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राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION PLANNING BOARD
1st Floor, Zone-IV,
India Habitat Centre,
Lodhi Road, New Delhi-110003
शहरी कार्य एवं रोजगार मंत्रालय
Minstry of Urban Affairs & Employment
Fax No. : 4642163

CHIEF REGIONAL PLANNER
PHONE : 4642289

k-14011/01/AP/97-NCRPB Dated 20.1.97

REVISED MEETING NOTICE

Subject: 41st meeting of Planning Committee Of NCRPB to be held on 27.1.1997 at 4.30 pm -Revised Meeting Notice.

In continuation to this office letter of even No. dated 9.1.97on above subject ,please find enclosed herewith a set of agenda notes for the meeting to be held on 27.1.97 at 4.30 pm. in the office of NCRPB India Habitat Centre,Lodhi Road New Delhi.

2. The Revised Time of the meeting at 4.30 pm may kindly be noted.

3. You are requested to kindly make it convenient to attend the meeting .

Encl: As stated above .

(R.C.Aggarwal)
Chief Regional Planner
&
Member Convenor

To

1. Chairman ,plng.Comm. &all members
2.All officer of NCRPB

LIST OF AGENDA ITEMS

Agenda items No 1:	Confirmation of minutes of the 40th meeting of the Planning Committee held on 2.12.96.
Agenda items No 2:	Review of action taken on the decision of the last meeting of Planning Committee held on 2.12.96.
Agenda Items No 3:	Consideration of Functional Plan for Water Supply & Drainage System in NCR.
Agenda Items No 4:	Any other Items with permission of the Chair.

AGENDA ITEMS FOR THE 41ST MEETING OF THE PLANNING COMMITTEE TO BE HELD ON 27.1.1997AT 11.30 AM IN THE OFFICE OF THE NCR PLANNING BOARD ,FIRST FLOOR ,ZONE IV, INDIA HABITAT CENTRE,LODHI ROAD,NEW DELHI-110003.

AGENDA ITEMS NO.1 : Confirmation of the minutes of the 40th meeting of the Planning Committee held on 2.12.96

Minutes of the 40th Planning Committee meeting held on 2.12.96. vide letter No K-14011/39(AP)96 NCRPB(40th) datefd 16.12.96 may be confirmed.

AGENDA ITEMS NO.2 : Review of the action taken on the decision of the last Planning Committee meeting held on 2.12.96

i) Sub Regional Plan for Delhi:

Presuant to the decision of Sub-Group meeting on Regional Plan NCT-Delhi three sub-group on industries,transport and landuse were constituted and their recommendation were finalised. The recommendation of the sub-committee will be discussed in the expert sub-group shortely.

ii) Sub Regional Plan for Haryana:

The representative of the Govt. of Haryana may report the stage of completion of the Sub Regional Plan

iii) Review of the Regionl Plan-2001

Information regarding the carrying capacity of the Regional Centres to hold the population by 2005 in terms of their infrastructure capabilities is still awaited.

A Steering Committee for Review of the Regional Plan has been constituted by the NCRPB vide its order no. K-14011/34CRP/96-NCRPB dated 23rd Dec.1996.The First Meeting of the steering committee was held on 17.1,97 at 3.30.pm in office of the NCRPB.

iv) The Functional plan of Telecommunications for NCR was discussed and approved in the last planning committee.

v) Consideration of the Proposal for amendment of Ghaziabad -Loni Master Plan

After detailed deliberations, the proposal for amendment of the Ghaziabad Master Plan was approved for placing the same in the next board meeting.

vi) Consideration of the proposals for change of landuse submitted by Delhi Development authority.

After detailed deliberations on the 4 pproposals for the land use change were approved by the planning committee and to be placed before the Board meeting.

AGENDA ITEMS NO.3 : CONSIDERATION OF THE FUNCTIONAL PLAN OF WATER SUPPLY & DRAINAGE SYSTEMS IN NCR.

The Functional Plan of " Water Supply & Drainage System for NCR" has been prepared by expert Sub Group on Water Supply & Drainage System and same was discussed in meeting of the sub group This Functional Plan of " Water Supply & Drainage System in NCR" (Annexure-1) is placed before Planning Committee for consideration and approval.

AGENDA ITEMS NO.4 : ANY OTHER ITEMS WITH PERMISSION OF THE CHAIR.

ANNEXURE-I

FUNCTIONAL PLAN

FOR

WATER SUPPLY & DRAINAGE SYSTEM

IN

NATIONAL CAPITAL REGION

NCR PLANNING BOARD
MIN. OF URBAN AFFAIRS & EMPLOYMENT
NEW DELHI

FUNCTIONAL PLAN FOR WATER SUPPLY & DRAINAGE SYSTEM IN NCR.

1.0 Introduction :

The National Capital Region Planning Board was constituted under an Act of Parliament in the year 1985. Section 16 of the said Act provide for preparation of Functional Plans with the assistance of Planning Committee for the proper guidance of participating states and the Union Territory after Regional Plan has came in operation. Section 2(d) of the same Act defines "Functional Plan" as a plan prepared to elaborate one or more elements of the 'Regional Plan'. Functional Plan for "Water Supply and Drainage System" will be one of such plans. Since the Regional Plan is a statutory document, the Functional Plan for water supply and drainage system being a part of the same will also be statutory in nature. Therefore, the Policies and plans contained in the Functional Plan after due processing and approval by NCRPB and notification thereafter will be binding on all concerned.

2.0 Need :

NCTD is a metropolis which has experienced a high rate of population growth over the past-three decades. As a result, its ability to provide and sustain an infrastructure which would ensure a reasonable quality of life for its inhabitants, has been taxed to the limit. In the context of

developments proposed in the Regional plan, the gap in the availability and management of essential infrastructures like water supply and drainage system is continously increasing. Although seemingly we have large water and land resources, their percapita availability is diminishing every day. The distribution of water resources in space and time is highly uneven, leading to both endemic and sporadic problems of water shortages and excesses. A considerable development has taken place in the past. However, in future their development and management are going to be increasingly difficult since unlike in a developed country, water demands are expected to grow rather fast as a combined effect of population increase and increase in living standards.

In the context of developments proposed in the regional plan, the DMA and satellite towns are to act as intercepters of population, which hither to is running towards NCT-Delhi. That is why an enhanced role has been envisaged for these towns. Same standards of basic infrastructure viz water supply and protection from floods etc. have to be provided in these places for which stratagies for drainage and water supply will have to be evolved treating the region as a single zone for planning. As a matter of fact, the existing drainage and water supply infrastructure should be optimised for maximum output in terms of capacity and efficiency of supply management and demand management.

Functional plan for drainage and water supply sectors, therefore stems from consideration given below:

(a) The Regional Plan-2001 is a policy document, where certain broad policies and strategies for drainage and water supply sector have been mentioned but not sufficiently elaborated.

(b) Problems faced by implementing agencies in projecting these strategies in the absence of such detailed elaboration.

(c) Need for proper institutional, regulatory and fiscal frame work support for water supply and drainage sector plan.

(d) Need to integrate various long term and short term drainage and water supply augmentation proposals both for demand and supply management being planned for NCTD.

3.0 Objectives :

The drainage and water supply system of NCR is not confined to the administrative boundaries of the NCR districts or the states. It is therefore, required to plan a system treating the region as a single zone for planning purposes especially with a view to: (a) assess the availability of water-both surface and sub-surface and the level of utilisation in different users sectors such as agriculture, domestic, industry, etc., and project the

demands for the future i.e., first up to 2001 and then until 2005 AD taking into account the NCR Plan policies and development strategies. (b) To establish the existing system of drainage of the sub-basins of the rivers Ganga, Yamuna and Hindon traversing NCR.

(c) To study the pattern of drainage both during monsoon and non-monsoon periods taking into account the historical precipitation data in the concerned basin areas and to study the pattern of drainage at the inter-state level in terms of their quantity.

To achieve the above it is imperative to have:

(i) a water supply and drainage frame work plan that is robust, clear and responsive to the inevitable and changing circumstances.

(ii) direction and priority for specific water supply and drainage projects identified in the plan.

(iii) implementing agencies identified and fix the responsibility for the development of projects.

(iv) provide a broad financial strategy for financing the water supply and drainage projects.

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(iv) provide a broad financial strategy for financing the water supply and drainage projects.

4.0 The Region :

The National Capital Region (NCR) extends over an area of 30,242 sq.km. The constituents of the NCR are :

a) Union Territory of Delhi (1,483 sq.km)

b) Haryana Sub-region comprising (in 1981) Faridabad, Gurgaon, Rohtak, Sonipat, Rewari and Panipat districts (13,413 sq.km.)

c) Rajasthan Sub-region comprising six tehsils of Alwar district, namely, Alwar, Ramgarh, Behror, Mandawar, Kishangarh and Tijara (4,493 sq.km.).

d) Uttar Pradesh Sub-region comprising three districts, namely, Meerut, Ghaziabad and Bulandshahr (10,853 sq.km.).

The region is characterised by the presence of Ganga skirting the eastern boundary and the Yamuna in the North-South forming the boundary between Uttar Pradesh and Haryana.

The region comprising of 94 urban centres and 6677 villages had a total population of 264.62 lacks in 1991 and

will touch 423.37 lacks according to projection of 2005 as per detail given below:

Sub-region	Area sq.km.	Settlements Nos.	Population Lacs 1991 Census		2001 RP		2005 Projection	
			Urban	Rural	Urban	Rural	Urban	Rural
Delhi	1,483	6	214	84.72	9.49	129.0	3.6	140.0 24
Haryana	13,413	27	2386	18.35	48.08	38.0	34.0	33.71 69.08
U.P.	10,853	58	2989	31.18	58.84	38.0	34.0	61.85 73.70
Rajas-than	4,492	3	1088	2.80	11.16	3.5	8.5	5.60 15.44
Total		94	6677	137.05	127.57	234.0	91.6	241.16 182.2

From the table above it can be concluded that the urban population is almost 2.5 times that of rural population and that 63% of total projected population of NCR will be located in Delhi and U.P. sub-regions. Further the population growth in the region is charaterised by natural growth as well as large scale immigration. Sources of natural growth has been declining over the years. immigration is however unabated and is mostly from neighbouring states.

5.0 The Regional Plan - 2001

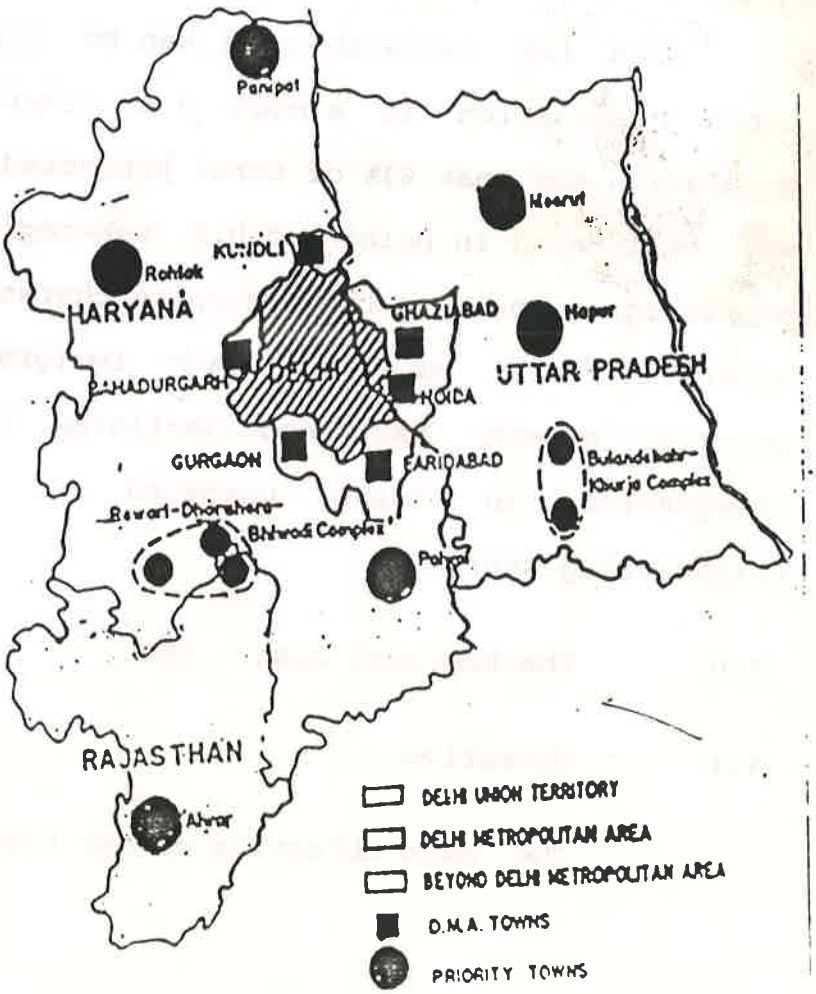
5.1 Objective :

The main objective of the Regional Plan-2001 is

to evolve policies to meet the growing need for balanced and harmonised development of the region through contral of land use and improvement in the infrastructure so as to avoid any haphazard developments in the region control the growth of population in the National Capital by deflecting of 2 million population to the region.

5.2 Policy Zones :

The regional plan has identified three distinct policy zones with different policy initiatives for implementation of the plan policies and programmes to achieve the core objective viz. Delhi, Delhi Metropolitan area (DMA) and rest of region stipulating restricted growth of Delhi, moderate growth of DMA towns and induced growth of priority towns and complexes in the rest of region.



5.3 Drainage and Water Supply Management Plan :

The quality of life in a settlement very much depends on the level of availability,accessibility and quality of infrastructure it provides. The rapid growth of population necessitates augmentation of water supply, flood protection and drainage Infrastructure available at present as it could become cause of crisis in metropolitan life if advance action for strengthening of this physical infrastructure is not taken. Regional Plan 2001, has therefore, identified development of existing infrastructure for these two elements as one of the key sectors of restructuring in the regional context.

5.4 Existing infrastructure:

5.4.1 Water Supply:

The region is endowed with three perenial rivers viz the Yamuna and the Hindon both traversing through and the Ganga skirting it eastern boundary. A magnificient network of canals benefit the districts of Panipat, Rohtak, Sonepat, Bhiwani, Rewari, Bulandshahr and Ghaziabad providing water for irrigation and domestic consumption. Other district draw water from sub-surface sources through handpumps, well, tubewells as well as Rainey wells. Some supplies are also imported from Bhakra Dam on river Sutlej as well as from Ram ganga for augmentation of supplies in the NCT of Delhi. The sub-surface water resources to the west of Yamuna are, however insufficient and often brackish

in quality rendering it unfit for domestic consumption both for human as well as live stock. Scanty rainfall in the areas leaves the ground water resource limited and the tubewells go dry as the water table sinks deep in summer months. Therefore, there is generally shortage of water supply in the areas west of Yamuna and the problems assume severe dimensions in dry months. The details of of urban and rural water supply system at present are as follows:

(a) Urban:- All the 94 urban centres axcept 20 have organised water supply system of drawing water from tub-wells, wells and canals. The per capita supply ranges from 70-240 lpcd.

