GT Road
Khurja, Uttar Pradesh.

11. Baghpat-Baraut-Khekra Development Authority
through its Vice Chairman and Secretary
Collectorate
Baghpat, Uttar Pradesh.

---------- **Respondents**

To

The Hon'ble the Chief Justice and His other Companion Judges of the aforesaid Court.

The humble petition of the above named Petitioner Most Respectfully Showeth as under:

1. That this is the first writ petition being filed by the Petitioner

Court No. - 10

Case :- PUBLIC INTEREST LITIGATION (PIL) No. - 29004 of 2016

Petitioner :- Raghuraj Singh
Respondent :- State Of U.P. And 10 Ors.
Counsel for Petitioner :- Nikhil Agrawal,Shiva Nand Pandey
Counsel for Respondent :- C.S.C.,Anjali Upadhya,Bhupeshwar Dayal,Mahendra Pratap,Santosh Kumar Singh,Shivam Yadav

Hon'ble Arun Tandon,J.
Hon'ble Mrs. Sunita Agarwal,J.

Vakalatnama filed by Sri Bhanu Bhushan Jauhari on behalf of respondent No.4 is taken on record.

Regarding the complaint of the petitioner in the matter of construction activity been undertaken by the Okhla Industrial Development Authority contrary to the provisions of the National Capital Region Planning Board Act, 1985 it is noted that such complaint can be made under Section 29(2) of the said Act before the NCR Board. The Board after investigation can issue appropriate direction in view of the aforesaid statutory provision.

We, therefore, **dispose of** the present writ petition with a direction to the NCR Board to take appropriate decision on the complaint made after affording due opportunity of hearing to the parties concerned within a period of **eight weeks** from the date of production of certified copy of this order.

(Sunita Agarwal, J) (Arun Tandon, J)

Order Date :- 21.6.2016
Jyotsana/Himanshu.

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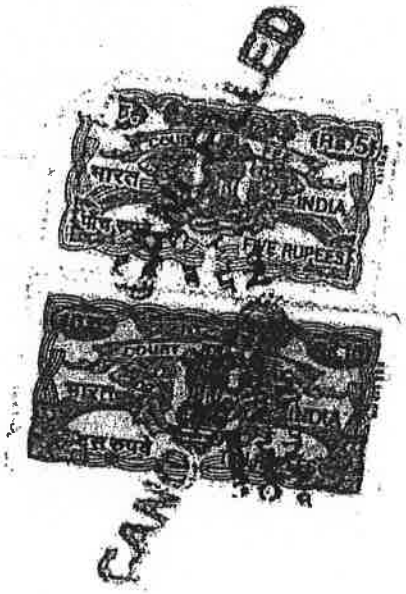
Sri S.K. Mishra
Advocate
9 Katra Road Allahabad

Crl. P.I.L. No 29004/16

Distt. Gautam Buddh nagar

Raghuraj Singh
Vs
~~State of U.P. & Ors~~

and dt 21/6/16



SUPPLEMENTARY ANNEXURE - SA-2/II

Application dated 08.07.2016 of Shri Raghuraj Singh

Raghuraj Singh
Mob: 9810572085
E-mail: raghurajsinghnoida@gmail.com

D-2
Bishanpura
Sector 58
Noida 201301

Ref: RR/NCRPB/AHC/NCRPB Act & RP 2021 violations 08 July 2016

The Chairman
National Capital Region Planning Board
(Ministry of Urban Development)

First Floor, Core-IV B
India Habitat Centre
Lodhi Road
New Delhi- 110003

Sub:

(a) Submission of certified copy of the order dated 21.6.2016 of the Hon'ble AHC for necessary action.

(b) Application / Complaint for investigation of violations of National Capital Regional Planning Board Act 1985 & Statutory Regional Plan 2021 by the State of U.P., Development Authorities of U.P. Sub-region and NCRPB.

Sir,

1. Kindly take on record as well as cognizance of the Hon'ble Allahabad High Court Order of 21.6.2016, in the case of Raghuraj Singh Vs State of U.P. & Ors PIL No. 29004 of 2016, in the matter of development activities undertaken by the Development Authorities in U.P. Sub-region of the NCR contrary to the provisions of the National Capital Region Planning Board Act, 1985 and the Regional Plan 2021. Certified copy of the said order is enclosed herewith as Enclosure 1.

2. The undersigned is once again bringing out the violations of the NCR Planning Board Act 1985 (NCR Act) and the Regional Plan 2021 by the NCR Planning Board, the State of U.P. and their various Development Authorities in this letter necessitating action under Section 29 of the said Act.

3. It has been observed and communicated earlier to the U.P. State Government and NCR Planning Board (NCR Board) that the development being carried out in U.P. Sub-region of the NCR is contrary to the published Regional Plan 2021 (RP 2021), which is prohibited by the overriding central legislation NCR Planning Board Act 1985.

4. The U.P. Sub-regional Plan 2021 and the Master Plans of various Settlements of the Sub-region are vastly contrary to the Regional Plan 2021 in terms of assigned population, population density and landuse.

5. All respective Master Plans of the Development Authorities of the Sub-region except that of Greater Noida Master Plan 2021 have not been approved by the NCR Planning Board as mandated in accordance with the published statutory Regional Plan 2021.

6. Even the U.P. Sub-regional Plan 2021 (as approved by the NCR Planning Board and as finalised by the U.P. State Government) and Greater Noida Master Plan 2021 (as approved by the NCR Planning Board and the U.P. State Government) are not in conformity with the Regional Plan 2021.

7. U.P. Sub-regional Plan 2021. The U.P. Sub-regional Plan 2021 approved by the NCR Planning Board and finalised by the U.P. Government is not in conformity with the Regional Plan 2021 though mandated to be so by the NCR Planning board Act 1985. In this regard following are germane:-

(a) Comparison of the NCR Landuse map of Regional Plan 2021 and U.P. Sub-region Landuse map of U.P. Sub-regional Plan 2021 evidently reveals the violations of the Regional Plan 2021 as follows:-

i. Area bound by Dadri, Sikandrabad, Bulandshahr, Khurja, Jewar, Dankaur and Dadri towns shows huge urbanisable area in the U.P. Sub-regional Plan 2021 land use map whereas this area is primarily an Agricultural Zone as per the Regional Plan 2021. In this area many huge residential sectors, institutional complexes, Formula One track etc. have been/are being developed by changing land use of thousands of hectare land from agricultural to urban use contrary to the Regional Plan. The entire Yamuna Expressway City is being developed in this prohibited area. Concerned portion of the Regional Plan 2021 landuse map and the U.P. Sub-regional Plan 2021 map are enclosed herewith as **Enclosure 2** for ease of comparison.

ii. Delhi - Mumbai Industrial Corridor (DMIC) covering large area between Dadri and Khurja towns is included for urbanisation in the Sub-regional Plan 2021 whereas this area is Agricultural Zone as per the Regional Plan 2021.

iii. Large part of intervening area between Noida and Greater Noida which is Green/Agricultural Zone as per the Regional Plan 2021 has been shown as already 'built up' area or proposed urbanisable area in the U.P. Sub-regional Plan 2021.

iv. In Gautambudh Nagar, large part of 'Rural Agricultural Zone outside Controlled/Development Area' as per the Regional Plan 2021

is shown as 'Agricultural Area within Controlled/Development Area' in the Sub-regional Plan.

v. Regional Plan 2021 provisioned Green Buffer and Agricultural Zone along with **Ghaziabad-Hapur highway** but the said Sub-regional Plan has proposed considerable part of it as urbanisable area. Concerned portion of this area as shown in Regional Plan 2021 landuse map and Sub-regional Plan 2021 Landuse map is placed as **Enclosure 3.**

vi. **Greater Noida to Hapur Expressway** is proposed in the Sub-regional Plan whereas it is not provisioned in the Regional Plan. This will further increase the urbanized area in the Sub-region.

(b) U.P. Sub-regional Plan 2021 has made a provision for a Metro Centre in the area of Yamuna Expressway Industrial Development Authority (YEIDA) which is agricultural zone as per the Regional Plan 2021. This amounts to landuse change contrary to the Regional Plan and that is not permitted by the NCR Planning Board Act.

8. **Noida.**

(a) RP 2021 has provisioned Noida city of 12 lakh population with population density of 150-200 PPH. With this norm of population density, land requirement for Noida development works out 6000-8000 Hectare.

(b) However, Noida has notified 20,316 Hectare land. Out of which 15,280 Hectare is planned for urbanisation. Noida had already developed 8,979.29 hectare land by 2006 and 9,211 Hectare land had by 2010.

(c) As stated in Noida Master Plan 2031, Noida has already committed (means sold/allotted) land for residence of 25 lakh population as against planned 12 lakh population.

(d) Noida Master Plan stated intended overall density of 164 PPH for the city. With Master Plan urbanisable area of 20,316 Hectare, Noida's planned population thus works out 33.3 lakh as against planned 12 lakh population as assigned in the Regional Plan 2021.

(e) Noida Master Plan 2031 states, "It is envisaged that the physical **development of entire Noida may be completed by 2021** and almost the entire residential area would have been inhabited by the year 2031. The population figures based on the commitments of residential properties in the planned area and potential population growth in the rural settlements are shown in the following table ..." The estimate of population based on

committed residential properties by 2008 is indicated to be 25 lakh.

(f) Noida Master Plan 2031 also states, "Population of Noida is estimated to be about 25 by 2031. This may be the optimum population Noida may accommodate. ..."

(g) Noida has planned for remaining agriculture land to be developed as farm house due to the alleged fear of encroachment. It is nothing but urbanization of agricultural land contrary to the Regional Plan.

(h) Noida has planned to develop the left over land for recreational and tourist activities with the provision of some temporary and removable structure 1% area of a specific development project. This is nothing but urbanization in disguise.

(i) From the above it is evident that Noida has urbanized or will urbanise soon the entire 20,316 Hectare notified area under its control as against Regional Plan 2021 provision of 6000-8000 Hectare land. This is a landuse change contrary to the Regional Plan which is not permitted by the NCR Act.

(j) Noida Master Plan 2021 has not been approved yet by the NCR Board though it is required to be approved vide Regional Plan 2021 para 17.4.1.

9. Greater Noida.

(a) Regional Plan 2021 has provisioned Greater Noida city of 12 lakh population with population density of 150-200 PPH. With this norm of population density, land requirement for Greater Noida development works out 6,000 - 8,000 Hectare.

(b) Greater Noida has 38,000 Ha notified area. Out of which 22,255 Hectare is planned for urban development by 2021 as per its Master Plan 2021.

(c) The NCR Board has approved Greater Noida Master Plan 2021 vide their letter DO-No.K-14011/66/2001-NCRPB dated 24.8.2012 with the following conditions:-

i. In order to achieve the targeted population and density as per the Regional Plan-2021 for NCR, density levels may be increased by various measures like increase in FAR, creating conducive climate for industrial/economic activities, integration of the DMIC project and improved connectivity.

ii. Government of U.P./GNIDA may ensure provision of 20-25% of

EWS/LIG Housing while preparing of Sector Lay-out Plans and Development of Greater Noida area.

iii. Government of U.P./GNIDA may ensure to prepare the Environment Master Plan of Greater Noida which would be integral part of the notified Master Plan.

iv. Green area proposed is 3,580 Hectare out of total urbanisable area of 22,255 Hectare, which constitutes about 16% of the total area. This area should be preserved/protected and not subject to any land use change at any further date.

v. Action Plan for implementation and its phasing should be done before notification of the Final Plan by Government of U.P./GNIDA.

(d) Evidently, the above approval is explicit for 22,255 Hectare land development with 150 - 200 PPH population density. This means an approval of the NCRPB to the State of UP/Greater Noida Authority to develop Greater Noida Metro Center of 45 lakh population in an urbanisable area of 22,255 Hectare land as against the Regional Plan 2021 provision of 12 lakh population Metro Center on 6,000-8,000 Hectare urbanisable area. This is clearly a violation of the NCR Act and the Regional Plan 2021 by the U.P. State, GNIDA and the NCR Planning Board.

(e) It is relevant to mention that West Greater Noida (also called Noida Extension) of approximately 1,000 Ha land is being developed for 4.5 lakh apartments. This project alone will account for 22.5 lakh population @ of 5 persons per apartment. In addition there will be population in independent houses, farm houses, unauthorized colonies and villages of this part of the Greater Noida city.

(f) GNIDA has already urbanized 13,570 Hectare land by 2006 as indicated in their Master Plan 2021.

(g) While approving Greater Noida Master Plan 2021, the NCR Planning Board had indicated that all along Hindon river two kms wide area between Noida and Greater Noida city will be kept as green open area free of urbanisation. However, this has not been followed and in this prohibited area the development authorities have urbanised the agricultural/green zone land. Four in number screen shots of Google map showing construction within two kms of Noida - Greater Noida intervening green buffer zone are enclosed as **Enclosure 4.**

10. Yamuna Expressway City.

(a) District Gautambudh Nagar area except Noida, Greater Noida and existing old lower level settlements is reserved as Agricultural Zone/Greens/NCS/Water Body as per the Regional Plan 2021 landuse map. However, other than these two cities another major settlement of Metro Centre size in South Gautambudh Nagar is being developed by Yamuna Expressway Industrial Development Authority (YEIDA) over 54,000 Hectare land. Many residential sectors, huge institutional complexes, 'Formula One' motor race track are already on ground in YEIDA area. This is nothing but landuse change by the State and Development Authority contrary to the Regional Plan 2021. Four in number screen shots of Google map showing development contrary to the Regional Plan in the area are enclosed as **Enclosure 5.**

(b) The State has notified the entire area approximately 1,14,000 hectare land of the district Gautambudh Nagar with intention of urbanising the entire area. This will in near future result Gautambudh Nagar being one mega city of 2,28,00,000 population (considering the population density of 200 PPH) contiguous to the already over populated NCT-Delhi.

11. Ghaziabad-Loni.

(a) Ghaziabad Development Authority Master Plan 2021 indicates land planned to be developed as 24,239 hectare land (Ghaziabad 15,554 + Hi Tech City 2185 + Loni 5,122 + Muradabad 1,378 ha) as against 15,095 ha (at RP 2021 density norm of 200 PPH for 30.19 lakh population).

(b) Hitech city being developed in GDA area is not planned in the Regional Plan. The concerned area is Agricultural zone as per Regional Plan 2021 landuse.

(c) Ghaziabad Master Plan 2021 is not yet approved by the NCR Planning Board.

12. Meerut.

(a) Meerut Master Plan 2021 is not yet approved by the NCR Planning Board.

(b) Along Meerut- Roorkee highway, substential land is shown as urbanisable area whereas it is to be Green/Agricultural zone as per the Regional Plan.

13. The Master Plans of Bulandshahr, Khurja, Hapur-Pilkhua and Baghpat-Baraut have not yet been approved by the NCR Board but the Development

Authorities are carrying out developments in these settlements.

14. Fom the perusal of the aforesaid it is evident that:-

(a) The NCR Planning Board has wrongly approved the U.P. Sub-regional Plan 2021 and Greater Noida Master Plan 2021 which are not in conformity with the Regional Plan 2021.

(b) The U.P. State has wrongly finalised and notified their U.P. Sub-regional Plan 2021 which is not in conformity with the Regional Plan 2021.

(c) The U.P. State and Greater Noida Development Authority have approved and implementing the Greater Noida Master Plan 2021 which is contrary to the Regional Plan 2021.

(d) The U.P. State and their Development Authorities namely New Okhla Industrial Development Authority, Greater Noida Industrial Development Authority, Yamuna Expressway Industrial Development Authority, Ghaziabad Development Authority, Meerut Development Authority, Hapur Development Authority, Bulandshahr Development Authority, Khurja Development Authority and Baghpat-Baraut Development Authority are carrying out development without getting their Master Plans approved by the NCR Planning Board.

(e) The U.P. State and their Development Authorities namely New Okhla Industrial Development Authority, Greater Noida Industrial Development Authority, Yamuna Expressway Industrial Development Authority, Ghaziabad Development Authority and Meerut Development Authority are carrying out development contrary to the Regional Plan 2021.

(f) If the agricultural zone and other conservation zones can be converted to urban area in the Sub-regional Plan and Master Plans contrary to the Regional Plan at will by the participating State and their Authorities then there is no meaning and relevance of the NCRPB Act, NCR Planning Board and the Regional Plan in the context of the development of NCR.

15. In summation, the U.P. State and their Development Authorities have planned settlements for population far in excess of assigned population and are planning to urbanise huge land for which the landuse as per RP 2021 is agricultural/Green/open thereby Master Plans of the above mentioned settlements in the present contents and form are causing following:-

(a) Illegal Land Use Change in huge quantum;

(b) offending the population density norms of RP 2021;

(c) urbanisation of areas reserved as Green/Open /Agricultural use;

(d) merging of the settlements thereby altering the character of the Regional Plan;

(e) developing settlements of huge population much beyond Regional Plan assigned population thus creating mega cities instead of following hierarchical settlement system as provisioned in the Regional Plan;

(f) depletion of the natural resources particularly the ground, water and making the situation grim and critical;

(g) increase in traffic congestions to unmanageable and hazardous level;

(h) air and noise pollution detrimental to people's health;

(i) making the development unsustainable and unaffordable in NCR contrary to the intent of the Act; and

(j) development of huge settlements without adequate water, sewer, drainage, waste disposal and power system arrangement, which will further degrade quality of life defeating the purpose for which the NCR Act was enacted and the NCR Board was constituted by spending huge public money.

(k) The development being carried out in the Sub-region is discriminating as there is no detailed development plan for the rural settlements in the Sub-regional Plan/Master Plans.

16. Following provisions/stipulations of the NCRPB Act 1985 are very clear on following aspects:-

(a) Section 10 of the said Act Section states that the Regional Plan shall indicate the manner in which the land in the National Capital Region shall be used, whether by carrying out development thereon or by conservation or otherwise.

(b) Section 29 of the said Act prohibits any development inconsistent with the Regional Plan in the NCR. This necessarily also means that preparing any Sub-regional Plan or Master Plan for any Sub-region or settlement respectively in the NCR inconsistent with the Regional Plan prepared by the Board is prohibited.

(c) If the Sub-regional Plan 2021 and corresponding Master Plans for concerned settlements are not prepared conforming to the Regional Plan 2021, then the planned development of the Sub-region cannot be achieved.

