

**REGIONAL PLAN 2021 FOR ADDITIONAL AREAS  
OF  
NATIONAL CAPITAL REGION**

Addendum/Modification to the Regional Plan-2021 for NCR notified on 17.09.2005



**NATIONAL CAPITAL REGION PLANNING BOARD** MINISTRY OF HOUSING AND  
URBAN AFFAIRS, GOVT OF INDIA CORE 4-B, FIRST FLOOR, INDIA HABITAT  
CENTRE, LODHI ROAD, NEW DELHI-110003

## Background

1. National Capital Region Planning Board (NCRPB) has prepared Regional Plan-2021 for NCR (RP-2021) under Section 10 of the NCRPB Act, 1985 which was notified on 17<sup>th</sup> September, 2005.
2. Subsequent to the notification of RP-2021 on 17.09.2005, additional districts namely Bhiwani (including Charkhi Dadri) and Mahendragarh districts of the State of Haryana and Bharatpur district of the State of Rajasthan, were included to NCR vide Government of India, Gazette Notification dated 01.10.2013. Further, the districts of Jind & Karnal of the State of Haryana and Muzzaffarnagar district of the State of Uttar Pradesh were included in NCR vide GoI Gazette Notification dated 24.11.2015. The district of Shamli, of the State of Uttar Pradesh was included in NCR vide GoI Notification dated 16.04.2018. The total additional area of NCR is now 20939 sqkm. Further, in addition to the existing five Counter Magnet Areas (CMAs) to NCR, four new CMAs, namely, Ambala in Haryana, Dehradun in Uttarakhand, Kanpur in Uttar Pradesh and Jaipur in Rajasthan were also identified and approved by the Board.
3. Subsequent to addition of seven new districts in NCR, the work of preparation of Regional Plan-2021 has been initiated. As part of this, the task of creation of Regional Landuse for the additional areas of NCR was entrusted to National Remote Sensing Centre (NRSC), Govt. of India.
4. At the onset, it may be mentioned that as the notified RP-2021 provides policies and proposals for whole NCR area, these policies and proposals of RP-2021 shall also be applicable to the extended new area of the NCR i.e. Bhiwani (including Charkhi Dadri), Mahendragarh, Jind, Karnal, Bharatpur, Muzzaffarnagar and Shamli districts. However, under the provisions of Section 14(I) of NCRPB Act, 1985, modifications can be carried out in the RP-2021 and accordingly, an Addendum to RP-2021, has been prepared with respect to the 7 additional districts, considering and assessing the available information with NCRPB w.r.t. incorporation of additional districts.

Section 14(I) of NCRPB Act, 1985 is reproduced below:

*“ The Board may, subject to the provisions of sub-section (2), make such modifications in the Regional Plan as finally prepared by it, as it may think fit, being modifications which, in its opinion, do not effect important alterations in the character of the Regional Plan and which do not relate to the extent of land-uses or the standards of population density.”*

**Chapter wise addendums/modifications are as follows:**

## **Chapter 1: INTRODUCTION**

1. National Capital Region Planning Board (NCRPB) has prepared Regional Plan-2021(RP-2021) for NCR under the provisions of Section 10 of the NCRPB Act, 1985 which was notified on 17<sup>th</sup> September, 2005.
2. Subsequent to the notification of RP-2021 on 17.09.2005, additional districts namely Bhiwani (including Charkhi Dadri) and Mahendragarh districts of the State of Haryana and Bharatpur district of the State of Rajasthan, were included to NCR vide Government of India, Gazette Notification dated 01.10.2013. Further, the districts of Jind & Karnal of the State of Haryana and Muzzaffarnagar district of the State of Uttar Pradesh were included in NCR vide GoI Gazette Notification dated 24.11.2015. The district of Shamli of the State of Uttar Pradesh was included in the NCR vide GoI Notification dated 16.04.2018. The total additional area of NCR is 20939 sq.kms.

## **Chapter 2: THE REGION**

**Para 2.1 may be read as:**

### **2.1 CONSTITUENT AREAS OF NCR**

The Constituent Areas of the National Capital Region are as under:

- a) National Capital Territory of Delhi (1,483 sq. kms.). This accounts for 3% of the total area of NCR.
- b) Haryana Sub-region comprising of Faridabad, Gurgaon, Rohtak, Sonapat, Rewari, Jhajjar, Palwal, Nuh (Mewat), Panipat, Mahendragarh, Bhiwani (including Charkhi Dadri), Jind and Karnal districts. This accounts for 52% (25,327 sqkms) of the area of the State and 46% of the area of NCR.
- c) Rajasthan Sub-region comprises of Alwar and Bharatpur districts. The area is 4% (13,447 sq. kms.) of the total area of the State and 24% of the area of NCR.
- d) Uttar Pradesh Sub-region comprising of five districts namely, Meerut, Ghaziabad, Gautam Buddha Nagar, Bulandshahr, Baghpat, Muzaffarnagar and Shamli. This accounts for 6% (14,825 sq. kms.) of the area of the State and 27% of the area of NCR.

Thus, the total area of NCR is 55,083 sq. kms. as indicated in the Map 2.1A National Capital Region (including additional areas): Constituent Areas.

### **2.2 PHYSICAL SETTING**

Para 1 for section 2.2 be read as:

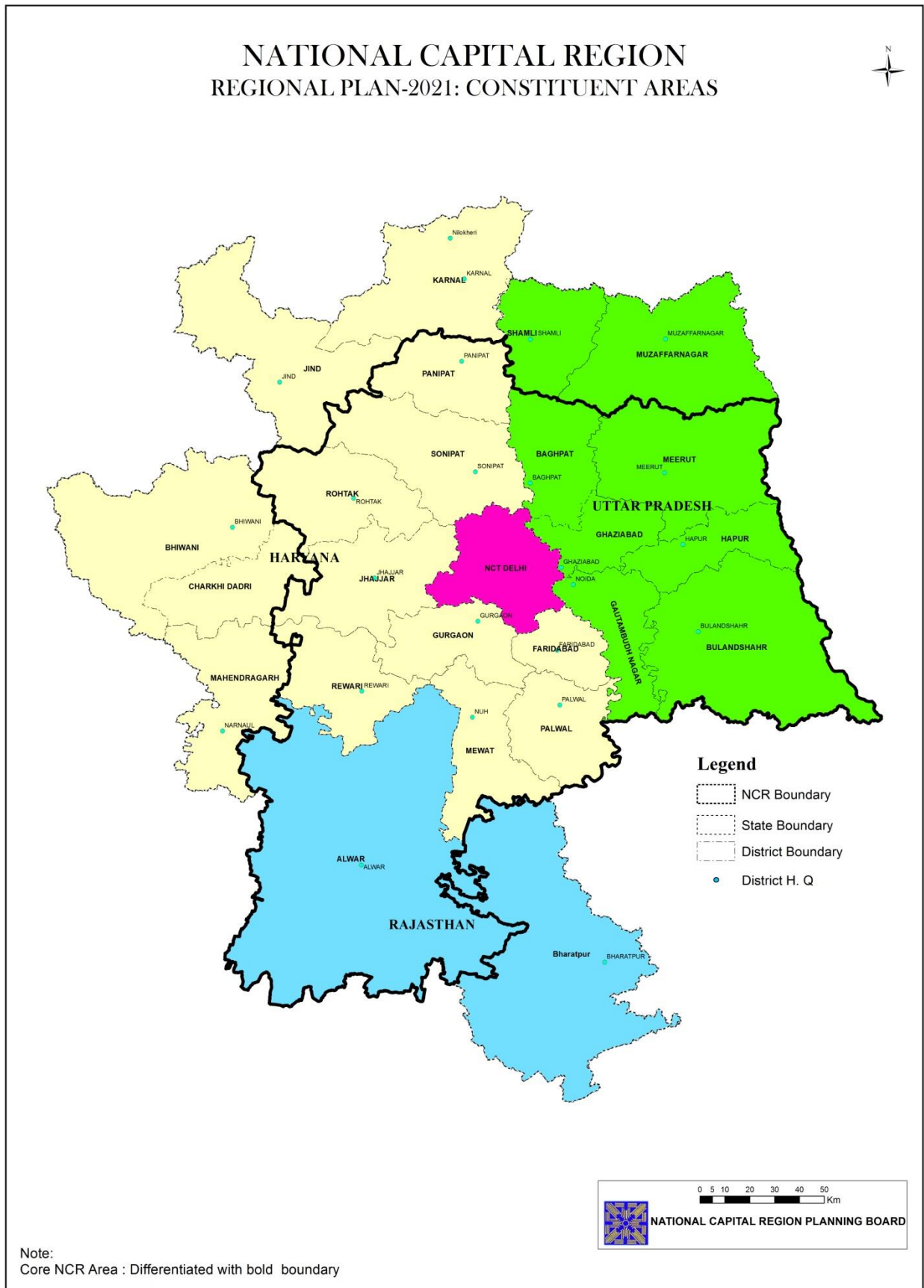
The National Capital Region lies between 26° 42' and 29° 59' North latitude and 75° 28' and 78° 29' East longitude. The region includes the National Capital Territory of Delhi (earlier Union Territory of Delhi) and parts of the States of Haryana, Rajasthan and Uttar Pradesh. Map 2.2A presents the Physiography and Slope in National Capital Region (including additional areas).