(b) Rural:- Rural water supply position in the region presents a very dismal picture. Main source of water supply are canals and wells in Haryana sub-region wereas handpumps are restricted to Uttar Pradesh and Rajasthan sub-regions. Similiarly, inadequate water supply in NCT of Delhi remains a permanently unsolved issue due to the absence of basic infrastructure. Based on these consideration the existing water supply position in NCR works out to 3150 MLD comprising 2678 MLD for urban & 472 MLD for rural. As per DWS + SDU the quantum of water supplied in Delhi in the year 1993 was 2347 MLD as against a demand of 2840 MLD leaving a shortfall of 493 MLD. The demand thus far exceeds the installed capacity of Delhi's waterworks as is clear from Table below:

Existing Water Treatment Plants and Capacity

Treatment	Capacity	Raw Water supply reqd + 10%	Source of supply	Remarks
Wazirabad (I, II & III)	120 MGD (233 Cu-secs) (0.162 MAF/day)	132 MGD (245 Cusecs) (0.178 MAF/day)	Yamuna and BBMB almost 50% from each.	During Monsoons from Yamuna only From BBMB thru Munak Escape
Chandrawal	90 MGD (167 Cu-ecs) (0.120 MAF/ day)	99 MGD (184 Cusecs) (0.134 MAF/day)	-do-	-do
Haiderpur (I & II)	200 MGD (372 Cu-secs) (0.27 MAF/ day)	220 MGD (410 cusecs) (0.296 MAF/day)	BBMB	From Munak Headworks 580 cusecs losses about 30%
Shahdara	100 MGD (186 Cu-secs) (0.135 MAG/ day)	110 MGD (205 Cusecs) (0.148 MAF/day)	From Ganga	
Renney/wells	62 MGD (115 Cu-secs) (0.084 MAF/ day)	62 MGD (115 Cusecs) (0.084 MAF/day)	Groundwater	
Total	572 MGD (1063 Cu-secs) (0.773 MAF/ day)	623 MGD (1164 Cusecs) (0.840 MAF/day)		

The water supply has been augmented progressively to meet the growing needs of Delhi's population as is clear from the table below:

TOTAL AND PER CAPITA WATER SUPPLY

Year	Population (Million)	Average Supply (MLD)	Per Capita availability (Litres/Day)
1971	4.1	785	190
1981	6.2	1,150	185 (contd)
1990	8.8	2,160	245
1991	9.04	2,143	237
1993	10.00	2,347	235
1995*	10.5	2,860	272
2001*	12.8	3,520	275

Source: DWS & SDU
Note : *=> Projected values.

The demand for water for the year 1995 has already crossed 2649.50 MLD (700 MGD) as against 1968.2 MLD (520 MGD) which the DWS & SDU can supply at the moment. The 90% of water supply needs of Delhi are met with from surface water resources. Yamuna is the main source of Delhi's piped water, supplying as much as 68%. The Ganga Canal supplies about 20% and ground water contributes to the remaining 12% as is clear from table below:

SOURCES OF DELHI'S WATER

Source	Capacity (MLD)
Bhakra Beas Management Board and regeneration of the Yamuna	1,400
Haryana	227
Uttar Pradesh	450
Ground Water	270
Total:	2,347

Source : DWS & SDU, 1993

Delhi's over dependence on neighbouring states for drinking water has resulted in many areas of city experiencing inadequate water supply. The esculating population has not been matched by proportionate increase in water availability and supply as is indicated from analysis of data given below:

Demand & Supply of Water in Delhi (MLD)

	1981	1993	2001
Demand	2131	2840	5121
Supply	1150	2347	4189
Gap	981	493	932

Even in the NCT of Delhi the water supply is not uniformely distributed. Delhi's villages spread over 70% of the area get less than 100 MLD - less than 5% of city's water consumption as is clear from the table below:

ZONE WISE CONSUMPTION OF WATER FOR DIFFERENT USES (1991-92)

Zones	Domestic (%)	Commer-cial(%)	Public (%)	Indust-rial(%)	Total Con-sumption (in million litres)
Civil Lines	80.0	14.4	4.9	0.7	37,199(100%)
West	95.0	4.2	0.8	-	54,962(100%)
Karol Bagh	86.8	8.3	4.9	-	34,204(100%)
Paharganj	90.0	8.8	0.9	0.3	33,503(100%)
City	72.1	12.5	13.1	2.3	39,363(100%)
South Delhi	91.5	8.0	0.5	-	48,000(100%)
New Delhi	92.8	6.2	0.9	0.1	67,853(100%)
Shahdara	96.5	2.7	0.8	-	57,435(100%)
Rohini	92.3	2.3	4.4	1.0	49,582(100%)
Delhi	87.2	9.0	3.3	0.4	439,083(100%)

Source: DWS & SDU (1993)

It will be seen that while some part of Delhi get just 30 lpcd others get as much as 454 lpcd indicating a gross disparity from the proposed norms for the area as a whole.

Similarly the position with regard to DMA and priority towns in the NCR is listed as under :

EXISTING WATER SUPPLY IN DMA AND PRIORITY TOWNS

S. No.	Name of the Towns	Population 1991 Census (Lakhs)	Rate of Supply (LPCD)	Total Qty. of Supply (MLD)	Source of Water Supply
DMA TOWNS					
1.	Ghaziabad	5.19	117.00	61.00	Tubewell
2.	Loni	0.37	148.00	5.47	Tubewell
3.	Noida	1.67	225.00	37.58	Tubewell/ Rainney well
4.	Faridabad	6.13	113.60	69.60	Tubewell
5.	Gurgaon	1.36	109.00	14.80	Tubewell/ Canal
6.	Bahadurgarh	0.57	86.30	4.92	Canal
7.	Kundli	0.11	45.50	0.50	Tubewell
	Total:			194.00	
PRIORITY TOWNS					
1.	Meerut	8.50	67.50	57.37	Tubewell
2.	Hapur	1.47	75.23	15.87	Tubewell
3.	Bulandshahr	1.27	106.00	13.50	Tubewell
4.	Khurja	0.80	91.00	7.30	Tubewell
5.	Panipat	1.91	148.50	28.65	Tubewell
6.	Rohtak	2.16	81.00	17.67	Canal
7.	Rewari	0.75	76.50	5.77	Tubewell/Canal
8.	Daruhera	0.11	45.00	0.50	Tubewell
9.	Bhiwadi	0.15	45.00	0.68	Tubewell
10.	Palwal	0.59	81.00	6.70	Tubewell
11.	Alwar	2.11	78.60	16.58	Tubewell
	Total:			171.00	

5.4.2 Drinage system in NCR

The National Capital Region in terms of morphology can be divided into :

(i) Ganga Yamuna Doab.

(ii) Areas West of Yamuna river the alluvial planes and extensions of Arravallies and Sandy region.

National Capital Region in general is a part of well integrated drainage system of Ganga basin. The extremely gentle gradient almost all over the region restrict the degradatainal activities of streames/drains. Flood protection and storm water discharge in any basin/sub-basin of NCR are not local but have regional bearings covering areas of Haryana, Rajasthan, Uttar Pradesh and NCT of Delhi. It is therefore, necessary to project the drainage system at regional level for planning in an integrated manner with adjoining states. Topography, rainfall intensity, soil characteristics, irrigation methods, crops and vegetable cover are important factors for deciding the type and design of drainage system. Based on these considerations the drainage network of each of Sub-region NCR has been divided into drainage basins/sub-basins.

Uttar Pradesh Sub-Region

Sub-region being located between latitude 77.15 to 78.39 and lavigitude 28.0 to 29.15, gravity drainage is available throughout the region.

Besides Ganga and Yamuna, the important rivers/streams in the area are Hindon, Kali Nadi East, Neem Nadi, Karwan Nadi and Choia Nadi. Based on tapography the area has been divided in six drainage sub-basins viz.

(1) Flood plains & adjoining areas of River Ganga

(2) (a) Kali Nadi Basin

(b) Choiya Nadi Basin

(3) Neem Nadi Basin

(4) Hindon River Basin

(5) Karwan Nadi Basin

(6) Yamuna Basin lying in U.P. Sub-region.

Details of the existing drainage system indicating length, catchment area they serve and the capacity is given at Annexure - 1

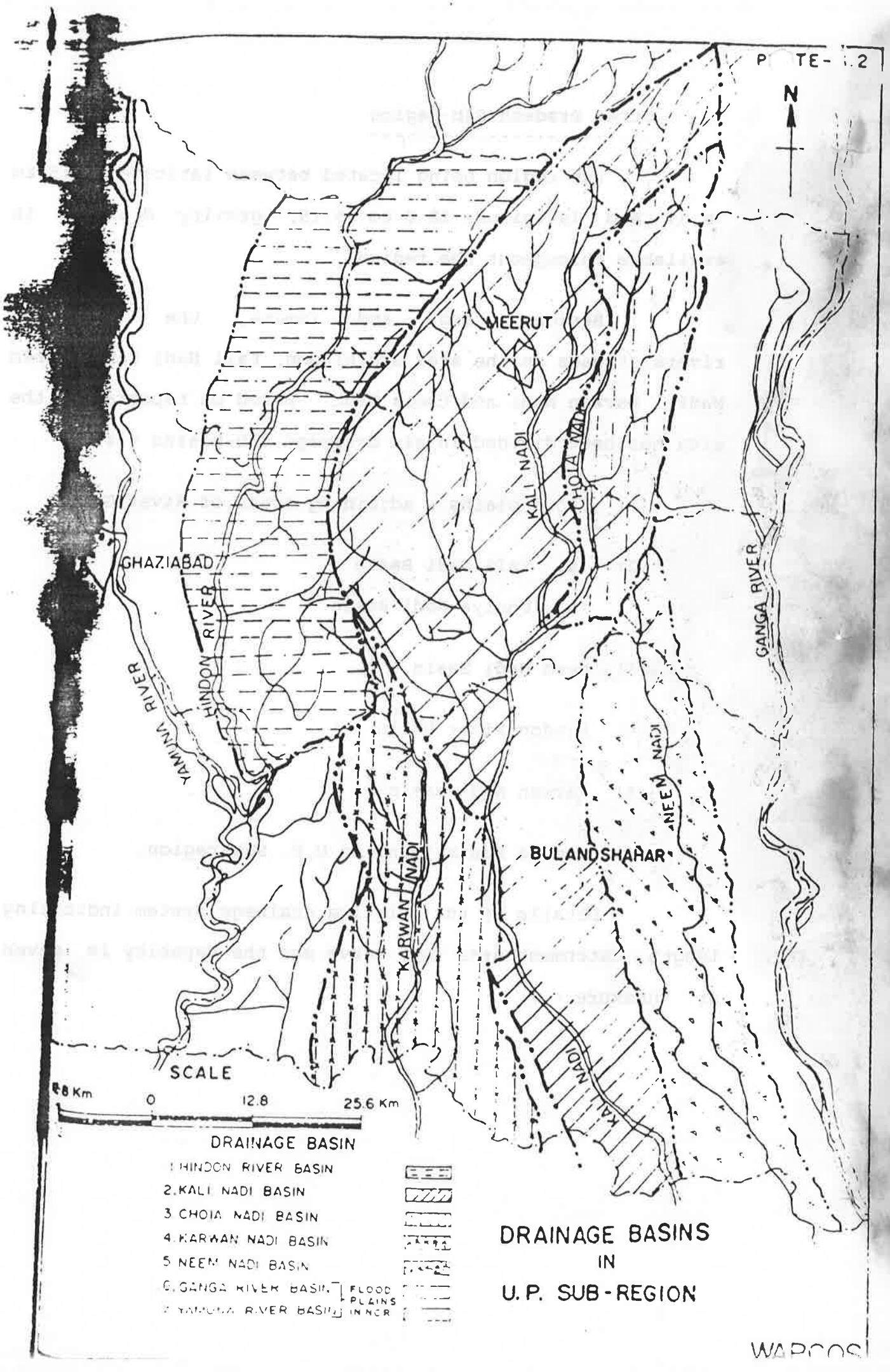
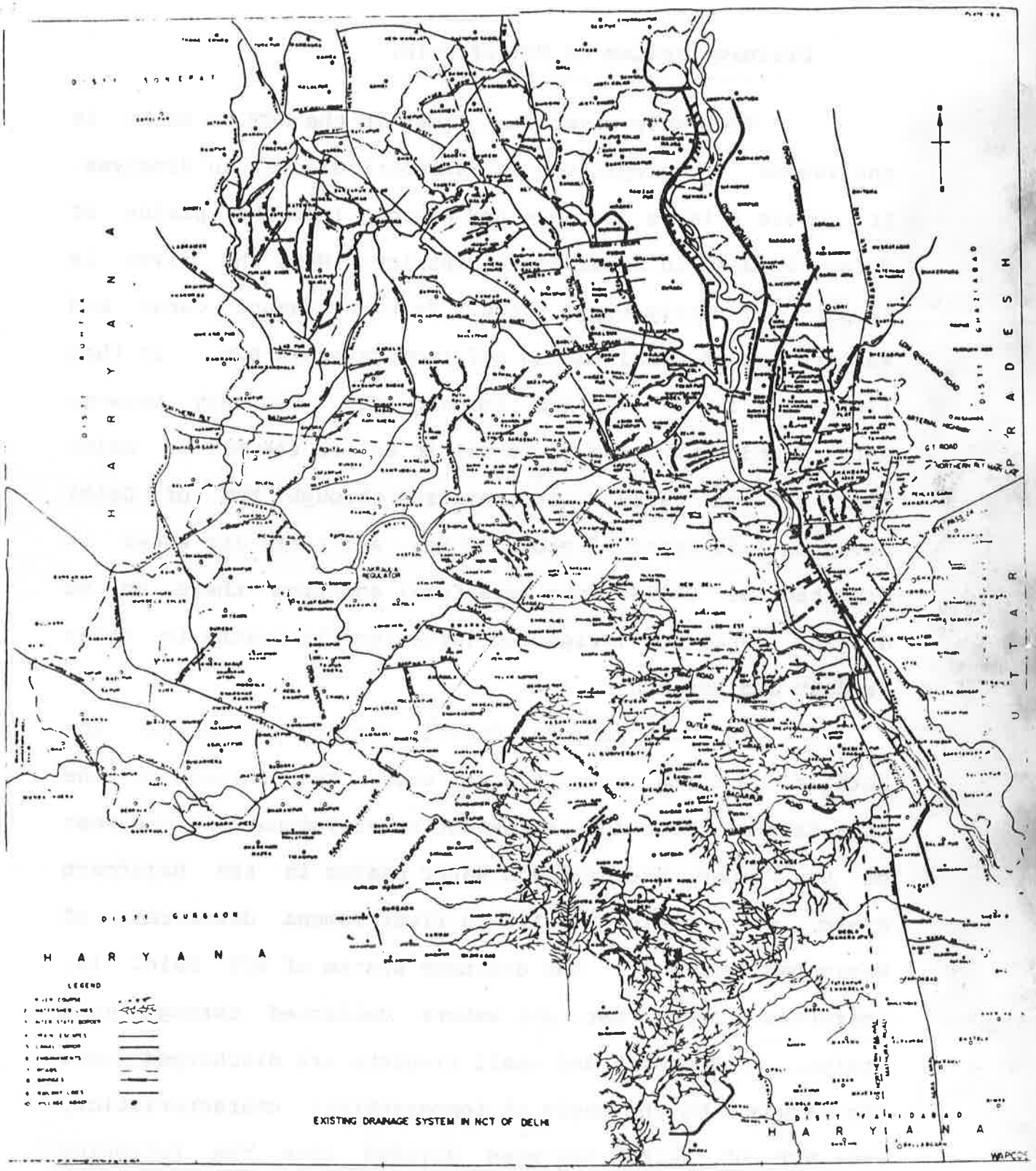


PLATE-1.2
N
MEERUT
KALI NADI
CHOIA NADI
GANGA RIVER
GHAZIABAD
HINDON RIVER
YAMUNA RIVER
KARWAN NADI
NEEM NADI
BULANDSHAHAR
KALI NADI
SCALE
25.6 Km
0
12.8
25.6 Km
DRAINAGE BASIN
1. HINDON RIVER BASIN
2. KALI NADI BASIN
3. CHOIA NADI BASIN
4. KARWAN NADI BASIN
5. NEEM NADI BASIN
6. GANGA RIVER BASIN
7. YAMUNA RIVER BASIN
FLOOD PLAINS IN NCR
DRAINAGE BASINS
IN
U.P. SUB-REGION
WAPCOS

Drainage system of NCT of Delhi

The only river that flows in the NCT of Delhi is the Yamuna. It originates in Yamunotri Glacier in Himalyas. It covers a large distance and emerges into the plains of Uttar Pradesh in Saharanpore District. Here the river is tapped for irrigation through Eastern Yamuna Canal and Western Yamuna Canal taking off from Tajewala H/W. It than flows for about 230 kms forming the boundary between Haryana and Uttar Pradesh until it enters the NCT of Delhi near village Palla. It traverses through NCT of Delhi covering a distance of about 50 kms. and there its water is diverted at Okhla into Agra Canal and from there on to Gurgaon canal for irrigating large fertile tracts in Uttar Pradesh and Haryana.