17. In view of the above following are warranted:-

i. NCRPB approval of the U.P. Sub-regional Plan 2021 and Greater Noida Master Plan 2021 to be withdrawn and finalised again ensuring their conformity with the Regional Plan 2021;

ii. NCRPB, i.a.w. Section 29 of the NCRPB Act, issues notice to the U.P. State to stop development in Noida, Greater Noida, Yamuna Expressway city, Ghaziabad and Meerut of U.P. Sub-region as the ongoing development in these urban centres is contrary to the Regional Plan 2021;

iii. The State of U.P. to direct NOIDA, GNIDA, YEIDA, GDA and MDA to stop development as development being carried out in their respective area and their respective Master Plans are contrary to the Regional Plan 2021;

iv. The U.P. Government to withdraw approval of Master Plans of Noida, Greater Noida, YEIDA , Ghaziabad and Meerut as the same are not in conformity with the Regional Plan 2021;

v. The U.P. State to prepare Sub-regional Plan 2021 and Master Plans of all the settlements of the U.P. Sub-region again ensuring their conformity with the Regional Plan 2021 and obtain approval of the NCR Planning Board as warranted by the NCR Planning Board Act/Regional Plan 2021;

vi. The U.P. Government to direct their Development Authorities to make adequate and proper arrangements for water, electricity, sewer, drainage and waste disposal commensurate to the assigned population as per the Regional Plan approved by the NCR Board before creating new settlements or extension of settlements;

vii. The U.P. Government to ensure inclusion of detailed development Plan for all the urban as well as rural villages of the Sub-region in the Sub-regional Plan 2021 and all the Master Plans as warranted by the Regional Plan 2021;

viii. NCRPB and U.P. State and their Development Authorities to promulgate the details of assigned population, land required and population density of all the Metro Centers, Regional Centers and Sub-regional Centres of U.P. Sub-region as per provisions and norms of the Regional Plan 2021, as per Sub-regional Plan 2021 and as per Master Plans as pertaining to their respective jurisdiction to bring the same in the public domain; and

ix. NCRPB and U.P. State and their Development Authorities to promulgate the details of extent of development already carried out in all the Metro Centers, Regional Centers and Sub-regional Centres of U.P. Sub-region indicating the land in Hectares developed and planned to be developed in each of those centers as pertaining to their respective jurisdiction.

18. In the Hon'ble AHC Judgment mentioned above only one Development Authority is mentioned (apparently an oversight) whereas there are 9 Respondent Development Authorities in the case. Correction to this effect has been sought for and the amended order will be submitted on receipt.

Enclosures:

1. Hon'ble AHC Order dt 21 June 2016
2. Regional Plan landuse & U.P. Sub-regional Plan landuse difference map
3. Map showing GZB-Hapur NH area (RP & U.P. SRP)
4. Maps showing construction within 2 km of Noida & GN along Hindon
5. Maps showing construction in YEIDA area

Mob- 9415 804141 Enclosure 1

Sri S.K. Mishra

Advocate

2 Katra Road Allahabad

Crl. P.I.C No 29004/16

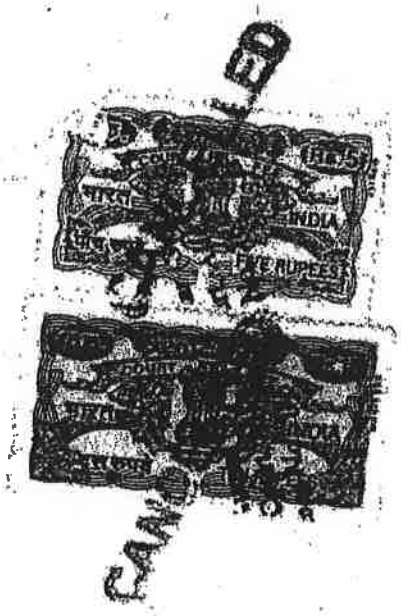
Distt Gautam Buddh nagar

Raghuraj Singh

Vs

State of U.P. & Others

and at 21/6/16



IN THE HIGH COURT OF JUDICATURE AT ALLAHABAD

CIVIL MISC. PUBLIC INTEREST LITIGATION NO.

29004 OF 2016

[Under Article 226/227 of the Constitution of India]

District : GAUTAM BUDH NAGAR

Raghuraj Singh son of late Shri Ramchander Sigh,
Resident of D-2, Bishanpura, Sector 58, Noida-201301.
District Gautam Budh Nagar. ----------**Petitioner**

Versus

1. State of U.P., through Principal Secretary
Urban Planning and Development,
Government of U.P.
Lucknow.

2. National Capital Regional Planning Board
Through its Member Secretary
First Floor, Core-IV B
India Habitat Centre
Lodhi Road
New Delhi- 110003

3. New Okhla Industrial Development Authority
Through its Chief Executive Officer,
Administrative Block,
Sector-6, Noida.

4. Greater Noida Industrial Development Authority,
Through its Chief Executive Officer,
169, Chitvan Estate,
Sector Gama Greater Noida City,
Gautambudh Nagar-201310.

5. Yamuna Expressway Industrial Development Authority
Through its Chief Executive Officer, First Flooor,
Commercial Complex,Block P-2, Sector Omega-1,
Greater Noida City-201308.

6. Ghaziabad Development Authority,
through its Vice Chairman and Secretary,
Vikas Path Near Old Bus Stand,
Ghaziabad-201001.

7. Meerut Development Authority
through its Vice Chairman and Secretary
Civil Lines, Vikas Bhawan,
Meerut-250003.

8. Hapur Pilakhuwa Development Autority
through its Vice Chairman and Secretary
Preet Vihar, Delhi Road
Hapur-245101.

9. Bulandshahr Development Authority
through its Vice Chairman and Secretary
Yamuna Puram, Bhood Choraha
Bulandshahr, Uttar Pradesh.

10. Khurja Development Authority
through its Vice Chairman and Secretary
Kalindi Kunj, Main GT Road
Khurja, Uttar Pradesh.

11. Baghpat-Baraut-Khekra Development Authority
through its Vice Chairman and Secretary
Collectorate
Baghpat, Uttar Pradesh.

---------- **Respondents**

To

The Hon'ble the Chief Justice and His other Companion Judges of the aforesaid Court.

The humble petition of the above named Petitioner Most Respectfully Showeth as under:

1. That this is the first writ petition being filed by the Petitioner

Court No. - 10

Case :- PUBLIC INTEREST LITIGATION (PIL) No. - 29004 of 2016

Petitioner :- Raghuraj Singh
Respondent :- State Of U.P. And 10 Ors.
Counsel for Petitioner :- Nikhil Agrawal,Shiva Nand Pandey
Counsel for Respondent :- C.S.C.,Anjali Upadhya,Bhupeshwar Dayal,Mahendra Pratap,Santosh Kumar Singh,Shivam Yadav

Hon'ble Arun Tandon,J.
Hon'ble Mrs. Sunita Agarwal,J.

Vakalatnama filed by Sri Bhanu Bhushan Jauhari on behalf of respondent No.4 is taken on record.

Regarding the complaint of the petitioner in the matter of construction activity been undertaken by the Okhla Industrial Development Authority contrary to the provisions of the National Capital Region Planning Board Act, 1985 it is noted that such complaint can be made under Section 29(2) of the said Act before the NCR Board. The Board after investigation can issue appropriate direction in view of the aforesaid statutory provision.

We, therefore, **dispose of** the present writ petition with a direction to the NCR Board to take appropriate decision on the complaint made after affording due opportunity of hearing to the parties concerned within a period of **eight weeks** from the date of production of certified copy of this order.

(Sunita Agarwal, J) (Arun Tandon, J)

Order Date :- 21.6.2016
Jyotsana/Himanshu.

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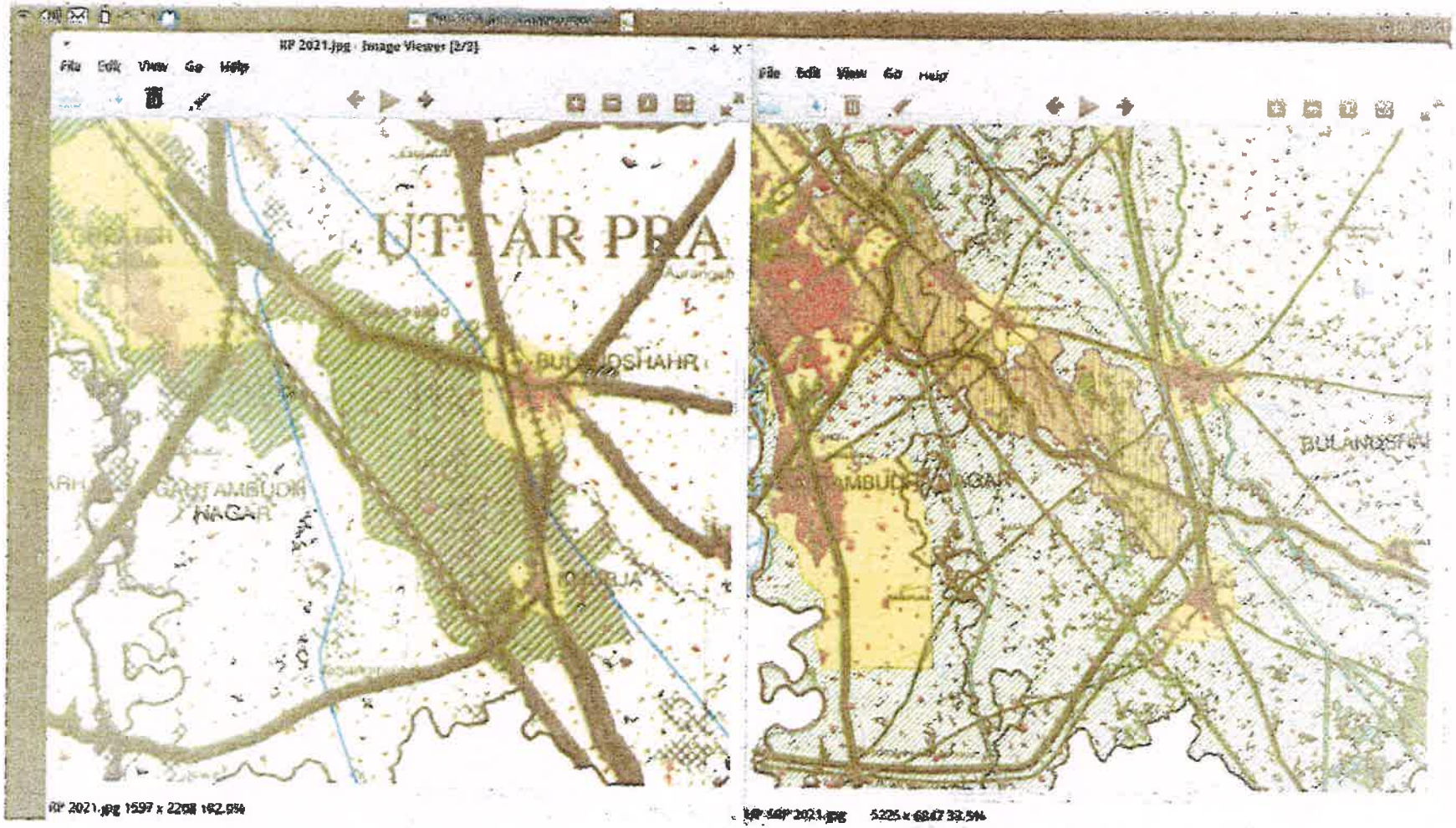

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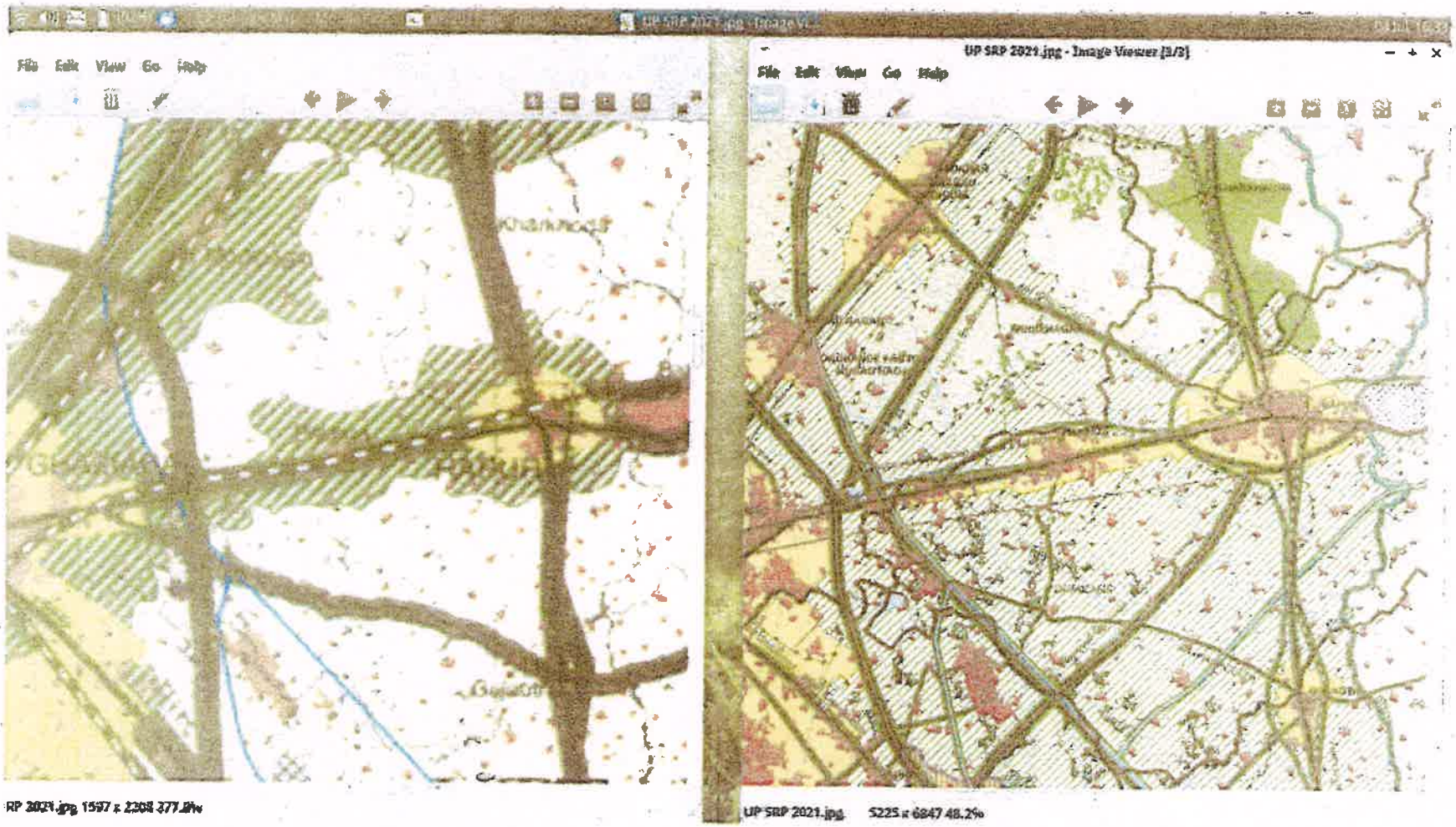
Enclosure 2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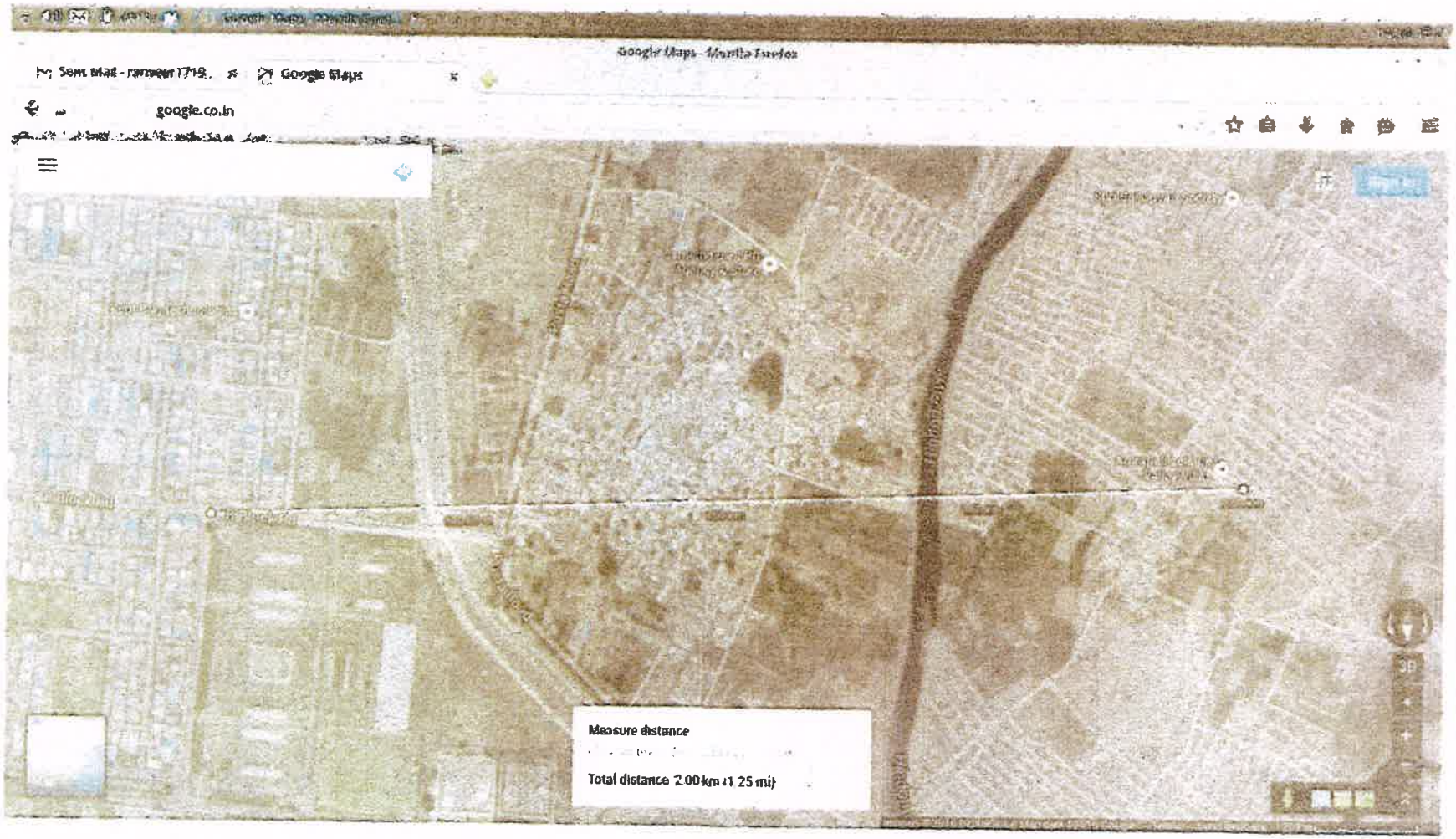