**2.3 GEOLOGY** - Map 2.3A on Lithology indicates geology of National Capital Region additional areas of NCR.

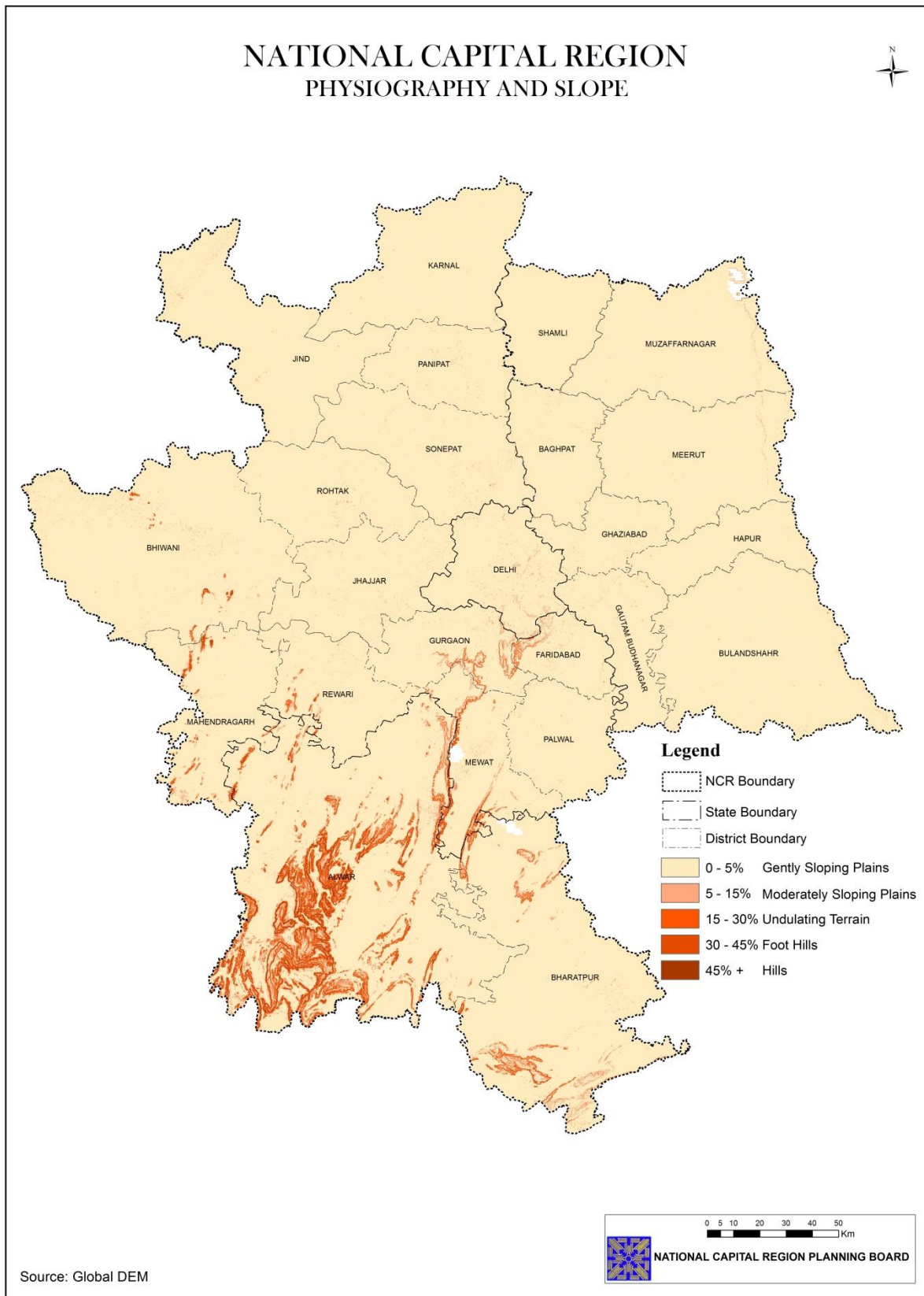
**2.4 GEOMORPHOLOGY**- Map 2.4A on Geomorphic Units indicates geomorphology of National Capital Region including additional areas of NCR.

**2.5 HYDROLOGY AND AVAILABILITY OF GROUND WATER**- Map 2.5A on Ground Water Prospects indicates availability of ground water.

**Map 2.1A National Capital Region (including additional areas): Constituent Areas**

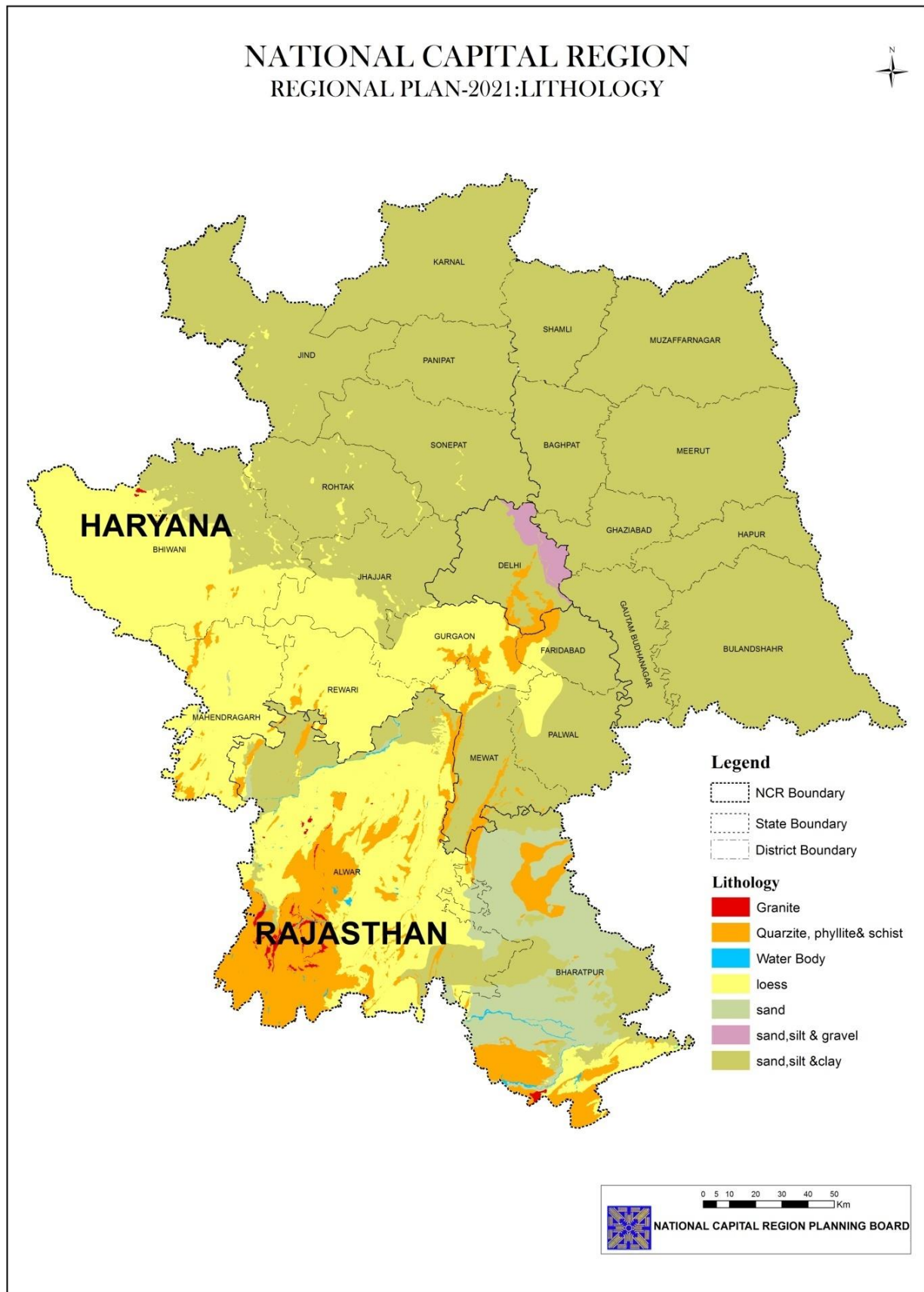


**Map 2.2A National Capital Region (including additional areas): Physiography and Slope**



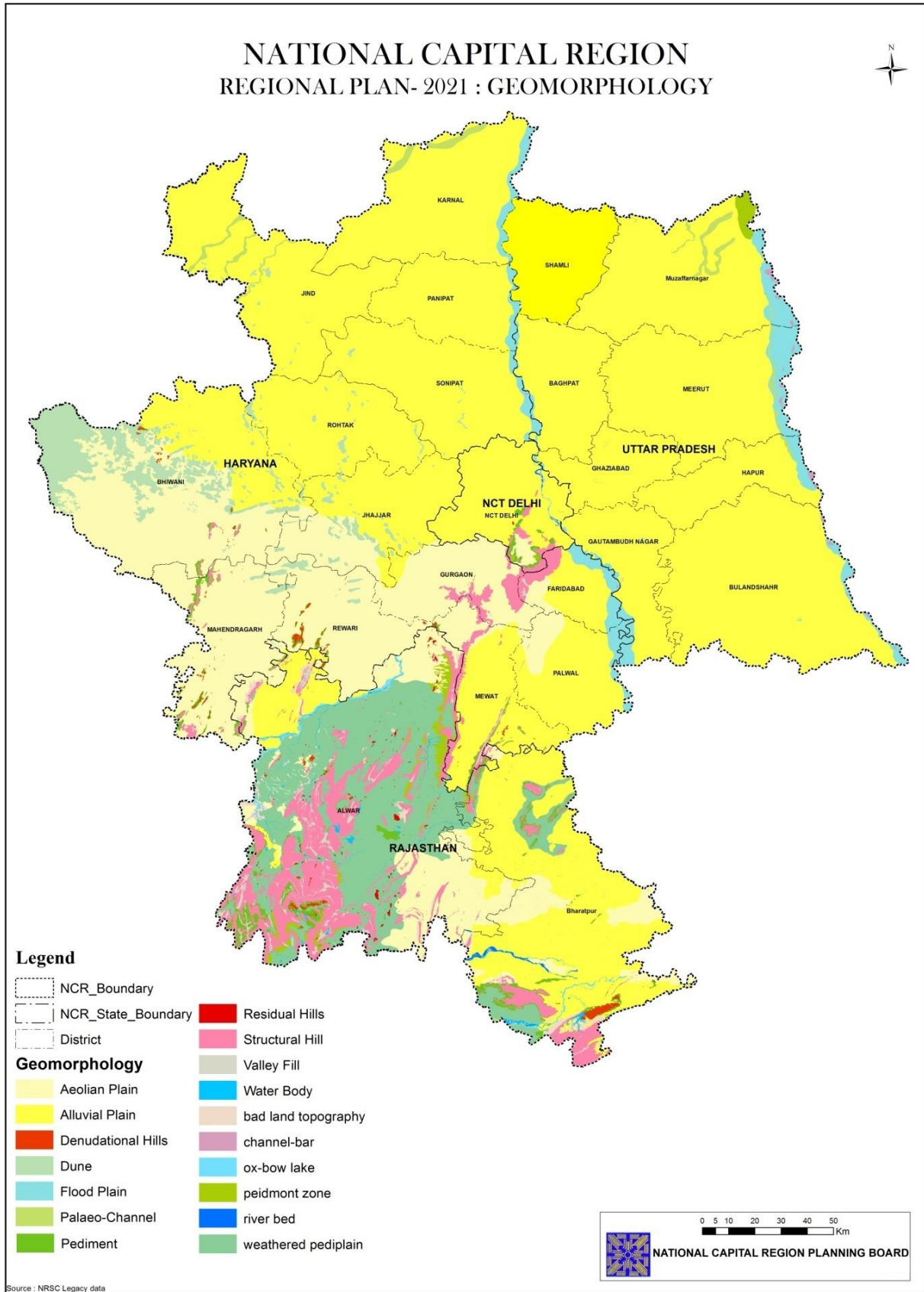
\* Bhiwani (including Charkhi Dadri)

