



# INSTITUTE OF GOVERNANCE OF INFRASTRUCTURE



**R.G. GUPTA**  
POLICY/CITY PLANNER

ASSISTED BY RAKHI  
MBA

## DIFFERENT TYPES OF INFRASTRUCTURE

### 1 PHYSICAL INFRASTRUCTURE



Water, Sewerage, Drainage  
Power, SWM & Tele-  
Communication

### 2 SOCIAL INFRASTRUCTURE



Education, Health, Security,  
Safety, Justice, Recreation  
and Shelter.

### 3 ECOLOGICAL INFRASTRUCTURE



Free from Water, Air,  
Noise & Soil Pollution.

### 4 CIRCULATION INFRASTRUCTURE



Roads, Railways,  
Metro, Mono rail  
and Parking.  
As ways.

### 5 ECONOMIC INFRASTRUCTURE



Enough to fulfill basic  
requirements of life of the self;  
family and Public at large with  
the help of  
(i) Industries  
(ii) Trade & Commerce  
(iii) Offices  
(iv) Others works.

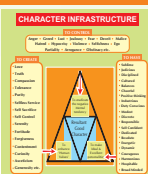
### 6 EMERGENCY INFRASTRUCTURE



To face Earthquake,  
Draught, Floods,  
Volcano and Tsumani.

### 7 CHARACTER INFRASTRUCTURE

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## NEWS PAPER CUTTING

## WATER

- जीवनरेखा का जीवन खतरे में-10 मई 2013  
दिल्ली की पानी की जरूरत पूरी करने में बड़ा योगदान है यमुना का लेकिन प्रदूषण और अतिक्रमण के कारण इस प्राचीन नदी का हाल बुरा
- गर्मी में पानी की मांग को पूरा करने का वादा-10 मई 2013
- ऐसे कैसे रुकेगी पानी की बर्बादी-30 अप्रैल 2013  
भूमिगत जलाशयों पर लगने थे 305 बल्क फ्लो मीटर, अब तक नहीं लगे अब विवादों से घिरे पानी के मीटर
- टूटी टोटियों व सूखे नलों से यात्री हलकान-22 अप्रैल 2013  
गर्मी आते ही बड़ी दूषित जलापूर्ति की समस्या
- पेयजल आपूर्ति में खामियां, 662 में से 40 नमूने फेल-27 अप्रैल 2013
- राजधानी के विकास में आड़े आएगी पानी की कमी-14 अप्रैल 2013  
दिल्ली में रोजाना पानी की मांग 1080 एमजीडी, लेकिन उपलब्धता मात्र 835 एमजीडी  
बढ़ती आबादी के लिए पानी की आधी-अधूरी योजनाओं से बढ़ रहा है संकट
- दस वर्षों में 10 गुना बढ़े पानी के दाम'-13 अप्रैल 2013
- DJB focuses urban supply 39% Earmarked for it in Budget, Sanitation Gets 774.8 Cr-12 April 2013  
39% Earmarked For It in Budget, Sanitation Gets 774.8 Cr  
**WATER**  
Extension of water network  
Plugging leaks  
Full domestic metering  
Augmentation of production  
Improving consumer service  
Implementation of control and data acquisition system
- प्रदूषण मापने के लिए यमुना और गंगा पर बनेंगे दस सौर ऊर्जा स्टेशन-7 नवम्बर 2012
- यमुना की सफाई पर अब तक कितना खर्च हुआ-11 अक्टूबर 2012
- नांगलोई जल संयंत्र भी निजी हाथों में जाएगा-17 नवम्बर 2012
- कहीं अटक गया 32 मिलियन लीटर पानी-12.08.2012  
बार-बार प्रयास के बावजूद चंद्रावल जल संयंत्र पर लगने वाला रीसाइकिल प्लांट चालू ही नहीं हो पा रहा
- जल प्रदूषित करने वालों पर दस करोड़ जुर्माने का प्रस्ताव
- 2025 तक मुंबई-दिल्ली में होगा पानी के लिए हाहाकार-29 जून 2012  
14 साल बाद पानी की सबसे अधिक मांग होगी दोनों महानगरों में
- 'Unsafe water for half of city'-27-06.12
- पाइपलाइन में योजनाएं सीवरेज ओवरफ्लो-19 जून 2012  
सीवरेज ट्रीटमेंट प्लांट की कमी से हो रही यमुना भी बीमार पुरानी व जर्जर सीवर लाइनें भी है बड़ी समस्या-19.06.12  
क्या है गतिरोध  
दिल्ली के 40 फीसद घरों तक अब तक नहीं पहुंची है सीवर लाइन  
अनधिकृत कॉलोनिजों में भी सीवर लाइनों का नेटवर्क नहीं पुरानी हो चुकी सीवर लाइनों को बदलने की दिशा में उल्लेखनीय प्रयास नहीं समाधान  
जल्द पूरी दिल्ली में बिछानी होगी पाइप लाइन