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Enclosure 4


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Google Maps - Mozilla Firefox
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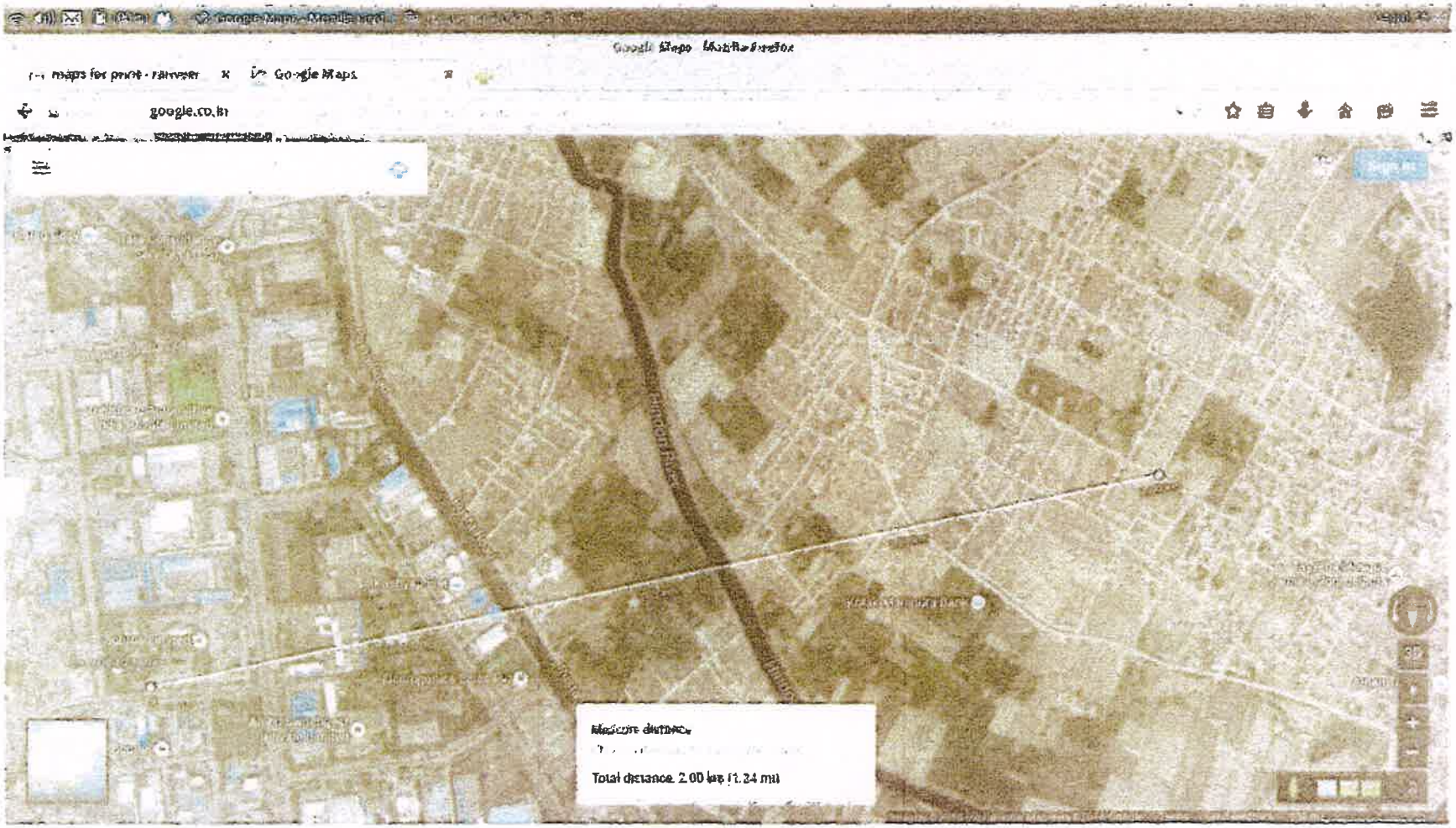
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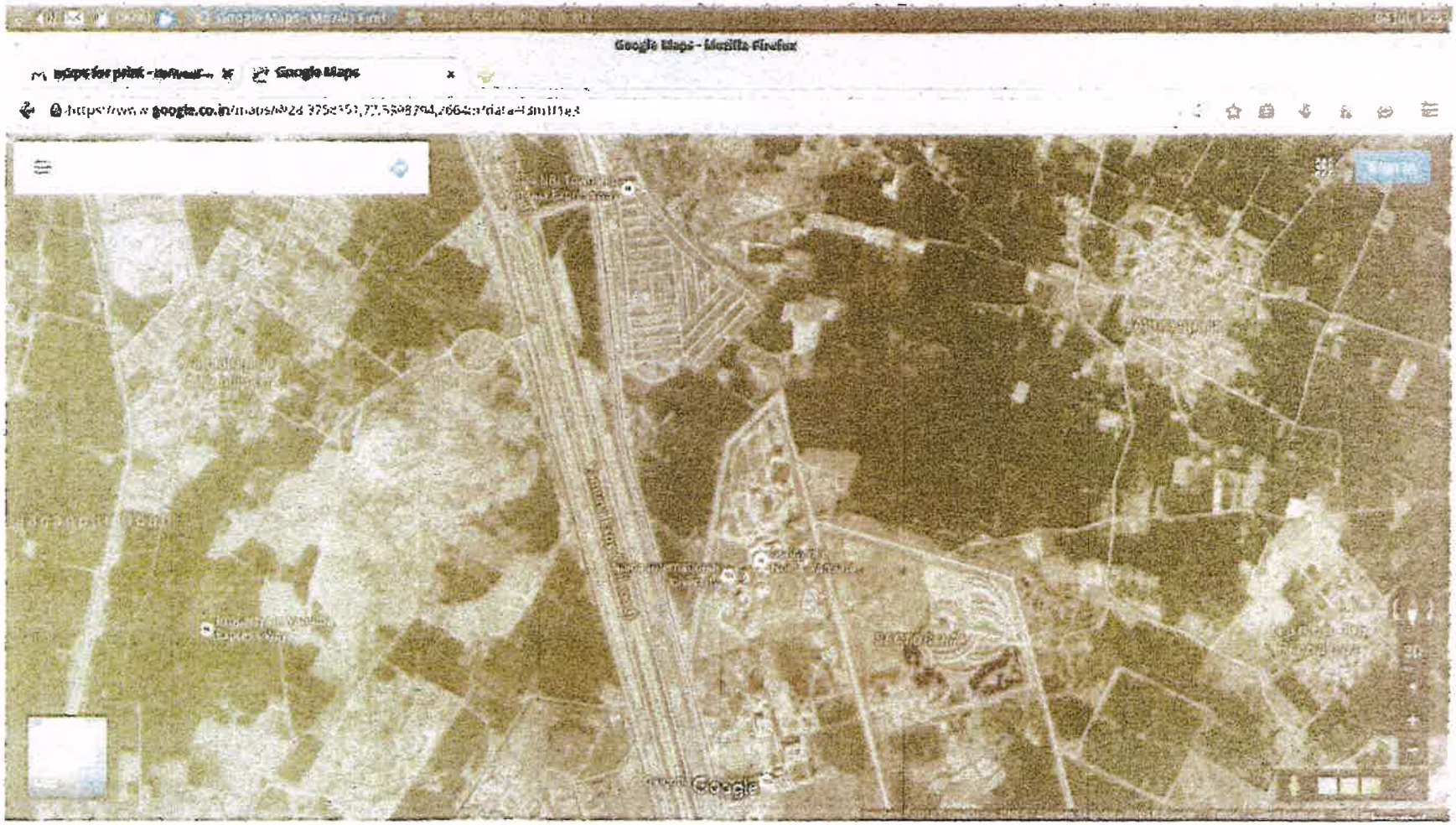

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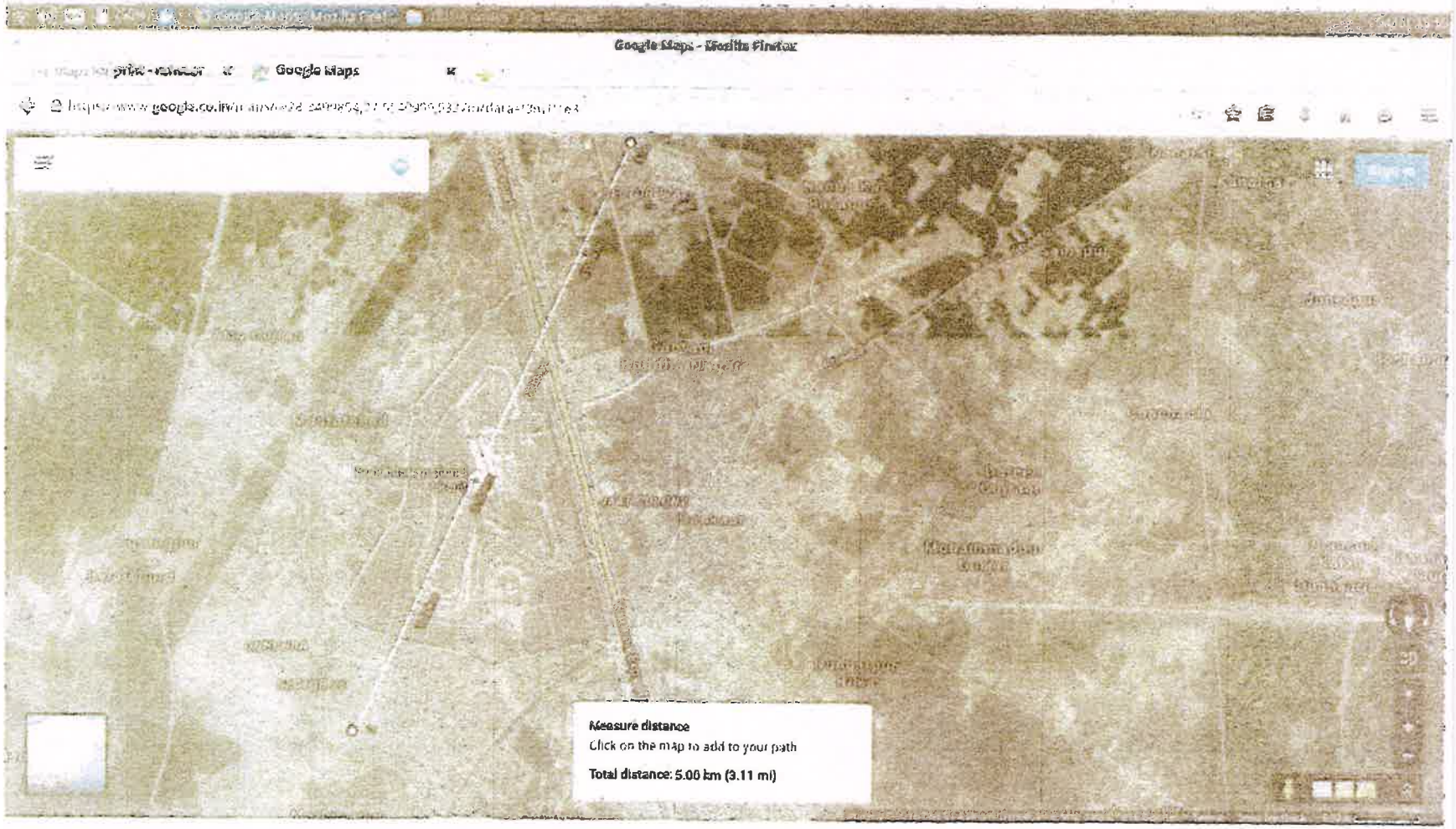
Enclosure 5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Measure distance
Click on the map to add to your path
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SUPPLEMENTARY ANNEXURE - SA-2/III

Draft decisions / directions on the complaint made after affording due opportunity of hearing to the parties concerned

Draft Decisions/ Directions on the complaints made after affording due opportunity of hearing to the parties concerned in compliance with the directions of the Hon'ble High Court of Judicature at Allahabad in the matter of Raghuraj Singh Vs. State of U.P. & 10 Ors. [Civil Misc. Public Interest Litigation No. 29004 of 2016]

Background of the Hearing:

1. Shri Raghuraj Singh had filed a Public Interest Litigation (PIL) in the Hon'ble High Court of Judicature at Allahabad [Raghuraj Singh Vs. State of UP & 10 Ors., Civil Misc. Public Interest Litigation No. 29004 of 2016 under Article 226/227 of the Constitution of India]. While disposing of the said PIL, the Hon'ble High Court of Judicature at Allahabad gave the following directions vide Judgment dated 21.06.2016:

> *"Vakalatnama filed by Sri BhanuBhushanJauhari on the behalf of respondent no. 4 is taken on record.*
>
> *Regarding the complaint of the petitioner in the matter of construction activity been undertaken by the Okhla Industrial Development Authority contrary to the provisions of the National Capital region Planning Board Act, 1985 it is noted that such complaint can be made under section 29(2) of the said Act before the NCR Board. The Board after investigation can issue appropriate direction in view of the aforesaid statutory provision.*
>
> *We, therefore, **dispose** of the present writ petition with a direction to the NCR Board to take appropriate decision on the complaint made after affording due opportunity of hearing to the parties concerned within a period of **eight weeks** from the date of production of certified copy of this order".*

2. In the aforesaid PIL, State of U.P. through Principal Secretary, Urban Planning and Development and the following 10 other Public Authorities were made party.

   i. National Capital Region Planning Board through its Member Secretary;
   ii. New Okhla Industrial Development Authority through its Chief Executive Officer;
   iii. Greater Noida Industrial Development Authority through its Chief Executive Officer;
   iv. Yamuna Expressway Industrial Development Authority through its Chief Executive Officer;
   v. Ghaziabad Development Authority through its Vice-Chairman and Secretary;
   vi. Meerut Development Authority through its Vice-Chairman and Secretary;
   vii. Hapur Pilakhuwa Development Authority through its Vice-Chairman and Secretary;
   viii. Bulandshahr Development Authority through its Vice-Chairman and Secretary;
   ix. Khurja Development Authority through its Vice-Chairman and Secretary;
   x. Baghpat-Baraut-Khekra Development Authority through its Vice-Chairman and Secretary

3. Subsequently, Shri Raghuraj Singh submitted an application dated 08.07.2016 alongwith a certified copy of the Order dated 21.06.2016, for necessary action to the NCR Planning Board.

4. Pursuant to the aforesaid Order dated 21.06.2016, a letter was sent to the Principal Secretary Housing and Urban Planning Department, Govt. of U.P., alongwith a copy of the application dated 08.07.2016, with a request to examine the matter for appropriate action and provide para-wise comments to the Board within seven days. Subsequently, a reminder was sent on 05.08.2016. Thereafter, a meeting was held on 30.08.2016 at NCRPB office with representatives of Govt. of U.P.; NCR Planning and Monitoring Cell, Uttar Pradesh and the concerned Development Authorities, wherein they were again requested to submit the para-wise comments/ reply, so that a hearing can be held in the matter.

5. Based on the discussion held in the meeting on 30.08.2016, a copy of the application dated 08.07.2016 was also sent to the Principal Secretary, Industrial Development Department, Govt. of U.P, to examine the matter for appropriate action and provide para-wise comments, since the New Okhla Industrial Development Authority (NOIDA), Greater Noida Industrial Development Authority (GNIDA) and Yamuna Expressway Industrial Development Authority (YEIDA), function under the administrative control of the Department of Industrial Development, Govt. of U.P.

6. Since, the comments/ reply were not received from all concerned within the stipulated time and further time was required to examine the matter and complete the exercise to take appropriate decision, Board prayed for extension of time to the Hon'ble High Court of Judicature at Allahabad vide Time Extension Application No. 283515 of 2016. The Hon'ble High Court granted extension of time vide its Order dated 27.09.2016 (extracts reproduced below):

> *"In the facts and circumstances of the case, we extend the time for taking a decision in terms of earlier order dated 21.06.2016 passed in the present petition for a further period of four weeks from today.*
>
> *Therefore, the decision must be taken by the concerned authorities on or before 31.10.2016."*

7. Subsequent to the meeting held on 30.08.2016, replies/ comments were received from Govt. of U.P and concerned Development Authorities as under:

Sl. No.	Replies/ comments received from	Letter dated
1.	NOIDA	01.09.2016
2.	GNIDA	05.09.2016
3.	YEIDA	05.09.2016
4.	Ghaziabad Development Authority	02.09.2016
5.	Meerut Development Authority	29.08.2016
6.	Bulandshahr and Khurja Development Authority	01.09.2016
7.	Hapur-Pilkhua Development Authority	26.08.2016
8.	Baghpat-Baraut-Khekra Development Authority	01.09.2016
9.	NCR Planning & Monitoring Cell, Uttar Pradesh	07.09.2016 23.11.2016

8. Subsequent to the above, hearings were held with the applicant Shri Raghuraj Singh and his team on 20.10.2016; with Govt. of U.P. (Housing and Urban Planning Department and Industrial Development Department); NCR Planning and Monitoring Cell, Uttar Pradesh and concerned Development Authorities on 21.10.2016 and a Joint Hearing was also held on 09.11.2016, on the request of the concerned parties. Representatives of NCRPB Secretariat were also directed to be present in the hearings.