**Map 2.3A National Capital Region (including additional areas): Lithology**



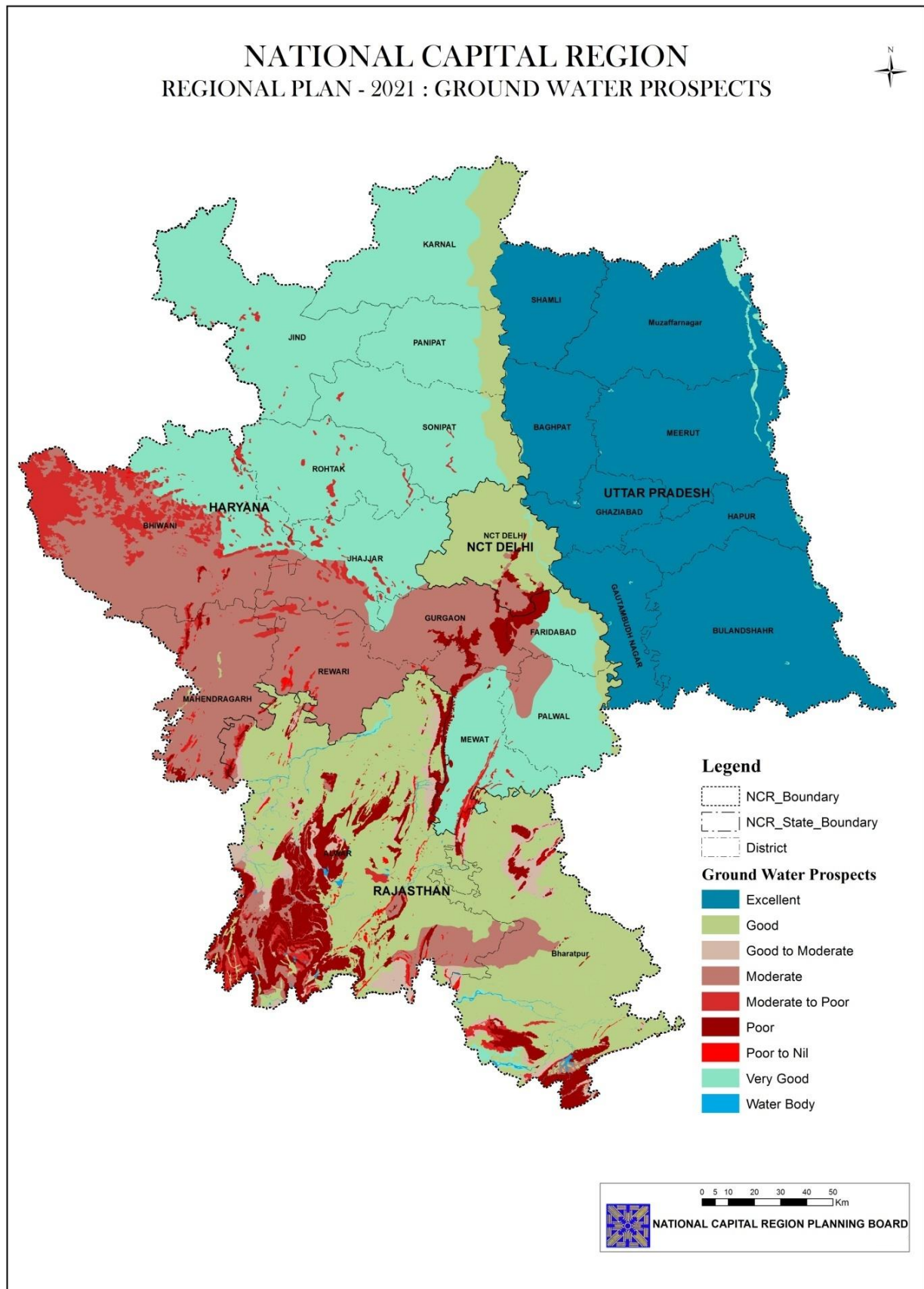
\* Bhiwani (including Charkhi Dadri)

**Map 2.4A National Capital Region (including additional areas): Geomorphology**



\* Bhiwani (including Charkhi Dadri)

**Map 2.5A National Capital Region (including additional areas): Ground Water Prospects**



\* Bhiwani (including Charkhi Dadri)

### **Chapter 3: AIMS, OBJECTIVES AND POLICY ZONES**

The policies for future development of the Regional Plan-2021 given in Para 3.2 will continue for the additional areas of NCR. The additional area falls under the Policy Zone of “Rest of NCR”, and policies at para 3.2.4 with regards to ‘Rest of NCR’ will be applicable to the additional areas of NCR.

Map 3.1 (A) presents the Policy Zones of National Capital Region including additional areas of NCR.

#### **Para 3.2.3: Highway Corridor Zone, following be added**

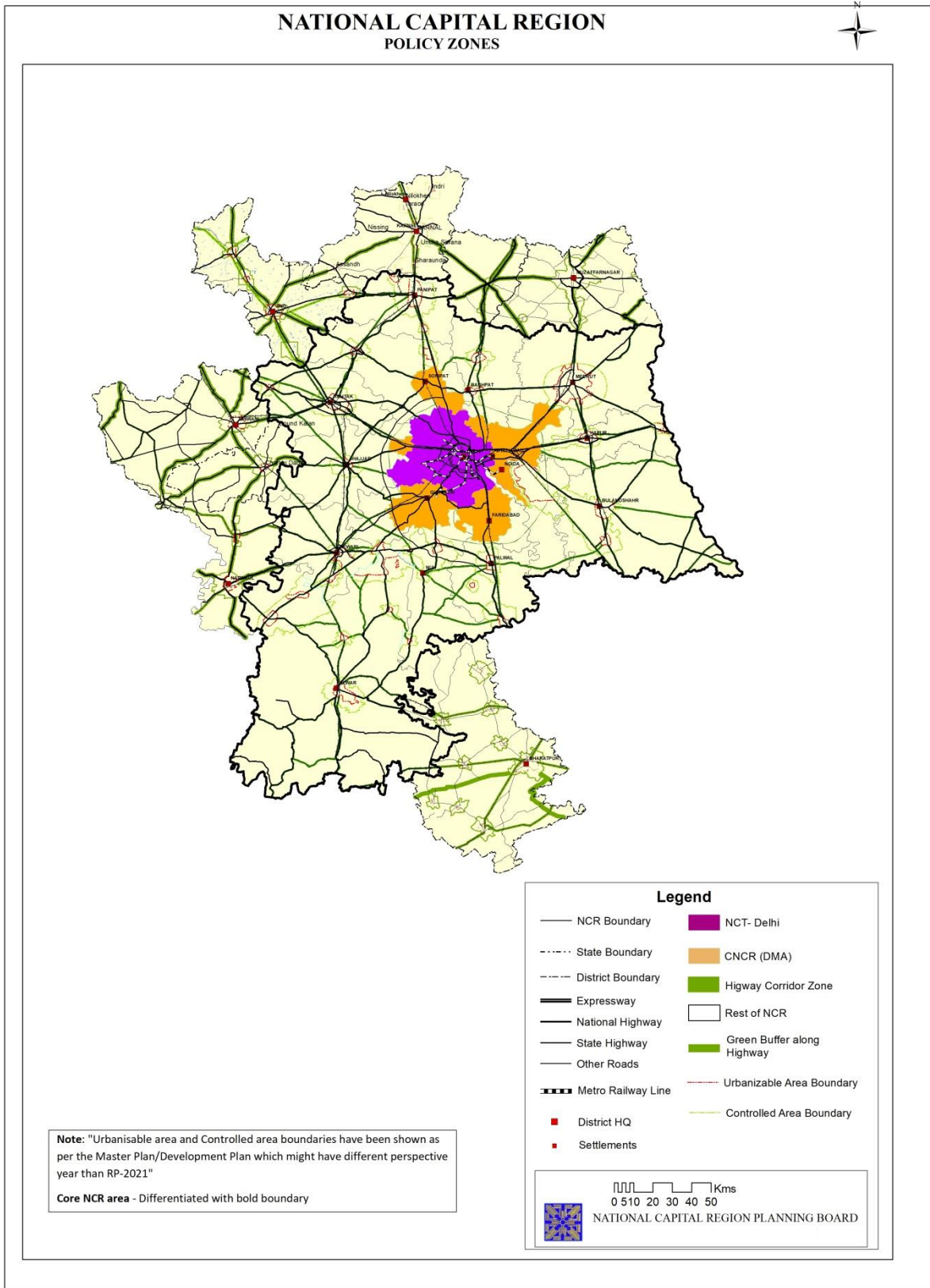
Highway Corridor Zone (HCZ) is proposed along National Highways (NH-44, 52,152, 352, 709 E, 709 A, 334-B, 11 and 148-B) falling in the additional areas of NCR in the districts of Bhiwani (including Charkhi Dadri), Mahendragarh, Jind and Karnal of Haryana sub-region; and Bharatpur district of Rajasthan sub-region; and Muzzaffarnagar and Shamli districts of U.P. sub-region.

The policies regarding HCZ and Green Buffer provided in para 3.2.3 of Regional Plan-2021 is applicable for additional areas of NCR, provided that these will not be applicable to existing duly approved Development/Master Plans notified before finalization of this addendum to modification to RP-2021 for additional areas.

#### **3.2.4: Rest of NCR para be read as:**

In the Rest of NCR (approximately 51,300 sqkms), the basic policy of Regional Plan-2001 for accelerated development of both urban and rural areas will continue. Infrastructure has to be substantially upgraded at local and regional level (both by State and Central Governments) in order to induce the growth in these areas, specifically in the identified settlements i.e., Metro Centres and Regional Centres. This will make them more attractive for locating economic and allied activities and for attracting private sector investment.

**Map 3.1A National Capital Region (including additional areas): Policy Zones**



## Chapter 4: DEMOGRAPHIC PROFILE AND SETTLEMENT PATTERN

The following Tables be added in para 4.2.1 below the Table 4.2 of Regional Plan-2021.

**4.2.1 A** Table 4.2.(a) reveals that decadal growth rate of additional areas has decreased, with Bharatpur district experiencing a decrease of 6%. The additional areas of Haryana constitute 21.3% of total population of Haryana.

**Table 4.2 (a): Sub-region wise distribution of Population in additional area of NCR**

Additional areas	Population			Decadal Growth Rate (%)		Share of Population (%)		
	1991	2001	2011	1991-2001	2001-2011	1991	2001	2011
Year	2	3	4	5	6	7	8	9
<b>Haryana</b>	3861093	4701553	5396009	21.8	18	23.5	22.2	21.3
<b>Rajasthan</b>	1650724	2101142	2548462	27.3	21.3	3.8	3.7	3.7
<b>Uttar Pradesh</b>	2843000	3543362	4143512	24.7	21.1	2.0	2.1	2.1

Source: Census 1991, 2001 & 2011

Table 4.3.(a) reveals that urban population share has increased for the newly added areas by about 2% during 2001-2011.

**Table 4.3 (a): Sub-region wise distribution of Urban Rural components of Population in additional area of NCR**

Urban –Rural Component/ Year	Population in person		% share	
	2001	2011	2001	2011
<b>Total additional areas of NCR</b>	10346057	12087983	100.00%	100.00%
<b>Urban</b>	2272290	2900981	21.96%	24.00%
<b>Rural</b>	8073767	9187002	78.04%	76.00%

Source: Census 2001 & 2011

**Table 4.4 (a) Population Density in Additional areas of NCR (2001-2011)**

Sub-region/Additional Areas	Area (Sq. Km)	Population		Density (per/sqkm)	
		2001	2011	2001	2011
<b>Haryana areas</b>	11899	4701553	5396009	395	453
<b>Rajasthan areas</b>	5067	2101142	2548462	415	503
<b>Uttar Pradesh areas</b>	3973	3543362	4143512	892	1043

Source: Census 2001 & 2011

As per 2011, Census, Additional area of NCR in Uttar Pradesh have the maximum density of 1043 pph. While density of additional areas of Haryana is lowest 452 pph, the density of additional Rajasthan district is more than rest of Rajasthan sub-region (Alwar district).

### 4.2.2 (a) Growth of Population in additional areas

Additional area of NCR is experiencing declining in decadal growth rate of population. Jind district has a decline in decadal population growth by as much as 9.3 % followed by Bhiwani (including Charkhi Dadri) (7.8%) . The least decline is seen for Karnal district (5%). Only in case of Muzaffarnagar (Urban) and Karnal (urban) the decadal growth rate from 2001 to 2011 has increased by 2.5% and 5.7% respectively.