- अत्याधुनिक मशीनों से करनी होगी जमी सीवर लाइन की सफाई पुरानी पाइप लाइनों को भी बदलना होगा  
सीवर ट्रीटमेंट प्लांट लगाकर पानी को दोबारा बाग-बगीचों के लिए इस्तेमाल करना होगा।
- किल्लत दूर कर सकता है बरसाती पानी-14 जून 2012  
वर्षा जल संचयन अनिवार्य होने के बावजूद दस साल बाद भी सकारात्मक परिणाम नहीं
- 'Wastage must be minimized : DJB'-14 June 2012
- यमुना से निकाल फिर यमुना में बहाई जाएगी सिल्ट-10 जून 2012  
ओखला बैराज के पास चल रहा यमुना नदी की सफाई का काम।
- मैली यमुना-25 अप्रैल 2012
- घर में होंगी पानी की दो लाइनें-25 अप्रैल 2012
- पर्याप्त नहीं पानी, ये कैसी है राजधानी-26 अप्रैल 2012
- Civic agencies pass the buck to contractors No complaints Ever, Says DJB-20 April 2012
- पर्याप्त नहीं पानी, ये कैसी है राजधानी-23 अप्रैल 2012  
रोजाना 235 एमजीडी पानी की कमी का सामना करती है दिल्ली पिछली कुछ सालों से पानी की उपलब्धता नहीं बढ़ी
- पेयजल का संकट
- लोगो को स्वच्छ पेयजल भी नसीब नहीं-17 फरवरी 2012  
यमुनापार के कुछ क्षेत्रों में पेयजल संकट बढ़ा
- जलाशयों का दुश्मन बना डीडीए-11 अगस्त 2011
- यूं ही बर्बाद होता है 40 फीसदी पानी-22 मार्च 2011  
प्रकृति एवं पड़ोसियों पर निर्भर दिल्ली
- नदी जोड़ योजना पर स्थिति रिपोर्ट तलब-7 जनवरी 2011
- मेयर ने ली अधिकारियों की क्लास-5 जून 2010  
(कहा, जल निकासी की व्यवस्था का करें पुख्ता प्रबंध)
- गीता कालोनी में काले पानी की आपूर्ति- 8 मई 2010



To bring Excellence and Professionalism in Governance  
Including in Research & Development

Integration of **KARMA, GYAN, BHAKTI & RAJ**

cont...

**R.G. GUPTA**  
POLICY/CITY PLANNER

R. G. Gupta (M: 09811018374) City / Policy Planner  
UPS Campus, Block A, Preet Vihar, Delhi - 92  
Email: ram\_gopal\_gupta@yahoo.co.in  
web : www.rgplan.org ; blog. www.ramgopalgupta.blog.com

# GOVERNANCE OF URBAN SPACES

## GOVERNANCE IS A MULTI DIMENSIONAL PHENOMENON

(SPECIALLY E. GOVERNANCE & M. GOVERNANCE)

### IT IS A SUPER ADMINISTRATION

It is a process of decision-making, its implementation and FeedBack in Time. It covers Administration, Management, Coordination, Integration, Evaluation and Monitoring of Human, Nature, Networks, Structures and Society at Macro, Meso and Micro level of various land uses, urban spaces including Past, Present and Future Infrastructure.

### PHYSICAL INFRASTRUCTURE : UTILITIES

#### Governance includes

- Various Actions Good or Bad
- Processes
- Institutions (Formal and Informal)

Governance is not necessarily exclusively by Govt. & its Organizations but also by Private Sectors, NGOs and Public at Large.