Deliberations/Discussions and Observations of the hearing:

9. During the hearing, Shri Raghuraj Singh submitted that the NCRPB Act, 1985 is a unique and overriding central legislation enacted to ensure balanced and harmonized development of NCR. The Regional Plan prepared by NCRPB for the entire region is to be complied with, by all the NCR participating States and therefore, it is mandatory that the Sub-Regional Plans prepared by all the NCR participating State Governments are in conformity with the Regional Plan. He, however, submitted that the U.P. Sub-Regional Plan-2021 (SRP-2021) and the Master Plans of various settlements of the U.P. Sub-region are vastly contrary to the Regional Plan-2021 (RP-2021) in terms of assigned population, population density and landuse. He also submitted that certain developments undertaken by the Development Authorities in U.P. sub-region are contrary to the RP-2021. Therefore, it amounts to violation of the Regional Plan as per Section 29 of the NCRPB Act, 1985.

10. Detailed issue-specific arguments/ submissions made by concerned parties and the observations and decisions/ directions thereon are given in subsequent paragraphs.

10.1 U.P. Sub-Regional Plan-2021

(a) Shri Raghuraj Singh contended that the U.P. SRP-2021 approved by the Board and finalised by the Govt. of U.P. is **not in conformity with the RP-2021** as mandated by the NCRPB Act, 1985. He stated that the **comparison of the NCR Landuse Map of RP-2021 with the Landuse Map of U.P. SRP-2021 indicates number of variations with respect to areas represented as agriculture land and existing/ proposed urbanisable areas.** He cited the following examples:

i. Yamuna Expressway City (proposed as a Metro Centre in U.P. SRP-2021), Delhi-Mumbai Industrial Corridor (DMIC) covering large area between Dadri and Khurja, intervening area between Noida and Greater Noida, etc., wherein large areas shown as agriculture zone in Regional Plan-2021 are shown as built-up area or proposed urbanisable area in the U.P. SRP-2021.

ii. The RP-2021 has proposed Green Buffer and Agricultural Zone along Ghaziabad-Hapur Highway whereas the SRP-2021 has proposed considerable part of it as urbanisable area.

iii. Greater Noida to Hapur Expressway is proposed in the U.P.SRP-2021 whereas it is not provisioned in the RP-2021.

(b) Representative of Govt. of U.P. submitted that the U.P SRP- 2021 (Draft) was prepared by the Govt. of U.P after detailed discussions with all stakeholders. It was also submitted that even though there is no provision in the NCRPB Act, 1985 to invite objections/ suggestions from public on the Sub-Regional Plan, yet to maintain transparency and

people's participation, a notice was published in two national newspapers by the Govt. of U.P. for inviting the objections and suggestions on Draft SRP-2021. The Draft SRP-2021 was also uploaded on official web-site of Housing and Urban Planning Department, Govt. of U.P. (www.awas.up.nic.in) for objections and suggestions. However, no objections and suggestions were received. The suggestions and proposals of all concerned departments were taken into consideration and all Central and State Govt. projects were included in the U.P.SRP-2021.

It was also submitted by the representative of Govt. of U.P. that spatial planning and development is a continuous process and urbanisable areas shown in the U.P.SRP-2021 are as per the duly notified Master Plans of the towns falling within the U.P. sub-region. It was further submitted that the proposals of the Regional Plan are broad and are taken care of, while preparing the Master Plans under the provision of the prevailing State Acts. It was also submitted that the physical boundaries of the landuse indicated in the Regional Plan are **tentative and indicative** and that the actual boundaries will be as per the micro level plan, i.e. the Master Plans.

He further stated that the RP-2021 has proposed six-tier hierarchy of settlements, namely, Metro Centre, Regional Centre, Sub-regional Centre, Service Centre, Central Village and Basic Village. However, RP-2021 has identified only two hierarchy settlements (Metro and Regional Centres) which have larger impact on regional settlement pattern. The other four types of settlements are to be identified in the respective Sub-Regional Plans. The Proposed Land-use Map of RP-2021 states that:

> *"The proposed urbanisable area as shown on the map for Metro Centres and Regional Centers are approximate and the urbanisable limits would be governed by proposals of the statutory Master Plans/ Development Plans/ new Master Plans and Development Plans in-force. Details of lower hierarchy of settlements will be identified in the Sub Regional Plans and their landuses will be as shown in the Master Plans/ Development Plans/ New Master Plans/ Development Plans in force".*

The Proposed Land-use Map of U.P. SRP-2021 states that:

> *"The Controlled/ Development area boundaries, existing built-up and proposed urbanisable areas as shown on the map for different urban centres are approximate; hence, urbanisable limits and other boundaries/ details would be governed by the statutory Master Plans/ Development Plans".*

Considering the above, the RP-2021 has shown broad landuse for 4 Metro Centres (Noida, Greater Noida, Ghaziabad-Loni and Meerut) and 3 Regional Centres (Hapur-Pilkhua, Bulandshahr-Khurja and Baghpat-Baraut) in U.P. sub-region, whereas the SRP-2021 has shown landuse for the remaining settlements also.

The representative of Govt. of U.P. further mentioned that after the RP-2021 was notified in 2005, a number of new infrastructure projects like DMIC, Eastern & Western Dedicated Freight Corridor, Upper Ganga Canal Expressway, Eastern Peripheral Expressway, Delhi-Meerut Expressway, Regional Rapid Transit System (RRTS) project with Transit Oriented Development (TOD), etc., have been incorporated in the U.P. SRP-2021. Under DMIC Project, Govt. of India has proposed to establish Investment Region

of 200 sq.km. named as "Dadri-Noida-Ghaziabad Investment Region (DNGIR)" adjacent/ falling within the area of Greater Noida, YEIDA and Bulandshahr/ Khurja Development Authority. There are also proposals for establishing projects like Multi Modal Logistic Park (MMLP) and various new Transport Terminals at the junction point of Eastern and Western Dedicated Freight Corridors at Dadri.

As regards, urbanisation in the intervening area between Noida & Greater Noida, the representative of Govt. of U.P. informed that the said area underwent continuous urbanization after the notification of the RP-2021. The built-up areas as shown in U.P. SRP-2021 are based on temporal growth of settlements derived from the satellite imagery of year 2012, provided by NRSC via NCRPB.

Regarding the issue related to the "Agriculture Area within and outside Development Area" in GautamBudh Nagar, as highlighted by Shri Raghuraj Singh, the representative of Govt. of U.P. stated that after the notification of the RP-2021, the Development Areas of Noida & Greater Noida have expanded and the Development Area of Yamuna Expressway Authority was notified by the Govt. of U.P. Therefore, all the above Controlled Areas, as notified by the Govt. of U.P., are depicted in the U.P. SRP-2021. This has resulted in the variations in the landuse of GautamBudh Nagar, as shown in the RP-2021 and U.P. SRP-2021.

The built-up area shown between Ghaziabad-Hapur highway in U.P.SRP-2021 is based on satellite imagery of NRSC of year 2012 provided by NCRPB. He added that beyond the built-up area, a green buffer is maintained all along the highway in the U.P.SRP-2021.

(c) Representative of YEIDA, also added to the submission of the representative of Govt. of U.P. that Para 4.3.5 (I) of RP-2021 under "Strategies for Development of Settlement System", provides for the following:

> *"In order to make a significant impact and work as a catalyst for development in the National Capital Region, it is proposed to identify four or five Metro Centres or Regional Centres or any other suitable township for development by attracting investment and generation or employment creation of high-quality infrastructure, robust transport and communication linkages, high-quality residential areas, industrial and commercial complexes. The proposed new townships would be nodes along the key transport corridors, proposed expressways, orbital rail corridors and other suitable location on virgin land."*

(d) It was observed that **YEIDA was not identified as a Metro Centre in the RP-2021 and therefore has not been indicated on the Proposed Landuse Map of the RP-2021.**

The proposal for development of proposed **Yamuna Expressway Industrial Development Authority (YEIDA)** was given by the Govt. of U.P. in the U.P. SRP-2021 as per the provisions of the Section 17 (3) (b) of the NCRPB Act, 1985 relating to the elements of the Regional Plan that are to be elaborated in the Sub-Regional Plan, which provides for the following:

> *"(b) future urban and major rural settlements indicating their area, projected population, predominant economic functions, approximate site and location;"*

(e) With respect to the proposal for development of Greater Noida to Hapur Expressway in U.P. SRP-2021, it was observed that it is in line with the policy given at Para 6.5 (b) in the RP-2021 which is re-produced below:

> *"To provide linkages amongst Metro/Regional Urban Settlements in the outlying area of NCR."*

In addition to above, RP-2021 at Para 6.6.1 (i) (h) relating to the development of Primary Road Network, provides for development of an appropriate hierarchical road system for the Regional Towns to cater to the intra-urban traffic in an efficient manner.

(f) Regarding showing higher urbanisable area along transport corridors/ highways in the U.P. SRP-2021 against that of RP-2021, it was observed that in order to control the large-scale urban development along the important highways in the NCR, outside the controlled/ development/ regulated areas, **Highway Corridor Zone (HCZ)** is proposed in the RP-2021. The HCZ will have to be notified as a controlled/ development/ regulated area and Master/ Development Plans will have to be prepared by the respective State Governments. (Para 17.4.2 and 17.5.2 of RP-2021)

U.P. SRP-2021 provides that since there is no existing Act under which HCZ can be notified, uncontrolled contiguous areas comprising of entire revenue villages along highways have been incorporated into the nearby Development Areas under the provisions of prevailing Acts for extension of Development/ Controlled/ Regulated Areas boundary in the sub-region. In this area, **activities will be permitted as per the Zoning Regulations of the respective notified Master/ Development Plans.** (Para 16.9 of U.P. SRP-2021)

10.2 Approval of the U.P. SRP-2021

Shri Raghuraj Singh further contended that the U.P. SRP 2021 (as approved by the NCR Planning Board and as finalised by the Govt. of U.P.) is not in conformity with the RP-2021.

Representative of Govt. of U.P. submitted that there is due process described in the NCRPB Act, 1985 with regard to the preparation of Sub-Regional Plans by participating States. After following the due procedures laid down in the Act and after incorporating suggestions, the U.P. SRP-2021, was finally submitted on 25.06.2013 to NCRPB Secretariat for consideration in the Board meeting. U.P. SRP-2021 was, subsequently, approved in the 33rd meeting of the Board held on 01.07.2013.

Representative of NCRPB Secretariat submitted that the draft U.P. SRP-2021 was submitted to the Board according to the provision of Section 19(1) of the NCRPB Act, 1985. The draft U.P.SRP-2021 was placed in the meeting of the 61st Planning Committee and the observations/ recommendations of the Planning Committee were communicated to the Govt. of U.P. Subsequently, the Board in its 33rd meeting deliberated on the draft U.P. SRP-2021 alongwith the observations/ recommendations of the Planning Committee and decided that the following observations of the Board be incorporated in the draft U.P. SRP-2021 before finalizing the same

- Existing Landuse analysis and Landuse Map 2012 of NCR prepared by NRSC, Deptt. of Space, Govt. of India be incorporated in SRP-2021.

- Zoning regulations of draft Sub-Regional Plan-2021 for UP- sub region to be conformity with RP -2021 for NCR.

The above observations were conveyed, as per Section 19(2) of the NCRPB Act, 1985, to Govt. of U.P. in the form of Minutes of the meeting.

Subsequently it was conveyed by NCR Planning & Monitoring Cell, U.P. that the matters have been resolved and Govt. of U.P. informed vide letter dated 05.09.2013 that it has finalized and published the SRP-2021, under Section 19(3) of the Act.

However, it is observed that the provisions of the Zoning Regulations of the RP-2021 have not been incorporated in the U.P. SRP-2021 and hence, the specific direction of the Board has not been complied with.

10.3 Approval of the Master Plans prepared by Development Authorities in UP sub-region by NCR Planning Board

Shri Raghuraj Singh further submitted during the hearing, that all the respective Master Plans prepared by the Development Authorities in the sub-region (namely, Noida, Meerut, Ghaziabad-Loni, Bulandshahr, Khurja, Hapur-Pilkhua and Baghpat-Baraut) except the Greater Noida Master Plan-2021 have not been approved by the NCR Planning Board, as mandated in accordance with the published statutory Regional Plan-2021; and that the development being carried out by the Development Authorities in these settlements are contrary to the Regional Plan.

Representatives of Govt. of U.P. and the concerned Development Authorities submitted that there is no provision in the NCRPB Act, 1985 for the submission of the Master/ Development Plans by the participating States to the NCR Planning Board for examination and/ or approval by the Board. It was also submitted that the Master Plans for the notified Development Areas are prepared under Section 8 of the Uttar Pradesh Urban Planning and Development Act, 1973 and are approved under Section 10 of the said Act by Govt. of U.P. and under this Act also there is no provision for approval of the Master Plans by the Board.

However, the Master Plan for Greater Noida-2021 was submitted to the Board in compliance with the Allahabad High Court Judgement dated 21.10.2011 in WP No. (C) 37443/2011 and other Petitions filed in the Hon'ble High Court, Allahabad. Board considered the draft Master Plan for Greater Noida-2021 and later approved the same with certain conditions.

10.4 Approval of the draft Master Plan for Greater Noida -2021 by NCR Planning Board

Shri Raghuraj Singh contended that the draft Master Plan for Greater Noida -2021 (as approved by the NCR Planning Board and Govt of U.P.) is not in conformity with the RP-2021.

Representative of Govt. of U.P. submitted that there is no provision in the NCRPB Act, 1985 of getting approval from NCRPB on the Master Plans, however, as per the direction of Hon'ble High Court of Allahabad, the draft Master Plan for Greater Noida-2021 was submitted to the Board and subsequently, the Board, approved the same after due examination and after emphasizing adoption of the density norms of RP-2021.

Representative of NCRPB Secretariat submitted that the draft Master Plan for Greater Noida - 2021 was approved with the following five conditions on 24.08.2012, so that the same can be in conformity with the RP-2021:

i. In order to achieve the targeted population and density as per the Regional Plan-2021 for NCR, density levels may be increased by various measures like increase in FAR, creating conducive climate for industrial/economic activities, integration of the DMIC project and improved connectivity.

ii. Govt. of U.P./ GNIDA may ensure provision of 20-25% of EWS/ LIG Housing while preparing of Sector Lay-out Plans and Development of Greater Noida area.

iii. Government of U.P./GNIDA may ensure to prepare the Environment Master Plan of Greater Noida which would be integral part of the notified Master Plan.

iv. Green area proposed is 3,580 Hectare out of total urbanisable area of 22,255 Hectare, which constitutes about 16% of the total area. This area should be preserved/ protected and not subject to any land use change at any further date.

v. Action Plan for implementation and its phasing should be done before notification of the Final Plan by Govt. of U.P./GNIDA.

Subsequently, a number of meetings/ discussions/ correspondences were held between the NCRPB and GNIDA & Govt. of U.P. and it was communicated by GNIDA **that some of the conditions were to be executed/ complied with during the implementation of the Plan rather than be incorporated in text of the Master Plan document.** Matter was further deliberated upon in subsequent meetings of the Planning Committee and Board and the Govt. of U.P. vide its letter dated 10.10.2013 informed that after incorporation of the suggestions of the Board the draft Master Plan for Greater Noida-2021 has been approved by Govt. of U.P.

Board once again received a copy of the revised Master Plan of Greater Noida-2021 (Jan 2014) from Govt. of U.P. on 06.10.2015, communicating the approval of Govt. of U.P. and with a request to take further necessary action.

Representative of NCRPB Secretariat also submitted that even though the NCRPB Act, 1985 does not have any provision with respect to the approval of Master/ Development Plans of the towns falling within the NCR, the Revised Master Plan for Greater Noida-2021 was once again reviewed in order to ascertain whether all the conditions put forward on the earlier plan, which had been agreed upon by GNIDA, have been fully incorporated/ followed with, in the revised Master Plan or not. **It was observed that the revised document is not in conformity with the provisions of RP-2021 for NCR (notified in 2005) since the town density in the Revised Master Plan for Greater Noida-2021 was still maintained at 54 persons per hectare.** Accordingly, a Notice under Section 29(2) of the NCRPB Act, 1985 was issued to the Govt. of U.P. on 21.01.2016. NCRPB Secretariat has received a copy of the reply of GNIDA to the said Notice vide letter dated 31.03.2016, addressed to the Govt. of UP. NCRPB Secretariat has again requested **Govt. of U.P. to submit their reply which is still awaited. Once the reply is received from Govt. of U.P. the same will be placed before the Board for further deliberation.**

It was observed that out of the five conditions stipulated by NCRPB while approving the Master

Plan for Greater Noida-2021, Shri Raghuraj Singh has highlighted the issue of less population density and more urbanisable area. On this, the representative from GNIDA submitted that Greater Noida is not a contemporary old city as other cities in its vicinity and that the density or population of a town cannot be increased overnight. For increasing the town density, GNIDA has taken appropriate steps with respect to increase an FAR; allowing purchasable FAR and density; group housing, etc. which would facilitate increased overall population density.

The representative from GNIDA further elaborated that to achieve the targeted town density as per the RP-2021, the density in Group Housing pockets has been increased from 1650 pph to 2100 pph, in its endeavor to promote re-densification of town. GNIDA has also increased maximum permissible FAR in group housing plots from 2.75 to 3.5 and approval for the same has been granted by Govt. of U.P. Also, the Group Housing Plots where no construction had started have been allowed to purchase the FAR.

The representative further informed that in order to study the impact of increased FAR and purchasable FAR a study was carried on behalf of GNIDA by Association of Municipalities and Development Authorities (AMDA) for impact assessment on population due to increase in FAR and density. AMDA suggested that population of Greater Noida will increase to 28-30 lakhs by 2031 as it is a new city and the city is still in its development stage. The population in Master Plan 2021 has been proposed as 12 lakhs in conformity with Regional Plan 2021.

The representative from NCRPB Secretariat submitted that the population density for the perspective year 2021, as per the Revised Master Plan for Greater Noida-2021 is **54 persons per hectare** as against the suggested density of **150-200 pph** in the RP-2021 for towns of proposed population more than 10 lakhs (Metro Centre). Therefore, an assessment is required to study the impact of the proposed measures by GNIDA in terms of Group Housing, increased FAR etc. as well as the impact of the increased economic activity owing to the DMIC projects on the overall population and the resulting population density of Greater Noida.

Shri Raghuraj Singh also contended that West Greater Noida (also called Noida Extension) of approximately 1,000 Ha land is being developed for 4.5 lakh apartments. This project alone will account for 22.5 lakh population @ of 5 persons per apartment. In addition there will be population in independent houses, farm houses, unauthorized colonies and villages of this part of the Greater Noida city.