**Table 4.12 (a) Population distribution and growth of newly added districts, 1991-2011**

Additional Areas		Population (in no.)			Growth Rate (in %)	
		1991	2001	2011	1991-2001	2001-2011
Haryana	Rural	3152314	3742105	4181439	18.71	11.74
	Urban	708779	959448	1214570	35.37	26.59
	<b>Total</b>	<b>3861093</b>	<b>4701553</b>	<b>5396009</b>	<b>21.77</b>	<b>14.77</b>
Uttar Pradesh	Rural	2143313	2639480	2952200	23.15	11.85
	Urban	699230	903882	1191312	29.27	31.8
	<b>Total</b>	<b>2842543</b>	<b>3543362</b>	<b>2863798</b>	<b>19.2</b>	<b>13.5</b>
Rajasthan	Rural	1336759	1692182	2053363	26.6	21.3
	Urban	313965	408960	495099	30.3	21.1
	<b>Total</b>	<b>1650724</b>	<b>2101142</b>	<b>2548462</b>	<b>27.3</b>	<b>21.3</b>

Source: Census of India -1991, 2001, 2011

### Para 4.2.3 (b) Population Projection for Additional areas of NCR for 2021

The population projection for additional areas of NCR for the year 2016 and 2021 is given in Table 4.12 (b). The population of additional areas of NCR is projected to be 134.51 lakhs by 2016 and 149.71 lakhs by 2021. The share of Haryana Sub-region (additional 4 districts): 68.47 lakhs, Rajasthan Sub-region (additional one district): 31.49 lakhs and UP Sub-region (additional 2 districts): 49.73 lakhs by 2021.

**Table 4.12(b): Sub-region wise Rural-Urban projected Population of additional areas of NCR, 2016-21 (for additional areas in sub regions of NCR)**

Sr. No.	Additional areas		2011	2016	2021
1.	<b>Haryana</b>	Total	5396009	6078620	6847582
		Rural	4181439	4658684	5496386
		Urban	1214570	1493811	1837252
2.	<b>Uttar Pradesh</b>	Total	4143512	4539644	4973645
		Rural	2952200	3091769	3213957
		Urban	1191312	1447874	1759689
3.	<b>Rajasthan</b>	Total	2548462	2833295	3149964
		Rural	2053363	2256802	2478695
		Urban	495099	576493	671269
	<b>Total Additional NCR Area</b>	<b>Total</b>	<b>12087983</b>	<b>13451559</b>	<b>14971191</b>
		Rural	9187002	10007255	11189038
		Urban	2900981	3518178	4268210

Source: NCRPB Study on Population Projection of NCR, 2016-2041

### 4.3.1(a) Urban Settlements in Additional areas

As per the Census of India (2011), currently there are 230 urban settlements within NCR as against 168 before adding the new districts. Present composition of urban centers in the newly added districts is given in **Table 4.13 (a)**.

**Table 4.13 (a) Urban Settlements in newly added areas of NCR, 2011**

Sub-region wise	District	Class –I	Class-II	Class-III	Class-IV	Class-V	Class-VI	Total
		(1 Lakh+)	(50,000-99,999)	(20,000-49,999)	(10,000-19,999)	(5,000-9,999)	(Below 5,000)	
Haryana	Bhiwani (incl. Charkhi Dadri)	1	1	1	2	-	-	5
	Jind	1	1	1	2	1	-	6
	Karnal	1	-	3	3	-	1	8
	Mahendragarh	-	1	1	1	-	2	5
Uttar Pradesh	Muzaffarnagar (incl. Shamli)	2	3	11	9	2	-	27
Rajasthan	Bharatpur	1	-	6	2	1	-	10

Source: Census of India, 2011

There are 27 urban settlements in Uttar Pradesh sub-region, followed by 24 in Haryana sub-region and 10 in Rajasthan sub-region. There are 3 Class-I urban centers in Haryana sub-region, followed by 2 in Uttar Pradesh sub-region and 1 in Rajasthan sub-region.

#### 4.3.2 (a) Rural Settlements in additional areas

According to the Census of India (2011), there were 4147 rural settlements of various sizes in NCR as compared to 3924 settlements in 2001. The number of villages increased over the last decade except in Muzaffarnagar district. The rural population of NCR which was 78% of the total population of additional area in 2001 has declined to 76% in 2011.

#### 4.5 Proposed Hierarchy of Settlements in Additional areas of NCR with population assignment

Regional Plan-2021 proposed a six-tier settlement system, i.e. Metro Centre, Regional Centre, Sub-Regional Centres, Service Centres, Central Villages and Basic Villages. The same settlement pattern is proposed to be continued for the additional areas. In addition to earlier centers, three Regional Centers i.e. Karnal (M.Cl.+OG) in Haryana sub-region, Muzaffarnagar (NPP) in Uttar Pradesh sub-region and Bharatpur (M.Cl.+OG) in Rajasthan sub-region are proposed in the additional areas of NCR.

**Table 4.21 Proposed Regional Centre (2021) in additional areas of NCR**

S. No.	Regional Centre	2011 (Existing)	2021 (Proposed)
1	Karnal (M Cl + OG)	302,140	410234
2	Muzaffarnagar (NPP)	392,768	555646
3	Bharatpur (M Cl + OG)	252,838	3,16,147

Source: As per the Report on Population Projections 2041

Policies with regards to Regional Centre, Sub Regional Centre, Service Centre, Central Village and Basic village as given in para 4.3.6 of the Regional Plan-2021 be applicable for the additional areas of NCR.

## Chapter 5: ECONOMIC ACTIVITY AND FISCAL POLICY

### 5.2.6 Economic Structure of Additional districts of NCR

#### 5.2.6.1 Work Participation Rate in additional areas of NCR

As per the Census of India records, during the decade 2001-11 it is found that amongst the newly added districts, apart from Bharatpur, work participation rate has decreased in all the newly added districts of NCR (refer **Table 5.11**). Further, while there is slight increase in WFPR for females in Bharatput district, the rate has considerably decreased for other districts’.

**Table 5.11 Work Participation Rate (WPR) in additional areas of NCR, 2001-11**

S.No.	Additional areas	Work Participation Rate (WPR in %)					
		2001			2011		
		Total	Male	Female	Total	Male	Female
1.	Haryana	41.42	49.75	31.87	37.08	50.20	22.26
2.	Uttar Pradesh	31.96	48.43	13.17	31.45	49.48	11.26
3.	Rajasthan	40.59	47.08	32.99	42.03	47.74	35.54

Source: Census of India, 2001 & 2011

#### 5.2.6.2 Structural composition of workforce in newly added districts of NCR

It is observed that majority of the workforce in the newly added districts is engaged either in cultivation & agriculture (primary activities) or in other type of activities. During the decade 2001-2011, it is seen that the share of cultivators has reduced over the time, however, an increase is visible in agricultural labours and tertiary sector. Table 5.12 provides the percentage share of main workers in the newly added districts by type of economic activities during 2001 and 2011.

**Table 5.12 Share of workers in newly added districts by type of economic activities, 2001-2011**

S.No.	Additional areas	Share of Main workers, 2001 (in %)				Share of Main workers 2011 (in %)			
		Cultivators	Agricultural Labor	Household Industries	Others	Cultivators	Agricultural Labor	Household Industries	Others
		Primary		Secondary	Tertiary	Primary		Secondary	Tertiary
1.	Haryana	46.22	9.20	2.27	42.33	39.30	12.94	2.27	45.49
2.	Uttar Pradesh	30.59	15.55	3.15	50.71	27.48	20.95	2.96	48.62
3.	Rajasthan	60.79	6.27	1.84	31.09	50.43	12.86	2.07	34.64

Source: Census of India, 2001 & 2011

Census records reveals that among these newly added areas , during the decade 2001-11 share of workers engaged in primary sector decreased in all the districts but a slight increase is depicted in Bhiwani (including Charkhi Dadri) district of Haryana sub-region and Muzaffarnagar district of Uttar Pradesh sub-region. Contrary to this, workforce in secondary sector showed a minor increase in all the newly added districts but negligible decline is seen in Mahendragarh district of Haryana sub-region and Muzaffarnagar district of Uttar Pradesh sub-region. However, workers in tertiary sector increased in all the newly districts except Bhiwani (including Charkhi Dadri) district of Haryana sub-region and Muzaffarnagar district of Uttar Pradesh sub-region.

#### **5.4a Policies and Proposals for additional areas of NCR**

As the entire additional area falls in the 'Rest of NCR', all related policies of 'Rest of NCR', under 'Activity Specific Policies', and those related to Regional level under section 5.4 of the Regional Plan-2021 be applicable to additional areas of NCR.

#### **5.5a Strategies for additional areas of NCR**

Strategies suggested for 'Rest of NCR', under 'Activity Specific Strategies', and those related to Regional level, under section 5.5 of the Regional Plan be applicable to additional areas of NCR.

## **Chapter 6: TRANSPORT**

### **In para 6.2.1 Transport Network following be added for Additional Areas of NCR**

#### ***i) Road Network***

Ten National Highways (NHs) namely NH-44, 52,152, 352, 709, 709 A, 334-B, 11, 148-B and 9 criss-cross the Haryana sub-region, two NHs, namely, NH-119, 58 passing through UP sub-region and two, namely, NH-21 and 3A passing through Rajasthan sub-region.

Twenty-three State Highways also serve in straightening the regional road network in the additional areas of NCR

The broad road network in National Capital Region including additional areas of NCR is shown in **Map 6.1.A**

#### ***ii) Rail Network***

The additional areas of NCR rail network falls under four zonal railways (Northern, North-Western, North-Central and West-Central).