### Therefore, characteristics of good Governance are :

1. ACCOUNTABILITY – NOT TO DELAY ANY PROJECT.
2. TRANSPARENCY.
3. FOLLOW RULE OF LAW AT ALL LEVELS INC. BY POLICE & Investigating Agencies.
4. EQUITABLE & INCLUSIVE,
5. RESPONSIVENESS FOR EVERY ONE STARTING FROM THE HON'BLE MINISTER TO PUBLIC AT LARGE.
6. EFFECTIVE & EFFICIENT, (IF NOT THEN CHANGE OR MODIFY IT).
7. PARTICIPATORY AND CONSENSUS ORIENTED.
8. PAST-ACTIONS.
9. PRESENT STATUS.
10. PREDICTED CIRCUMSTANCES SPECIALLY OF FINANCE.
11. ACTION WITH GOOD CHARACTER ULTIMATELY PART OF CONSTITUTION; TO MAKE THE MEN HONEST
12. SPECIFIC IMPORTANT ELEMENTS ARE (A) DEFENCE OF THE COUNTRY, (B) EXTERNAL RELATIONS & POLICIES WITH OTHER COUNTRIES, (C) NATURAL RESOURCES (WATER, RIVERS, CANALS & OCEANS, FOREST, MINING, COAL, MOUNTAINS, DESERTS), (D) EXPRESS WAYS & HIGH WAYS, (E) RAILWAYS, (F) WATER WAYS, (G) AIR WAYS, (H) DISPUTES BETWEEN THE STATES, (I) SUPREME COURT, (J) CONTROL OF THE COUNTRY SHOULD BE BASED ON POLITICAL SCIENCE AND NOT ART, (K) QUALIFICATION OF A MINISTER / MP/MLA SHOULD BE BASED ON SOME CRITERIA & CHARACTER OF THE LAST TEN YEARS; WITH RESEARCH AND DEVELOPMENT IN SOME FIELDS.

## CHARACTER INFRASTRUCTURE

### TO CONTROL

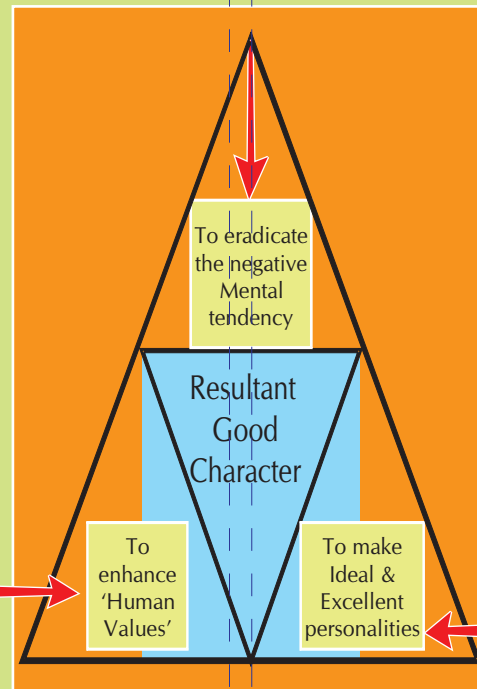
- Anger • Greed • Lust • Jealousy • Fear • Deceit • Malice
- Hatred • Hypocrisy • Violence • Selfishness • Ego
- Partiality • Arrogance • Obstinacy etc.

### TO CREATE

- Love
- Truth
- Compassion
- Tolerance
- Purity
- Selfless Service
- Self Sacrifice
- Self Control
- Serenity
- Fortitude
- Forgiveness
- Contentment
- Curiosity
- Asceticism
- Generosity etc.

### TO HAVE

- Sublime
- Judicious
- Disciplined
- Cultured
- Balances
- Cheerful
- Positive thinking
- Industrious
- Duty Conscious
- Modest
- Discrete
- Responsible
- Self Confident
- Dedicated
- Resolute
- Energetic
- Dynamic
- Courageous
- Harmonious
- Hospitable
- Broad Minded



BASIC FOOTINGS TO BRING CHANGES IN THE SOCIETY

### AIMS AND OBJECTIVES

TO MAKE THE MEN HAPPY IN TERMS OF THEIR LIVING, WORKING AND ENJOYING; WHICH IS POSSIBLE ONLY IF HE/SHE GETS PROPER PHYSICAL, SOCIAL, ECONOMIC, ECOLOGICAL, EMERGENCY AND CHARACTER INFRASTRUCTURE.

### PHYSICAL INFRASTRUCTURE – DELHI IN 3 PHASES (1) UP TO 2011 (2) 2011-16 (3) 2016-21 (4) TARGET UP TO 2021

S.No.	Components	Unit	Period of monitoring	Phase I upto 2011	Phase II upto 2011 2016	Phase III upto 2016 2021	Target Up to 2021
(a)	Augmentation water distribution	Mgd	5 years	351	139	240	730
(b)	Construction of new treatment plants	Mgd	5 years	129	51	89	269
(c)	Augmentation of sewerage T Plants	Mgd	15 years	282	112	194	588
(d)	Construction of new sewerage treatment plants	Mgd	5 years	140	56	97	293
(e)	Augmentation of power distribution	MW	2 years	3744	1447	2639	7830

S.No.	Components	Unit	Period of monitoring	Phase I upto 2011	Phase II upto 2011 2016	Phase III upto 2016 2021	Target Up to 2021
(f)	Development of sanitary landfill	Ha	5 years	98	39	68	205
(g)	Construction /development of compost/ incineration plants	Ha	5 years	15	6	11	32.0
(h)	Municipal Solid Waste	Tons	1 year	4900	1939	3368	10207