In the National Capital Territory of Delhi, the Delhi ridge forms the main water shed. The drainage in the area East of the ridge is towards river Yamuna. In the West of the ridge, the drainage water passes in the Najafgarh drain, which again outfalls in river Yamuna downstream of Wazirabad Barrage. The drainage system of NCT Delhi is, therefore, such that all waters collected through main drains, link drains and small rivulets are discharged into the Yamuna. On the basis of topographical characteristics, the NCT of Delhi has been divided into the following drainage basins. (plate No.3)



EXISTING DRAINAGE SYSTEM IN NCT OF DELHI

1. Najafgarh Basin
2. Alipure basin
3. Shahdra basin
4. Khushak Nalla basin
5. Mehrauli Basin.

Besides these, there are about 17 drains/link drain which outfall directly in river Yamuna on its right bank. Details indicating the names of drain, catchment area and their capacity etc. are indicated as under :

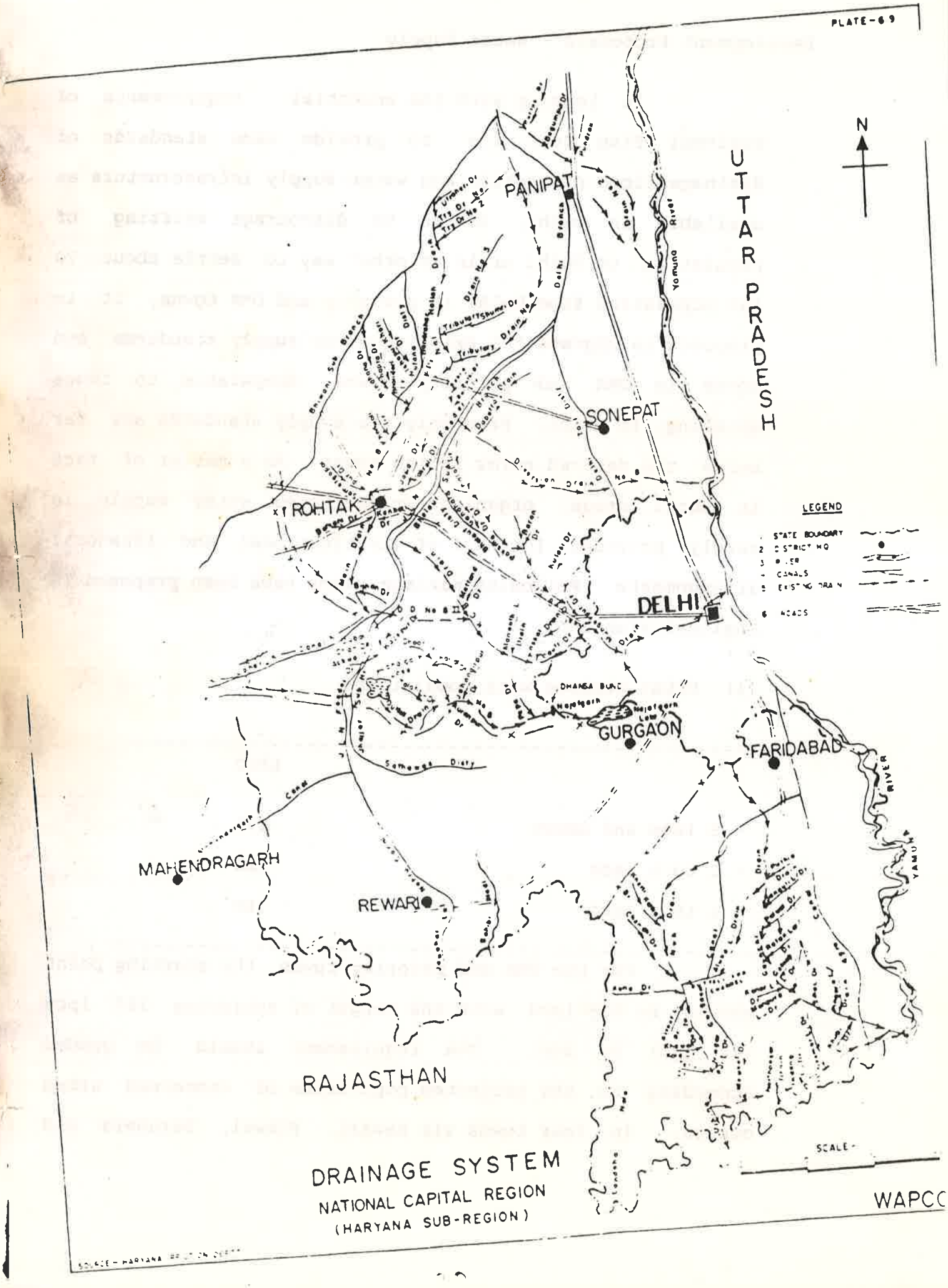
Annexure - 2

Draniage system of Haryana Sub-region.

There are two draniage catchments in Haryana, one drains through river Yamuna and the other through river Ghaggar, in addition to large chunk of area which has no natural drainage and is drained through pumping into existing Canal Network. The area drained through river Yamuna originally had two outlets, one through Najafgarh drain in Delhi and the second through Goverdhan drain in Uttar Pradesh. To improve the situation in NCT of Delhi and to provide relief in Haryana, diversion drains were constructed in the Northern portion of the catchment namely Chutang diversion, Diversion Drain No.2, and Diversion drain No.8. Although these have reduced pressure on Najafgarh drain, there is still considerable pressure from Sahili-Nadi and Drain No.8, which join at Surethi.

Prior to 1962, the surface drainage of basins, drawing into river Yamuna was all locked up and was very sluggish. Major parts of this basin used to remain flooded for long priods during the years of high rainfall viz. 600-750mm. It is only after 1962, mainly during 1968-1978. and then from 1978 to 1983, that large network of artificial surface drains of adequate capacity has been constructed and later on further extended and remodelled for additural capacities from time to time that the area has became more or less free from abnormal flooding. Haryana sub-region has been divided into following sub-basins/systems on the basis of topographical characteristics at Annexure-3.

PLATE-69



DRAINAGE SYSTEM

NATIONAL CAPITAL REGION

(HARYANA SUB-REGION)

WAPCO

SOURCE - HARYANA

Development Proposals - Water Supply

In keeping with the essential requirements of Regional Plan 2001 i.e. to provide same standards of drainage/flood protection and water supply infrastructure as available in Delhi, so as to discourage shifting of population to Delhi or in an other way to settle about 20 lac population from Delhi in priority and DMA towns, it is proposed to upgrade the existing water supply standards and norms in DMA and priority towns comparable to those existing in Delhi. Presently the supply standards are far below the desired norms in the towns. As a matter of fact in Rural areas, organised or protected water supply is rarely provided for want of institutional and financial arrangements. Following minimum norms have been preposed in Regional Plan 2001.

(i) Urban Centres with population:

	LPCD
- 5 lacs and above	275
- 2 to 5 lacs	225
- 1 to 2 lacs	100

For the DMA and priority towns, the starting point should be 225 lpcd with the target of achieving 360 lpcd (80 gpd) by 2001. The requirement should be graded according to the projected population of concerned urban centre. In four towns viz Rewari, Plawal, Daruhera and

Bhiwadi where water scarcity is experienced as a chronic problem, minimum of 225 lpcd may be taken as target to be achieved.

In no urban centre, the supply should be lower than 100 lpcd which is the minimum technical requirement.

(ii) Rural water supply: The sources of water supply to rural areas should be identified and the water supply should be organised to supply water at the levels commensurate with the functional character of the rural area.

A minimum of 70 lopcd including a supply of 30 lpcd for cattle is proposed in rural areas. Based on these premises and the projected population of DMA and priority towns in the year 2001 the anticipated requirements have been worked out and are tabulated as under:

Area	Projected Population (after deflacting 20 lacs from Urban Delhi)				Water Supply MLD			
	2001		2005		2001		2005	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Delhi NCT	110	2	120	24	3465	33	3780	240
Haryana	43.5	34.5	39.71	69.08	1412	345	1350	691
Rajasthan	7	7	7.6	15.41	120	70	140	154
U.P.	75.5	45.5	73.85	73.72	1315	455	1300	737
Total	236.0	89.0	241.16	182.21	6312	903	6570	1822

@ of Water Supply
i Rural @ of 100 LPCD
ii Urban maximum 315 LPCD

The ultimate domestic requirements of water for the region will be 7415 MLD comprising of 6312 MLD for urban and 903 MLD for rural by 2001. These will increase upto 8392 MLD comprising of 6570 MLD for urban and 1822 MLD for rural by 2005 if the projected population as per present growth trend is taken into consideration.

There is no estimate available for industrial requirments of water. Tentatively these can be assumed to be of the same order as that of domestic water requirements.

NCR forms one of the most productive agricultural areas of the country and is endowed with extensive fertile land and good irrigation facilities. Assuming that only 60% of the cultivable area is irrigated, the requirement of water for irrigation would be of the order of 14000 MCM.

Thus the total requirment of NCR for irrigation as well as domestic and industrial can not be met from surface waters of river Yamuna alone because as per latest assesments the average annual water availability of river Yamuna upto Delhi (Okhla) is 13000 MCM.

These domestic water supply requirements upto 2001 can be further split up into DMA and Priority towns vis-a-vis NCT of Delhi as per details given below:

Water Demand in the Sub-Regional Centres

Station	Projected Population 2001	Rate of Supply (GPCD)	Water Demand (MGD)
1	2	3	4
Uttar Pradesh Sub-Region			
Baghpat	100000	38.5	3.85
Barut	100000	38.5	3.85
Sardhana	100000	38.5	3.85
Mawana	100000	38.5	3.85
Kithour Shahjahanpur	75000	38.5	2.88
Pilkhua	150000	44.0	6.60
Modinagar	200000	44.0	8.80
Garmukteswar	100000	38.5	3.85
Jewar	75000	38.5	2.88
Inchauli	20000	33.0	0.66
Siana	75000	38.5	2.88
Jahangirabad	75000	38.5	2.88
Anupshahr	100000	38.5	3.85
Narora	75000	38.5	2.88
Kasna	150000	44.0	6.60
Rajasthan Sub Region			
Khairthal	50000	28.0	1.39
Tijara	50000	28.0	1.39
Ramgarh	50000	28.0	1.39
Behror	50000	28.0	1.39
Shahjahanpur	50000	28.0	1.39

DEMAND OF WATER SUPPLY IN 2001 IN DMA AND PRIORITY TOWNS

S. No.	Name of the Towns	Population projected in 2001 (Lakhs)	Rate of Supply (LPCD)	Total Qty. of Supply (MLD)	Source of Water Supply
DMA TOWNS					
1.a) b)	Ghaziabad Loni	11.00	275.00	302.50	Tubewell
2.	Noida	5.50	315.00	173.25	Tubewell/ Rainney Well
3.	Faridabad	10.00	315.00	315.00	Tubewell
4.	Gurgaon	7.00	315.00	220.50	Tubewell
5.	Bahadurgarh	2.00	315.00	63.00	Canal
6.	Kundli	1.50	315.00	47.25	Tubewell/ River
	Total:			1122.00	
PRIORITY TOWNS					
1.	Meerut	15.50	275.00	426.25	Tubewell
2.	Hapur	4.50	200.00	101.25	Tubewell
3.	Bulandshahr	5.00	275.00	137.50	Tubewell
4.	Khurja	3.00	275.00	82.50	Tubewell
5.	Panipat	5.00	315.00	157.50	Tubewell
6.	Rohtak	5.00	315.00	157.00	Canal
7.	Rewari	1.10	225.00	24.75	Tubewell/ Canal
8.	Daruhera	0.75	225.00	16.90	Tubewell
9.	Bhiwadi	1.15	225.00	25.90	Tubewell
10.	Palwal	3.00	225.00	67.50	Tubewell
11.	Alwar	5.00	225.00	112.50	Tubewell
	Total			1310.00	

Haryana Sub Region			
Sonipat	200000	70.0	14.00
Samalkha	30000	50.0	1.50
Gohana	50000	50.0	2.50
Ganaur	25000	50.0	1.25
Jhajjar	38000	50.0	1.90
Patudi-Hailymandi	35000	50.0	1.75
Sohana	30000	50.0	1.50
Hodel	50000	50.0	2.50
Nuh	25000	50.0	1.25
Meham	30000	50.0	1.50
Bawal	50000	50.0	2.50
Kosli	20000	50.0	1.00
NCT of Delhi			
Najafgarh	80000	70.0	5.60

Similarly based on the minimum criteria for urban centre viz 275 lpcd (70 gpcd) DDA has worked out the following out anticipated requirement of water for Delhi in 2001 AD.

Year	Population	Water Requirement
1990	88.31 lakh	2,173 MLD (574 MGD)
1995	107.80 lakh	2,972 MLD (725 MGD)
2001	128.00 lakh	4,266 MLD (1127 MGD)

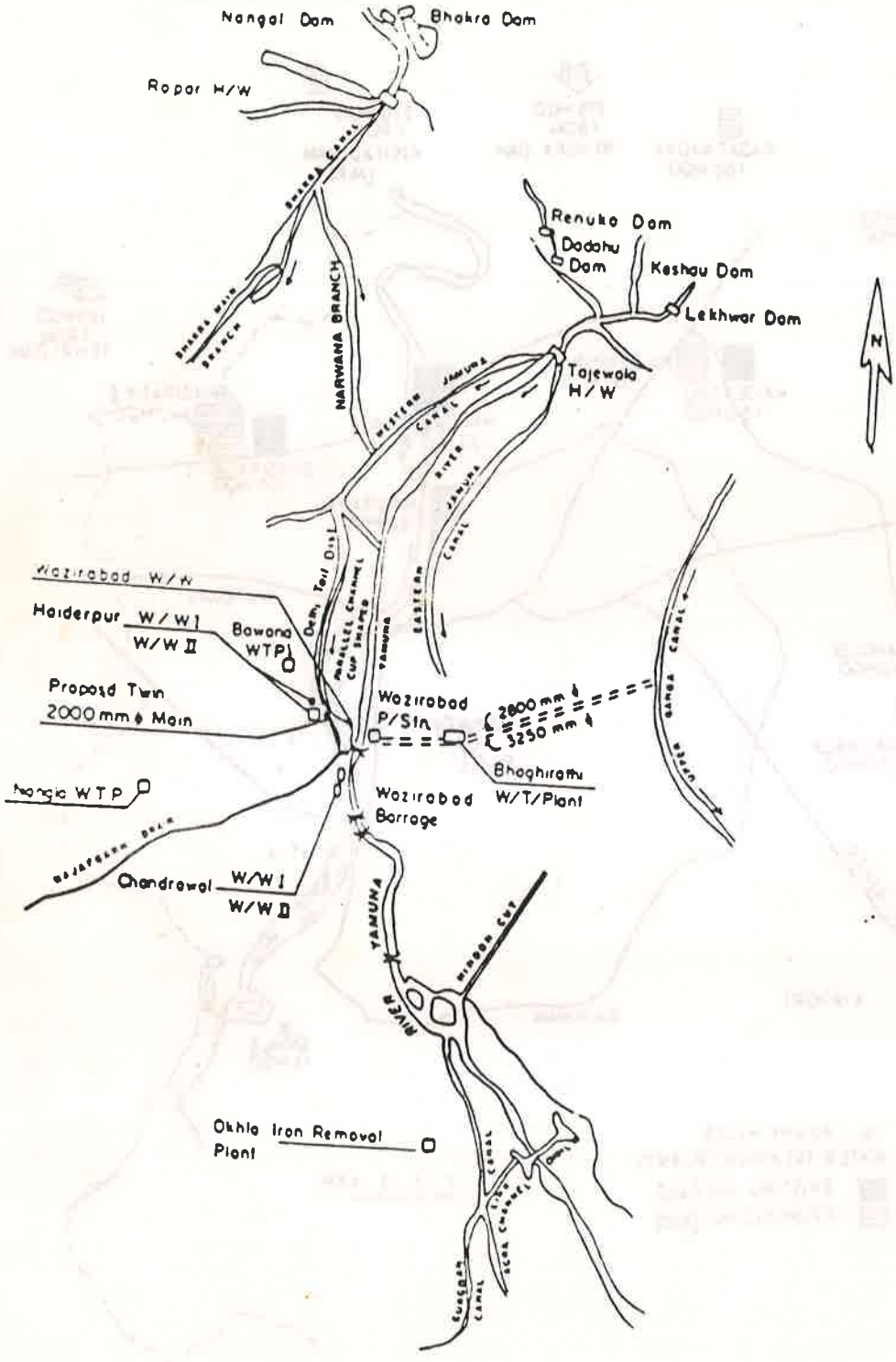
Proposed water treatment plants to meet these requirments will have to planned and built accordingly. Details as per DWS & SDU records of 1993 are as under:

Water Treatment Plants	Capacity 1993 (MLD)	Capacity 2001 (MLD)
Haiderpur	454	-
Nangloi	182	-
Bawana	91	-
Bhagirithi	-	636
Iradat Nayar	-	454
Bakarwala	-	454
Total:	727	1544
Total Capacity by 2001		4188

It is thus obvious that much of the demand will be met from new water works. These proposals are depicted on enclosed Plates 5 & 6. The future as well as existing source have been indicated in these figures. Delhi has to depend on Yamuna for raw water though some of the water supply to the Trans-Yamuna area is being obtained from river Ganga, which too is a water deficit basin upto Allahabad .