The rail network in NCR is shown in **Map 6.2.A**

#### ***iii) Airport***

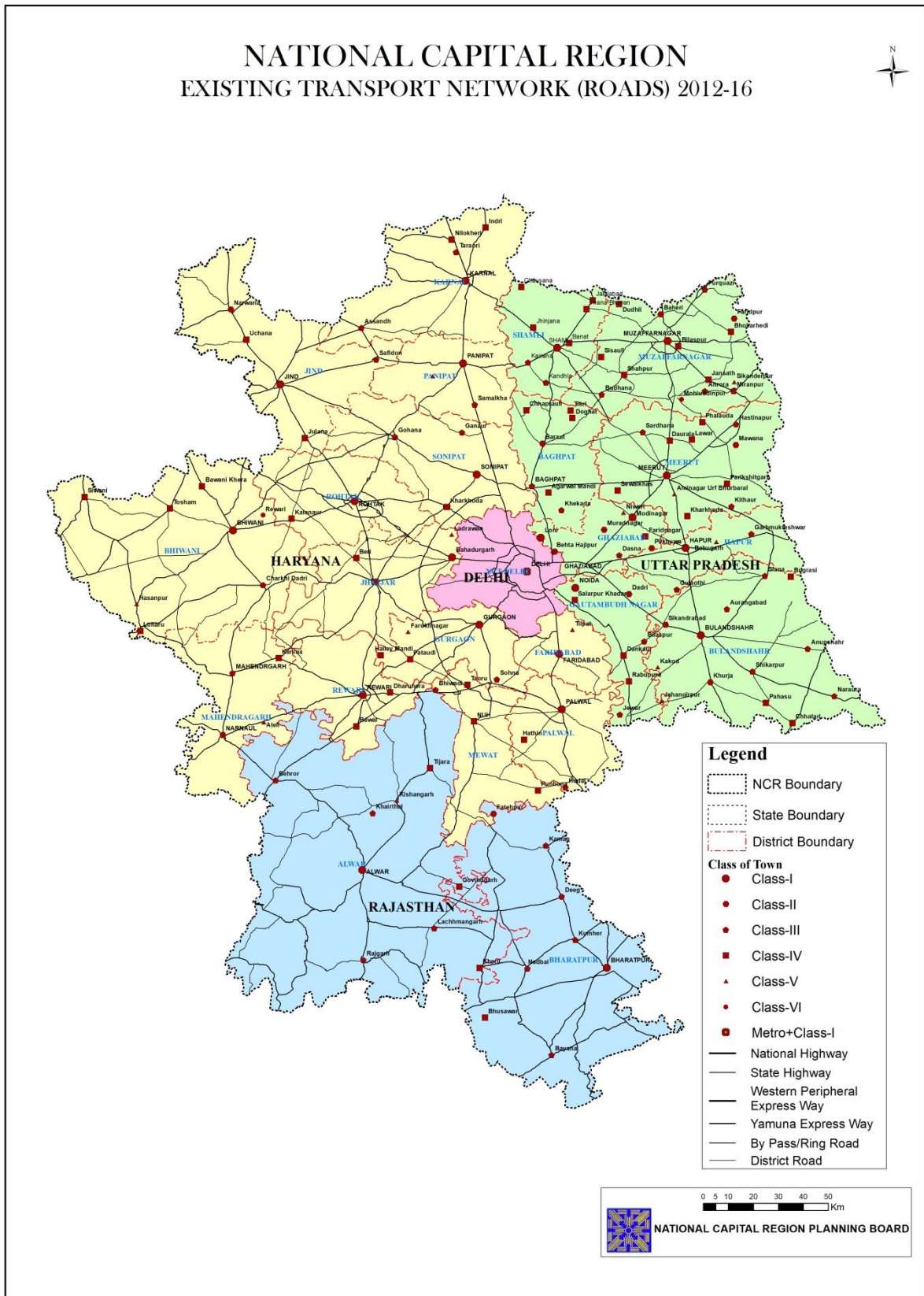
The State Government of Haryana intends to set up an international Cargo Airport for which site has been identified at Bhaini Maharajpur & Bhaini Bhairon villages in the State which is situated at the confluence of Rohtak, Hisar and Bhiwani (including Charkhi Dadri). The Airport Authority of India has given the site feasibility report and clearance from the Ministry of Defense has also been received.

With regards to Rajasthan sub-region, the nearest Domestic airport is Pandit Deen Dayal Upadhyay Airport, Agra which is located at the distance of 58 kms from Bharatpur. Besides Agra Airport, there are 2 Airports which serves Rajasthan Sub Region, Bharatpur that are Indira Gandhi International Airport, New Delhi located at a distance of 240km from Bharatpur and Jaipur International Airport in Jaipur which are located approximately at a distance of 175 km from Bharatpur. Apart from nearest airports, Bharatpur is also having Airstrip located 21 kms from the city of Bharatpur. This Airstrip is only suitable for small aircraft operations only (VIP & private aircraft operations) with total land area allotted of 30 Acres. U.P. sub-region is served by Indira Gandhi International Airport, New Delhi.

### **Following be added as para 6.9 Policies and Strategies and Action Plan for additional areas**

The Policies and Strategies given in para 6.5; Transport Plan 2021 given in para 6.6 and Action Plan in para 6.6.5 of the Regional Plan-2021 be applicable to additional areas of NCR.

**Map 6.1A National Capital Region (Including Additional Areas): Existing Road Network**



**Map 6.2A National Capital Region (including additional areas): Existing Rail Network**



## Chapter 7 : POWER

### 7.2.1.1 Existing Availability & Future Demand for additional/newly added areas of NCR

Census 2011 indicates the status of electricity in the additional areas of Haryana. Cent percent villages that are inhabited are electrified in Karnal (417), Jind (302), Mahendragarh (369) and Bhiwani (including Charkhi Dadri) (437) while situation needs improvement in Bharatpur and Muzaffarnagar (incl. Shamli) districts. Respective state governments need to assess the power situation of the seven districts as applicable and plan for meeting the future requirements as per improvements planned for the districts.

The energy consumption status of newly added areas indicated below shows maximum growth of energy requirement in Mahendargarh district (24%) followed by Muzaffarnagar district (12%) from 2015 to 2017. Bharatpur need to look into the T&D losses (47%) while energy requirement is maximum for Karnal district.

**Table 7.8: District wise Power Demand of additional areas of NCR**

Electricity Demand & Energy data for NCR(FY2016-17)							
State	Districts	Energy Consumption for 2015-16 (MU)	Energy Consumption for 2016-17 (MU)	Growth (%)	T&D Losses (%)	Energy Requirement (MU)	Peak load (MW)
1	2	3	4	5(4-3/3)	6	7(4+6)	8
Haryana	Karnal	2873	2892	0.69	32.40	4279	1595
	Bhiwani (including Charkhi Dadri)	1494	1591	6.55	33.61	2397	569
	Mahendargarh	576	713	23.78	28.43	997	225
	Jind	1049	1128	7.47	38.37	1830	719
Uttar Pradesh	Muzzafarnagar	1287	1440	11.87	21.03	1824	2059
Rajasthan	Bharatpur	805	865	7.44	47.25	1639	343

Source: CEA

### 7.3 (a) Policies and Proposals

The policies and proposals provided in para 7.3 of the Regional Plan-2021 be applicable to additional areas of NCR.

## **Chapter 8: WATER**

Following may be added in para 8.2 of Regional Plan-2021 as:

### **8.2 (a) Existing Situation and Issues of Additional Areas of NCR**

Amongst the newly added areas, Karnal district receives the maximum average annual rainfall (605.8mm) while Mahendergarh has the lowest. (405.8mm). As per Ground Water Development Blocks in the additional areas of NCR, except Muzaffarnagar district of Uttar Pradesh sub-region, in all the additional areas of NCR an imbalance between the net annual recharge and withdrawal very clearly mean that groundwater withdrawal significantly exceeds the rate of aquifer recharge. Though, the situation is far better in Muzaffarnagar district where the stage of ground water development is 66%, but that too is higher than the all-India average of 62%. Therefore, ground water resources in NCR including the newly added areas are under pressure due to over-exploitation.

Based on stage of groundwater development, CGWB report, 2011 indicates that in the additional areas of NCR, all the districts have significant number of over-exploited blocks. This clearly underlines the urgent need to increase the ground water recharge to compensate for the annual ground water withdrawal.

Among the newly added areas of NCR, the depth of water table in Bhiwani (including Charkhi Dadri) district drops till 65.97 meters bgl during the pre-monsoon period and the situation is, somewhat same during the post-monsoon period. In rest of the districts, the situation is comparatively better. The situation is a matter of concern for all additional districts apart from Karnal and to an extent Muzaffarnagar, with respect to ground water salinity.

Drinking water has been accorded priority among water uses in successive National Water Policies. As per Census 2011, amongst the new areas added to NCR, 100% population have access to drinking water except Bharatpur district of Rajasthan sub-region where it is only 74.9%. At an average of 52.9% in 2011, tapped water (implying piped water supply) remained the major source of drinking water supply in the newly added districts of NCR. In Bharatpur district and Muzaffarnagar district, hand pumps are a major source of water i.e. 36.6% and 65.2% households respectively.

### **8.3 (a) Policies and Proposals for additional areas of NCR**

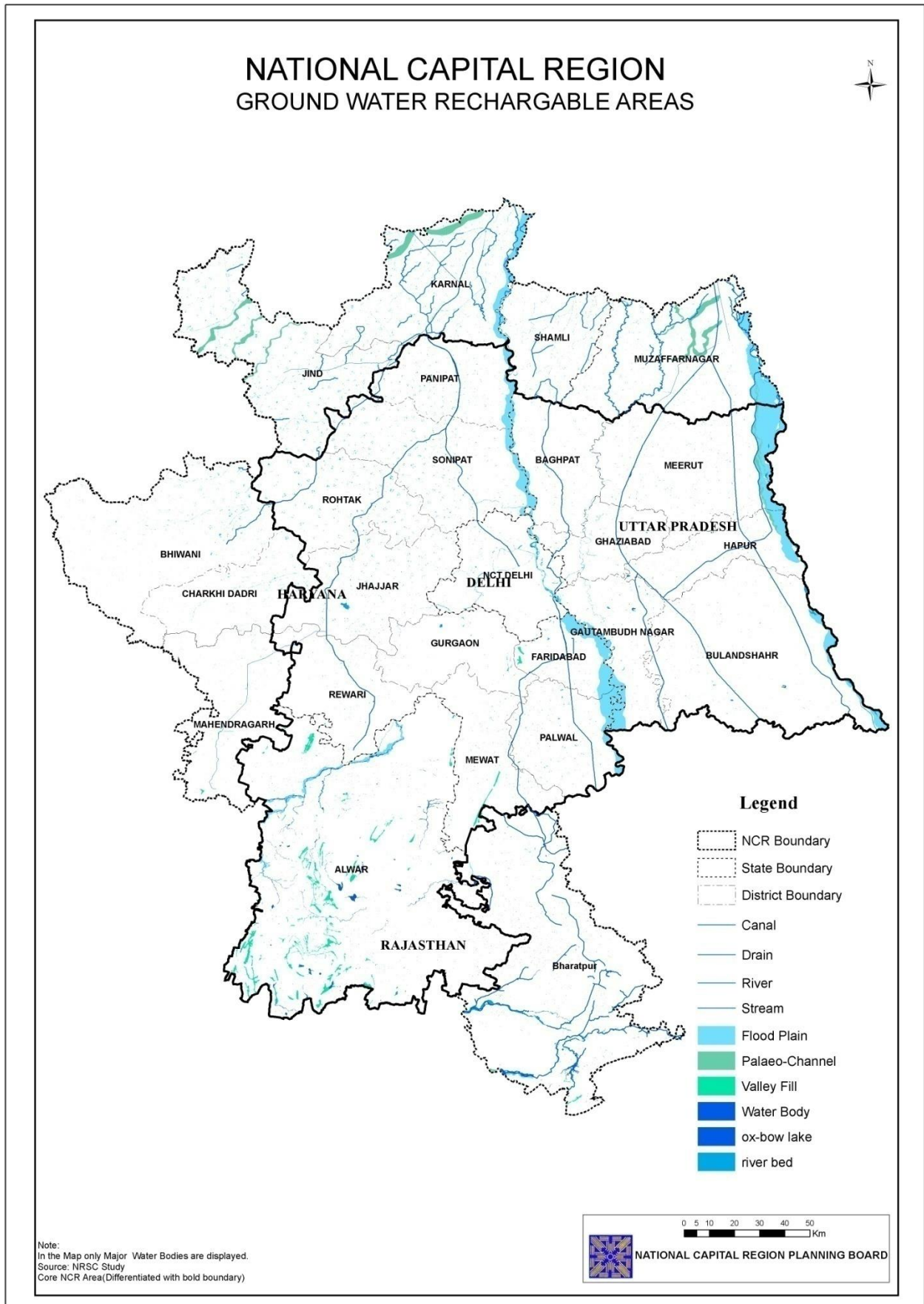
The policies and proposals provided in Para 8.3 of the Regional Plan-2021 be extended to the additional districts of NCR.