MASTER PLAN-2021 PAGE 247

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# DETAILS TAKEN FROM MPD 2021 AD & DELHI FACT SHEET 1990



## WATER AUGMENTATION PLAN

S.No.	Water Treatment Plants	Capacity 2001 (in mgd)	Capacity* 2021 (in mgd)
1	Chandrawal I & II	90	100
2	Wazirabad	120	130
3	Haiderpur I & II	200	216
4	Bhagirathi	100	110
5	Dwarka	-	40
6	Sonia Vihar	-	140
7	Nangloi	40	40
8	Bawana	-	20
9	Okhla	-	20
10	Ranney wells at Okhla	100	12
11	Palla and other ground water sources	-	91
<b>Total</b>		<b>650</b>	<b>919</b>

## Water Supply

Every year various parts of Delhi face water scarcity. Delhi is dependent for raw water from distant sources and augmentation of raw water for Delhi has been a per manently unsolved issue i.e. escalating population cannot be matched by proportionate increase in the raw water availability. The water supply to citizens of Delhi is through water treatment plants i.e Chandrawal (90mgd), Haiderpur (200mgd), Shahdara (100mgd) and through Ranney Wells/Tubewells.

## WATER TREATMENT PLANTS



Source: DELHI JAL BOARD/WAPCOS

## Levels of Water Supply

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

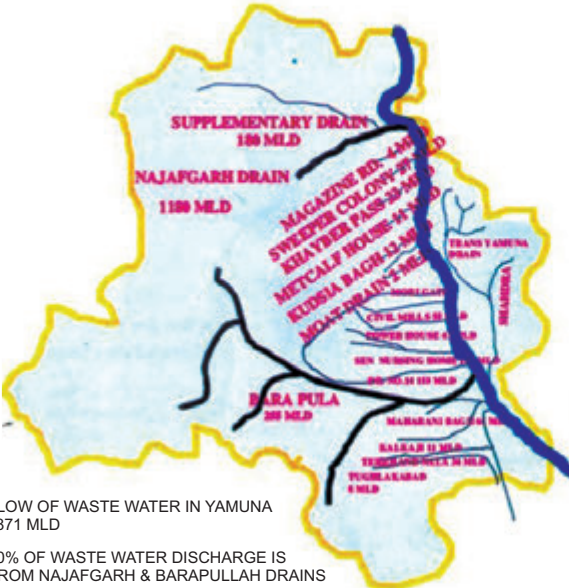
## Future Sources of Raw Water for Delhi