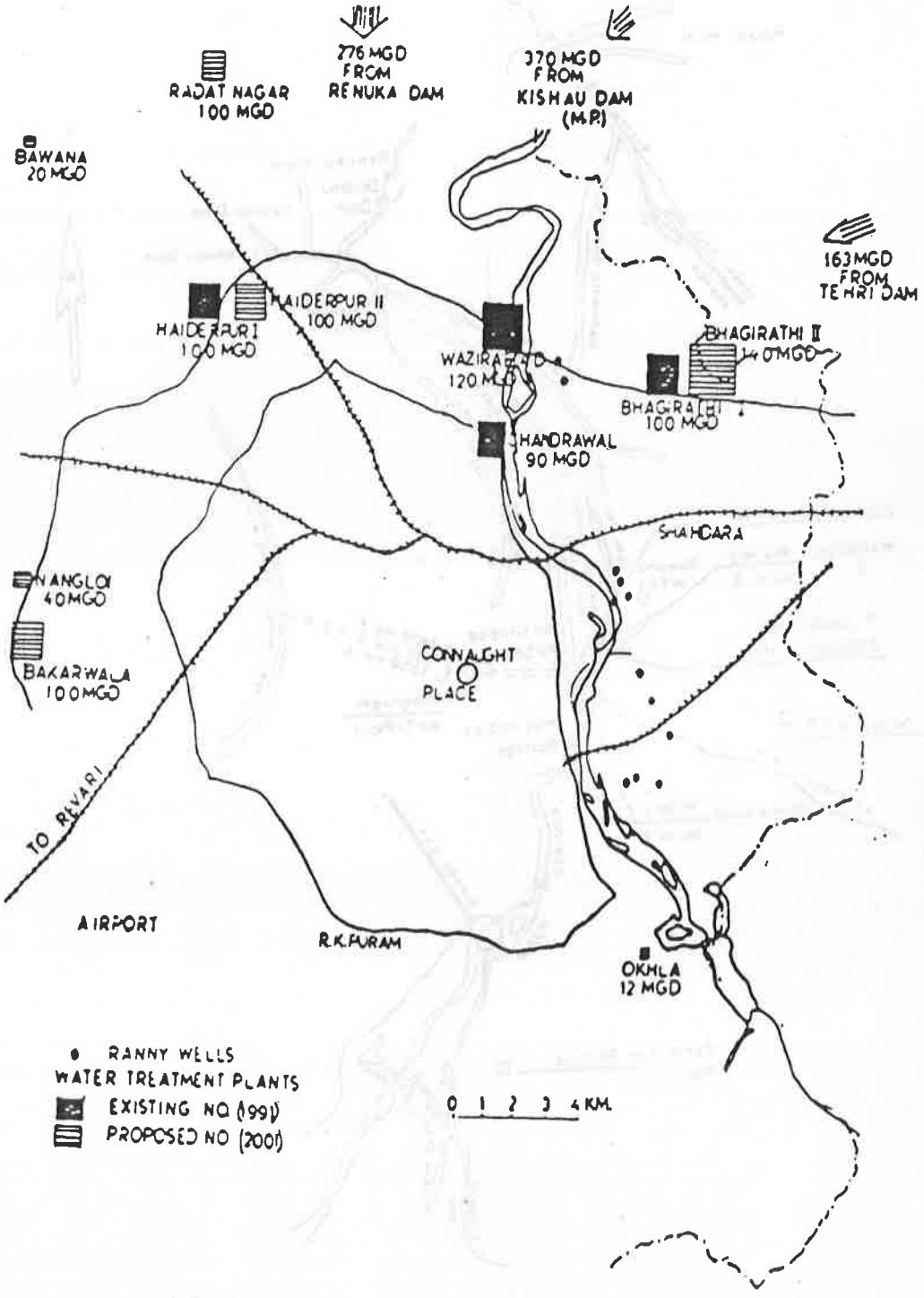
An interstate agreement for sharing the water of river Yamuna amongst the Chief Ministers of States of Uttar Pradesh, Haryana, Himachal Pradesh, Rajasthan and Delhi has been signed on 12.05.94. NCT of Delhi has been allocated 0.724 BCM to meet the drinking water needs.

PLAN SHOWING FUTURE SOURCE OF WATER



— NOT TO SCALE

WATER TREATMENT PLANTS, DELHI



This will enable DWS & SDU to draw about 1092 MGD of raw water on completion of storage dams. "Renuka" in Himachal Pradesh on river Giri and "Kishau" on river Tons in Uttar Pradesh. Pending construction of these storage dams, seasonal allocation of flow of river Yamuna has also been made and a definite share has been allocated for Delhi as per clause 7.1 of the accord. Upper Yamuna river Board has also been created for regulation of allocated shares and monitoring the return flow. Long and short terms measures envisaged below could thus be expedited now. However, many of these will depend on environmental constraints in Delhi and neighbouring states.

Short Term Measures

i) As an immediate short term measure, the gap between the availability and requirement of potable water in NCT of Delhi can be narrowed down by exchanging of 100 MGD of treated affluent (186 cusecs or 0.135 MAF/day) from Okhla sewage treatment plant with raw water in the ratio 1.5:1. This raw water could be made available by Haryana Govt. at Haiderpore treatment plant and the treated affluent water utilised for irrigation purposes in Gurgaon canal area by them.

ii) Construction of an independent carrier channel for augmentation of Delhi water supply from Munak Headworks to Haiderpur treatment plant can increase the availability of water at this site to about 0.43 MAF (592 cs or 318 MGD) as against the present availability of 0.27 MAF (372cs or 200 MGD) by saving of avoidable conveyance losses besides

checking unauthorised tapping enroute. The scheme costing about 100 crores could be straight away taken up for implementation.

(iii) Storage of rain water and excess flow of Yamuna water during monsoon season also help to supplement the raw water requirement for new water treatment plant

Long term measures

Construction of storage dams on tributories of river Ganga, Yamuna viz Lakwar Vyasi Dam, Kishau Dam, Tehri Dam, Koulli Bhel Dam in Uttar Pradesh and Renuka Dam in Himachal Pradesh. Brief details are as under:

i) Kishau Dam:

The proposal is for construction of a dam accross river Tons, which is a tributory of river Yamuna at Samberkhera, about 45 kms u/s of Dakapather. The project envisages construction of 23.6 m concrete Gravity dam. Besides generation of power and bringing additional areas under irrigation it will provide 370 MGD (689 cs) towards domestic requirements Delhi.

ii) Renuka Dam:

A multipurpose scheme on river Giri, envisages construction of 186 meter high earth cum rock fill dam. Storage in the dam will be available to supplement the drinking water supply to Delhi to the extent of 275 MGD (511 cs).

iii) Tehri Dam:

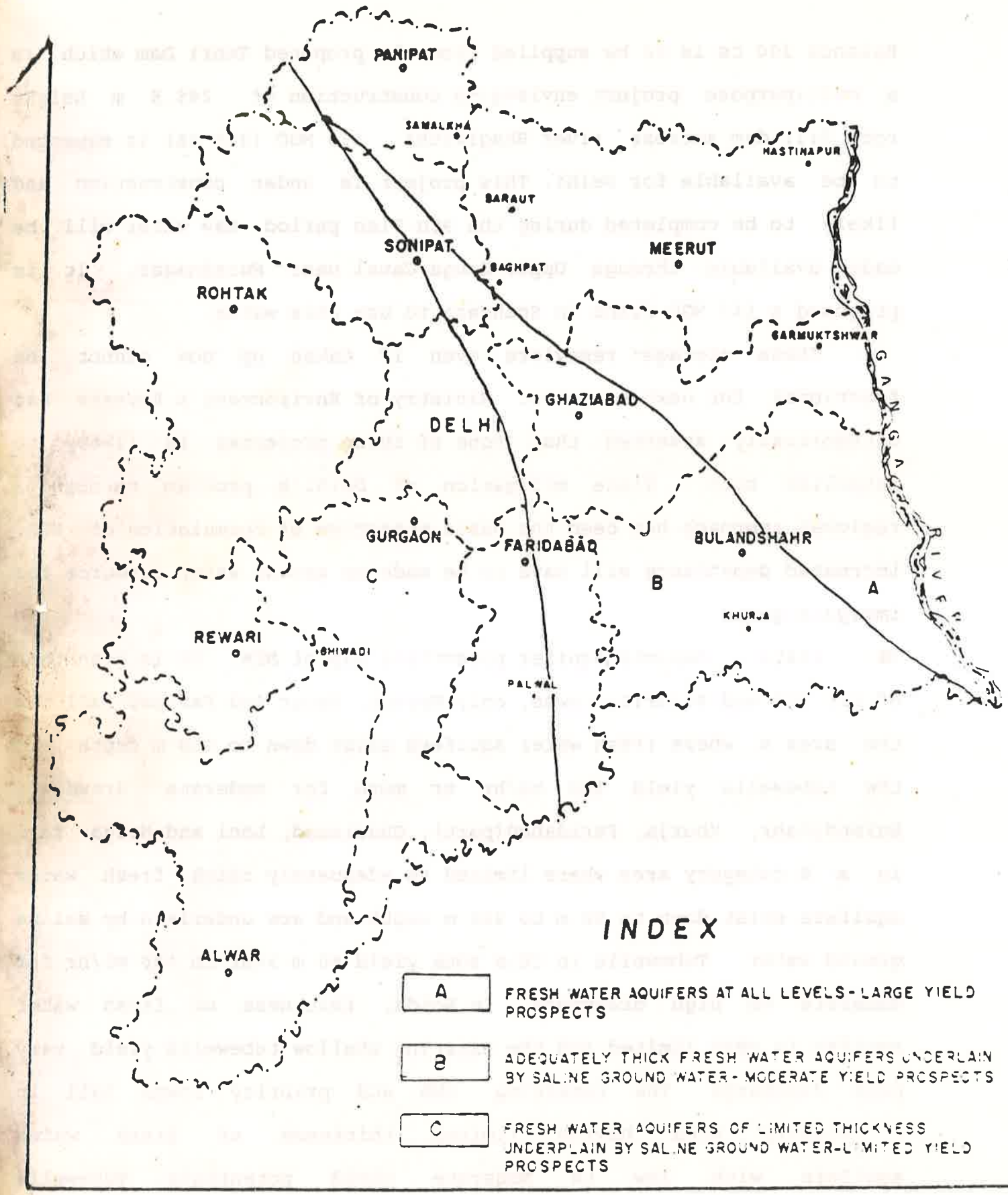
Uttar Pradesh has agreed to supply 500 cs of water from Ganga to Delhi. 200 cs are being supplied from Ramganga project for existing Bhagirithi plant.

Balance 300 cs is to be supplied from the proposed Tehri Dam which is a multipurpose project envisaging construction of 245.5 m height rock fill dam accross river Bhagirithi. 160 MGD (300 cs) is expected to be available for Delhi. This project is under construction and likely to be completed during the 9th Plan period. Raw water will be made available through Upper Ganga Canal near Muradnagar. It is proposed a 140 MGD Plant in Shahdara to use this water.

These storage reseviors even if taken up now cannot be functional for next 15 years. Ministry of Environment & Forests has categorically asserted that none of these projectes is likely to materlise soon. Since mitigation of Delhi's problem through a regional approach has been the basic objective of formulation of NCR, increased dependance will have to be made on ground water resource for immigate gains.

Plate - depicts aquifer potentials map of NCR. It is seen that of the DMA and Priority towns, only Meerut, Hapur and Panipat fall in the area A, where fresh water aquifers exist down to 450 m depth and the tubewells yield 150 m3/hr or more for moderate drawdowns Bulandshahr, Khurja, Faridabad(part), Ghaziabad, Loni and Noida fall in a B category area where limited to adequately thick fresh water aquifers exist down to 50 m to 300 m depth and are underlain by saline ground water. Tubewells in this zone yield 50 m 3/hr to 100 m3/hr for moderate to high drawdowns. In Noida, thickness of fresh water aquifer is very limited and the existing shallow tubewells yield very poor discharge. The remaining DMA and priority towns fall in C category area having limited thickness of fresh water aquifers with low to moderate yield potentials. Tubewells

AQUIFER POTENTIALS IN NATIONAL CAPITAL REGION



in this area yield 50 m3/hr or less for moderate to high drawdowns. Tubewells located in hard rock areas have very poor yield potentials. Of all the DMA and Priority towns, only Panipat, Meerut, Hapur and Bulandshahr could have sustainable water supply system based on Ground Water. For all other towns, conjunctive use of surface and ground water could provide a reliable water supply system.

Possibility of getting surface water for developing MDA towns of Ghaziabad-Loni-Noida (THA) has been explored. River Yamuna and Hindan are close to these towns but do not hold sufficient quantity of water in dry weather besides being grossly polluted. The only source of surface water available in the near vicinty (about 20 kms.) is upper ganga canal. 200 cs is already being given to Delhi and another 200 cs is commited to be given in near future as per past agreement for its domestic requirements. 50 cs more can be linked with this proposal for development of THA.

Inter-area transfer of ground water is recommended to augment water supply system of NCT of Delhi and water deficient DMA/Priority towns of NCR. Development of deeper aquifers in A area and dewatering and refilling of the flood plains of Yamuna, Ganga and Hindon rivers could provide ground water in significant quantities for such inter-area transfer.

Drainage Systems:

Adequate network of storm water drainage arrangements exist in almost the entire area covered by NCR and local drainage of DMA, priority and other towns falling in NCR is generally linked to the existing network. This net work has been designed as per the technical criteria arrived at by the experts committees functioning in various regions after taking into consideration the design rainfall, its duration and frequency and the period in which it should be evacuated from the agricultural land as well as from urban dewellings. But the overall conditions of these drains is far from satisfactory as account of inadequate maintenance. Adequate funds need to see provided by the converned States in the respective region for regular maintenance particularly before monsoon so that the designed hydraulic capacity of the network could be maintained and drainage congestive experienced in and around the DMA and priority towns could be avoided.

Financing Strategies:

Execution of Long term as well as short term measures for creating of the proposed infrastructure are going to be gigantic proposals both in terms of size as well as in terms of investments. But since the works are to be executed over a period of years, annual investment may not be substantially higher than the present level of budget in the water supply sector and other poverty alleviation programmes. Moreover, because of low returns and long

(b) REQUIRMENT OF FUND BY 2005 FOR AGUMENTATION OF WATER SUPPLY IN DELHI NCT:

(i)	Cost of parrellel carriar channel (as per Project estimate submitted by Haryana Govt. to DWS + SDU	= 100.00 crores
(ii)	Cost of Tehri Dam chargeable to NCT of Delhi	= 715.00 crores
(iii)	Cost of Kishau Dam chargeable to NCT of Delhi	= 460.00 crores
(iv)	Cost of Renuka Dam chargeable to NCT of Delhi	= 808.00 crores
	Total	**=2083.00 crores**

Total for DMA + NCT of Delhi

Grand Total (a) + (b) **=2594.18 crores**

gestation periods, private commercial funding may not consider it attractive . Government has to be the major investor in such large national projects because the operation and management has to be governed by national consideration rather than commercial exploitation.