### **8.4 (a) Plan of action for additional areas of NCR**

The plan of action and strategies provided in para 8.4 of the Regional Plan-2021 be extended to additional areas of NCR.

**Map 8.1A** indicates the ground water rechargeable areas in the 7 additional districts. Districts of Mahendergarh, Bhiwani (including Charkhi Dadri), Jind, Karnal of Haryana; Muzaffarnagar & Shamli in Uttar Pradesh and Bharatput in Rajasthan district.

**Map 8.1A: National Capital Region (including additional areas): Ground Water Rechargeable Areas**



## Chapter 9: SEWERAGE, SOLID WASTE MANAGEMENT, DRAINAGE & IRRIGATION

In addition to 9.1.2 for NCR as notified upto 2005, 8.2 of Chapter 8 on water of RP2021, following Further,

### 9.1.2A Existing Situation and Issues w.r.t Sewerage, for Newly added Districts

The coverage of sewerage network in various towns of the districts of Karnal, Jind, Mahendergarh and Bhiwani (including Charkhi Dadri) in Haryana, vary from 60% in Loharu town of Bhiwani district, to 90 % in towns like charkha dadri, Assandh, narwana and Mahendergarh. The sewer network coverage in Regional centre in newly added districts of Haryana i.e Karnal is 76 %. With respect to sewage treatment capacity in regional centres identified in newly added districts, Karnal has capacity of 48 mld while Bharatpur has capacity to handle 13 mld sewage.

As per estimates, i.e Water Demand estimated @ 135 lpcdf for Urban and 70lpcd for rural and considering Sewage Generated estimated as 80% of Water Demand, as per CPHEEO norms, the additional areas generate another 828 MID as in 2011 and expected to generate 461 mld by 2021.

### 9.1.3A Policies and Proposals

All policies and proposals as provided in para 9.1.3 of the Regional Plan- 2021 be applicable to additional areas of NCR.

### 9.1.4A Plan of action for newly added areas

The plan of action and strategies provided in para 9.1.4 of Regional Plan-2021 be extended to additional areas of NCR.

### 9.2.2A Existing situation and issues w.r.t Solid waste management, for additional areas of NCR.

As per estimates, in Table 9.2.1 a, Karnal has maximum waste generation due to large urban population amongst the four newly added districts from Haryana, followed by Bhiwani (including Charkhi Dadri), Jind and Mahendragarh districts. The Table also presents estimated solid waste generation for year 2011 and 2021 as per CPHEEO norms. Overall, as per estimates, the additional areas of NCR together produced about 641 MT. day of solid waste in 2011 and is expected to generate 1045MT/day of solid waste by 2021.

**Table No. 9.2.1 a: Estimated Solid Waste Generation by Urban Population in additional districts of NCR**

State/ District	Urban Population Census 2011	Projected Urban Population 2021*	Generated in 2011 (MT/day)	Projected generation by 2021 (MT/day)
<b>Haryana</b>				
Karnal	4,54,810	687981	95.51	172.00
Mahendragarh	1,32,855	200967	27.90	42.20
Bhiwani (including Charkhi Dadri)	3,21,322	486056	67.48	102.07
Jind	3,05,583	462248	64.17	97.07
<b>Uttar Pradesh</b>				
Muzaffarnagar	8,05,210	1189377	201.30	321.13
Shamli	3,86,102	570312	81.08	142.58
<b>Rajasthan</b>				
Bharatpur	4,95,099	671269	103.97	167.82
<b>Total</b>			<b>641.41</b>	<b>1044.87</b>

\* NCR Population project Study 2019 & CPHEEO norms

*Per Capita waste Generation Rates as per CPHEEO*

<b>Population range (in lakhs)</b>	<b>Avg. per Capita value(kg/Capita/day)</b>
<b>1-5</b>	0.21
<b>5-10</b>	0.25
<b>10-20</b>	0.27
<b>20-50</b>	0.35
<b>&gt;50</b>	0.50

### **9.2.3A Policies and Proposals**

All policies and proposals as provided in para 9.2.3 of the Regional Plan- 2021 be applicable to additional areas of NCR.

### **9.2.4A Plan of action for newly added districts**

The plan of action and strategies provided in para 9.2.4 of the Regional Plan-2021 be extended to additional areas of NCR.

### **9.3.2A Existing Situation regarding Drainage, for Newly added Districts**

Jind and Bhiwani (including Charkhi Dadri) District of extended Sub Region are mainly drained through inland drainage tracts'(Ghaggar Drainage Tract/ Internal Drainage Tract). No drainage system is available in Mahendragarh District and the Karnal District drainage is linked and flows in to Yamuna River. Muzaffarnagar district is demarcated by river Ganga in the east and by river Yamuna in the west. In fact, the drainage pattern of the district is strictly governed by these two major rivers. Both the rivers in their respective course flow more or less north to south. Major tributary of Ganga is Solani river. Yamuna has the tributaries named Hindon, Krisni and Hari rivers and the Katnanala. Bharatpur district falls in parts of Rupa rail, Banganga and Gambhiri river basins. All the rivers in the district are ephemeral in nature. River Banganga, which passes through the south-central part of the district, disappears in the sandy tract near Ghana. Gambhiri River flows in the southern part, whereas Rupa rail flows in the northern part. Undersigned

### **9.3.3A Policies and Proposals for newly added Areas**

All policies and proposals as provided in para 9.3.3 of the Regional Plan- 2021 be applicable to additional areas.

### **9.3.4A Plan of action for newly added districts**

The plan of action and strategies provided in para 9.3.4 of the Regional Plan-2021 be extended to additional areas of NCR.

#### **9.4.1 A Existing Situation related to Irrigation for Newly added areas of NCR**

In the extended Haryana Sub-Region Karnal, Bhiwani (including Charkhi Dadri) and Mahendragarh and parts of the Jind Districts, the water is obtained from the Yamuna Canal System. Whereas in Karnal and Jind District it is through gravity but in case of Bhiwani (including Charkhi Dadri) district and parts of Mahendragarh, it is through the lift system. The irrigation network does not confine to the administrative/District boundaries but through a network of circles serving various districts.

Bharatpur district has been divided into Deeg and Bharatpur divisions. Nadbai, Kumher, Bharatpur and Weir (partially) tehsils come under Bharatpur division comprising 52 dams in which rainy water is being collected. In the months of September and October water from these dams is being released through canals and rivers for irrigation. Under Deeg division come 185 villages of Kaman, Pahari, and Deeg tehsils for irrigation. Irrigation department has constructed 53 km long 'Gungaon canal'. Pahari, Deeg and Tail distributes have been taken from 'Gungaon canal' and total length of their rivers and distributes comes to 276 km. Total 64% of the district area is irrigated and rest of the 36% of the area is un irrigated. The total net irrigated area in the district Bharatpur is 328 Sq.km and Gross Irrigated area is 331 Sq.km.

Entire district of erstwhile Muzaffarnagar falls between the rivers Ganga and Yamuna. The loamy soils of the area is very fertile. About 80% of the total geographical area of the district is cultivated. The rabi crops are wheat and oil seeds while paddy and pulses are the main kharif crops. The abundantly produced sugarcane is a perennial crop. Muzaffarnagar district is one of the highly developed districts privileged with the Ganga and Yamuna canal systems. Besides the Ganga canal & Eastern Yamuna canals, the irrigational needs are met by ground water. The canal irrigation is maximum in Khatauli block followed by Purkaji block. The canal irrigation is minimum in Budhana block. The area irrigated by tube wells is maximum in Uoon block and minimum in Purkaji block.

#### **9.4.3A Policies and Proposals for newly added districts**

All policies and proposals as provided in para 9.3.3 of the Regional Plan- 2021 be applicable to additional areas.

#### **9.4.4A Plan of action for newly added districts**

The plan of action and strategies provided in 9.4.4 of the Regional Plan-2021 be extended to additional areas of NCR.

## **Chapter 10: TELECOMMUNICATIONS**

### **10.4.1 Policies and Proposals for newly added districts**

The policies and proposals provided in para 10.4 of the Regional Plan-2021 be extended to additional areas of NCR.

## **Chapter 11: SHELTER**

### **11.2.1 Issues in additional districts of NCR**

- a. As per Census 2011, there is lower availability of affordable housing in urban areas of Jind and Bhiwani (including Charkhi Dadri) which is indicated by less share of owned houses in urban areas of Bhiwani (including Charkhi Dadri), Jind, Karnal and Muzaffarnagar districts among the newly added districts to NCR.
- b. There is significant gap in housing (ranging from about 6000 houses to 45000 houses) in rural areas of the newly added districts except Mahendragarh.

### **11.3.1 Strategies policies and Proposals for newly added districts**

The policies and proposals provided in para 11.3 of the Regional Plan-2021 be applicable to additional areas of NCR.

### **11.4.1 Strategies policies and Proposals regarding Slum/ Informal Housing for newly added districts**

The policies and proposals provided in para 11.4 of the Regional Plan-2021 be applicable to additional areas of NCR.

## Chapter 12: SOCIAL INFRASTRUCTURE

### 12.2 (a) Existing situation of Educational Infrastructure in additional districts of NCR

According to the Census, 2011, amongst the newly added districts, the overall literacy rate in Mahendragarh district is highest (77.72%), followed by districts i.e. Bhiwani (including Charkhi Dadri) (75.21%) and Karnal (74.73%) of Haryana sub-region as against all India average of 74 percent. However, newly added areas in U.P. and Rajasthan are less than the all India average percentage i.e. 70%.

#### 12.1(a)

Urban & Regional Development Plans Formulation & Implementation (URDPFI) guidelines for establishing health centers/facilities is given in the table below:

#### Box 12.1A Norms for Healthcare facility establishment

Category	No. of Beds	Population served per unit
Dispensary	-	15,000
*Sub-centre	-	5000 (plain) 3000 (tribal/hilly/desert)
*Primary Health Centre (PHC)	6 beds	30,000 rural 20,000 urban
*Community Health Centre (CHC)	30 beds	80,000 (tribal/hilly/desert) – 1,20,000 (plain)
*Sub-District/Sub-Divisional Hospitals	Category-I: 31-50 beds Category-II: 51-100	5,00,000 – 6,00,000
*District Hospital	101 – 500 beds	
Nursing Home, Child Welfare & Maternity Center	25 to 30 beds	45,000 to 1 lakh
Polyclinic	Some observation beds	1 lakh
Intermediate Hospital (Category B)	80 beds Initially maybe for 50 beds including 20 maternity beds	1 lakh
Intermediate Hospital (Category A)	200 beds Initially the provision maybe for 100 beds	1 lakh
Multi-Specialty Hospital (NBC)	200 beds Initially the provision maybe for 100 beds	1 lakh
Specialty Hospital (NBC)	200 beds Initially the provision maybe for 100 beds	1 lakh
General Hospital (NBC)	500 beds Initially the provision maybe for 300 beds	2.5 lakh
Family Welfare Centre	As per requirement	50,000

Source: URDPFI Guidelines (2014), Ministry of Urban Development

\*Revised IPHS Guidelines (2012), Ministry of Health & Family Welfare

#### 12.4.1 Strategies for newly added districts

The strategies provided in para 12.4 of the Regional Plan-2021 be applicable to additional areas of NCR.