Representative of GNIDA submitted that the statement is incorrect and denied.

Shri Raghuraj Singh also contended that while approving Greater Noida Master Plan-2021, the NCR Planning Board had indicated that all along Hindon river two kms wide area between Noida and Greater Noida city will be kept as green open area free of urbanisation. However, this has not been followed and in this prohibited area the Development Authorities have urbanised the agricultural/green zone land.

Representative of GNIDA submitted that green buffer between Noida and Greater Noida city, as approved by NCRPB, in Greater Noida Master Plan-2021 has neither been changed nor granted any kind of permission for construction of buildings in the river front.

10.5 Variations in terms of assigned population, population density and landuse in the Master Plans of various Settlements (apart from Greater Noida) of the sub-region and the Regional Plan 2021

Shri Raghuraj Singh contended that the Master Plans of various Settlements of the sub-region are vastly contrary to the RP-2021 in terms of assigned population, population density and landuse.

Representatives from Govt. of U.P. and the Development Authorities submitted that the landuses as per the approved Master Plans have already been incorporated in the U.P.SRP-2021 which has been finalised by Govt. of U.P. subsequent to consideration by the NCR Planning Board.

Settlement wise argument raised by Sh. Raghuraj Singh, and the replies presented by the concerned Development Authorities and Govt. of U.P. are presented in detail in the ensuing paragraphs.

(i) NOIDA:

Sh. Raghuraj Singh submitted that Noida Master Plan-2031 has proposed a population of 25 lakh with an urbanisable area of 15,280 ha land as against 6000-8000 ha (at RP 2021 density norm of 150-200 pph for 12 lakh population).

Representative of Noida Authority submitted that as per the Noida Master Plan-2031, proposed population is 25 lakh (corresponding to the year 2031); total urbanisable is 15208 ha. Accordingly, the town level population density comes to 163.61, say 164 persons per hectare (pph), which is as per the density range proposed in the RP-2021. In view of this, the contention of Sh. Raghuraj Singh is not acceptable.

Representatives from NCRPB Secretariat submitted that Noida has been identified as a Metro centre and that a population of 12 lakh has been assigned to Noida for the perspective year 2021. The density norms suggested in RP-2021 are as follows:

Population of Urban Centres	Density (persons per hectare)
10 lakh to 50 lakh population	150 to 200

As per Noida Master Plan- 2031, NOIDA proposes to achieve the following by 2031:

Proposed population	Proposed urbanisable area	Proposed population density
25 lakh	15,280 ha	163.61pph

Representative of NCRPB Secretariat further submitted that in the Master Plan for Noida-2031, the proposed population and proposed urbanisable area have not been defined corresponding to the year 2021. In view of this, it may be appropriate to estimate/ ascertain the proposed population and population density corresponding to the 2021, and reflect the same in the Master Plan for Noida-2031.

(ii) Ghaziabad

Shri Raghuraj Singh submitted that the Ghaziabad Master Plan-2021 has proposed a population of 30.19 lakh with an urbanisable area of 24,239 hectare (Ghaziabad 15,554 ha + Hi-Tech city 2,185 ha + Loni 5,122 ha + Muradabad 1,378 ha), as against 15,095 ha (at RP 2021 density norm

of 200 PPH for 30.19 lakh population). Sh. Raghuraj Singh further submitted that Hi-Tech city being developed in GDA is not planned in the Regional Plan. The concerned area is Agricultural Zone as per RP-2021 landuse.

Representative from GDA submitted that Ghaziabad Master Plan-2021 has proposed total 31 lakh population on total urbanisable area of 20,676 ha (15,554 ha in Ghaziabad + 5,122 ha in Loni) and not 24,239 ha as submitted by Shri Raghuraj Singh. In the Master Plan, the town level population density for Ghaziabad has been proposed as 150 pph and in case of Loni, town level population density of 135 pph has been proposed. Overall for Ghaziabad Loni Urban Complex, the population density comes at 150 pph. Therefore, the population density proposed in the Ghaziabad Master Plan-2021 is as per the RP-2021.

Representatives of GDA further submitted that apart from Ghaziabad and Loni, Modinagar and Muradnagar are also included in the Ghaziabad Master Plan-2021. In Muradnagar, total urbanisable area is 1,378 ha and population density has been proposed as 110 pph, whereas in case of Modinagar, total urbanisable area has been proposed as 3,300 ha and population density has been proposed as 110 to 125 pph which is appropriate for towns with population of 5 lakh.

With respect to the issues raised by the applicant regarding development of Hi-Tech city, the representative of GDA referred to the provisions given in the Regional Plan as well as the Sub-Regional Plan relating to development of settlement systems, which is as under:

> *"Development of a well-knit regional settlement system where Delhi and other towns in the region would be allowed to grow within their carrying capacity and development potential as may be determined by their development/planning agencies and to formulate an overall policy for all types of settlements. In order to make a significant impact and work as a catalyst for development in the National Capital Region, it is proposed to identify four or five Metro Centres or Regional Centres or any other suitable township for development by attracting investment and generation of employment, creation of high-quality infrastructure, robust transport and communication linkages, high-quality residential areas, industrial and commercial complexes. The proposed new townships would be nodes along the key transport corridors, proposed expressways, orbital rail corridors and other suitable locations on virgin land."*

In accordance with the above policy, Govt. of U.P. has granted license to two developers for development of Hi-Tech City on virgin land situated on NH-24. The areas of these two Hi-Tech cities are 4494.31 acres (1819.56 ha) and 4312.99 acres (1746.15 ha) wherein high quality infrastructure, residential, industrial, commercial areas/ complexes will be developed and accordingly the Hi-Tech city is being developed as per the policies given in the Regional Plan and Sub-Regional Plan.

Representatives from NCRPB Secretariat submitted that the RP-2021 has identified Ghaziabad – Loni complex as a Metro Centre and assigned population of 30.00 lakh for the perspective year 2021. The density norms suggested in RP-2021 are as follows:

Population of Urban Centres	**Density (persons per hectare)**
10 lakh to 50 lakh population	150 to 200

As per Master Plan for Ghaziabad-2021, GDA proposes to achieve the following:

Proposed population	Proposed urbanisable area	Proposed population density
31 lakh	20,676.00 ha	150pph

In view of above, the provisions of Master Plan-2021 of Ghaziabad and Loni are in line with the provisions of RP-2021 as far as population density norms are concerned. However, with respect to the development of Hi-tech city it was noted the same is being developed by the Govt. of U.P. under the provisions at para 4.3.5 of Regional Plan -2021 which provides for the *"Strategies for development of Settlement System"*.

Upon query, the representative from GDA submitted that even though the area of the two plots of Hi-Tech city is not included in the urbanisable area as proposed in the Ghaziabad Master Plan-2021, these two plots are within the Development Area as notified by GDA. The population proposed to be accommodated in the Hi-Tech city is not part of the Ghaziabad Master Plan-2021 and hence the population of Ghaziabad-Loni Urban Complex (31 lakhs) does not include the proposed population of Hi-Tech city.

Representative of NCRPB Secretariat submitted that since the said Hi-Tech cities are proposed to be developed within the Development Area of Ghaziabad and are indicated in the Ghaziabad Master Plan-2021, this will have an impact on the overall population and population density of Ghaziabad-Loni Urban Complex. From the perspective of holistic Regional Planning, the Ghaziabad-Loni Urban Complex and the Hi-Tech city should be considered as one settlement for the purpose of seamless spatial integration and provision of infrastructure, considering the fact that there will be high level of inter-dependency between the existing settlements of Ghaziabad-Loni and the upcoming settlement. In view of this, it may be appropriate to spatially integrate the Hi-Tech city with the Ghaziabad Master Plan-2021 as well as to reflect the integrated landuse, population, population density etc. in the said Master Plan, after ensuring conformity with the Regional Plan-2021.

(iii) Meerut

Sh. Raghuraj Singh submitted that the Meerut Master Plan-2021 is not yet approved by the NCR Planning Board and along Meerut- Roorkee highway, substantial land is shown as urbanisable area whereas it is to be Green/Agricultural zone as per the Regional Plan.

The aspect of getting approval of Master Plan from NCRPB has already been addressed earlier.

With respect to the issue raised by the Applicant regarding landuse (development of substantial land along Meerut–Roorkee Highway) as shown in the Meerut Master Plan-2021, the representative from Meerut Development Authority (MDA), submitted that the following provision is included in the foot-note of the Proposed Landuse Map of RP-2021 of NCR:

> *"The proposed urbanisable area as shown on the map for Metro centres and Regional centers are approximate and the urbanisable limits would be governed by proposals of the statutory Master Plans/ Development Plans/ new Master Plans and Development Plans inforce. Details of lower hierarchy of settlements will be identified in the Sub Regional Plans and their landuses will be as shown in the*

Master Plans/ Development Plans/ New Master Plans/ Development Plans in force."

Representative from MDA further submitted that from the above it is clear that while preparing the Master Plans, partial modification to the urbanisable area as shown in the RP-2021 is possible. It was further submitted that the urbanisable as shown in the RP-2021 along Meerut-Roorkee Highway, has been shown in the Meerut Master Plan-2021 and the same is in conformity with the RP-2021.

(iv) Bulandshahr, Khurja, Hapur-Pilkhua and Baghpat-Baraut

Sh. Raghuraj Singh submitted that the Master Plans of the above towns have not yet approved by the NCR Planning Board but the Development Authorities are carrying out developments in these settlements.

The aspect of getting approval of Master Plan from NCRPB has already been addressed earlier.

Representative from NCRPB Secretariat submitted that as per information made available to the Board by the Bulandshahr/ Khurja Development Authority, the details of population, urbanisable area and population density as per the Master Plans are as under:

Name of the Town	Proposed population	Proposed urbanisable area	Proposed population density
Bulandshahr	3.32 lakh	3196.41 ha	104 pph
Khurja	1.43 lakh	2817.46 ha	51 pph

In view of the above, for Bulandshahr-Khurja Urban Complex, total proposed population is 4.75 lakh and total proposed urbanisable area is 6013.87 ha. Accordingly, the town level population density comes to 79 pph, whereas the density norms suggested in RP-2021 for similar towns with population between 1 lakh to 5 lakhs is as follows:

Population of Urban Centres	Density (persons per hectare)
1 lakh to 5 lakh population	110-125

Representative from Hapur-Pilakhua Development Authority submitted that the Plan is in conformity with the U.P. SRP-2021 and has been prepared under the prevailing statutes of the State Government. However, the NCR Cell U.P. has submitted that the currently in-force Hapur Master Plan is for the perspective year 2005 only.

Representative from Baghpat-Baurat Development Authority informed that the Master Plan of Baghpat-Baurat has been prepared for the perspective year 2031, as per the provision of RP-2021 and same has been submitted to Govt. of U.P. for approval, as per the prevailing statutes.

10.6 In view of the above arguments/ deliberations Sh. Raghuraj Singh summarized his submission as under:

The U.P. State and their Development Authorities have planned settlements for population far in excess of assigned population and are planning to urbanise huge land for which the landuse as per RP 2021 is agricultural/Green/open thereby Master Plans of the above mentioned settlements in the present contents and form are causing following:-

i. Illegal Land Use Change in huge quantum;

ii. Offending the population density norms of RP 2021;

iii. Urbanization of areas reserved as Green/ Open/ Agricultural use;

iv. Merging of the settlements thereby altering the character of the Regional Plan;

v. Developing settlements of huge population much beyond Regional Plan assigned population thus creating mega cities instead of following hierarchical settlement system as provisioned in the Regional Plan;

vi. Depletion of the natural resources particularly the ground, water and making the situation grim and critical;

vii. Increase in traffic congestions to unmanageable and hazardous level;

viii. Air and noise pollution detrimental to people's health;

ix. Making the development unsustainable and unaffordable in NCR contrary to the intent of the Act;

x. Development of huge settlements without adequate water, sewer, drainage, waste disposal and power system arrangement, which will further degrade quality of life defeating the purpose for which the NCR Act was enacted and the NCR Board was constituted by spending huge public money; and

xi. The development being carried out in the Sub-region is discriminating as there is no detailed development plan for the rural settlements in the Sub-regional Plan/ Master Plans.

Accordingly, Shri Raghuraj Singh has prayed the following:

i. NCRPB's approval of the U.P. Sub-regional Plan 2021 and Greater Noida Master Plan 2021 to be withdrawn and finalized again ensuring their conformity with the Regional Plan 2021;

ii. NCRPB, i.a.w. Section 29 of the NCRPB Act, issues notice to the U.P. State to stop development in Noida, Greater Noida, Yamuna Expressway city, Ghaziabad and Meerut of U.P. Sub-region as the ongoing development in these urban centres is contrary to the Regional Plan 2021;

iii. The State of U.P. to direct NOIDA, GNIDA, YEIDA, GDA and MDA to stop development as development being carried out in their respective area and their respective Master Plans are contrary to the Regional Plan 2021;

iv. The U.P. Government to withdraw approval of Master Plans of Noida, Greater Noida, YEIDA , Ghaziabad and Meerut as the same are not in conformity with the Regional Plan 2021;

v. The U.P. State to prepare Sub-regional Plan 2021 and Master Plans of all the settlements of the UP. Sub-region again ensuring their conformity with the Regional Plan 2021 and obtain approval of the NCR Planning Board as warranted by the NCR Planning Board Act/Regional Plan 2021;

vi. The U.P. Government to direct their Development Authorities to make adequate and proper arrangements for water, electricity, sewer, drainage and waste disposal

commensurate to the assigned population as per the Regional Plan approved by the NCR Board before creating new settlements or extension of settlements;

vii. The U.P. Government to ensure inclusion of detailed development Plan for all the urban as well as rural villages of the Sub-region in the Sub-regional Plan 2021 and all the Master Plans as warranted by the Regional Plan 2021;

viii. NCRPB and UP. State and their Development Authorities to promulgate the details of assigned population, land required and population density of all the Metro Centers, Regional Centers and Sub-regional Centres of U.P. Sub-region as per provisions and norms of the Regional Plan 2021, as per Sub-regional Plan 2021 and as per Master Plans as pertaining to their respective jurisdiction to bring the same in the public domain; and

ix. NCRPB and U.P. State and their Development Authorities to promulgate the details of extent of development already carried out in all the Metro Centers, Regional Centers and Sub-regional Centres of U.P. Sub-region indicating the land in Hectares developed and planned to be developed in each of those centers as pertaining to their respective jurisdiction.

Based on the above submissions by the concerned parties and discussions/ deliberations held on the same, the following are hereby decided/ directed:

i. In this regard, it is directed that merging of settlements which are not inter-dependent with each other, be avoided while preparing the Master Plans for towns/ settlements, so that unnecessary urbanization can be avoided. It is also directed that the Govt. of U.P. and all Development Authorities or any Public Agency involved in preparation of Master Plan for a city/ town, falling within NCR, to practice utmost care to protect the agricultural land and other conservation areas from their indiscriminate conversion for urbanization. In this regard, the Regional Plan has already mandated that while preparing Master/ Development Plans for towns, attempt be made to rationalize the quantum of land required for each urban activity. It is therefore, directed that State Government of U.P./ Development Authorities develop high density compact settlements to accommodate the increasing pressure of population in cities and towns and to plan settlements in a way that conserve good agriculture land.

ii. The Regional Plan, Sub-Regional Plan and Master/ Development Plans are different hierarchy plans and hence the landuses cannot be compared *in-toto*. However, the Sub-Regional Plans and the development thereafter have to be strictly in conformity with the Regional Plan.

iii. Govt. of U.P. is directed to incorporate the observations of the Board in the Sub-Regional Plan for U.P. Sub-Region of NCR-2021 as conveyed by NCRPB in the form of Minutes of the 33rd meeting of the Board held on 01.07.2013, including incorporation of the Zoning Regulations proposed in the Regional Plan-2021.

iv. Govt. of U.P. to ensure that the proposed development of YEIDA as well as any other development within the U.P. sub-region of NCR is in conformity with the population and population density norms suggested in the Regional Plan-2021.

v. As the U.P. SRP-2021 has proposed that the area notified under Highway Corridor Zone (HCZ) has been made contiguous to the area of nearby Development Areas,

Govt. of U.P. to provide status of preparation of the Master/ Development Plan for these Controlled/ Development Areas and if the same are not prepared, it is directed that the Master/ Development Plans for such areas be prepared at the earliest so that the development can be controlled/ regulated.

vi. New Okhla Industrial Development Authority (NOIDA) is directed to estimate/ ascertain the proposed population, urbanisable area and population density corresponding to the year 2021, in conformity with the provisions of Regional Plan-2021 and incorporate the same in the Master Plan for Noida-2031.

vii. Greater Noida Industrial Development Authority (GNIDA) is directed to amend the Master Plan for Greater Noida-2021 after duly incorporating all the observations conveyed by the Board while approving the same in 2012 and in conformity with the population and population density norms suggested in the Regional Plan-2021.

viii. Ghaziabad Development Authority (GDA) is directed to ascertain the impact of Hi-Tech city on the population and population density of the Ghaziabad-Loni Urban Complex for the year 2021. GDA is also directed to take appropriate measures for seamless spatial integration of the Hi-Tech city with the Ghaziabad Master Plan-2021 as well as to reflect the integrated landuse, population, population density etc. in the said Master Plan, after ensuring conformity with the Regional Plan-2021.

ix. Development Authorities for Bulandshahr-Khurja, Hapur-Pilakhua, Baghpat- Baruat Development Authority and for all other towns in NCR (even though not specifically mentioned), are directed to prepare/ amend the Master Plans to ensure conformity with Regional Plan in force. Govt. of U.P. (Housing & Urban Planning Department; Industrial Development Department or any other) to periodically monitor / review the Master Plans prepared by respective Development Authorities and ensure that the same are in conformity with the Regional Plan-2021.

x. Govt. of U.P. and all the Development Authorities are hereby directed to undertake the above stated actions in a time bound manner.

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ADDENDUM TO

AGENDA NOTES

Special Meeting of the Board

20.12.2016 at 10.00 A.M.