Based on these consideration the requirement of funds for development of infrastructure in DMA towns and NCT Delhi for the projected population figures upto the year 2005 has been worked out and summarisal below:-

(a) REQUIREMENT OF FUND BY 2005 FOR AGUMENTATION OF WATER SUPPLY IN DMA TOWNS.

S. No.	Name of Towns	Population 1991 - 2005		Rate of water supply LPCD		Quantity required in MLD		Agumentation of Water supply required	Cost of Agumentation of Water supply Per MLD LACS	Total LACS
		1991	2005	1991	2005	1991	2005			
1.	Ghaziabad & Loni	5.71	15.00	117	275	66.47	412.5	346.03	65.00	225.0
2.	NOIDA	1.46	6.64	225	315	37.58	209.1	171.52	65.00	114.14
3.	Faridabad	6.17	14.00	113	315	69.60	441.0	371.40	65.00	24.14
4.	Gurgaon	1.35	7.00	109	315	14.80	220.5	205.70	65.00	13.37
5.	Bahadur-garh	0.57	2.00	86.3	315	4.92	63.0	55.08	180.00	104.5
6.	Kundli	0.11	1.50	45.50	315	0.50	47.25	46.75	65.00	30.0
									Total	511.1

ANNEXURE 1

DRAINS OF U.P SUB-REGION

S.No.	Name of drain	Discharge (Cusecs)	Length (Km)	Districtwise Breakup of Length			Catchment Area (sq miles)
				Meerut	Ghaziabad	Bulandshahr	
1	2	3	4	5	6	7	8
1	CHHOIA	130.65	54.83	34.20	20.63	-	280.80
2	ITHLA	510.00	38.64	38.64	-	-	101.82
3	GAGSONA	400.00	14.50	14.50	-	-	36.50
4	FALAVADA	35.00	3.70	3.70	-	-	4.02
5	GADINA	40.00	2.40	2.40	-	-	4.00
6	KHERI MANIHAR	10.00	3.00	3.00	-	-	1.00
7	NILOHA	20.00	3.30	3.30	-	-	4.16
8	ANTI	12.00	2.10	1.30	-	-	2.50
9	AKBARPUR	6.00	3.00	3.00	-	-	1.20
10	KAULA	36.75	5.60	5.60	-	-	7.75
11	WEST MAWANA	10.00	3.20	3.20	-	-	2.00
12	EAST MAWANA	103.00	6.40	6.40	-	-	10.27
13	DHANSARI	130.65	17.70	-	-	-	64.00
14	BHAINSA	5.50	2.20	2.20	-	-	1.10
15	JHADINA	250.00	15.60	-	15.60	-	25.00
16	MAHALWALA	108.00	8.20	8.20	-	-	21.60
17	ATMADPUR	5.00	1.10	1.10	-	-	1.00
18	WALI	76.00	9.80	9.80	-	-	15.20
19	VAIT JAKHERA	1000.00	14.00	-	14.00	-	56.20
20	NIM NADI	800.00	94.00	-	14.20	79.80	160.00

contd...

1	2	3	4	5	6	7	8
21	RADHANA	100.00	26.76	17.16	9.60	-	20.00
22	VITHOUR	70.00	9.50	3.00	6.50	-	7.00
23	SHAHJAHANPUR	10.00	4.00	4.00	-	-	20.00
24	[illegible]	[illegible]	1.40	-	1.40	-	3.00
25	FULDEHAR	15.00	8.00	-	8.00		
26	DHANUPURA	13.00	4.00	-	4.00	-	2.70
27	RATUPAR	11.20	1.80		1.80		
28	PALWADA PASWADA	90.00	10.40	-	10.40	-	9.00
29	KACHRONT	7.50	1.80	-	-	1.80	[illegible]
30	MANKADI	20.00	3.20	-	-	3.20	4.00
31	KAMALPUR	22.75	1.40	-	-	1.40	4.55
32	BHADKAUN	10.00	0.80	-	-	0.80	2.00
33	MAHA AKHERA	20.00	1.80			1.80	4.00
34	KHANKHANI	15.00	3.40	-	-	3.40	[illegible]
35	VIROULI	20.00	2.40	-		2.40	[illegible]
36	JATPURA	10.00	2.40			2.40	[illegible]
37	SYANA	85.00	9.00	-	-	9.00	11.[illegible]
38	MAKDI KUT	-	0.80	-	-	0.80	-
39	VIGRAU CUT	799.50	1.00	-	-	1.00	-
40	AMINABAD	10.00	0.95	0.95	-	-	2.00
41	RAMPUR [illegible]	[illegible]	2.80	2.80	-	-	19.50
42	LADPUR	80.00	9.60	-	-		

S.No	Name of Drain	Total Length (K.M.)	District-Wise Break-up of Length			Catchment Area (Hectare)	Capacity At Out Fall Point	Out Fall Point
			Muzaffar Nagar	Meerut	Ghaziabad			
1	2	3	4	5	6	7	8	9
1	LEFT SEEPAGE DRAIN	4.00	4.00			259.00	0.14	UPPER GANGA CANAL
2	DHAKEDI SEEPAGE DRAIN	10.60	10.60			1787.00	0.98	UPPER GANGA CANAL
3	NAGIN NADI	22.40	16.00	6.40		29526.00	52.29	KALI NADI
4	KHANJUR PUR NALA	1.80	1.80			239.00	0.62	NAGUI NADI
5	LADPUR NALA	4.30	4.30			2077.00	1.16	NAGUI NADI
6	PUDHA NALA	2.00	2.00			388.00	0.21	LADPUR NALA
7	CHAND SAMAND NALA	12.80	6.40	6.40		4921.00	2.69	NAGUI NADI
8	KHATAULI NALA	11.20	7.60	3.60		2970.00	1.62	CHAND SAMAND
9	SATHEDI SEEPAGE NALA	2.20	2.20			1139.00	1.25	UPPER GANGA CANAL
10	SATHEDI NALA	3.00	1.40	1.60		613.00	0.46	SOLANA POND
11	SARDHANA ESCAPE NALA	4.50		4.50		2331.00	1.37	HINDON NADI
12	DAULAT PUR NALA	4.90		4.90		2132.00	1.19	SARDHANA ESCAPE
13	JWAL GARH NALA	2.80		2.80		1631.00	1.90	SARDHANA ESCAPE
14	JHITKARI NALA	4.00		4.00		1839.00	1.02	UPPER GANGA CANAL
15	KASHAVALI NALA	1.40		1.40		1036.00	0.56	JHIT KARI NALA
16	ABU NALA MILE -71	32.20		32.20		4636.00	82	KALI NADI
17	UTHANDEBUR NALA	3.00		3.00		2690.00	28	ABU NALA MILE - 71
18	KAILI NALA	13.70	11.10	2.60		1496.00	91	ABU NALA MILE -71
19	DUDHALI NALA	4.20	2.80	1.40		1737.00	8	UPPER GANGA CANAL

contd....

1	2	3	4	5	6	7	8	9
							6.31	HINDON NADI
20	SARDHANA NALA	19.20		19.20		11526.00	0.96	SARDANA NALA
21	PATHOLI NALA	3.00		3.00		1761.00	2.25	SARDANA NALA
22	CHHABDIA NALA	6.70		6.70		2292.00	1.13	CHHABDIA NALA
23	MAHADEV NALA	1.80		1.80		2071.00	8.02	KALI NADI
24	ABU NALA MILE -73	24.40		24.40		14634.00	0.42	ABU NALA MILE - 73
25	PHAZIL PUR NALA	2.40		2.40		777.00	2.48	ABU NALA MILE -73
26	BAHADURPUR NALA	8.80		8.80		4533.00	0.28	PAHOLI NALA
27	DABTHUA NALA	2.40		2.40		518.00	0.07	DABTHUA NALA
28	DABTHUA CUT	0.60		0.60		130.00	0.70	BAHADURPUR NALA
29	PAHOLI NALA	1.20		1.20		894.00	3.31	KALI NADI
30	KHEROLI NALA	38.40		22.80	15.60	7032.00	0.65	KHAROLI NALA
31	NIZAMPUR NALA	6.00			6.00	596.00	1.19	KHAROLI NALA
32	KASTALA KASMABAD NALA	4.90			4.90	414.00	0.71	KHAROLI NALA
33	TALHETA NALA	2.80			2.80	648.00	0.14	KHAROLI NALA
34	KASHI CUT	1.40		1.40		259.00	0.51	KHAROLI NALA
35	GAGOL CUT	4.80		4.80		466.00	0.90	KHAROLI NALA
36	PATHANPURA NALA	4.20		4.20		1651.00	2.41	KHAROLI NALA
37	JHANJHOKAR NALA	14.30		14.30		2201.00	56.94	KALI NADI
38	KADRABAD NALA	54.40		9.40	45.00	52110.00	0.28	KADRABAD NALA
39	KADRABAD CUT	2.80			2.80	259.00	0.08	KADRABAD NALA
40	NAHALI CUT	1.90			1.90	155.00		

contd....

42	SIKRI KHURD NALA	8.80	.	.	8.80	2072.00	1.16	KADRABAD NALA
43	TIBRA NALA	1.50	.	.	1.50	259.00	0.14	SIKRI KHURD NALA
44	KHANJAR PUR NALA	2.40	.	.	2.40	240.00	0.26	SIKRI KHURD NALA
45	SHEKHUPURI NALA	24.60	.	16.60	8.00	8754.00	8.90	KADRABAD NALA
46	FAJALGARH NALA	2.40	.	.	2.40	155.00	0.16	SHEKHUPURI NALA
47	RORI CUT	1.80	.	.	1.80	233.00	0.25	SHEKHUPURI NALA
48	SAIDPUR HUSAIN PUR NALA	2.00	.	.	2.00	233.00	0.25	SHEKHUPURI NALA
49	ANJOLI CUT	2.00	.	2.00	.	155.00	0.08	SHEKHUPURI NALA
50	EASTERN KALAJARI NALA	1.50	.	1.50	0.00	155.00	0.08	SHEKHUPURI NALA
51	PUCHHA KHAS NALA	5.30	.	5.30	.	971.00	0.54	SHEKHUPURI NALA
52	JHALA NALA	2.60	.	2.60	.	389.00	0.21	SHEKHUPURI NALA
53	ARNAVALI NALA	1.80	.	1.80	.	296.00	0.16	PUCHH KHAS NALA
54	SIKRI KALA NALA	6.00	.	.	6.00	648.00	0.71	KADRABAD NALA
55	FAFRANA NALA	1.90	.	.	1.90	259.00	0.14	SIKRI KALA
56	NIVADI CUT	4.00	.	.	4.00	1425.00	1.56	KADRABAD NALA
57	DHIDHALA NALA	7.00	.	.	7.00	1554.00	0.85	KADRABAD NALA
58	GAVADI NALA	1.20	.	.	1.20	155.00	0.80	DHIDHALA NALA
59	MUJAKKI PUR NALA	2.00	.	2.00	.	259.00	0.14	KADRABAD NALA
60	JANI NALA	8.00	.	8.00	.	622.00	0.34	KADRABAD NALA
61	CHHAJARSI NALA	19.20	.	.	19.20	15799.00	18.40	HINDO NADI
62	SHYAMLI NALA	4.60	.	.	4.60	777.00	0.65	CHHARSI NALA
63	NURPUR NALA	20.80	.	4.80	16.00	1088.00	0.23	CHHARSI NALA

contd...

Annexure-6

52.

1	2	3	4	5	6	7	8	9
64	JALALBAD CUT	1.20	.	.	1.20	259.00	0.14	CHHARSI NALA
65	PAINGA NALA	0.40	.	.	0.40	52.00	0.06	CHHARSI NALA
66	SIWAL NALA	11.80	.	11.80	.	4403.00	4.81	HINDO NADI
67	SATVAI NALA	5.00	.	5.00	.	1425.00	0.78	SIWAL NALA
68	MADHI NALA	5.60	.	5.60	.	2590.00	1.42	SATWAI NALA
69	ROHATA NALA	3.20	.	3.20	.	1295.00	0.71	SATWAI NALA
70	SAUNDHA NALA	12.00	.	.	12.00	2979.00	3.26	HINDON NADI
71	DABANA NALA	1.10	.	.	1.10	200.00	0.11	SONDHA NALA
72	DABANA CUT	2.80	.	.	2.80	207.00	0.22	SONDHA NALA
73	UJHEDA NALA	2.80	.	.	2.80	2331.00	1.27	SONDHA NALA
74	PATLA	1.60	.	.	1.60	518.00	0.78	NANGLA NALA
75	NANGLA AKHU NALU	0.80	.	.	0.80	389.00	0.42	UJHEDA NALA
76	BHIKKANPUR NALA	14.40	.	.	14.40	4558.00	4.98	HINDON NADI
77	VKHLARSI NALA	0.60	.	.	0.60	130.00	0.14	BHIKKANPUR NALA
78	MURAD NAGAR CUT	2.40	.	.	2.40	414.00	0.15	BHIKKANPUR NALA
79	BASANT PUR SAINTHLI NALA	0.80	.	.	0.80	337.00	0.37	BHIKKANPUR NALA
80	KHURRAMPUR NALA	2.40	.	.	2.40	259.00	0.14	BHIKKANPUR NALA
81	MORTHA	8.10	.	.	8.10	1062.00	1.16	HINDON NADI
82	SADARPUR NALA	5.20	.	.	5.20	1295.00	1.42	DASNA NALA
83	SADARPUR CUT	1.40	.	.	1.40	1095.00	0.71	SADARPUR NALA
84	DUHAI NALA	2.00	.	.	2.00	388.00	0.54	SADARPUR NALA
85	KANANJA NALA	1.50	.	.	1.50	207.00	0.11	SADARPUR NALA

DRAINS AND EMBANKMENT OF DELHI SUB-REGION

LIST OF DRAINS UNDER CONTROL OF I & F DEPTT. NCT OF DELHI

S.No.	Name of Drain	Length in Km	Catchment Area Sq. Miles	Catchment Area Hectares	Discharge Cusecs	Discharge Cumecs
1. Alipur Block						
1	Bawana Escape	19.79	70.39	18231.00	681.00	19.29
2	Drain No.6	14.73	34.00	8807.00	462.00	13.08
3	Burari Greek	7.65	5.70	1476.00	74.00	2.10
4	Hamidpur Link Drain	7.56	3.36	1130.00	71.00	2.00
5	Old Burari Drain	5.79	-	-	-	-
6	Banker Link Drain	5.50	12.92	3348.00	118.00	3.34
7	New Drain	5.40	108.25	28038.00	180.00	5.10
8	Khera Khurd Drain	5.21	3.91	1013.00	71.00	2.00
9	Ghoga Link Drain	6.18	5.71	1480.00	58.00	1.64
10	Naya Bans Link Drain	3.87	3.20	829.00	0.91	0.03
11	Narela Link Drain	3.60	2.39	620.00	396.00	11.20
12	Sanoth Link Drain	3.60	4.10	1062.00	41.00	1.16
13	Alipur Link Drain	2.35	2.40	622.00	31.00	0.88
14	Burari pipe Drain	2.27	2.40	621.00	13.00	0.36
15	Tikri Khurd Link Drain	1.94	2.39	620.00	11.00	0.31
16	Alipur Pipe Drain	1.40	2.39	620.00	11.00	0.31
17	Narela Link Drain-1	1.00	0.86	224.00	113.00	3.20
18	Khera Kalan Drain (Link)	0.72	1.70	440.00	1.41	0.04
19	Wazirpur Drain	1.40	-	-	-	-