#### 12.5.3 Strategies regarding 'Law & order', for newly added districts

The strategies provided in para 12.5.2 of the Regional Plan-2021 be applicable to additional areas of NCR.

## Chapter 13: HERITAGE AND TOURISM

In addition to 13.1.1 of Chapter 13 on Heritage and Tourism of RP-2021, following is added:

### 13.1.1(A): Heritage Sites in newly added districts of NCR

There are 46 Centrally protected monuments and 33 State protected monuments in the newly added districts of NCR as per Archaeological Survey of India. The district wise number of protected monuments is given in Table 13.1 (A).

**Table 13.1(A) Number of Protected Monuments in the newly added areas of NCR**

Protection/ State	Haryana sub-region	Uttar Pradesh Sub-region	Rajasthan sub-region	Total in additional areas
Centrally Protected Monuments	17	6	23	46
State Protected Monuments	8	2	23	33

Source: Archaeological Survey of India, May 2017

### 13.1.2 (a) Policies and Proposals for the Protection of man-made Heritage Sites in additional districts of NCR

All policies and proposal as provided in RP-2021, notified in 2005, at para 13.1.2 shall be applicable to newly added areas of NCR.

### 13.1.3 (a) Natural Heritage in Additional Districts

- I. Special protected areas are identified in the additional areas of NCR, include the following:
  - i) Keoladeo National Park -Bharatpur, (declared as a national park in 1982 and listed as a World Heritage Site by UNESCO in 1985)
  - ii) Bandh Baretha Wild life Sanctuary, Bharatpur
  - iii) Bir Bara Van Wildlife Sanctuary/ conservation reserve –Jind, Haryana
  - iv) Hastinapur Wildlife Sanctuary, Muzaffarnagar, Uttar Pradesh

In addition, components/aspects similar to those covered at para 13.1.3 in the Regional Plan-2021 for old areas of NCR, be protected/conserved in additional areas of NCR as per 13.1.4.

### 13.1.4 (a) Policies and Proposals for the Protection of Natural Heritage Sites in additional areas of NCR

All policies and proposal provided in para 13.1.4 of the Regional Plan-2021 be applicable to additional areas of NCR.

### 13.2.1 (a) Tourist Sites in additional areas of NCR

It is observed that the additional districts of NCR have significant number of tourist attraction points which include places of religious, historic and nature interest.

### 13.2.2 (a) Policies and Proposals for the Protection of Tourism Sites in additional areas of NCR

All policies and proposals provided in para 13.2.2 of the Regional Plan-2021 be applicable to additional areas of NCR.

## **Chapter 14: ENVIRONMENT**

### **14.1.2 Forest cover in additional areas of NCR**

The major natural features identified in the additional areas as environmentally sensitive area such as Aravallis, protected forests, wildlife sanctuaries, national parks, rivers and other water bodies, flood plains, etc. These accommodated a variety of flora and fauna.

In the 7 newly added districts, the forest cover is insignificant, much less than the current national average as well as less than the NCR average. Among the districts, the highest percentage of forest cover is in Bharatpur (4%) and the lowest is in Jind (0.8%). The newly added districts in NCR have low forest cover and need lot of attention, in this direction.

### **14.2 (a) Policies and Proposals for Environment in additional districts of NCR**

All policies and proposal provided in para 14.2 of the Regional Plan-2021 be applicable to additional areas of NCR.

Notwithstanding anything in above paras, all conservation area boundaries are tentative and subject to verification and detailing by respective State Governments in their Sub-Regional Plans /Development/Master Plans.

## **Chapter 15: DISASTER MANAGEMENT**

### **15.2.1 Vulnerability and Risk Management in additional areas of NCR due to natural Hazards**

#### **A. Earthquake**

One of the major fault lines in the region, Mahendragarh – Dehradun fault line, passes through Mahendragarh, Bhiwani (including Charkhi Dadri), Jhajjar, Rohtak, Sonapat and Panipat. Among the 4 newly added districts of Haryana sub-region, Mahendragarh, Karnal and Bhiwani (including Charkhi Dadri) fall under the high risk zone IV and III. Jind is in Zone III of moderate damage risk. There are a few fault lines passing through Mahendragarh district. Parts of Alwar and Bharatpur Districts fall in the high damage risk zone IV and Zone III. Southern part of Bharatpur comes under Zone II of low damage risk. Muzaffarnagar (inclShamli) falls in the high damage risk zone IV.

#### **B. Floods**

Bhiwani (including Charkhi Dadri) and Mahendragarh are less prone to floods as compared to Jind and Karnal districts. Jind and Karnal districts flood during heavy rains. Flooding in these two district is also caused due to the improper draining of the water due to its topography. According to the District Disaster Management Plan, Jind district has an average rainfall of 400 mm (2004 – 2012). Karnal district flooding is mainly due to overflow of Yamuna River during heavy rainfall. Karnal has an average rainfall of 325 mm (as recorded from 2008 to 2012 according to district management plan for Karnal). Jind and Karnal districts have several canals passing through the districts, making the districts vulnerable to flooding. Bharatpur district falls in one of the 15 river basins in the state and hence has a high flood potential. Banganga, Ghambir and Rooparel Rivers flow through the district. The district is least affected by droughts among other districts of Rajasthan. According to Disaster Management and Relief Department, Govt. of Rajasthan, the occurrence of drought in Bharatpur is rare. Flooding is a major issue in Muzaffarnagar district due to the presence of several rives. Ganga, Hindon, Solani and Kali rivers flow through the district. During monsoon, these rivers overflow and flood the surrounding areas.

#### **C. Wind**

The districts of Mahendragarh, Bhiwani (including Charkhi Dadri), Jind, Karnal and Bharatpur, are at a high wind risk with wind velocities up to 47 m/s.

### **15.3.1 Policies and Proposals for additional areas of NCR**

All policies and proposal provided in para 15.3 of the Regional Plan-2021 be applicable to additional areas of NCR.

## **Chapter 16: RURAL DEVELOPMENT**

### **16.3.1 Policies and Proposals for additional districts of NCR**

All policies and proposal provided in para 16.3 of the Regional Plan-2021 be applicable to additional areas of NCR.

## Chapter 17: REGIONAL LANDUSE

### 17.2.5 Landuse Analysis of Additional Areas of NCR

#### Existing landuse in 2016

NCR Planning Board commissioned a Study on “Creation of Land use for seven additional districts of NCR” to National Remote Sensing Centre (NRSC), Department of Space, Government of India. The existing landuse analysis based on Resourcesat-2 LISS-IV data pertaining to 2016 was carried out at a scale of 1:50,000 by NRSC as part of the Study.

Based on the report of the said Study, the status and assessment of the additional areas of NCR that include the 7 districts (4 from Haryana, 2 from Uttar Pradesh and one from Rajasthan) is as presented below in Table 17.2(a):

**Table 17.2 (a): Sub-region wise Land use in additional areas of NCR**

(Area in sq. kms.)

Category	Haryana sub-region		Uttar Pradesh sub-region		Rajasthan sub-region		Total	
	Area	%	Area	%	Area	%	Area	%
Built-up	643.72	5.41	237.85	5.99	201.68	3.98	1083.25	5.17
Agriculture	10715.69	90.06	3546.58	89.26	4215.67	83.20	18477.94	88.25
Forests	244.8	2.06	51.28	1.29	567.63	11.20	863.71	4.12
Wastelands	182.27	1.53	76.92	1.94	40.57	0.80	299.76	1.43
Water bodies	93.24	0.78	35.93	0.90	22.57	0.45	151.74	0.72
Others	18.93	0.16	24.77	0.62	18.69	0.37	62.39	0.30
	<b>11898.65</b>	<b>100.00</b>	<b>3973.33</b>	<b>100.00</b>	<b>5066.81</b>	<b>100.00</b>	<b>20938.79</b>	<b>100.00</b>

Source: NRSC Study Report, 2019 \* States to verify.

Sub-region wise distribution of land use reveals that major portion of sub-regions area is under agriculture use, which is highest in Haryana (90.06%), followed by U.P. (89.26 %), Rajasthan (83.20%). The portion of Forest in Rajasthan sub-region is highest i.e. 11.20% followed by Haryana sub-region which is 2.06%. **Map 17.1 A:** National Capital Region (including additional Areas): Existing Land Use (1999 for old areas and 2016 for new areas).

#### 17.4 A Policies and Proposals for additional districts of NCR

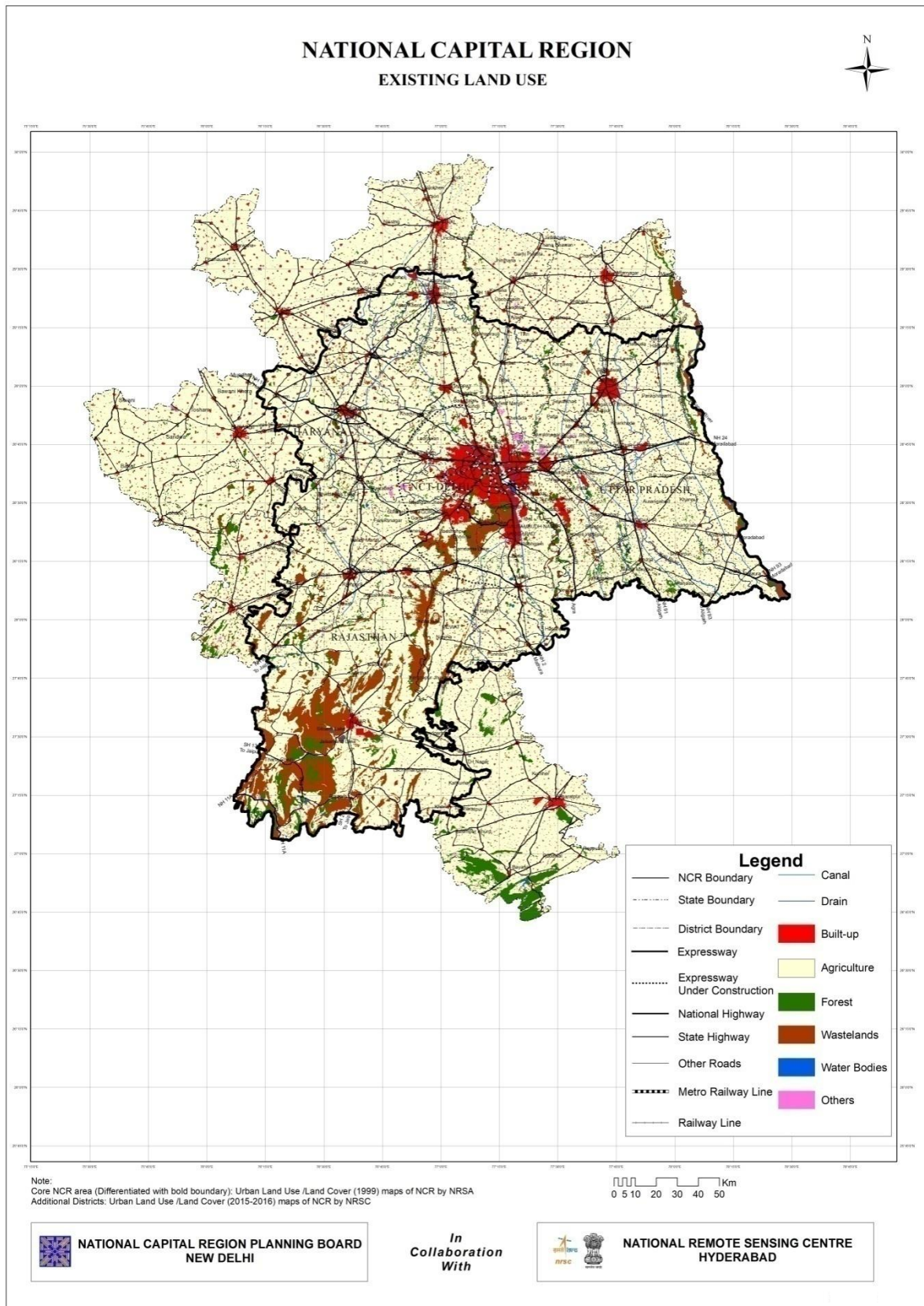
All policies and proposal provided in para 17.4 of the Regional Plan-2021 be applicable to additional areas of NCR. **Map 17.2 A:** National Capital Region (including additional Areas): Proposed Land Use 2021. Urbansisable/Control area boundaries of the towns/ cities are as per respective Master/Development Plans which might have different perspective years than Regional Plan 2021: Provided however that population densities in the additional areas will conform to the URDPFI Guidelines, 2015 notified by MoHUA as amended from time to time.