Hall No. 1, Ground Floor, Vigyan Bhawan,

Maulana Azad Road, New Delhi

National Capital Region Planning Board

Ministry of Urban Development

New Delhi

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi

Phone: - 24603138, Fax: - 24642163

11.	In case of recruitment by promotion/deputation/absorption, grade from which promotion/deputation/ absorption is to be made.	**Deputation:** Officers of the Central Government or State Government or Union Territory Govts. or Public Sector Undertaking or semi Government or Autonomous or Statutory organizations – (a) (i) holding analogous posts on a regular basis in the parent cadre or department, or (ii) with two years regular service in the grade rendered after appointment thereto on regular basis in the pay band of Rs.37400-67000 with Grade pay Rs. 8700; or (iii) with six years regular service in the grade rendered after appointment thereto on regular basis in the pay band of Rs.15600-39100 with Grade Pay of Rs.7600; and (b) Possessing the following educational qualifications, namely:- **Essential:** (i) B. Arch/ B.E. (Civil)/ Bachelor of Planning/ M.A. (Geography) and Post Graduate Degree in Urban/ Regional Planning. (ii) 15 years' experience in the field of town and regional planning in a local body or in a Government/ Govt. undertaking or in a recognized institution, out of which at least 5 years in preparation and implementation of urban/regional/town & country planning and execution and monitoring of infrastructure projects. **Period:** Period of deputation will be initially for three years extendable by two years on a year to year basis on the basis of performance assessment. **Promotion:** Joint Director (Tech) having 6 years of regular service in the grade rendered after appointment

ADDENDUM TO AGENDA ITEM NO. 1: **FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF DELHI DATED 18.11.2016 IN THE MATTER OF "COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI) VS. UNION OF INDIA & ORS." [W.P. (C) 1346/2015]: AIR POLLUTION IN DELHI**

1. Agenda note for the above cited matter was circulated vide Board's letter No. K-14011/4/2016 (Spl. Mtg.)/NCRPB, dated 02.12.2016.

2. Subsequently, the Hon'ble High Court of Delhi, while hearing the matter on 15.12.2016, noted that Special Meeting of the Board is scheduled to be held on 20.12.2016 and in view of this the Hon'ble High Court directed the *Amicus Curiae,* Shri Kailash Vasdev, Sr. Advocate to make a detailed representation before the Board in the matter. The Order dated 15.12.2016 of the Hon'ble High Court of Delhi is yet to be issued.

3. In compliance with the aforesaid direction, Shri Kailash Vasdev vide email dated 19.12.2016 has forwarded a representation and submissions (**Annexure AA-1/I**) in the matter, wherein certain suggestions have been provided. Summary of the said suggestions are as under:

(a) The Regional Plan must emphasize that the constituent States regulate their municipal laws to follow and give effect to various rules, such as, the Municipal Solid Waste (Management & Handling) Rules 2000; Plastic Waste Management Rules 2016; the Construction and Demolition Waste Management Rules 2016; the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016; Solid Waste Management Rules, 2016 and the Wetlands (Conservation and Management) Rules, 2010.

(b) Minimize / regulate sale of vehicles in the region by various ways and means, such as, improving public transport (esp. buses on CNG, a tramcar/electric bus system); metro railway; place cap on the number of vehicles to ply and be sold; and prohibit vehicles in area to be notified.

(c) Redesign infrastructure to facilitate free-flow of traffic to avoid vehicle idling, which would avoid burning of fossil fuels.

(d) Remove encroachment from forests and river banks, to ensure natural ability to restore damaged eco-system.

(e) Regulate construction activities by limiting development to urban agglomeration and prohibiting changes of land use from agriculture to any other purpose.

(f) Mandatory use of solar power in existing / or new developments and to grow plants in the available areas. Defence installations / Cantonment Board, Metro Rail system and Airports must use solar energy.

(g) Development of rural areas of NCR to make them self-sufficient to control in-migration in the urban areas of NCR. This would reduce pressure on the urban areas.

(h) Impose stringent conditions to enforce the Regional/Sub-Regional & Project Plans on the participating States.

(i) Land and water must be balanced and recycling of water must be made mandatory for large institutions, such as, Defence installations / Cantonment Board, Metro Rail system and Airports, etc.

(j) Planning and development process should incorporate the environmental concerns, to ensure safe effective green environment to the future generations. Long term perspective plans should be prepared at the regional level ensuring protection of notified green belts/forests/protected sanctuaries, etc. Revival of industrial belts in conformity with the re-enacted statutes should be encouraged instead of transferring such notified lands for other uses. The provision of the Real Estate Regulation and Development Act, 2016 should be followed.

4. It may be noted that the most of the suggestions given by *Amicus Curiae* are already part of the Regional Plan-2021 and various Functional Plans prepared by NCR Planning Board. Further, certain suggestions are related to implementation at the ground level, for which the concern NCR participate State Government and/or concerned Central Government Ministries/Departments/Agencies are required to take suitable action.

5. It may also be noted that the "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi" conducted by Govt. of NCT Delhi and DPCC through IIT, Kanpur has already been circulated to the NCR participating State Governments to take urgent action w.r.t. adoption and implementation of the Plan of Action recommended in the Study.

Action Point:

The representation from the Amicus Curiae is placed before the Board for consideration and to give appropriate direction to the NCR participating State Government and concerned Central Government Ministries/Departments/Agencies in the matter.

PVC

139/12

KAILASH VASDEV

SENIOR ADVOCATE

418, LAWYERS CHAMBERS, DELHI HIGH COURT PREMISES, NEW DELHI-110003 PH. : 011-23382453
12, LAWYERS CHAMBERS, SUPREME COURT COMPOUND, NEW DELHI-110001 PH. : 011-23381803
Fax : 011-23073453 (O) email : kailash.vasdev@gmail.com & kvasdev@bol.net.in

19th December, 2016.

Ms.Ruchi Gupta,
Joint Director (Tech.),
National Capital Region Planning Board,
1st Floor, Core-IV B,
Indian Habitat Centre,
Lodhi Road,
New Delhi – 110 003.

Sub: Your ref. No.K-14011/65/2015-NCRPB of 16.12.2016.

Madam,

Please find attached herewith the representation and submissions for necessary action at your end.

In case the documents/policies/orders are referred please let me know.

Yours faithfully,

Encl: as above.

[Kailash Vasdev]

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RESIDENCE : D1/51, VASANT VIHAR, NEW DELHI-110057 PH.: 011-26151428 & 011-26140428

REPRESENTATION AND SUBMISSIONS

The constituent areas of the National Capital Region envisaged under the National Capital Regional Planning Board Act 1988, (NCRPB Act) which spread over an area of 33,578 sq. kms are:-

a) National Capital Territory of Delhi (1,483 sq. kms) - 4.41% of the NCR.

b) Haryana Sub-region comprising of Faridabad, Gurgaon, Rohtak, Sonipat, Rewari, Jhajjar, Mewat and Panipat districts covering an area of 13,413 sq. kms – 39.95% of the NCR.

c) Rajasthan Sub-region comprises of Alwar district covering an area of 7,829sq. kms – 23.32% of the NCR.

d) Uttar Pradesh Sub-region comprising of five districts, namely, Meerut, Ghaziabad, Gautam Buddha Nagar, Bulandshahr and Baghpat covering the area of 10.853 sq. kms – 32.32% of the total area of NCR.

The major rivers which flow through the NCR are the Ganges, Yamuna, Hindon and Kali from North to South and the Sahibi in the south western part. The Region is also characterised by the Aravali hills which extend from Delhi to Jodhpur surrounded by alluvial plains while sand dunes and hard rock ridges and forest manifest themselves in the South West parts. In addition there are furrows and canals which criss cross the area giving it its fertility and economic advantages. The Region is well known for its rich history and iconic monuments which were built keeping the environment in view. These monuments which are self sustaining continue to awe mankind as they have done over the centuries.

THE PLANS UNDER THE ACT

The aims and objects of the Regional Plans for the NCR essentially proceed and presuppose development policies aimed at achieving a balanced and harmonious development of the Region by distributing economic activities and deflecting migration of population to Delhi in

order to making the NCT of Delhi manageable and to bring about development and growth to achieve the purposes of the National Capital Region Planning Board Act. While preparing the Regional Plan, Sub-regional Plans and Project Plans as envisaged in Chapter IV & V of the Act the above factors are to be taken into account.

These Plans are also to take into account policies relating to land use and allocation of land for specified purposes; to ensure and provide measures for major urban settlements; for providing suitable economic base for future growth; for transport and communications including railways and arterial roads serving the National Capital Region; for the supply of drinking water and for drainage. To achieve these, the Sub-regional Plans have being designed to promote growth and balanced developments of the National Capital Region.

The Regional Plan 2001 envisages structuring the plans for this region which has ecologically sensitive natural features such as the Aravalis, rivers, wetlands, sanctuaries, agricultural plains et all by taking into consideration policies and proposals for the environment and eco-development of the region. These policies and proposals include –

i) **Air Pollution:** The pollution impacts have to be identified through appropriate field research studies so that the levels and types of industrialisation can be established for different Sub-regions.

ii) **Water Pollution:** No untreated domestic and industrial waste should be permitted to be discharged over land or into water bodies before treating it to the specified discharge standards under the Environment Protection Act, 1986. As far as possible, new industries should be developed in identified and classified industrial areas/estates which should have proper effluent treatment facilities in-situ before effluents are discharged into natural areas. The settlements where regular sewerage schemes are not available, low cost sanitation system for individual family or community may be adopted as a short-term measure. Controlled environmentally protected zones for hazardous and polluting industries should be created.

iii) **Solid waste:** Scientific approach should be adopted for the solid waste management and aids re-use in all urban and agricultural areas.

iv) **Coordination Committee**: A Coordination Committee for prevention and control of pollution of water, land and air should be established for NCR.

v) **Afforestation Programmes:** It should be undertaken on all barren and uncultivable land by the concerned agencies.

{As Set out In Chapter 14 – Environment of the Regional Plan for 2021}

In September, 2005 the National Capital Region Planning Board framed the Regional Plan-2021 for the National Capital Region Delhi (NCR) which was notified on 17th September, 2005.

The period post the notification of the Regional Plan - 2021, the NCT of Delhi has seen humungous demographical, political, economic and changes of a cataclysmic nature which have rendered the recommendations and proposals made by this Board in the 2021 Plan antiquated. There have been far reaching amendments in existing statutes and new Acts have been passed which render the old order otiose. There is now a serious need to rework the proposals and policies for the next five years by giving them a direction which would not derogate from the essential and vital need of reviving the eco-systems, ecology and environment of the region which has become a matter of grave concern. The present missive is an attempt to request this Board to initiate an action to achieve liveable conditions in the Region where denizens can dwell with dignity and breathe without the fear of ill health coming their way due to a failure to provide ambient living conditions.

THE FORESTS AND THE ENVIRONMENT

In the diverse proceedings pending before the Courts and the National Green Tribunal, orders have been passed in matters relating to pollutions and environmental degradation expressing despair over the destabilize anatomy of the eco-systems and environment. The Courts

have noticed the adverse affects on the environment and distressing conditions of air quality where reports from the All India Institute of Medical Sciences, the World Health Organisation and the Patel Chest Institute show an alarming increase in respiratory and lung diseases which take over 10,000 human lives annually. Children and the infirm are the worst victims of this spate of degradation of air quality.

Since 1987 the Supreme Court of India has stepped in on environmental issues pertaining to Delhi and its environs. In the 1990s the Supreme Court banned the exploitation of the Aravallis and sought their preservation noticing that the destruction of this natural body and its attenuating systems would lead to the destruction of an ancient self sustaining eco-system which has been the bulwark of the Region and has preserved flora and fauna specific to the area. The Court ordered the removal of encroachments in the many forests and green belts on this citadel of nature.

Apart from seeking to protect the Ridge the Courts and NGT have issued directions for elimination of pollution of the rivers which flow through this eco-sensitive area. The orders of the Court, the myriad statutory provisions which seek to limit pollution and the National Policies on Forests, Environment and Urban Development are all followed by the respective governments in their breach. The Controller and Auditor General of India has returned scathing findings on the mis-utilisation of grants and funds made available for the cleaning of the Ganges, the Yamuna, the Hindon, the Najafgarh canal et al. The High Court of Delhi has noticed the vanishing lakes and water bodies in Delhi which have made way for construction of buildings both in the private and public domains.

Between 2004 and 2016 there has been an unprecedented growth of vehicles in this Region especially in the Capital Territory of Delhi. The Economic Surveys paints a dismal picture of the impact of motor

vehicles on roads in NCT of Delhi. As on 31st March, 2015 88.27 lakhs vehicles stood registered in Delhi showing an increase of 6.4% from the previous year. The loss of man-hours while commuting between home and office by roads has reached alarming proportions due to traffic congestion and vehicle idling. Travel time has increased enormously with impractical infrastructural development.

In 2015, the Indian Institute of Technology Kanpur has made a comprehensive Study on Air Pollution and Green House Cases (GHGs) in Delhi. The findings are disturbing. The study makes Starling revelations. Patriculate matter and pollutants in the air have been found to be much beyond any acceptable standards. Gases like carbon monoxide, nitrogen dioxide, carbon dioxide are found at levels which are not only harmful but at dangerous levels for human existence.

The studies and proceedings in the Court also show the serious and deleterious effects on ambient air quality in the NCT of Delhi because of manmade factors which include the burning of stubble of agricultural produce in the States of Punjab, Haryana and Uttar Pradesh. Admittedly it is only in 2016 that these States have started taking actions to prevent such activities. The States of Punjab and Haryana in their affidavit filed before the Delhi High Court set out the quantum of agricultural stubble burnt and particulate matter created by such burning which form a huge haze at the harvesting of the Kharif crop. The State of Punjab seeks a massive grant in aid of Rs.9391 crores to deal with and prevent the burning of agricultural waste, On the other hand the State has not taken any efficient measures to prevent such burning of stubble which has a terrible impact on the environment stretching from the Punjab to Uttar Pradesh and Rajasthan enveloping Delhi.

The contemplations of the National Action Plan on Climate Change which envisage the promotion of Urban Public Transport, conservation

of wetlands, management and regulation of ground water resources, increase in forest cover and density have been given a complete go by.

The National Forest Policy 1988 laid down mandatory and salutary goals and sought to bring about a rational development and conservation of the forests and wild life by implementing the Forest Act and the Forest Conservation Act. These have not yielded the desired results – on the contrary there has been a depletion of forests and the governments seek to paint a rosy picture by holding out that there has been an increase in 'green cover'. There is a necessary difference between forest and green cover. They operate in different domains. Parks, municipal areas are being notified as forests to show that the concerned State is preserving forests which have been seriously encroached and not preserved as per applicable and acceptable forest norms/enactments. Such facile presentations do not augment the environment. They mislead all.

In the large number of cases which have been filed before the Courts and before the National Green Tribunal startling facts which show the tremendous negative changes in the state of the environment have revealed themselves. These facts and figures are found in the pleadings filed by the authorities and governments. The authorities in Governments or the governments by themselves have abdicated their authority and statutory obligations under the applicable enactment to propagate political aims and gain unlawful benefits by denigrating environmental laws.

Some of the statistics which are freely available in Court records and those in the reports of CAG make it imperative for this Board to relook at the proposals and policies for the correct and scientific development of this Region in accord with the Constitutional mandate calling upon State to raise the standard of living and improve public health (Article 47) The Constitution also mandates that it is the duty of the States to

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protect and improve the environment and safeguard the forest and wild life of the country (Article 48A).).

Building bye laws under municipal acts and the norms under the Development Acts have been reworked to give economic benefits to construction activities. Lakes like the Badkal, Damdama, Suraj Kund, Najafgarh, have dried up because the water courses & sources which fed them have been damaged by indiscriminate building activity.

The changes of Municipal limits in Faridabad, Gurugram, Sonepat, Alwar, Ghaziabad (now Gautam Buddha Nagar and Noida) have destroyed the ecological systems of rivers and the Aravallis. Continued building activity mandates the need and requirement of minor minerals like sand, limestone and grit. These are after drawn by illegal mining now drains from river beds and the Aravallis, thus seriously damaging the fragile ecosystems.

The Supreme Court of India, from time to time, has monitored illegal mining in the region and passed orders to ban this wanton destruction of the Aravallis (See the orders in M.C. Mehta Vs U.O.I.). Unfortunately no effective steps are being taken to give effect to the orders.

On the contrary notifications are being issued of proposed to diminish the forests in the regional. In 2004 the Government of Haryana notified 585 acres as forests in the Aravallis Hills near village Bhondsi in Gurugram. Today it proposes to recall the notification on the assumption that this was erroneous. The forest which developed in this area is sought to be done away and a "Nature Education and Cure Centre" is sought to be established in private public partnership. (News Item in the Times of India 13.12.16)

Building and Construction of commercial complexes like malls or residential colonies have become the new impetus for alleged economic resurgence. All areas within a 150 Km radius of Delhi have succumbed

to this activity. Change of land use from agricultural to residential/commercial is granted for a nominal fee. Such change is causing permanent damage to the ecosystems in an area which has constituted the bread bowl of the nation. The *ad valorem* permissions granted by the Ministry of Environment and Forests to set up such projects over the past years has led to more damage than good. Making residential tenements which stay vacant or the intent to develop projects and leave them dormant/unfinished because of errant developers adds to environmental damage and a breakdown of vital and ancient ecosystems which have sustained these areas.

Lands belonging to the Governments (Departments of Defence, Railways & Forests) have become easy picking for encroachers who are encouraged for gaining political mileage. This affects development of vital services in the public interest.

It is these factors which have to be controlled and plans have be put in place to minimise damage to the environment by simultaneously bringing about a holistic, sustainable for planned growth. The green areas and forest cover must not be allowed to fade away.

SUGGESTIONS:

It is vital that a holistic approach be taken by the Board to bring about a functional plan which implement the mandate of the Act and applies the myriad environment/air/water protection enactments and implements the orders of the Supreme Court. In presenting this submission many orders/documents/policies have been relied upon and can be made available on request.

In this context it is suggested that the following measures be taken immediately:-

1. All Regional Plans for this region must emphasise that the Constituent States regulate their municipal laws to follow and give effect to -
    a) The Municipal Solid Waste (Management & Handling) Rules 2000.
    b) Plastic Waste Management Rules 2016.
    c) The Construction and Demolition Waste Management Rules 2016.
    d) The Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016.
    e) Solid Waste Management Rules, 2016.
    f) The Wetlands (Conservation and Management) Rules, 2010.