S.No.	Name of Drain	Length in ft	Length in Km	Catchment Area Sq. Miles	Catchment Area Hectares	Discharge Cusecs	Discharge Cumecs
2.	**Najafgarh Block**						
1	Palam Drain	8778	8.78	19.79	5125.60	3042.00	86.15
2	Palam Link Drain	1650	1.65	3.17	821.00	510.00	14.44
3	Palam Pond Drain	1735	1.74	0.42	108.80	26.00	0.74
4	Nawada Drain	2353	2.35	0.68	176.00	31.00	0.88
5	Nasirpur Link Drain	2900	2.90	4.01	1038.60	1020.00	28.88
6	Bijwasan Drain	4200	4.20	10.64	2755.80	170.00	4.81
7	Mahipalpur Drain	485	0.49	3.00	777.00	30.00	0.85
8	Baragola Drain	2010	2.01	22.23	5757.60	210.00	5.95
9	Bijwasan Pond Drain	380	0.38	1.00	259.00	10.00	0.28
10	Bhupania Chudania Drain in NCT. of Delhi	4821	4.82	14.30	370.37	14.30	0.40
11	Mundhela Drain (Revised)	12500	12.50	6.00	1554.00	60.00	1.70
12	Najafgarh Pound Drain	1950	1.95	0.20	51.80	60.00	1.70
13	Nangli Sakarwati Link Drain	2235	2.34	0.08	20.70	24.00	0.68
14	Jharoda Kalan Link Drain	1410	1.41	0.05	12.95	15.00	0.42
15	Dichaon Kalan Link Drain	480	0.48	0.05	12.95	13.00	0.37
16	Kharkhari Rondh Link Drain	1530	1.53	0.05	12.95	15.00	0.42
17	Jharoda Road Pond Drain	2940	2.94	0.42	108.80	15.00	0.42

No.	Name of Drain	Length in Km	Catchment Area Sq. Miles	Catchment Area Hectares	Discharge Cusecs	Discharge Cumecs
.	**Shahdara Block**					
	Trunk Drain No.I	13.30	25.70	6660.00	3037.00	86.00
2	Trunk Drain No. II	4.54	10.58	2740.00	1766.00	50.00
3	Shahdara Outfall Drain	5.943	23.55	6099.00	5562.00	157.50
4	Ghazipur Drain	6.241	26.03	6741.90	5143.00	145.65
5	Shahdara Link Drain	4.54	0.58	151.70	1159.00	32.83
6	Karawal Nagar Drain	2.48	0.05	12.50	498.00	14.10
7	Biharipur Drain	0.98	0.06	14.56	33.00	0.93
8	Bund Drain	2.71	0.66	170.44	74.00	2.10
9	Escape Drain No.I	3.00	0.39	100.00	35.00	1.00
10	Escape Drain No. II	0.425	0.03	9.06		

S.No.	Name of Drain	Length in ft	Length in Km	Catchment Area Sq. Miles	Catchment Area Hectares	Discharge Cusecs	Discharge Cumecs
4.	**Khanjawla Block**						
1	Mungesh Pur Drain	120900	37.69	182.00	47138.00	1820.00	51.54
2	Bazipur Drain	26400	8.23	8.50	2202.00	85.00	2.41
3	Bawana Drain	33000	10.29	10.00	2590.00	100.00	2.83
4	Daryapur Pond Drain (Pipe line)	640	0.64	1.00	259.00	10.00	0.28
5	Ladpur Link Drain	8300	2.59	2.00	518.00	20.00	0.57
6	Katewara Link Drain	5100	1.59	2.00	518.00	8.00	0.23
7	Jatkhor Link Drain	12900	4.02	1.75	453.00	17.50	0.50
8	Nagal Thakran Link Drain	8500	2.65	0.60	155.40	6.00	0.17
9	Nizampur Link Drain	4050	1.26	0.60	155.40	6.00	0.17
10	Chandpur Link Drain	8000	2.49	0.80	207.00	8.00	0.23
11	Bawana Jheel Link Drain	6500	2.03	0.60	155.40	6.00	0.17
12	East of Delhi Narela Road along DTD Drain	2050	2.05	0.02	518.00	10.00	0.28
13	Mungeshpur Drain (RD 1,20,900 to 1,29,700)	8800	2.74	0.06	1554.00	100.00	2.83
14	Nangloi Drain	31800	9.91	13.75	3561.00	111.00	3.14
15	Madanpur Drain	27000	8.42	19.00	4921.00	190.00	5.38
16	Karari Suleman Nagar Drain	31500	9.82	11.10	2875.00	110.00	3.11
17	Sultanpur Drain	29600	9.23	6.49	1657.60	60.00	1.70
18	Mohammadpur Mazari Link Drain	4920	1.53	0.46	119.00	10.00	0.28
19	Gheora Link Drain	1750	0.55	1.00	259.00	10.00	0.28
20	Rasulpur Link Drain	2500	0.78	0.50	129.50	5.00	0.14
21	Rani Khera Link Drain	3000	0.94	20.60	155.40	6.00	0.17
22	MubarakPur Dabas Link Drain	3000	0.94	1.20	311.00	12.00	0.34
23	Mundka Link Drain	11160	3.48	2.65	686.40	13.00	0.37
24	Ranhola Pond Drain	1080	1.08	1.00	259.00	10.00	0.28
25	Nangloi Pond Drain	1150	1.15	1.00	259.00	10.00	0.28

ANNEXURE-3

DRAINS OF HARYANA

S NO	NAME OF THE DRAIN	LENGTH (KM)	CATCHMENT AREA(SQ.KM)	DISCHARGE (CUSECS)	OUT FALL POINT
(1)	(2)	(3)	(4)	(5)	(6)
1.	**Drainage Circle Panipat**				
1	BINGER DRAIN	8.76	0.00	89.00	INDRI ESCAPE RD
2	PEHLADPUR DRAIN	4.57	0.00	33.00	INDRI ESCAPE RD
3	GAGSINA DRAIN	6.61	0.00	40.00	MAIN DRAIN NO.2 RD 13412
4	PURLAK DRAIN	14.02	10.00	129.00	MAIN DRAIN NO.2 RD 14000
5	MUNAK DRAIN	8.82	0.00	44.00	MAIN DRAIN NO.2 RD 33650
6	BEGUMPUR DRAIN	4 -	0.00	12.00	MAIN DRAIN NO.2 RD 42050
7	GARAUNDA GANDA NALLAH DR.	0.00	2.50	100.00	MAIN DRAIN NO.2 RD 9000
8	PUNDRI DRAIN	11.28	0.00	62.00	MAIN DRAIN NO.2 RD
9	PANIPAT LINK DRAIN NO.I	5.33	1.75	9.00	PANIPAT MAIN DRAIN RD 30400
10	PANIPAT LINK DRAIN NO.II	0.60	0.25	2.00	PANIPAT MAIN DRAIN RD 53000
11	PANIPAT LINK DRAIN NO.III	2.89	0.00	0.00	PANIPAT MAIN DRAIN RD 54800
12	PANIPAT LINK DRAIN NO IV	0 45	0.60	3.00	PANIPAT MAIN DRAIN RD 55000
13	PANIPAT LINK DRAIN NO V	1 00	16 00	50 00	PANIPAT MAIN DRAIN RD 50000
14	PANIPAT LINK DRAIN NO.VI	4 34	6 90	30.00	PANIPAT MAIN DRAIN RD 53700
15	PANIPAT LINK DRAIN NO.VII	0.00	2.50	10.00	PANIPAT MAIN DRAIN RD 58000
16	SHERA LINK DRAIN	1.83	2.50	10.00	TRY DRAIN NO.1 RD 50000
17	THIRANA LINK DRAIN	9.39	7.10	10.00	TRY.DRAIN NO.1 RD 27294
18	UNTLA DRAIN	10.21	0.00	4.37	TRY.DRAIN NO.1 RD 30500
19	VESSAR DRAIN	6.25	0.00	0.00	TRY.DRAIN NO.1 RD 19865
20	ITOALA IDYANA LINK DRAIN	4.42	5 40	39.00	TRY DRAIN NO.1 RD 11636
21	LOHARI DRAIN	2.97	2 16	10 00	TRY DRAIN NO.3 RD 165000R
22	JONDHAN KHURD DRAIN	5 92	7.78	47 00	TRY DRAIN NO 3 RD 120675L
23	ISRANA LINK DRAIN	2 97	4 00	20 00	TRY.DRAIN NO 3 RD 100200L
24	BIJAWANA UHRANA MUDLANA LINKS	44	5.50	38 00	TRY DRAIN NO 3 RD 57000L

contd.

Annexure 6
22

(1)	(2)	(3)	(4)	(5)	(6)
25	BRAHMAN MAIRA LINK DRAIN	8.35	3.50	20.00	TRY.DRAIN NO.3 RD 130900L
26	PARDHANA SOUTH DRAIN	1.52	3.00	22.50	TRY.DRAIN NO.3 RD 98800R
27	PARDHANA EAST DRAIN	0.80	1.50	11.25	TRY.DRAIN NO.3 RD 103860R
28	BAHADURPUR DRAIN	3.08	4.40	12.00	TRY.DRAIN NO.3 RD 148000
29	PUTHAR LINK DRAIN	8.70	5.00	47.00	TRY.DRAIN NO.4 RD 92800
30	NAZIRPUR TITANA LINK DRAIN	3.58	1.80	22.00	TRY.DRAIN NO.4 RD 130800
31	GOWALRA LINK DRAIN	2.50	2.25	25.00	TRY.DRAIN NO.4 RD 111680
32	OSHERA DRAIN	20.27	23.00	80.00	TRY.DRAIN NO.4 RD 141000
33	RER DRAIN	1.21	1.50	4.00	JOSHI DRAIN RD 16020
34	DHARAMGARH DRAIN	4.14	4.14	12.00	JOSHI DRAIN RD 29500
35	MOR MAIRA DRAIN	8.84	8.94	29.00	JOSHI DRAIN RD 65060
36	SESHRAULI DRAIN	4.72	3.25	30.00	NAHRA DRAIN RD 56100
37	HARTARI DRAIN	9.14	3.60	47.00	NAHRA DRAIN RD 61240
38	SHERGARH LINK DRAIN	6.62	--	0.00	KACHWA DRAIN RD 2980
39	HANORI SUB DRAIN NO.1	3.35	1.20	12.00	CHAPRIAN DRAIN RD 20137
40	HANORI SUB DRAIN NO.2	1.57	1.50	5.00	MURAD NAGAR DRAIN RD 5000
41	MURAD NAGAR DRAIN NO.2	1.01	0.03	5.00	MURAD NAGAR DRAIN NO.1 RD 3369
42	SHEKUPUR DRAIN NO.2	0.22	0.20	5.00	SHEKUPUR DRAIN NO 1 RD 5865
43	TAPRIAN LINK DRAIN	1.79	--	0.00	KHERA DARAIN RD 7169
44	MAINMATI LINK DRAIN	2.59	1.95	15.00	DINALPUR DRAIN RD 960
45	KHURD BAN DRAIN	2.50	10.00	179.00	DHANAURA ESCAPE
46	CHANDER DRAIN	2.79	1.20	5.00	RAMBA DRAIN RD 6000
47	SIRSI DRAIN	2.07	1.00	8.00	JUNDLA DRAIN STARTING POINT
48	SIRSI LINK DRAIN	2.28	2.50	10.00	SYPHON UNDER GAGSINA MINOR
49	CHUNI DRAIN	0.54	0.80	3.00	SAMRA DRAIN RD 152800
50	UCHANI LINK DRAIN	2.32	3.00	15.00	BHDHA KHERA DRAIN
51	GUDA DRAIN	2.23	7.00	14.00	BEGUMPUR DRAIN RD 9700
52	DODLANA DRAIN	0.90	--	0.00	

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(1)	(2)	(3)	(4)	(5)	(6)
53	INDRI DRAIN NO.2	50.45	129.00	206.00	MAIN DRAIN NO.2 RD 9400
54	MAIN DRAIN NO.2	59.32	0.00	632.50	RIVER YAMUNA NEAR V.KHEZKIPUR
55	PUNDRI DRAIN	23.17	55.00	275.00	MAIN DRAIN NO.2 RD 132000
56	HANAURI MAIN DRAIN	30.36	365.00	370.00	RIVER YAMUNA
2.	Drainage Circle, Faridabad				
1	LINK DRAIN NO.1	3.35	17.50	175.00	GAUNCHI MAIN DRAIN RD 220000
2	BIJUPUR LINK DRAIN	2.43	16.09	169.00	SEHRALA DRAIN RD 23805
3	DEOG LINK DRAIN	4.87	9.00	50.00	AGRA CANAL
4	SIKRI LINK DRAIN	2.66	8.00	47.00	GAUNCHI MAIN DRAIN RD 201500L
5	LADIAPUR LINK DRAIN	2.18	1.50	20.00	OUTFALL DRAIN RD 9000 R
6	GANGOLI LINK DRAIN	1.95	2.00	28.00	SEHRALA DRAIN RD 12150R
7	LADUALI LINK DRAIN	0.90	1.50	20.00	AGRA CANAL
8	SEHATPUR DRAIN	5.80	5.83	97.00	BURIYA NALLAH RD 40000 L
9	PIRTHALA LINK DRAIN	7.43	3.00	78.00	GAUNCH MAIN DRAIN RD 17410
10	HASSANPUR LINK DRAIN	4.11	8.69	44.00	GAUNCHI MAIN DRAIN RD 11000
11	DATHIR LINK DRAIN	4.11	4.17	21.00	GAUNCHI MAIN DRAIN RD 163250
12	JANAULI LINK DRAIN	10.15	8.73	94.00	GAUNCHI MAIN DRAIN RD 152100 L
13	KARNA LINK DRAIN	0.46	2.50	12.50	JANAULI DRAIN RD 11400 L
14	BAGOLA LINK DRAIN	1.65	1.00	17.60	JANUALI DRAIN RD 2615 L
15	AGWANPUR LINK DRAIN	2.44	2.00	24.00	JANUALI DRAIN RD 26700 L
16	GAILPUR LINK DRAIN	2.67	1.50	10.00	GAUNCHI MAIN DRAIN RD 149777 L
17	EXTENSION BADHA LINK DRAIN	6.40	11.00	55.00	GAUNCHI MAIN DRAIN RD 143425
18	PALWAL DRAIN	10.44	13.50	68.00	GAUNCHI MAIN DRAIN RD 143425
19	RATIAPUR LINK DRAIN	1.92	2.00	24.00	PAWAL DRAIN RD 11000 L

contd...

Annexure 6

(1)	(2)	(3)	(4)	(5)	(6)
20	PALWAL KITHWARI LINK DRAIN	6.86	3.00	25.00	PALWAL DRAIN RD24200 R
21	HATHIN LINK DRAIN	1.83	3.00	29.00	GAUNCHI MAIN DRAIN RD 114300R
22	RANIKA LINK DRAIN	7.32	21.26	77.00	GAUNCHI MAIN DRAIN RD 113875L
23	CHIRAWTA LINK DRAIN	5.49	6.00	20.00	RANIKE DRAIN RD 14000 R
24	TIKRI BRAHMAN LINK DRAIN	1.07	1.00	5.00	CHIRWATA DRAIN RD 6600 L
25	GEHLAB LINK DRAIN	0.99	4.00	80.00	GAUNCHI MAIN DRAIN RD 104750 L
26	KONDL LINK DRAIN	1.52	1.50	10.00	GAUNCHI MAIN DRAIN RD 101000R
27	MANPUR LINK DRAIN	2.21	6.00	41.00	GAUNCHI MAIN DRAIN RD 8750
28	MITROL LINK DRAIN	9.92	11.50	136.00	GAUNCHI MAIN DRAIN RD 83100 L
29	THUMSARA LINK DRAIN	1.65	1.00	40.00	MITROL DRAIN RD 11[illegible]5L
30	AURANGABAD LINK DRAIN	0.61	1.00	17.00	MITROL DRAIN RD 30161
31	KHATELA LINK DRAIN	19.81	1.00	40.00	GAUNCHI MAIN DRAIN RD 82100 L
32	SEOLI LINK DRAIN	1.52	1.50	10.00	GAUNCHI MAIN DRAIN RD 77400 R
33	GUDRANA LINK DRAIN	5.34	2.00	57.00	GAUNCHI MAIN DRAIN RD 76000 L
34	LOHINA LINK DRAIN	2.74	2.35	25.00	GAUNCHI MAIN DRAIN RD 64400 R
35	BANCHERI LINK DRAIN	1.37	7.00	106.00	GAUNCHI MAIN DRAIN RD 64000 L
36	SINE LINK DRAIN	7.47	8.30	48.00	GAUNCHI MAIN DRAIN RD 53653
37	MITROL LINK DRAIN	3.66	10.50	130.00	DIGHOT DRAIN RD 15500 R25R
38	BAMNIKHERA LINK DRAIN	5.24	5.40	93.00	MITROL LINK DRAIN RD 4625 R
39	ASOTA ATOHON LINK DRAIN	4.20	0.00	29.00	BAMNIKHERA LINK DRAIN RD 17225
40	MACHHIPUR LINK DRAIN	6.71	7.00	35.00	GAUNCHI MAIN DRAIN RD 3100L
41	KHIRAI LINK DRAIN	7.93	9.00	50.00	GAUNCHI MAIN DRAIN RD 27552 R

contd...