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

## DRAINAGE SYSTEM IN DELHI

### 19 MAJOR DRAINS DISCHARGING WASTE WATER IN YAMUNA



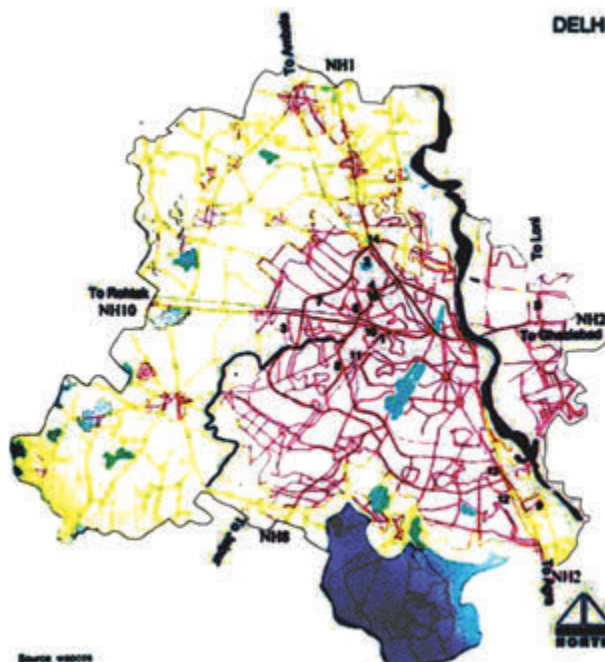
FLOW OF WASTE WATER IN YAMUNA 2871 MLD

50% OF WASTE WATER DISCHARGE IS FROM NAJAFGARH & BARAPULLAH DRAINS

## Common Effluent Treatment Plants in Delhi

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

## COMMON EFFLUENT TREATMENT PLANTS



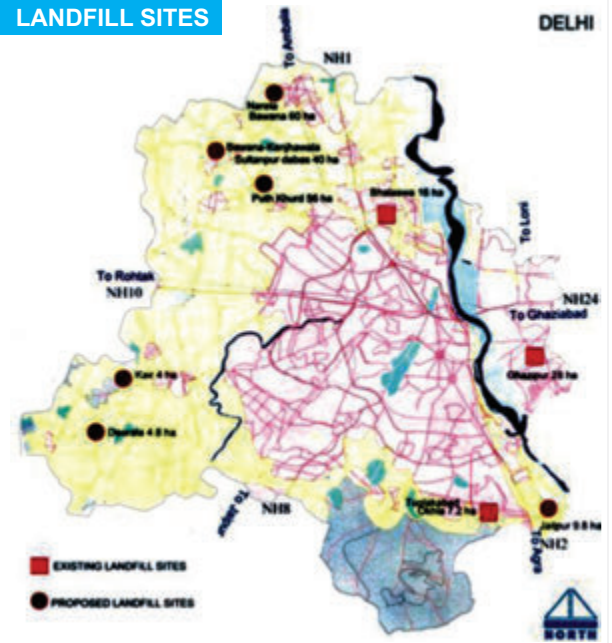
Source: WAPCOS

## Landfill Sites

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

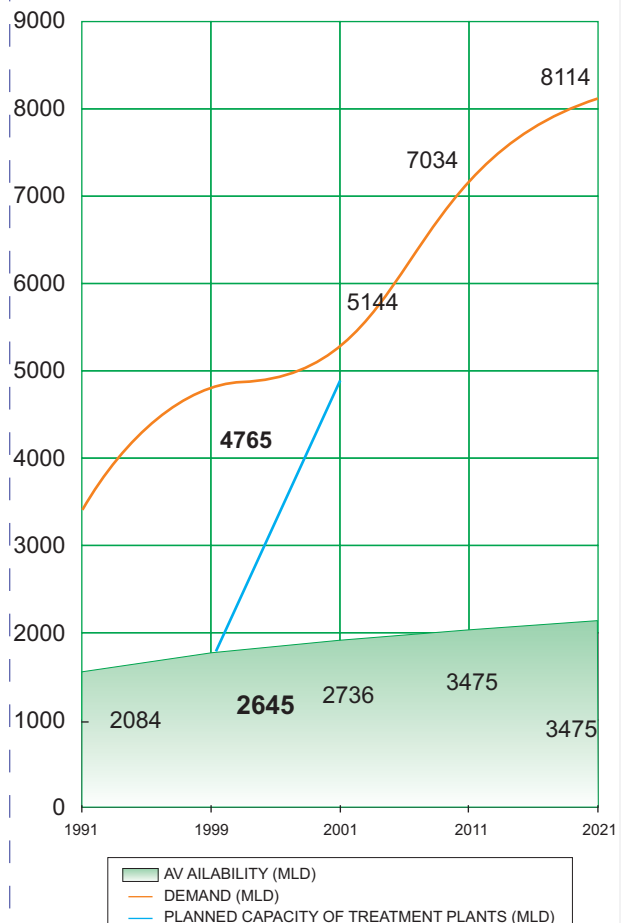
At present there are three landfill sites - Bhalaswa, Gazipur and Okhla. The base of none of these landfill sites are lined due to which continuous ground water contamination takes place. Neither the sites are prepared before using them for disposal-dumping of waste nor environment impact assessment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

## LANDFILL SITES



## Excessive Pressure on Delhi's Water Supply

According to Delhi Jal Board, the current treatment capacity in the year 1999, is 2645 mld, and it is supplying water @ 232 mld. Against this, the demand for water is 4765 mld, based on MPD-2001 norm of 363 litres per capita per day for urban population and 100 lpcd. for rural population. Thus against the present water demand, the shortage is approx. 45%. this shortage/gap is likely to increase to 47% by 2001 AD which will increase to 57% in 2021 AD inspite of including the additional water supply from Tehri dam which is under construction and likely to be commissioned by 2002.



## Depletion of Ground Water

In order to meet the water demand - supply gap ground water withdrawal in the NCT Delhi has emerged as a common place phenomenon resulting in the ground water levels falling of ground water has disturbed the hydrological balance lading to decline in productivity of wells, increasing pumping cost, more energy requirement and brackish water upcoming etc.

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# PHYSICAL INFRASTRUCTURE (WATER)

## NATIONAL CAPITAL REGION

### POTENTIAL WATER RECHARGEABLE AREAS (IN SQ KMS)

Sub-region	Flood Plain and River Bed	Ox-bow Lake	Paleo-Channel	Valley Fill	Lake, Tank and Pond	Total
1	2	3	4	5	6	7
NCT-Delhi	25	Nil	2.5	Nil	5.5	33
Haryana	68.88	4.25	5.13	21.7	62.65	162.61
Rajasthan	17.75	Nil	Nil	127.75	9.14	154.64
Uttar Pradesh	227.35	Nil	84.74	Nil	32.26	344.35
<b>Total</b>	<b>338.98</b>	<b>4.25</b>	<b>92.37</b>	<b>149.45</b>	<b>109.55</b>	<b>694.6</b>

**Water**—The "National Commission on Water for the year 2051" has recommended that water should be considered as a National Asset and should not be treated as 'State subject'.