#### 17.5A Zoning Regulations for additional districts of NCR

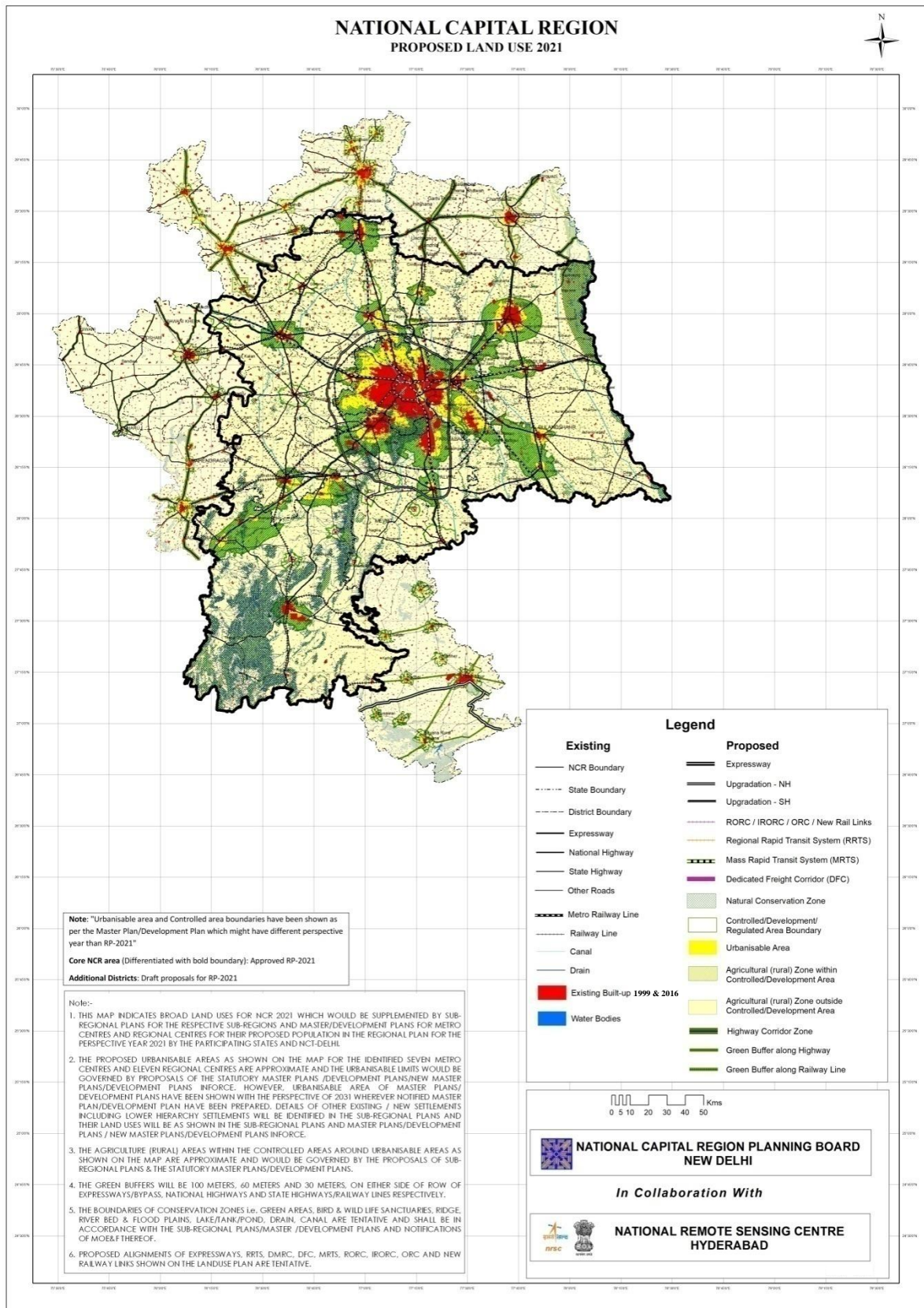
Zoning regulations provided in para 17.5 of the Regional Plan-2021 be applicable to additional areas of NCR.

**17.6** Notwithstanding anything in above paras, all conservation area boundaries are tentative and subject to verification and detailing by respective State Governments in their Sub-Regional Plans /Development/Master Plans.

**Map 17.1A National Capital Region (including additional Areas): Existing Land Use**



# Map 17.2A National Capital Region (including additional Areas): Proposed Land Use -2021



## **Chapter 18: COUNTER MAGNET AREAS**

### **18.3 A Identification of Counter Magnet Areas**

Subsequent to the notification of RP-2021, on 17.09.2005, following three cities/towns were identified as Counter-Magnet Areas (CMAs) to NCR, which were approved by the Board in its 31<sup>st</sup> meeting held on 11.11.2009:

- i) Ambala in Haryana
- ii) Dehradun in Uttarakhand
- iii) Kanpur Nagar in Uttar Pradesh

It was also decided by the Board that the CMAs should not limit to urban area only and development could be proposed in the form of corridors also. Respective State Governments shall notify their respective CMAs and prepare Development Plan/Master Plan and Plan of Action for its implementation.

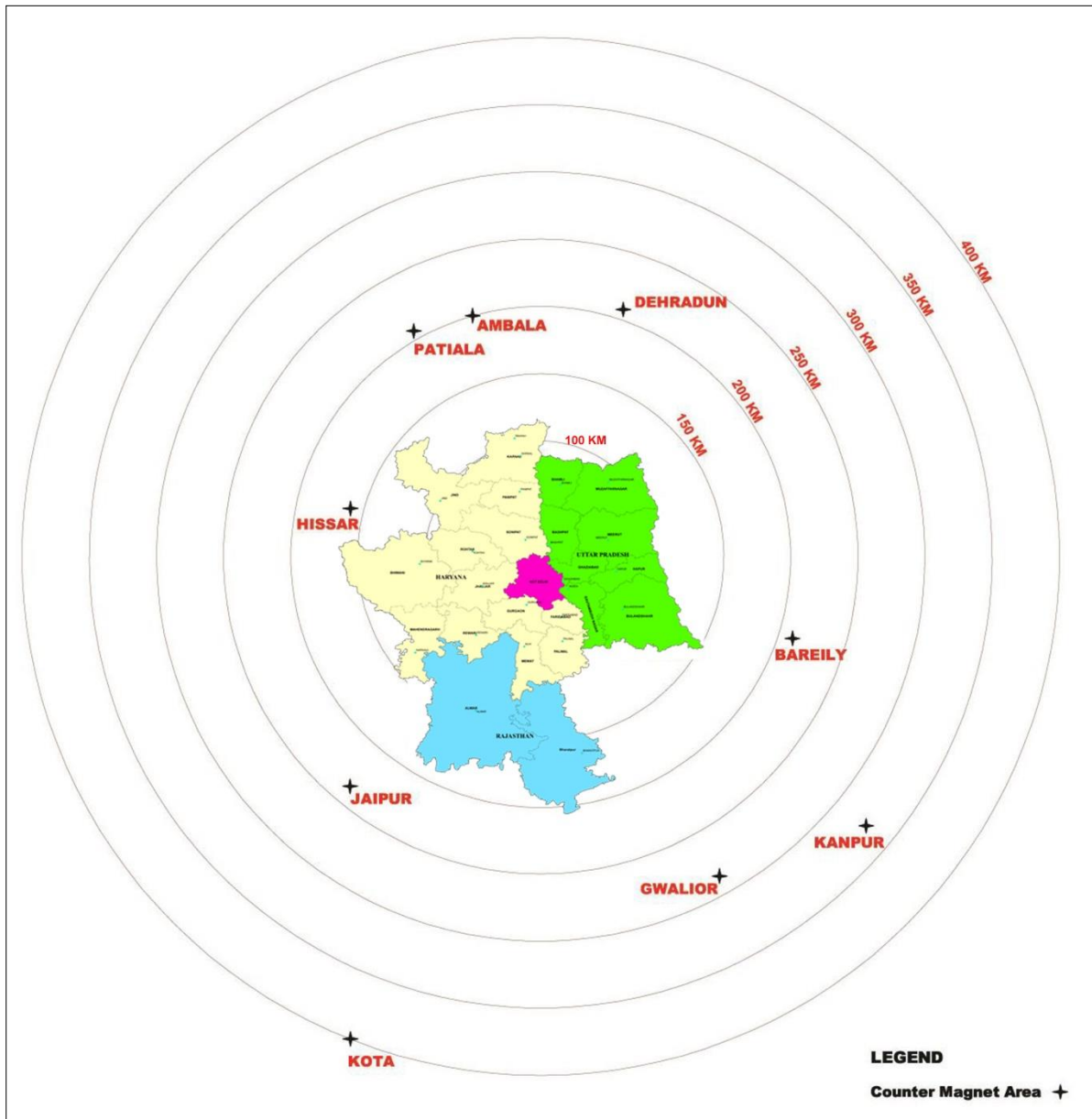
Thereafter, in its 33<sup>rd</sup> meeting held on 01.07.2013, Board approved Jaipur as CMA to NCR.

The additional areas of NCR are not covering any of the CMAs. Map 18.1A shows the Counter Magnet Areas identified to NCR.

### **18.7A Proposals and Recommendations for Additional Identified CMAs**

The proposals and recommendations provided in para 18.7 of the Regional Plan-2021 be applicable to additional identified CMAs to NCR.

**Map 18.1A National Capital Region: Counter Magnet Areas**



## **Chapter 19: IMPLEMENTATION STRATEGIES, MANAGEMENT STRUCTURE & RESOURCE MOBILIZATION**

Implementation Strategies, Management Structure and Resource Mobilization provided in para 19.1, para 19.2 and para 19.3 of the Regional Plan-2021 respectively be applicable to additional areas.