(1)	(2)	(3)	(4)	(5)	(6)
42	GAUROTA LINK DRAIN	0.91	1.50	10.00	KHIRBI LINK DRAIN RD 7750
43	MAROLI LINK DRAIN	4.12	7.00	35.00	GAUNCHI MAIN DRAIN RD 44200 L
44	BHANGURI LINK DRAIN	3.96	7.00	44.00	GAUNCHI MAIN DRAIN RD 122520
45	BADRAON LINK DRAIN	1.65	1.50	7.50	AGRA CANAL
46	MIRPUR KURALI LINK DRAIN	1.98	1.00	7.50	INAYATPUR LINK DRAIN RD 500
47	HATHANGAON LINK DRAIN	0.76	1.00	5.00	U.D.D.KM 27.18 R
48	SINGER LAFFORI LINK DRAIN	3.75	2.00	15.00	KHAIKA LINK DRAIN KM0.6 R
49	BIKTI LINK DRAIN	2.28	3.00	15.00	SOUTH POSAR LINK DRAIN RD 8500
50	BAHIN KOT LINK DRAIN	2.36	1.34	10.00	NEW KOT LINK DRAIN RD 16625 L
51	ALI BRAHMAN LINK DRAIN	0.49	2.00	15.00	NORTH POSAR LINK DRAIN RD 59070L
52	CUNNETTE IN BHARATPUR ESCAPE	1.85	2.00	15.00	NEW KOT LINK DRAIN RD 14300 L
53	BISRU MUBARKAPUR LINK DRAIN	5.79	8.90	67.00	NEW KOT LINK DRAIN RD 3869 L
54	MORYAKA LINK DRAIN	5.50	20.00	150.00	U.D.D.KM 25. 920 L
55	KHAIKE LINK DRAIN	4.85	9.00	67.50	SOND LINK DRAIN RD 37625 L
56	SOUTH POSSAR LINK DRAIN	3.05	4.00	30.00	U D D KM 30.40.R
57	NORTH POSSAR LINK DRAIN	17.07	20.28	152.00	U D D KM 30.458 L
58	SONDH LINK DR.RD 1650-3320	4.38	7.40	55.00	SOND DRAIN RD 27750
59	SONDH LINK DR.RD 33200-48000	4.51	8.25	62.00	SOND IN MARYAKA L/R RD 37625 R
60	SONDH LINK DR.RD 48000-53820	1.77	4.00	30.00	NORTH POSAR LINK DRAIN RD 18050L
61	INDANA LINK DRAIN	9.30	6 50	49.00	SOND LINK DRAIN RD 31500 L
62	BAHIN LINK DRAIN	0 46	3 00	52 00	KOT BAHIN DRAIN RD 20250 R
63	PUNHANA LINK DRAIN	1.76	2.18	16 00	NEW KOT DRAIN KM 2 889 L
64	GAUNCHI MAIN DRAIN RD 100-229	50.70	259 00	665.50	RIVER YAMUNA
65	SEHROLA L/DRAIN RD 23805 FT.	7.25	59.00	589.00	GAUNCHI MAIN DRAIN RD 195520 R

contd....

(1)	(2)	(3)	(4)	(5)	(6)
66	ALI LINK DRAIN	0.70	--	250.00	RIVER YAMUNA
67	BURIYA NALLAH	15.24	11.00	217.00	RIVER YAMUNA
68	FARIDABAD DRAIN	4.23	0.00	165.70	BURIYA NALLAH RD 32000 R
69	UJINA DIVERSION DRAIN	39.04	125.00	280.00	GAUNCHI MAIN DRAIN RD 15160 R
70	OUTFALL DRAIN FOR DRG.XING	4.90	90.00	180.00	GAUNCHI MAIN DRAIN R D 202300R
71	KOT BAHIN LINK DRAIN	9.97	25.00	200.00	GAUNCHI MAIN DRAIN RD 76600R
72	SONDH LINK DRAIN	16.40	30.50	252.65	GAUCHI MAIN DRAIN RD 62000R
73	PINGORA LINK DRAIN	9.15	33.70	232.00	GAUNCHI MAIN DRAIN RD 27754 L
74	DEEGHOT LINK DRAIN	7.32	20.60	182.00	PINGORE LINK DRAIN RD 30000
75	KOT BAHIN LINK DRAIN	9.97	25.00	200.00	GAUNCHI MAIN DRAIN RD 76000 R
76	SAMKA LINK DRAIN	5.62	40.00	300.00	U D DRAIN KM 18.495 L
77	NEW KOT DRAIN	19.30	40.00	300.00	U.D.DRAIN KM 32.70 L
3.	Drainage Circle, Gurgoan				
1	KHAWARALI KALAN LINK DRAIN	1.83	1.88	10.00	UJINA DRAIN RD 74200
2	HINGANPUR LINK DRAIN	4.50	7.50	46.00	UJINA DRAIN RD 49400
3	TER LINK DRAIN	4.73	101.00	106.00	UJINA DRAIN RD 40190
4	BADLI LINK DRAIN	2.67	113.30	55.00	UJINA DRAIN RD 28800
5	NEAM KHERA LINK DRAIN	0.91	3.30	30.00	UJINA DR.644 OF OUTFALL RD 3085
6	SATYAKA LINK DRAIN	0.91	0.00	65.00	G.C.4197 OF OUTFALL RD 63015
7	KALYAKA LINK DRAIN	1.07	0.00	89.00	G.C.RD 63015
8	RITHAT LINK DRAIN	5.18	186.60	71.00	UDD RD 105100 SYPH. RD 146200 GC
9	INDRI LINK DRAIN	2.70	16.60	136.00	INDRI DISTY. RD 22625 SYPH SYPHO
10	RIBBER LINK DRAIN	2.21	1.50	7.50	OUTFALL RD 31150 SYPH. RD 122000GC
11	ALUKA LINK DRAIN	7.71	8.00	40.00	OUTFALL RD 5750 SYPH. RD 146200 GC

contd....

(1)	(2)	(3)	(4)	(5)	(6)
38	TIKLI LINED DRAIN	1.07	1.00	0.00	BADSHAHPUR NALLAH
39	TIKLI LINK DRAIN	0.38	0.00	0.00	BADSHAHPUR LEFT DRAIN
40	RAISINA DRAIN	2.13	0.00	1.84	IN FIELDS AFTER CROSSING DLI ALW
41	GAGIOKE LINK DRAIN	0.60	0.00	0.00	IN FIELDS D/S OF CULVERT MOHAM-T
42	OLD UJINA DRAIN	6.93	0.00	800.00	KHULKA REGULATOR
43	UJINA DRAIN	28.35	0.00	220.00	KHULKA REGULATOR
44	KOTLA DRAIN	9.75	0.00	600.00	UJINA DRAIN RD 116000
45	NUH DRAIN	31.75	179.00	136.20	UJINA DRAIN RD 116000
46	LANDOHA NALLAH	8.22	107.00	28.57	KOTLA BUND DRAIN KM 4.00
47	CHANDENI DRAIN	16.21	56.30	422.25	UJINA DRAIN RD 114000
48	KHERLI KANKAR LINK DRAIN	8.54	33.25	235.00	NUH DRAIN RD 36430
49	OUTFALL CH.OF DRG.XING 146200	5.71	54.00	260.00	NUH DRAIN RD 7500
50	NATHAOUR DRAIN	1.70	5.83	5.66	NAIAFGARH DRAIN THROUGH NATURAL

S.NO.	NAME OF THE DRAIN	CATCHMENT AREA(SQ.KM)	DISCHARGE (CUSECS)	OUT FALL POINT
(1)	(2)	(3)	(4)	(5)
4.	**Drainage Circle Rohtak**			
	A. Rohtak Drainage Division, Rohtak			
1	DRAIN NO 8 RD 50-213	50.000	1600	CONTINUED IN JHAJJAR DRG. DN
2	MAKRAULI LINK DRAIN RD 0-30000	9.146	58	JANSIA DRAIN RD 13250/LEFT
3	DHAMAR SUB L/DRAIN RD 0-4674	1.425	4	DHAMAR L/DRAIN RD 2500/LEFT
4	DHAMAR LINK DRAIN RD 0-11500	3.050	25	MAKRAULI DRAIN RD 30000 TAIL
5	DHAMAR P.H.L DRAIN RD 0.1500	0.457	5	JLN FDR RD 111150/RIGHT
6	LADHAUT L/DRAIN RD 0-10500	3.020	25	MAKRAULI DRAIN RD 19250/LEFT
7	RITHAL L/DRAIN RD 0-12400	3.078	55	DIVERSION DRAIN NO 8182566/R
8	RITHAL L/DRAIN 0-4200	1.290	70	BHALAUT SUB BR. RD 93500/L
9	DITCH DR/LEFT BSB RD 103830-124000	6.150	15	BHALAUT SUB BR.LEFT (LIFT)

contd....

(1)	(2)	(3)	(4)	(5)
10	DITCH DR./RIGHT ALONG JLN FDR.A RD 103-124	6.400	15	JLN FDR. RIGHT (BY LIFT)
11	DITCH DR./LEFT ALONG BSB RD 90000-93500	1.067	10	BHALAUT SUB BR LEFT (BY LIFT)
12	DITCH DR./RIGHT ALONG BS RD 93500-950	4.57	5	JLNFDR RIGHT (BYLIFT)
13	PUMP HOUSE L/DRAIN RD 0-1700	0.518	5	B.SR/LEFT RD 107150(BY LIFT)
14	MAIDNA P.H.L/DRAIN RD 0-8200	2.50	10	BHIWANI SUB BR. RD 85312/LEFT
15	BASANTPUR L/DRAIN RD 0-5084	1.55	4	JASSIA DRAIN RD 28700/LEFT
16	CHIRI P.H.L/DRAIN RD 0-4590	1.40	10	KAHNAUR DISTY RD 43120/LEFT
17	SMARGOPALPUR L/DRAIN RD 0-24500	7.47	97.50	DRAIN NO 8 RD 110000/RIGHT
18	KHARAINTI P.H.L/DRAIN RD 0-4664	1.42	4	BHIWANI SUB BR. RD 60150/LEFT
19	BHAMANWAS L/DRAIN RD 0-2460	0.75	11	JASSIA DRAIN RD 28900/RIGHT
20	KAHNI P.H.L/DRAIN RD 0-9850	3.00	102	DO-RD 44680/LEFT
21	JASSIA DR.RD 0-72250	22.02	226	DRAIN NO 8 RD 99000/LEFT
22	NANDAL P.H.L/DRAIN RD 0-10400	3.17	9	BHIWANI SUB BR. RD 32115
23	KHIDWLI L/DRAIN RD 0-21300	6.49	47	DRAIN NO 8 RD 73460/RIGHT
24	MOKHRA P.H. L. DRAIN RD 0-4000	1.22	5	KALANAYR DR RD 16125/LEFT
25	CHAMARIAN P.H.L DRAIN RD 2690	0.82	5	ROHTAK DISTY. RD 108000/LEFT
26	CHIRI SUB L/DRAIN RD 0-9300	2.84	10	CHIRI P.H.L/DR. RD 3025/LEFT
27	RITAULI P.H.L/DRAIN 0-4500	1.37	11.25	JLNFDR RD 202660/RIGHT
28	KAHNI SUBL/DRAIN RD 0-10500	3.20	10	KAHNI L/DR.RD 10535/LEFT.
29	KANEHLI L/DRAIN RD 0-22400	6.83	108	DRAIN NO.8 RD 138208/LLEFT.
30	BOHAR DRAIN RD 0-12250	3.73	82	JLN FDR.RD 148950/RIGHT.
31	TILYAR L/DRAIN RD 0-2850	0.868	2.5	B.S.B.RD 151000/LEFT.
32	BAHUAKBARPUR L/DRAIN RD 0-13500	4.12	40	KAHNAUR DISTY. RD 113800/ RIGHT
33	CHANG L/DRAIN RD 0-7250	2.21	5	CHANG MR. RD 9750/RIGHT
	B. Bahadur Garh Drainage Division, Rohtak			
1	K.C.B.DRAIN RD 0-139000.	42.37	1332	LINK WITH C.B.OUTFALL DRAIN
2	C.B.OUTFALL DRAIN RD 9000-20600.	3.54	1430	MANGESHPUR DRAIN RD 30500/ LEFT.

(1)	(2)	(3)	(4)	(5)
3	WEST JUA DRAIN RD O-103000.	31.14	1080	-DO- RD 43500/LEFT.
4	WEST JUA DIVERSION DRAI RD O-19250.	5.87	580	-DO-RD 47300/LEFT.
5	MANGESHPUR DRAIN RD 34500-52500	5.49	2680	NAJAFGARH DRAIN RD 34500
6	PAKASAMA DRAIN RD O-77500.	23.60	609	WEST JUA DR. RD 38400/LEFT.
7	MATTAN LINK DRAIN RD O-45295.	13.80	120	K.C.B DRAIN RD 57000/LEFT.
8	KASAR L/DRIN RD O-18000.	5.49	77	-DO-KM.2.47.
9	SANKHAUL L/DRAIN RD O-1800	2.56	100	WEST JUA DRAIN RD 12300
10	MANDOTHI L/DRAIN RD O-8173.	2.40	100.50	K C B DRAIN RD 22000/LEFT.
11	SARAI AURANGABAD L/DRAIN RD O-22460-37560	4.60	73	KASSAR L/DRAIN
12	SARAHI L/DRAIN RD O-4790.	1.46	26	WEST JUA DIVERSION RD 16600/
13	KULASI LINK DRAIN RD O-27500.	8.38	144	-DO- RD 5500/LEFT.
14	KHARKHODA L/DRAIN RD O-32689.	9.97	--	WST JUA DRAIN RD 54875/ LEFT.
15	JASSAUR KHERI L/DRAIN RD O-3500.	1.06	7.50	-DO- RD 42250.
16	BAHADURGARH L/DRAIN RD O-1500.	4.57	25	MANGASHPUR DRAIN RD 38000/ LEFT.
17	ROHAD L/DRAOM RD O-4500.	1.37	5	BAHADURGARH DR.RD 8100.
18	SAMPLA L/DRAIN RD O-3750.	1.14	50	BAHADURGARH DISTY.RD 55461/ LEFT.
19	DITCH DR. O-20000 ALONG R/SIDE OF DULHER DISTY. RD 46500-66500.	6.10	18	-DO- RD 8961 P.HOUSE
20	-DO- L/SIDE -DO-RD O-20000.	6.10	18	-DO-
21	BALLANA L/DRAIN RD O-5300	1.615	13	-DO-
22	ATAIL L/DRAIN RD O-7600.	2.32	11.25	PAKASMA DRAIN RD 56750/RIGHT.
23	BHAKLAT K/DRAIN RD O-10000.	3.05	48	-DO-RD 70500.
24	GANDHRA DRAIN RD O-51500.	15.70	201	-DO-RD 35400/RIGHT.
25	AGAN L/DRAIN RD O-2400.	0.73	58	-DO-RD 58000/LEFT.
26	KHERI SADH L/DR.RD O-4000.	1.34	22.5	GANDHRA DRAIN RD 42718
27	HUMAYUNPUR L/DR. RD O-3700.	1.13	12	WEST JUA DR.RD 88700.
28	HASSANGARH L/DR.RD O-4300.	1.31	10.50	-DO- RD 64400.
29	NEW HASSANGARH L/DR.RD O-7600	2.32	11	-DO- RD 61800.RIGHT

contd...