NCR is endowed with four perennial rivers namely the Yamuna, Hindon and Kali passing through it and the Ganga skirting its eastern boundary. Main sources of water supply in the region are surface and ground water (e.g. rivers, canals, tubewells, hand pumps and open wells). While the U.P. Sub-region has abundant ground water, the west of river Yamuna comprising the districts of Gurgaon, Rohtak, Sonapat, Jhajjar and most part of Faridababd district Haryana, Alwar in Rajasthan and large part of domestic consumption. 225 lpcd and achieving a rate of 363 lpcd by 2001.

The study has indicated that barring Delhi, which has an average water availability of 225 lpcd, per capita rate of water supply in urban centres of Haryana Sub-region ranges from 45 lpcd in Ganaur to 145 lpcd in Panipat, 35 lpcd in Shahjahanpur to 98 lpcd in Alwar in Rajasthan Sub-region and 28 lpcd in Phalauda to 142 lpcd in Meerut in Uttar Pradesh Sub-region. The status in rural areas presented a dismal picture since not enough database was available.

#### AREAS LACKING ADEQUATE FOCUS

Besides, there are certain areas which need focus in order to maintain standards of water supply and quality.

- 1 Phased augmentation / replacement of distribution network in the congested areas.
- 2 Public awareness and media coverage for minimizing wastage.
- 3 Correct population forecasting for adequate planning for drinking water supply.
- 4 Involvement of NGOs and private sector in operation and maintenance.
- 5 Decline of ground water due to over-drawal and increase in the runoff due to urbanization.
- 6 Contamination of ground water and surface water.

#### Policies and Proposals :-

- (i) **Blueprint for Water Resources in the Region,**
- (ii) **Integrated Regional Schemes for Augmentation of Drinking Water Supply (Surface and ground) considering NCR as a Single Entity,**
- (iii) **Norms and Standards**
  - a) **Rural Settlements - A minimum of 70 lpcd including a supply of 30 lpcd for cattle is proposed.**

Following minimum norms and standards should be adopted for drinking water supply in the region

Towns/Cities	Recommended Water Supply (lpcd)
NCT-Delhi	225
Population one lakh and above	200
Population below one lakh	135

(iv) **Protection of Land for Ground Water Recharging** - Study done by Central Ground Water Board (CGWB) has revealed that an additional exploitation to the extent of 1,816 mld (1.82 MCM/day), 454 mld (0.45 MCM /day) and 908 mld (0.91 MCM/day) of water could be made available by harvesting the ground water potential of aquifer system of river Yamuna, upper Ganga canal system and Ganga flood plains respectively falling within NCR. In the Sub-regional Plans and Master / Development Plans, all the flood plains and other ground water recharging areas such as ponds, lakes other water bodies etc. should be identified and protected from the invasion by other land uses and encroachments.

#### (v) Recharge of Aquifer

Indian Institute of Remote Sensing, Dehradun submitted a report on "Geology, Geomorphology and Ground Water prospects for NCR" in April 2002. It has given suggestions on the recharge of the aquifer of NCR region as under:

- (a) Rainwater harvesting etc.
- (b) Flushing out of aquifers of the most polluted region
- (c) Recharging of affected aquifers with good quality water
- (d) Providing drainage in the area of stagnation of ground water
- (e) Closing or relocation of polluting industries
- (f) Consultation with expert from ground water and soil department for other approaches.

#### (vi) Relocation of Water Consuming Industries

(vii) **Recycling of Waste Water for Non-Drinking Use - All new development areas should have two distribution lines, one for drinking water and other for non-drinking water / recycled treated waste water to reuse the treated waste water.**

#### viii) Creation of Mass Awareness

#### ix) Institutional Capacity Building

x) **Quality of Drinking Water - The quality of water should conform to the BIS standards and CPHEEO Manual for water supply and its treatment.**

xi) **Allocation of land for Water Treatment Plants and Water Distribution System**

xii) **Funding of Water Supply Schemes through Five Year Plans - State share (25%), Central Government Grant (25%), NCRPB Interest Bearing Loan (50%)**

Improvement in the existing water supply system in the region, as recommended above have been proposed to be carried out in a phased manner in the five year plans. Phased programme and plan of action have been worked out to give effect to the proposal and implementation thereof, which is given in Annexure 8/II

## INVESTMENT PLAN

### Sub-region wise Investment Requirement for Drinking Water Demand (Rs. in Crores)

Sub-region	Distribution Network (@ Rs. 0.60 crores per mld)	Production of Water (@ Rs. 0.50 crores per mld)	Total
	2	3	4
Haryana	1,447.21	1,206.01	2,653.22
Rajasthan	398.24	331.87	730.11
Uttar Pradesh	1,851.99	1,543.33	3,395.32
NCT-Delhi	3,493.13	2,910.94	6,404.06
	7,190.57	5,992.15	13,182.72