2. Minimise/Regulate sale of vehicles in the Region by:

    A) Improving public transport esp. buses run on CNG and the metro railway system;

    B) Plan a tramcar/electric bus system in urban agglomeration;

    C) Place a cap on the number of vehicles to ply and be sold in an urban agglomeration if necessary by prohibiting sale of vehicles on hire purchase/financial facilities like easy monthly instalments.

    D) Prohibit vehicles in area to be notified as no vehicle areas. This will create vital lungs in urban zones.

3. Redesign infrastructure to make for free flow of traffic by making movement signal free. This will reduce vehicles idling and burning fossil fuels; reduce contributing to noise pollution and reduce environmental pollution. In planning the infrastructure, care must be taken to ensure free ingress/egress to vital services like hospitals, defence installations, airports, educational institutions

is available at all times with minimum pollution in the surrounding areas.

4. Remove all encroachments from forests and river banks. This will restore the green cover and return to nature its natural ability to restore damaged ecosystem. This should be done with immediate urgency as encroachments in these areas increase in geometric proportions encouraging a mafia which receives political support and provides for a breakdown in the social order.

5. Regulate construction activities by limiting development to urban agglomeration and prohibiting change of land use from agriculture to any other purpose. This will control illegal mining, surreptitious drawing of underground water and maintain employment in the agricultural sector without debilitating the existing agricultural area which are fast diminishing.

6. Make it *mandatory for all existing/or new developments.* (Including high-rise structures) to use Solar power and use the roofs & available areas for green activities to aid and support the environment (example Paharpur Industries has been doing this to reduce the Carbon Imprint in its buildings).

7. Plan on the development of the rural areas in the NCR to make them self-sufficient to retain a robust economy and provide for migrant labour. Development of the rural economy will be a key to improve the urban habitat.

8. Impose stringent conditions to enforce the Regional/Sub-Regional & Project Plans on the participating States.

9. Defence installations/Cantonment Boards, Metro Rail Systems, Airports must use Solar energy to run their systems by minimising the pressures on existing infrastructure. Land & water

use must be balanced by these bodies to ensure that recycling of water is mandatory.

10. All plans must look at the Region with 2050 on the perspective by ensuring that the Smart City Concept does not destroy/encroach upon notified green belts/forests/protected sanctuaries and to keep in mind that planning and environmental management are not compartmentalised in separate areas with thoughts centring around economic gain only. Revival of industrial belts in conformity with the re-enacted Statutes should be encouraged instead of transferring lands and industrial estates notified for industry for other uses. Industries are the back bone of an economy and must not be looked upon as determents to growth. The provisions of the Real Estate Regulation and Development Act 2016 must be kept in mind.

All plans must be directed to the protection of the future generation by giving them a safe, health effective and green environment by protecting the eco-systems and protesting pollution.

We must not indulge in political slugfests and/or adopt any rhetoric to protect economic and demographic vandalism of the environment.

New Delhi
19th December, 2016

(Kailash Vasdev)
Senior Advocate

MINUTES OF THE SPECIAL MEETING OF THE NCR PLANNING BOARD

Meeting held on 20.12.2016 at Hall No. 1, Ground Floor, Vigyan Bhawan, Maulana Azad Road, New Delhi

National Capital Region Planning Board
Ministry of Urban Development
(Government of India)

Core IV-B, First Floor, India Habitat Centre, Lodhi Road, New Delhi
Phone: - 24603138, Fax: - 24642163

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MINUTES OF THE SPECIAL MEETING

NCR Planning Board Special Meeting held on 20.12.2016 under the chairmanship of Shri M. Venkaiah Naidu, Union Minister of Urban Development & Chairman, NCR Planning Board

(i) Special Meeting of the NCR Planning Board was held on **20.12.2016** at 10.00 A.M.in Hall No.1, Ground Floor, Vigyan Bhavan, New Delhi under the chairmanship of Shri M. Venkaiah Naidu, Union Minister of Urban Development and Chairman, NCR Planning Board. List of participants is at **Annexure-I**.

(ii) Member Secretary, NCR Planning Board welcomed the Chairman, NCR Planning Board, Members of the Board and officers from Central Ministries and participating State Governments. He stated that the Special Meeting of the Board has been called to discuss three issues, namely, (a) air pollution in Delhi and NCR, (b) action taken on certain decisions of the Board in its 36th meeting held on 15.06.2016 and (c) issues raised in a PIL, relating to developments in U.P. sub-region in contravention to the Regional Plan.

(iii) Chairman, NCR Planning Board stated that the Board was established in 1985, for harmonious development and balanced growth in the Region. It is a unique arrangement of its kind and has today become a model of inter-state regional cooperation and development in the country. This is in line with the vision of the Hon'ble Prime Minister of India to work with a spirit of cooperative federalism and Team India.

He also stated that NCR is one of the most urbanised regions in the country with urbanisation level of 62.6%, and calls for special attention to address its infrastructural as well as environmental challenges. In terms of economic development, Central NCR including Delhi stands above the Mumbai Metropolitan Region in the rank, as far as GDP is concerned, according to a report published by Oxford Economics in December, 2016. Therefore, NCR is now poised to becoming India's economic capital, if the same trend of economic growth continues, with cooperation of all concerned.

He further stated that in order to address the travel demand of this vast region, NCR Planning Board has proposed the Regional Rapid Transit System (RRTS), which will connect various parts of NCR with Delhi by a rail based high speed and convenient public transport system. This will drastically reduce the journey time between various parts of NCR and Delhi. He informed that there are three corridors which have been prioritised, namely Delhi-Meerut, Delhi-Panipat and Delhi-Alwar. Expressing his satisfaction with the progress of implementation of the project, he informed that the final Detailed Project Report (DPR) for the Delhi-Meerut corridor has already been approved. He further expressed hope that the construction of this corridor will soon be initiated by the National Capital Region Transport Corporation (NCRTC), which has already started functioning. In the case of Delhi-Panipat corridor, the draft DPR was already approved. As regards the Delhi-Alwar corridor, preparation of draft DPR is in advanced stage. He requested the NCR participating States to extend all necessary support to the NCRTC for execution of this

ambitious project, which will revolutionize the transport scenario of this region. He also said that in order to achieve this target, NCR Planning Board and NCRTC to work in tandem.

Chairman, NCRPB further stated that this Special Meeting of the Board has been called to discuss the pressing problem of air pollution in Delhi and NCR. The National Capital and certain parts of NCR have experienced one of the worst smog events in recent history, leading to air pollution beyond acceptable standards. Hence, it is very pertinent to discuss the matter in detail and to take remedial measures to address the problem. Since, there are multiple sources which contribute to air pollution, it is imperative to adopt a multipronged and integrated approach to address the issue. The Regional Plan prepared by NCRPB has already suggested certain measures to address the issue of air pollution. Further, Govt. of NCT Delhi has carried out a "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi" through IIT Kanpur which has recommended certain Control Options and Plan of Action for attaining the desired air quality standards. Recently, the Hon'ble High Court of Delhi has also given certain directions in this regard. He said that all these matters will be discussed in detail to decide upon the Action Plan to tackle the problem.

He stated that in the last meeting of the Board held in June, 2016, it was decided that Secretary (UD) will hold meetings to resolve certain issues related to (i) finalisation of draft revised Regional Plan-2021, (ii) definition of 'forest' and 'Aravalli Hills' and (iii) inter-state connectivity. The Board will review the progress in this regard.

He said that another issue which has been placed before the Board for deliberation is the issue raised in a PIL filed in the High Court of Allahabad relating to developments in U.P. sub-region in alleged contravention of the Regional Plan-2021. The PIL has been disposed of with a specific direction to the NCR Planning Board to take appropriate decision on the complaint made after affording due opportunity of hearing to the parties concerned. In compliance with this direction, hearings have taken place in the NCRPB Secretariat, wherein the Petitioner, representatives from Govt. of U.P. as well as from all the concerned Development Authorities put forward their submissions.

He further informed that the NCR participating States have started taking benefits of the low interest rates on the loan assistance offered by NCRPB. First time in the history of Board, it has sanctioned loan of more than Rs. 3,100 crore in a single meeting for infrastructure development projects. During 2016-17, Board has released loan of Rs.839 crore and has planned to release another Rs.700 crore by the end of the year. He urged the States to take more benefit of these low interest rates for pushing both physical and social infrastructure development projects in their respective states.

Chairman sought whole-hearted support and active participation of all concerned in making NCRPB the vehicle to bring about speedy growth and development of the National Capital Region in a sustainable, equitable and inclusive manner.

(iv) The Agenda Items were taken up for discussion, thereafter, as below:

1. AGENDA ITEM NO. 1: FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF DELHI DATED 18.11.2016 IN THE MATTER OF "COURT ON ITS OWN MOTION (AIR POLLUTION IN DELHI) VS. UNION OF INDIA & ORS." [W.P. (C) 1346/2015]: AIR POLLUTION IN DELHI

1.1 It was observed that the High Court of Delhi vide its Order dated 18.11.2016 directed that *"....National Capital Region Planning Board should have a meeting within three weeks and a status report be filed with regard to the said meeting."* It was noted that the expression "National Capital Region Planning Board" is defined as a body corporate as notified by the Central Government under sub-section *(1)* of section 3 of the NCRPB Act, 1985 and it shall consist of members as notified by the Central Government from time to time. In view of this, the matter is required to be deliberated at the Board level and Agenda Notes have already been circulated.

1.2 It was noted that the High Court of Delhi has also directed the States of Punjab, Haryana, Rajasthan, Uttar Pradesh and NCT-Delhi; Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) of the concerned States; and various other Central and State Departments/Agencies to prepare a clear-cut Plan of Action and take necessary action towards reducing the air pollution and improvement of air quality and to file Affidavits to this effect.

1.3 Board also noted that the Govt. of NCT-Delhi and Delhi Pollution Control Committee (DPCC) conducted a study titled as "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi" through Indian Institute of Technology (IIT), Kanpur. The said Study has recommended certain Control Options and Plan of Action to address the issue. The Study also states that since NCR is a contiguous area it is proposed that the control options are implemented for the entire NCR. Therefore, the Study Report was circulated by NCRPB Secretariat to the NCR participating States for adoption and implementation.

1.4 Detailed deliberations on the action taken by concerned State Governments and Central & State Agencies (i.e. NCR participating States and State of Punjab, DPCC/CPCB/SPCBs, etc.) are mentioned in the subsequent sections:

(a) **State of Haryana:** Chief Secretary, Govt. of Haryana stated that various Hon'ble Courts i.e. Supreme Court, National Green Tribunal (NGT), Punjab & Haryana High Court (P&HHC), etc. have also given directions in matter relating to air pollution. He cited the example of the case titled Vardhaman Kaushik vs. Union of India & Ors., which is presently pending before the NGT. The NGT, vide Order dated 10.11.2016, has constituted a Centralized Monitoring Committee under the chairmanship of Secretary, Ministry of Environment, Forest & Climate Change (MoEF&CC), wherein Chief Secretaries of States of Punjab, Haryana, Uttar Pradesh, Rajasthan and NCT-Delhi; Member Secretary of CPCB and Member Secretaries of concerned SPCBs, etc. are members. State Monitoring Committees have also been constituted under the chairpersonship of the respective Chief Secretaries.

He also stated that Govt. of Haryana has taken several actions for prevention and control of air pollution and a comprehensive Plan of Action is already prepared which has been filed in NGT. He further added that the Affidavit of State of Haryana will be filed before the High Court of Delhi on the same lines and it will be shared with the NCRPB also.

He informed that in order to address the issue of air pollution caused by stubble / biomass burning, Agriculture Department, Govt. of Haryana is implementing the National Policy for Management of Crop Residue, 2014. Further, Govt. of Haryana is extending subsidy on straw management implements under different schemes such as Rashtriya Krishi Yojana. However, he stated that further cost effective technological interventions are required to ensure the mechanical cutting of straw from the bottom, i.e. just above the ground level, especially in case of paddy. This will minimize the stubble burning, which is one of the major contributors to air pollution, especially during winter.

(b) **Govt. of NCT-Delhi / DPCC**: Chairman, DPCC & Secretary, Environment, Govt. of NCT Delhi stated that in accordance with CPCB's 42-point Action Plan (pursuant to NGT's direction in the aforesaid Vardhaman Kaushik case), an integrated monitoring system has been put in place, involving multiple agencies such as Ministry of Petroleum, National Highways Authority of India (NHAI), etc. and a multi-stakeholder action plan for prevention and control of air pollution has been prepared.

Principal Secretary, PWD, Govt. of NCT Delhi informed that the matter of burning of solid waste and disposal of *malba* is being monitored at the level of Lt. Governor, Delhi on a weekly basis. A three pronged action plan has been prepared to address the issue, namely, (i) augmentation of the existing solid waste disposal sites at Okhla, Ghazipur and Bhalaswa; (ii) augmentation/ operationalization of three existing Waste-to-Energy Plants at Okhla, Ghazipur and Bawana; and (iii) construction of two new Plants for handling of construction and demolition waste/*malba* (currently two plants at Shashtri Park and Jahangirpuri, are in operation) and re-use of the same for road construction in collaboration with NHAI.

Chairman, DPCC & Secretary, Environment, Govt. of NCT Delhi added that the three Waste-to-Energy plants currently cater to 50% of the daily waste generation of Delhi and that the plan is to enhance the capacity of such plants by another 4000-5000 tonnes/day to handle the current generation. Union Minister of State, Urban Development [MoS (UD)] enquired the details of action plan of Govt. of NCT Delhi to limit the number of vehicles in Delhi and reduce vehicular air pollution. Chairman, DPCC & Secretary, Environment, Govt. of NCT Delhi informed that the public transport buses and taxis registered in Delhi are on CNG. As regards limiting the number of vehicles, there is no immediate plan to put a cap.

Secretary (UD), Govt. of India, stated that a major concern as regards the vehicular pollution is that a large number of taxis plying in Delhi & NCR are those which originate from neighbouring States and run on diesel. Clear cut Plan of Action should be formulated by each concerned State and

submitted as part of respective Affidavits for their conversion to CNG or other suitable measures to mitigate pollution caused by them.

(c) **Govt. of U.P.**: Divisional Commissioner, Meerut informed that Bulandshahr district in U.P. sub-region is predominantly an agricultural area and harvesting is largely carried out by means of manual cutting which reduces the crop residue in the field and therefore, the need of burning the same does not arise. However, for abundant caution, Govt. of U.P. has issued a Notification imposing a fine of Rs. 5,000/- for each case of stubble burning. As regards construction and demolition waste in urban areas is concerned, he informed that fine is already being imposed for mishandling of the said waste by the Development Authorities such as NOIDA, Greater Noida, Ghaziabad Development Authority (GDA) etc. With respect to vehicular pollution and registration of vehicles, he said that the Regional Transport Office (RTO), Meerut has made it mandatory for the vehicle buyers (for both commercial and private vehicles) to ensure availability of parking space before buying vehicles and submit an Affidavit to this effect in order to register the vehicle. All other RTOs are in process to implement the same.

Special Secretary, Environment, Govt. of U.P. stated that a template based system/action plan has been developed for monthly monitoring at the level of Chief Secretary. As an incentive to reduce vehicular air pollution, purchase of battery operated vehicles has been made tax-free. He, however, highlighted the issue of non-availability of CNG in all areas. With respect to road dust, he informed that mechanical sweeping is being adopted in various urban areas, such as, Noida, Ghaziabad, Meerut, etc. He also stated that all the Nagar Nigams are enforcing strict rules w.r.t burning of biomass and solid wastes. In order to curb industrial pollution, many polluting industries have been closed.

(d) **Government of Rajasthan**: Chief Engineer, Rajasthan Pollution Control Board (RPCB) informed that a Committee under the chairmanship of Chief Secretary, Rajasthan has been constituted for monitoring the actions taken in the matter. He stated that there are three main towns in Rajasthan sub-region, namely, Bhiwadi, Alwar and Bharatpur, where industries are concentrated. Air quality of these towns is being monitored regularly. Stone crushers and brick kilns which were polluting and were not as per norms, have been closed. He further added that biomass burning is not a major issue in case of Rajasthan sub-region of NCR, however, strict directions have been issued w.r.t. burning of municipal solid waste. Further, an Action Plan is being prepared through IIT-Kanpur for prevention and control of industrial pollution in Bhiwadi. As regards vehicular pollution is concerned, an Action Plan for Mobility in NCR is also being formulated to promote public transport and clean fuel. Upon a query from MoS (UD), he informed that the issue of pollution from wastewater in Bhiwadi, which also affects certain adjoining areas of State of Haryana, will be addressed by 2017 by means of constructing additional Common Effluent Treatment Plants (CETPs).

(e) **Government of Punjab:** Representative of Govt. of Punjab informed that a number of steps have been taken to address the issue of air pollution from burning of paddy residue. He informed that the quantity of biomass in the State of Punjab is much more as compared to other

States. Out of 17 million tonnes of paddy residue, 4.2 million tonnes are presently being managed by means of seven Biomass to Energy Plants (0.5 million tonnes, generating 62.5 MW energy) and providing agricultural implements (2.7 million tonnes). It is expected that the total quantity of biomass will be managed and biomass burning will be eradicated by the year 2020.

(f) **CPCB**: Chairman, CPCB stated that a definite Action Plan was put in place in December 2015 and directions under the Air (Prevention and Control of Pollution) Act, 1981 have been issued to all the States. He informed that apart from the air pollution from biomass burning, there are many reasons behind the smog which covered Delhi & NCR in the first week of November, 2016. He said that besides Diwali, prevalent weather conditions aggravated the pollution levels, for example (i) wind direction which generally happens to be Easterly at that time was Westerly, resulting in deflection of the smoke generated from biomass burning in Haryana and Punjab, towards Delhi (ii) reduction in wind speed at the surface to almost zero, etc.

He also informed that the Supreme Court has given directions comprising of three action points, namely, (i) the monitoring network in Delhi & NCR has to be reviewed to see if it is adequate; (ii) for Delhi, CPCB should ensure that data from all agencies which are monitoring air quality [such as India Meteorological Department (IMD), DPCC and CPCB itself] should be collated by CPCB in its control room and CPCB should come up with an Air Quality Index for Delhi. IMD can do a reasonable prediction 72 hours in advance of the event which is likely to occur; and (iii) framing and submission of a Graded Response Action Plan (GRAP), comprising of specific interventions to be taken by the implementing agencies as the pollution levels go up.