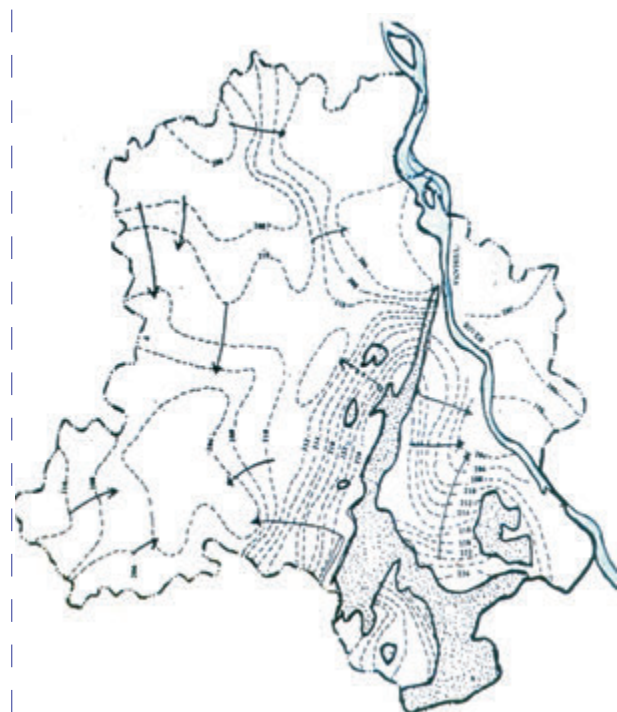
### Plan wise Fund Requirement for Drinking Water

Plan Period	Percentage (%)	Amount (Rs. in Crores)
1	2	3
2002-2007	20.0	2,637
2007-2012	30.0	3,955
2012-2017	30.0	3,955
2017-2021	30.0	2,637

### Status of water in NCR Towns

S.No.	Sub-region/town	Source	Installed Capacity (in mld)
1	2	3	4
<b>Haryana</b>			
1	Faridabad	T/W	115.33
2	Gurgaon	T/W/Canal	17.52
3	Bahadurgarh	Canal	6.90
4	Panipat	T/W	38.40
5	Rewari	Canal	22.39
6	Palwal	T/W	5.91
7	Rohtak	Canal	22.39
8	Sonepat	Canal/T/W	14.63
<b>Rajasthan</b>			
1	Alwar	T/W-114 Nos. O/W-31 Nos. H.P's - 327 Nos.	32.50
2	Bhiwadi	N.A	N.A
3	Khaithai	TW-8 Nos. O/W-2 Nos. HP-61 Nos.	1.10
4	Behror	TW-10 Nos. O/W-2 Nos. HPP-48	
<b>Uttar Pradesh</b>			
1	Meerut	TW	150.00
2	Ghaziabad	TW	145.00
3	Bulandshar	TW	14.00
4	Baraut	TW	6.00

### WATER LEVEL CONTOUR ABOVE MSL



cont . . .

**TO INCREASE THE QUANTITY OF WATER TO MORE THAN 10 TIMES.**



**BREAKUP OF WATER USAGE FOR 50 GPCD IS AS UNDER**

Purpose	Potable @ 30 gpcd (135 lpcd)	Non-potable @ gpcd (90 lpcd)
1. Drinking	05	
2. Cooking	10	
3. Washing clothes	30	
4. Washing utensil	20	
5. Washing hand and faces	10	
6. Bathing	60	30
7. Floor washing		60
8. Flushing of toilets		
<b>Total @ 225 lpcd</b>	<b>135 lpcd</b>	<b>90 lpcd</b>

**TO CLEAN WATER TO IMPROVE ITS QUALITY**

MAKE IT CLEAN WITH A NEW RCC CONVEYANCE SEWAGE SYSTEM STRUCTURE OPEN TO SKY WITH 2.5 M BASE, 2.5 M HIGH RCC WALLS ON TWO SIDES.

**PROPSAL**

Construct a conveyance sewer of 18 km in length from Wazirabad barrage to somewhere in the South of Nizamuddin bridge / Maharani Bagh  
 This conveyance sewer will be of RCC with a base of 2.5 M and height 3 M on either side of the base. This will be open to sky and structurally will take the load of entire sewerage  
 Sewage drains will fall into it and the entire affluent will go to 300 MGD sewage treatment plant to be constructed in the South of Okhla.  
 From this new structure filth /sewage will flow into newly constructed sewage treatment plant/plants in the south of South of Okhla treat it and then treated water into river Yamuna.  
 After treatment of the sewage, the cleaned water will flow into the river Yamuna and filth may be used for manure/

Delhi Water Plan – 2021 AD (Projections are given on page no. 2)

**Proposed System of Planning**

1. Water resources from NCR & DMA/CNCR Areas.
2. Present sources of water (Ganga, Yamuna, Lakes, Existing Ponds, Storm Water Drains, Ground Water, Recycling & any other source).
3. Present system of water procurement, treatment, distribution, leakages & collection of Tariff: short falls / loop holes & remedy.
4. Models of involvement of private sector.
5. To evolve a proper system of physical & financial planning; with its coordination, integration, evaluation & monitoring.
6. Creation of lakes. – i) Natural Storages, ii) Man Made Storages.
7. Use of old ponds.
8. Recharging techniques.
9. World Bank Schemes of Rs. 1625 crore.
10. Ground Water Exploration and use.
11. Conservation of water.
12. Prevention of misuse, leakages and theft.

- 3 To stop the entry of sewage flow from the city drains into the main stream of river during non-monsoon months.
- 4 To provide attractive river front with recreational facilities for the local residents as well as tourists to the city.
- 5 To provide additional traffic corridors for fast traffic which will provide substantial relief of the existing circulation system in the vicinity & in the city.
- 6 To remove the existing sub standard areas for eco-friendly and environment friendly development of river front.
- 7 To ensure ban on any sort of unauthorized activity in River.
- 8 Recycle water to the extent possible.
- 9 Water from adjoining states.
- 10 Use of Private sector and joint venture.

**WATER SUPPLY SCENARIO IN 2011**

Sl. No.	Source of Raw Water	Name of the Plant	Installed Capacity in 2011
1.	River Yamuna	Chandrawal I & II	90 MGD
2.	River Yamuna	Wazirbad, I II, & III	120 MGD
3.	Bhakra Storage	Haiderpur I	100 MGD
4.	Yamuna	Haiderpur II	100 MGD
5.	Bhakra Storage	Nangloi	40 MGD
6.	Upper Ganga Canal	Bhagirathi	100 MGD
7.	Sub-Surface Water	RanneyWells/ Tubewell	125 MGD
8.	Upper Ganga Canal	Sonia Vihar	140 MGD
9.	Saving from seepage losses with the construction of new parallel lined channel	Dwarka	40 MGD
10.	-do-	Bawana	20 MGD
11.	-do-	Okhla	20 MGD
12.	-	Recycling of wastewater at water treatment plants	45 MGD
			<b>940 MGD</b>

**Objectives & How to Achieve**

- 1 More storage for drinking water by tapping the monsoon water again and again.
- 2 To provide clean river water not only adjacent to the religious bathing ghats inc. NIGAM BODH GHAT but also in the entire river.

**DEVELOPMENT OF RIVER YAMUNA**



**PROPSAL**

1. A barrage is proposed to be constructed about 8 km North of Wazirabad Barrage to control River Yamuna Water
2. Existing LMB & RMB be used as Eastern & Western boundary of the new water body/Lake
3. Entire area between left & right boundary of the lake will be full of water with depth between 4 to 5 M by dragging.
4. In the Northern boundary also Expressway will be there.
5. Toward Eastern & Western side new highways are proposed as a boundary of the scheme.
6. This area would have many times water, which can partly be used for surface water and ground water.

7. Ground water will be used for by the people of NCTD, Haryana as well as U.P.
8. It is assumed that U.P. will handover this part of the land nearly free of cost.
9. Left out portion will be used for (i) Recreational areas; (ii) Biodiversity parks.
10. QUANTITY OF WATER AT PRESENT & AFTER THE PROPOSAL
  - 10.1. Present Position  
 At present the quantity of water is in 1645 hect. with a depth between 1.5M to 2.0M. On this basis volume of water would be 1645 hect. x 1.75 M = 2.88 X 10<sup>5</sup> Cubic Meter in the entire River Yamuna in the portion of NCTD.
  - 10.2. Out of this 60 % i.e 1.73 lakh cubic metre is in the north of existing Wazirabad

- barrage and the balance in the south. This water quantum in the north is proposed to be increased many times.
- 10.3. Area in the North of Wazirabad barrage is drastically changed by increasing the surface area of water and depth to an average of 4.5 M. Water quantum would be = 5012 hect.( surface area of the new lake ) X4.5 M = 22.55 lakhs cubic meter, which is 13 times or at least 10 times.
11. Development of Lakhs, Old water bodies which are hundreds in Nos.
12. Complete stoppage waste water
13. Water Planning should be connected ways.
  - (i) Physical Planning, (ii) Financial Planning (iii) Directional Planning (iv) Time Planning and not with any type of Politics.