He further mentioned that the NGT in its order dated 10.11.2016, has noticed that if the concentration of PM_{10} and $PM_{2.5}$ exceed the values of 500 and 300 microgram per cubic meter respectively, then it is a case of 'environmental emergency'. Subsequently, the Supreme Court has also noted that if these levels are sustained over a period of 48 hours, then emergency measures like odd-even scheme, stopping vehicles coming into Delhi from outside especially the diesel trucks, etc. should be deployed. An Action Plan to this effect, framed and submitted by CPCB, was approved by the Supreme Court on 02.12.2016. The Supreme Court has directed that the Central Government should notify the said Action Plan at the earliest. The Environment Pollution Control Authority (EPCA) will be the overall coordinating agency to see that the Action Plan is implemented. He stated that the affidavit by CPCB will be filed before the High Court of Delhi indicating these actions taken.

1.5 Chairman, NCRPB observed that MoEF&CC should take appropriate decision on the said Action Plan and subsequently, CPCB may accordingly file its affidavit before the High Court of Delhi. The Chairman also directed CPCB to sensitize the concerned implementing agencies and public at large in the matter.

1.6 Minister of Urban Development, NCT Delhi, while referring to the suggested emergency measures, stated that implementation of certain measures like 'odd-even scheme' requires extensive preparation in advance. Further, owing to interventions such as 'temporary ban on construction

activities' imposed by Govt. of NCT Delhi in November, 2016, a significant shortage of construction workers was witnessed even after the ban was lifted, as the workers had returned to their villages during the ban period. Therefore, considering the practical difficulties, adequate time for implementation of such emergency measures should be provided.

1.7 Member Secretary, NCRPB informed that the High Court of Delhi during hearing the matter on 15.12.2016, directed the *Amicus Curiae*, Shri Kailash Vasdev, Senior Advocate to make a detailed representation before the Board. Board noted various submissions and suggestions given in the representation and it was decided that the same be circulated to the concerned States and Agencies for examination and appropriate inclusion in their respective Action Plan.

1.8 Professor Mukesh Sharma, Indian Institute of Technology (IIT), Kanpur mentioned that the Study on air pollution conducted for NCT Delhi had quantified source-wise emissions and recommended a series of Control Options and a Plan of Action to improve air quality in the region. The Study has also quantified the potential reduction in air pollution against each Control Option.

He stated that some of the Control Options/ Plan of Action have already been deliberated during the meeting, such as stubble/biomass burning, municipal solid waste burning, road dust, etc. In addition to these measures, the Study has also recommended certain technological interventions. For example, to reduce pollution from the power plants, it has been suggested to control SO_x and NO_x emissions from power plants, which can significantly reduce PM_{10} and $PM_{2.5}$ concentration. As regards vehicular pollution, adoption of new technologies such as retro-fitment of diesel particulate filter; implementation of BS-VI for all diesel vehicles including heavy duty vehicles (non-CNG buses and trucks) and LCVs (non-CNGs); ultra low sulphur fuel (<10 PPM) (BS-VI compliant); Multi Point Fuel Injection (MPFI) system or equivalent for two wheelers, etc. has been recommended. The Study has further recommended adoption of Vapour Recovery System at petrol pumps for controlling evaporative losses during fuel unloading and re-fuelling, since volatile organics form particles in the atmosphere that significantly contribute to air pollution.

1.9 It was noted that the Plan of Action put forward in the Study conducted by IIT Kanpur requires action by multiple Agencies, both at Central and State level. Chairman directed that specific actionable points of the Study should be separately listed and sent to the concerned States and Agencies for taking appropriate action.

After detailed deliberations, the Board decided the following:

(i) The representation submitted by Shri Kailash Vasdev, Senior Advocate, &Amicus Curiae, be circulated to the concerned Central & State Govts. and their Agencies for examination and appropriate inclusion in their respective Action Plan.

(Action: NCRPB)

(ii) Specific recommendations / Plan of Action of the "Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi" conducted by IIT-Kanpur be circulated as part of Board's recommendations, to the Concerned Central & State Govts. and their Agencies for implementation .

(Action: NCRPB)

(iii) Concerned Central & State Govts. and their Agencies will file their Affidavits before the High Court of Delhi in line with the deliberations/decisions of today's meeting.

(Action: Concerned States and Agencies)

2. SUPPLEMENTARY AGENDA ITEM No.1: COMPLIANCE OF THE DECISIONS OF 36TH MEETING OF THE NCR PLANNING BOARD HELD ON 15.06.2016 IN THE MATTER OF RESOLVING ISSUES RELATED TO DRAFT REVISED REGIONAL PLAN-2021, DEFINITION OF FOREST & ARAVALLI HILLS AND INTER-STATE CONNECTIVITY

2.1 **Draft revised Regional Plan-2021**

It was noted that in the 36th meeting held on 15.06.2016, *"Board decided that a meeting under the chairmanship of Secretary (UD), Govt. of India be held to resolve the issues."* Board observed that the issues were discussed in the meeting held under the chairmanship of Secretary (UD), Govt. of India on 07.09.2016, wherein representative of MoEF&CC was also present. However, as decided in the meeting, formal consent/acceptance of MoEF&CC on the recommendations made, is still awaited. Representative from MoEF&CC stated that the same will be provided within a week's time.

(Action: MoEF&CC)

2.2 **Definition of Forest &Aravalli Hills**

It was noted that in the 36th meeting, Board *inter alia* decided that *"a meeting shall be convened by MoUD with MoEF&CC to resolve the issues related to definition of forests and Aravalli Hills at the earliest wherein representatives from Govt. of Rajasthan, Haryana and NCT Delhi will also be invited."* Board observed that two meetings were held under the chairmanship of Secretary (UD), Govt. of India on 16.08.2016 & 16.09.2016. The Board took note of the recommendations made and endorsed them.

Additional Chief Secretary (ACS), Town & Country Planning Department (TCPD), Govt. of Haryana referred to the Zoning Regulations stipulated in the Regional Plan-2021 notified in 2005 and highlighted that the uses/activities permitted in Natural Conservation Zone (NCZ) are *"(i) Agriculture and horticulture; (ii) Pisiculture; (iii) Social forestry/plantations including aforesation and (iv) Regional recreational activities with no construction exceeding 0.5% of the area with the permission of the competent authority."* He further stated that the notification of MoEF&CC dated 07.05.1992 on Aravalli stipulates that carrying on of certain processes and operations in the specified areas of Aravalli Range are prohibited, except with prior permission from MoEF&CC. Therefore, the Zoning Regulations of the RP-2021 have imposed additional restrictions which are not part of the existing Acts/Rules & Regulations/Notifications issued by the Central Govt.

Secretary (UD), Govt. of India stated that the issue relating to uses/activities in these areas was not a subject matter of deliberations in the meetings held by him pursuant to directions of the Board's 36th meeting referred to above. He clarified that Natural Conservation Zone (NCZ) has been clearly spelt out in the RP-2021. Components of NCZ, including 'forest', 'Aravalli' and 'ground water

recharging areas', are to be governed by various Statutes/Rules/Notifications of MoEF&CC, other Central Govt. Ministries/Departments and Orders of the Supreme Court and High Courts issued from time to time. Notification dated 7th May, 1992 issued by the MoEF&CC defines "specified areas" of the Aravalli Range in Gurgaon District of the State of Haryana and Alwar District of the State of Rajasthan (as on the date of the said Notification). During the meetings, it was concluded that these "specified areas" are to be included while identifying/delineating 'Aravalli' in entire NCR. Therefore, the issue related to 'definition' has been adequately addressed. The NCR participating State Govts. have to accordingly delineate the NCZ, after detailed ground truthing.

ACS, TCPD, Govt. of Haryana, stated that so far as issue of definition and delineation of NCZ is concerned, the matter is resolved. However, as concluded during the meetings, the areas under NCZ are to be governed *inter alia* by various Statutes/Rules/ Notifications of concerned Central Govt. Ministries/Departments. Hence in such areas the Zoning Regulations of RP-2021 (such as restricting only 0.5% of construction, that also for recreation activities), should not be made applicable, since this is an additional restriction. In order to avoid any ambiguity, a clear decision needs to be arrived at.

After detailed discussions, it was decided that Govt. of Haryana may make a clear reference on the matter and that will be considered separately.

(Action: MoUD, NCRPB and Govt. of Haryana)

2.3 **Inter-state connectivity**

It was noted that in the 36th meeting, *"Board decided that the matter will be examined holistically, in a separate meeting under the chairmanship of Secretary, MoUD to resolve the issues of inter-state connectivity between Haryana, U.P. and Delhi."* Board observed that two meetings were held under the chairmanship of Secretary (UD), Govt. of India on 04.08.2016 & 05.12.2016. Most of the issues have been resolved and the work is being expedited. In a few cases where certain matters are yet to be resolved, directions have been given to Govts. of NCT Delhi, U.P. & Haryana; DDA; and NHAI to expedite.

Chairman said that considering the mutual benefit to all, implementation of the inter-state links is crucial. He directed the concerned NCR participating States and Agencies to work with a cooperative spirit and take expeditious actions and present the status in the next meeting of the Board.

(Action: Concerned States and Agencies)

3. SUPPLEMENTARY AGENDA ITEM NO.2: FOLLOW-UP ACTION ON THE DIRECTIONS OF THE HON'BLE HIGH COURT OF JUDICATURE AT ALLAHABAD GIVEN VIDE JUDGEMENT DATED 21.06.2016 IN THE MATTER OF RAGHURAJ SINGH Vs. STATE OF UP & 10 ORS.[CIVIL MISC.PUBLIC INTEREST LITIGATION

The Agenda Item was deferred and will be placed in the next meeting of the Board.

4. ANY OTHER ITEM WITH THE APPROVAL OF THE CHAIRMAN

Review of Regional Plan-2021 for NCR and preparation of Regional Plan-2041

Member Secretary, NCRPB informed the Board that as per the provision under Section 15 of NCRPB Act, 1985, the Regional Plan (RP) is to be reviewed after every five years. The RP-2021 was notified in 2005. The review and revision of said Plan was initiated in 2012 and revised RP-2021 was prepared. However, the revised RP-2021 could not be notified due to the directions from PMO regarding issues raised by MoEF&CC.

He mentioned that as per the provision of NCRPB Act, 1985, the review of RP-2021 is due. Since, perspective year for the current RP-2021 is approaching; the work for preparation of RP-2041 also needs to be initiated.

It was noted that the review of the RP-2021 (in-force) may be undertaken, also considering the decisions taken by the Board during the preparation of the draft revised RP-2021.

He further stated that a Steering Committee may be constituted to undertake the review exercise, which may be completed in 6-8 months time. The recommendations of the review will be crucial for the preparation of RP-2041.

Board decided that a Steering Committee, to undertake review exercise, be constituted under the chairmanship of the Member Secretary of the Board. Once the review Report is prepared the same shall be placed before the Board for approval and accordingly the work for the preparation of Regional Plan-2041 will be initiated.

(Action: NCRPB)

The meeting ended with a vote of thanks to the Chair.

* * * * * *

Annexure-I

List of Participants

Chairperson	
1.	M.Venkaiah Naidu, Hon'ble Minister for Urban Development, Housing & Urban Poverty Alleviation and Parliamentary Affairs, Govt. of India
Members	
2.	Shri Manohar Lal Khattar, Hon'ble Chief Minister, Govt. of Haryana
3.	Shri Rao Inderjit Singh, Minister of State for Urban Development, Govt. of India.
4.	Shri Satyendar Jain, Minister Urban Development, Govt. of NCT-Delhi - *representing Hon'ble Chief Minister, Govt. of NCT-Delhi*
5.	Shri Rajiv Gauba, Secretary, Ministry of Urban Development, Govt. of India
6.	Shri Depinder Singh Dhesi, Chief Secretary, Govt. of Haryana
7.	Shri B.K. Tripathi, Member Secretary, NCR Planning Board
8.	Shri S.S. Prasad, Addl. Chief Secretary, Town and Country Planning, Govt. of Haryana
9.	Shri K.K. Aggarwal, ED/Works Planning, Ministry of Railways, Govt. of India
Additional Co-opted Members	
10.	Shri Amit Abhijat, Joint Secretary, Ministry of Housing Urban & Poverty Alleviation, Govt. of India - *representing Secretary, Ministry of Housing & Poverty Alleviation*
11.	Shri K.K. Joadder, Chief Planner, Town & Country Planning Organisation, Ministry of Urban Development, Govt. of India
Co-opted Members	
12.	Shri Sharath Kumar Pallerla, Director, MoEF&CC- *representing Secretary, Ministry of Environment, Forest & Climate Change.*
Special Invitees	
13.	Dr. P.V.N. Rao, Dy. Director, Urban NRSC/ISRO, National Remote Sensing Centre, Govt. of India, Hyderabad - *representing Director, NRSC, Hyderabad*
14.	Professor Mukesh Sharma, Indian Institute of Technology, Kanpur.
15.	Shri S.P.S. Parihar, Chairman, Central Pollution Control Board.
16.	Dr. Dipankar Saha, Additional Director, Central Pollution Control Board.
17.	Dr. Prashant Gargava, Additional Director, Central Pollution Control Board.
18.	Dr. M.P. George, Scientist-D, Delhi Pollution Control Board
19.	Shri Chandraker Bharti, Secretary, Environment & Forest, Govt. of NCT-Delhi
20.	Dr. Anil Kumar, Director, Department of Environment/DPCC, Govt. of NCT-Delhi
21.	Dr. Vijai Singhal, Chief Environment Engineer, Rajasthan State Pollution Control Board, Jaipur.
22.	Shri T.S. Dhaliwal, Special Secretary, Sc/Tech. & Environment, Punjab Pollution Control Board, Patiala.
23.	Dr. Babu Ram, Member Secretary, Punjab Pollution Control Board, Patiala.
24.	Shri Krunesh Garg, Chief Environmental Engineer, Punjab Pollution Control Board, Patiala.

25.	Ms. Divya Aggarwal, Asstt. Environmental Engineer, Punjab Pollution Control Board, Patiala.
26.	Shri Ashish Tiwari, Special Secretary, Forest & Environment, Govt. of U.P.
27.	Dr. B.B. Awasthi, RO, UPPCB, NOIDA
28.	Shri Rohit Singh, AEE, UP Pollution Control Board
Govt. of India	
29.	Shri Durga Shankar Mishra, Additional Secretary, Ministry of Urban Development.
30.	Shri A.A. Rao, Additional Director General, (Media), Ministry of Urban Development
31.	Shri Vinod Kumar, OSD, MoS (UD) & Ministry of Housing & Urban Poverty Alleviation
32.	Shri Braham Dutt, PS to MoS (UD)
Govt. of NCT-Delhi/ Delhi Development Authority	
33.	Shri U.P. Singh, Vice-Chairman, Delhi Development Authority
34.	Shri Ashwani Kumar, Secretary (PWD), Govt. of NCT-Delhi.
35.	Shri S.P. Pathak, Commissioner (Planning), DDA.
36.	Shri Sarvagya Kumar Srivastava, Engineer-in-Chief (PWD), Govt. of NCT-Delhi
37	Shri A.K. Shukla, Chief Conservator of Forest, Department of Forest & Wildlife
38.	Shri Sabyasachi Das, Additional Commissioner, UTTIPEC, DDA.
39.	Shri R.R. Sharma, Director (Survey), DDA.
40.	Shri Rajesh Kumar Jain, Director (Planning), DDA
41.	Shri D.C. Goel, OSD to Minister (PWD), GNCT-Delhi
Govt. of Haryana	
42.	Shri Rao Narbir Singh, Minister Forest, PWD (B&R) and Public Health Engineering
43.	Shri R.R. Jowel, Additional Chief Secretary, Forests
44.	Shri Arun Gupta, Director General, Town & Country Planning
45.	Shri Shrikant Walgad, Secretary, Environment
46.	Shri Anand M. Sharma, Principal Secretary, Urban Local Bodies.
47.	Shri Jaswant Singh, Chief Coordinator Planner, NCR Planning & Monitoring Cell.
48.	Shri Mohan Singh, District Town Planner, Gurgaon.
49.	Shri Rajesh Kaushik, District Town Planner, NCR Planning & Monitoring Cell.
50.	Shri Vikram Kumar, Asstt. Town Planner, NCR Planning & Monitoring Cell.
51.	Shri Jagmander Singh, Agriculture Engineer, Agriculture Department.
52.	Shri S.K. Mehra, PRO, Haryana Bhawan
53.	Shri Satish Kumar, Research Officer, NCR Planning & Monitoring Cell
Govt. of Uttar Pradesh	
54.	Shri Alok Sinha, Commissioner, Meerut.
55.	Shri V.B. Dubey, Chief Coordinator Planner, NCR Planning & Monitoring Cell.
56.	Shri Vivek Bhaskar, Assistant Planner, NCR Planning & Monitoring Cell.
Govt. of Rajasthan	
57.	Shri Ravi Rai Verma, Senior Town Planner (NCR), NCR Planning & Monitoring Cell

58.	Shri Ankur Dewat. Asstt. Town Planner (NCR), NCR Planning & Monitoring Cell
NCR Planning Board Secretariat	
59.	Shri Rajeev Malhotra, Advisor
60.	Shri Sushil Purohit, Director (Administration & Finance)
61.	Shri J.N. Barman, Consultant
62.	Ms. Ruchi Gupta, Joint Director (Technical)
63.	Shri P.K. Jain, Finance & Accounts Officer
64.	Shri Partha Pratim Nath, Deputy Director (Technical)
65.	Shri Abhijeet Samanta, Deputy Director (PMC)
66.	Ms. Neelima Majhi, Assistant Director (Technical)
67.	Shri Naresh Kumar, Assistant Director (Technical)
68.	Shri Yashwant Namasami, Assistant Director (Technical)
69.	Shri Harsh Kalia, Assistant Director (Admn.)
70.	Shri Sushil Katariya, Assistant Director (Estt.)
71.	Shri Shireesh Sharma, Assistant Director (Finance)
72.	Shri Ramesh Dev, Assistant Director (Technical)
73.	Shri Satyabir Singh, Assistant Director (Technical)
74.	Shri Gaurav Kumar, Consultant (Legal)
75.	Shri Amit Gupta, Consultant (Legal)
76.	Ms. Vandana Solanki, Consultant