(1)	(2)	(3)	(4)	(5)	(6)
12	PIROLI LINK DRAIN	3.66	5.50	39.00	NUH DRAIN RD 96800
13	REWASON LINK DRAIN	3.93	13.60	90.00	INDRI DRAIN RD 5650
14	PONDRY LINK DRAIN	2.67	2.00	10.00	ALDUKA KURTHLA L/DRAIN RD 6250
15	RANIKE SENGHAL LINK DRAIN	3.05	8.84	79.00	OUTFALL RD 5450 SY.RD 10575 NUH S
16	ALDUKA KURTHLA LINK DRAIN	3.81	8.84	50.00	OUTFALL CH.RD 10575SYPH. RD 12000GC
17	KOTLA LEADING CHANNEL	3.05	0.00	128.00	KOTLA PUMPHOUSE RD 32000
18	CHANDENI CUT	3.05	12.50	94.00	CHANDENI DRAIN RD 49680
19	TOLNI LINK DRAIN	1.11	2.00	23.50	RANIKA SANGHOL LINK DRAIN RD 2700
20	OUTFALL CHAN.SYPH.RD 122000 GC	9.83	17.27	105.00	OUTFALL CH.RD 13900SYPH. RD 146200
21	OUTFALL CHAN.SYPH.RD 90000 GC	5.79	6.76	104.00	NUH DRAIN RD 66500
22	OUTFALL CHAN.SYPH RD 63015 GC	1.41	0.00	154.00	NUH DRAIN RD 105145
23	OUTFALL CHAN.SYPH RD 165135 GC	0.94	15.35	92.00	VIINA DRAIN RD 96200
24	OUTFALL CHAN.SYPH.RD 178400 GC	2.38	9.40	51.00	VIINA DRAIN RD 81000
25	OUTFALL CHAN.SYPH.RD 105200 GC	4.11	7.51	46.00	NUH DRAIN RD 4580
26	OUTFALL CHAN.RD 6800 NUH S BR.	2.59	0.00	99.00	NUH DRAIN RD 83300
27	OUTFALL CHAN.SYPH.RD 146200 GC	2.90	30.00	156.00	DEPRESSION OF V KHERLI BRAHMAN
28	OUTFALL CHAN.SYPH.RD 90000 GC	1.89	4.90	89.00	DEPRESSION OF V HAJIPUR
29	APP.CHAN.SYPH.RD 165135 GC	3.89	14.35	90.00	SYPH.RD 165135 OF GC
30	RAOLI LINK DRAIN	3.66	8.70	3.34	LANDOHA NALLAH
31	KAMDA LINK DRAIN	4.36	2.00	3.40	LANDOHA NALLAH
32	FIROZEPUR JHIRKA LINK DRAIN	1.81	16.00	2.27	KAMADA DRAIN NO.8
33	PINAGWAR LINK DRAIN	0.30	0.00	0.85	NATURAL COURSE OUTFALL IN TERLINK
34	SULTANPUR LINK DRAIN	8.91	21.00	2.97	DEPRESSION NEAR DRAIN NO.8
35	MOHAMADPUR DRAIN	0.46	0.00	1.42	KHANDSA NALLAH
36	BADSHAHPUR LEFT DRAIN	1.22	0.00	0.93	BADSHAHPUR NALLAH
37	BADSHAHPUR RIGHT DRAIN	1.18	0.00	0.48	BADSHAHPUR NALL

contd....

(1)	(2)	(3)	(4)	(5)
25	BISHAN L/DRAIN.	2.300	20.00	JNL FEEDER. RD 223/RIGHT.
26	DHANDLAN L/DR.NO.1	0.700	15.00	JLN FDR.RD203/LEFT.
27	DHANDLAN L/DR.NO.2	0.375	7.50	-DO- RD 204/LEFT.
28	DUJANA LINK DRAIN.	1.250	7.50	RAMPUR DR. RD 6700.
29	BIRDHANA LINK DRAIN.	1.550	10.00	SIKANDERPUR DR. RD 7100.
30	KHUNGAI LINK DRAIN.	0.930	4.00	DULSHERA DISTY.
31	RATTANTHAL L/DR.NO.1	0.480	5.00	S.L.C. AT RD 52256/RIGHT.
32	-DO- NO.2.	0.780	8.00	-DO-
33	JONDHI LINK DRAIN.	2.620	5.00	JHAJJAR LINK DRAIN.
34	JHAJJAR L/DR.(JHAJJAR TOWN ROAD)	5.667	100.00	JHAJJAR O/FALL/L DR.RD O.
	D. Sonipat Drainage Division, Rohtak.			
1	DRAIN NO.6.	45.43	871	D.D.NO 8 RD 53500.
2	EAST JUA DRAIN.	27.27	257	DRAIN NO.6 RD 11000.
3	WEST JUA DRAIN.	14.32	226	D.D.NO.8 RD 150048.
4	TEORI DRAIN.	11.89	110	WEST JUA DRAIN RD 164000.
5	SITAWALI LINK DRAIN.	2.44	11	MAHRA DRAIN RD 26600.
6	BOHLA DRAIN.	6.67	72	WEST JUA DRAIN RD 155650.
7	MAHRA DRAIN.	20.42	95	DRAIN NO.6 RD 53100.
8	MACHHRI DRAIN.	1.65	--	
9	PANCHI JATAN DRAIN.	2.06	22.5	DRAIN NO.6 RD 73300
10	ROLAD LATIFPUR DRAIN.	5.30	66	DUBETTA DRAIN RD 52825/LEFT.
11	SANDAL KALAN DRAIN.	2.39	9.37	DRAIN NO.6 RD 63400.
12	LARSOLI LINK DRAIN.	1.31	192	-DO- RD 47100.
13	MEHMOODPUR MAJRA DRAIN.	3.65	10	TEORI DRAIN RD 22500.
14	KARIWARI LINK DRAIN	1.43	--	
15	DIVERSION DRAIN NO.8	70.15	177	RIVER YAMUNA.
16	KHANDA DRAIN	10.97	219	D.D.NO.8.RD.11000.
17	BHATGAON DOGRAN LINK DRAIN.	1.75	10	KHENDA DRAIN RD 59000.
18	PIPLI LINK DRAIN.	3.85	75	THANA KALAN DRAIN RD
19	JHANJHOLI LINK DRAIN.	3.05	25	MANGESHPUR DRAIN RD 88700.

contd....

(1)	(2)	(3)	(4)	(5)
30	HASSANGARH L/DR.RD 0-2300.	0.70	6	HASSANGARH L/DR.RD 984.
31	NAYA BANS P.H.L/DR.RD O-1500.	0.46	5	PAKASMA DR.RD 32800/RIGHT.
32	KILOI L/DRAIN ORD O-36080.	11.00	90	AGAN L/DR.RAD 16385.
33	KHANDA L/DRAIN RD O-22000.	16.70	48	WEST JUA DR.RD 70820.
34	ROHNA L/DRAIN RD O-7750.	2.36	--	-DO-
	C. Jhajjar Drainage Division, Jhajjar			
1	DRAIN NO.8 KM 64.920-83.820.	18.90	1600	BHINDAAS LINK DRAIN.
2	BHINDAWAS L/DR.KM O-6.081.	6.081	1600	O/FALL DRAIN NO.8.
3	O/FALL DR.NO.8KM O-42.590.	42.590	4000	DHANSA O/FALL CHANNEL.
4	BHINDAWAS LAKE.	10.296	--	--
5	JLN ESCAPE CHANNEL	5.860	3015	BHINDAWAS LAKE RD 311000/ LEFT.
6	PELPA LINK DRAIN.	9.510	92	O/FALL DR.NO.8 KM 35.052/L
7	JAHANGIRPUR LINK DRAIN.	0.810	10	-DO- KM 18.806/LEFT
8	HASSANPUR L/DR.	1.200	10	DO- KM 8.685/LEFT.
9	AURANAPUR L/DR.	6.249	62	-DO-KM 17.526/RIGHT.
10	PATASNI L/DR.	2.895	--	AURANGPUR L/DR.
11	ACHHEJ L/DR.	2.743	24	DRAIN NO. 8KM 75.926/RIGHT
12	JHAJJAR O/FALL DR L/DR.	5.974	100	O/FALL DR.NO.8..KM 18.288/L
13	NEW JHAJJAR LINK DRAIN.	1.341	15	JHAJJAR LINK DRAIN.
14	TALAO L/DRAIN ALONG ROAD.	1.051	8.12	JHAJJAR LINK DRAIN
15	GUDHA ROAD LINK DRAIN.	0.630	9.89	-DO-
16	DHAUR LINK DRAIN.	5.700	18.75	-DO-
17	TALAO L/DRAIN	6.100	28.25	O/FALL DR. NO.8 KM 12.293/L
18	RANKHANDA LINK DRAIN	1.700	5.00	TALAO LINK DRAIN.
19	MUNDHERA LINK DRAIN.	1.600	19.00	J.L.N ESCAPE
20	MATTANHAUK L/DR ALONG ROAD	1.650	5.00	J.S.B.
21	WAZIRPUR LINK DRAIN	2.520	20.00	DR.NO 8 KM 70.500/LEFT.
22	MATTANHAIL L/DR.ALONG JSB O-5000.	2.275	6.00	J.S.B WITH P.HOUSE.
23	DUBALDHAN LINK DRAIN	1.850	6.50	DR.NO.8 KM68.230/RIGHT
24	BAGHPUR LINK DRAIN	2.050	15.00	-DO- KM 68.140/LEFT.

contd.

		(3)	(4)	(5)
20	ROHTAK LINK DRAIN.	2.33	--	CAST JUA DRAIN RD 69000.
21	THANA KALAN L/DRAIN.	13.11	84	MANGESHPR DRAIN RD 110000.
22	NAKLOI LINK DRAIN.	2.29	12	KHANDA DRAIN RD 45000.
23	JHAROT LINK DRAIN.	2.42	12	D.D.NO.8. RD 101000.
24	SISANA MATINDU LINK DRAIN.	4.80	30	WEST JUA DRAIN RD 78400
25	JAJJI LINK DRAIN.	1.14	32	-DO- RD 152000/L
26	GARHI BALAL LINK DRAIN.	1.17	7.5	ESCAPE CHANNEL RD 300 D/S
27	FARMANA LINK DRAIN.	3.35	--	
28	MANGESHPUR DRAIN.	8.84	100.0	
29	FATEHPURI DRAIN.	5.96	14.0	D.D.NO 8 RD 72000.
30	HALALPUR L/DRAIN.	3.05	21.0	MANGESHPUR DRAIN RD 91000
31	NAHRA LINK DRAIN ;NO.1.	2.14	20.0	D.D.NO 8 RD 72000.
32	NAHRA LINK DRAIN .NO.2.	2.13	22.0	-DO-
33	KAWALI LINK DRAIN.	2.06	7.5	-DO- RD 82000.
34	SILANA LINK DRAIN.	2.97	45.0	-DO- RD 149500.
35	NARAINA DRAIN	11.89	122.0	DRAIN NO.6 RD 113450.
36	SHEKHUPURA DRAIN.	13.18	119.2	-DO- RD 81800.
37	PURKHAS DRAIN.	3.56	37.5	SHEKHUPURA DRAIN RD 9700.
38	PURKHAS RATI L/DRAIN.	1.17	7.5	PURKHAS RATHEE DRAIN RD 4000.
39	AHULANA LINK DRAIN.	1.95	9.0	
40	BULANDPUR LINK DRAIN	1.52		
41	NAI NALLAH DRAIN.	30.48	2241.0	DRAIN NO.8 RD 0.
42	DRAIN NO.8	15.24	2423.0	DRAIN NO.8.
43	TRY.DRAIN NO 3.	30.48	386.0	N.N.DRAIN RD 7000.
44	TRY.DRAIN NO.4.	29.88	147.0	DRAIN NO.8 RD47903
45	ISHAPUR KHERI DRAIN.	22.25	602.0	DRAIN NO.8 RD 29425/R.
46	CHHAPRA DRAIN.	19.26	519.0	DRAIN NO.8.RD 49200/R
47	RINDHANA DRAIN	3.84	112.0	DHANANA L/DR RD 8100/L.
48	DHANANA DRAIN.	4.11	125.0	CHHAPRA DRAIN RD 29143/R.
49	BHAMBEWA DRAIN	21.49	112.0	RINDHANA DRAIN RD 12610

contd....

(1)	(2)	(3)	(4)	(5)
50	RITHAL P.H.L/DRAIN.	1.28	70.0	
51	RITHAL LINK DRAIN.	3.78	55.0	D.D.NO.8.RD 181150.
52	SARDHANA DRAIN.	4.94	37.0	TRY.DRAIN NO.4 RD 91200.
53	WAZIRPUR LINK DRAIN.	5.48	52.0	ISHAPUR KHERI DR. RD 3700.
54	SINK BHADPUR DRAIN.	12.29	85.0	NAI NALLAH DRAIN.
55	BAJAWA CHIDANA MUDLANA DRAIN.	8.84	449.0	TRY.DRAIN NO.3 RD 57000
56	WAZIRPUR KHANDRAI DRAIN.	11.02	75.0	ISHAPUR KHERI DRAIN.
57	RANA KHERI L/DRAIN.	3.66	24.0	BHAMBEWA DRAIN RD 71500.
58	BICHPARI BUTANA L/DRAIN.	5.48	81.0	ISHAPUR KHERI DRAIN RD 41800
59	BHAINSWAN LINK DRAIN.	1.52	15.0	DRAIN NO.8 RD 29405/L.
60	MUDLANA LINK DRAIN	5.79	50.0	TRY.DRAIN NO 3 RD 12200
61	BALI LINK DRAIN.	5.72	31.0	D.D.N.8 RD 20945/L.
62	KHANPUR DRAIN.	2.07	7.5	SAMRI DRAIN RD 9600/L.
63	SAMRI LINK DRAIN.	7.38	12.0	TRY.DRAIN NO.3 RD 126000.
64	SHAHPUR L/DRAIN	2.5	19.0	BAJAWA CHIDANA MUDLANA DRAIN.
65	NIZAMPUR P.H.L/DRAIN.	0.91	37.5	SUNDER SUB BR. RD 33000 R.
66	KOHLA P.H.L/DRAN.	3.39	37.5	CHHAPRA DR. RD 59600.
67	KEHLPA P.H.LL/DRAIN.	2.28	37.5	-DO- RD 38000.
68	DUBETTA DRAIN RD O-54100.	16.49	237.0	D.D.NO.8 RD 187800.
69	KASANDI L/DRAIN.	1.14	13.0	TRY. DRAIN RD 49838/L.
70	GHARWAL LINK DRAIN.	1.07	5.0	CHHAPRA DRAIN RD 49600
71	BHAWAR LINK DRAIN.	5.34	70.0	BHAMBEWA DRAIN RD 27700 R
72	BAZAWA KASANDI L/DRAIN.	6.03	5.0	TRY.DRAIN NO.4.
73	BUSANA-SIWANKA L/DRAIN.	4.26	50.0	NAI NALLAH DRAIN RD 34780
74	BHANDERI LINK DRAIN.	5.34	121.0	CHHAPRA DRAIN RD 7900

राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड
NATIONAL CAPITAL REGION PLANNING BOARD
1st Floor, Zone-IV,
India Habitat Centre,
Lodhi Road, New Delhi-110003
शहरी कार्य एवं रोजगार मंत्रालय
Minstry of Urban Affairs & Employment
Fax No : 4642163

सं0. के-14011/1(स0नि0)/97-रा0रा0क्षे0यो0बोर्ड

दिनांक: 4.2.1997

सेवा में,

संलग्न सूची के अनुसार

विषय: राष्ट्रीय राजधानी योजना बोर्ड की योजना समिति की 41वीं बैठक के कार्यवृत्त का प्रेषण ।

महोदय,

दिनांक 27.1.97 को राष्ट्रीय राजधानी क्षेत्र योजना बोर्ड कार्यालय, नई दिल्ली में सम्पन्न योजना समिति की 41वीं बैठक के कार्यवृत्त संलग्न आपको सूचनार्थ एवं उचित कार्यवाही हेतु प्रेषित हैं ।

(जे.एन. शर्मा)
संयुक्त निदेशक

संलग्न:- उपरोक्तानुसार

MINUTES OF THE 41ST MEETING OF THE PLANNING COMMITTEE HELD AT 4:30 PM ON 27.1.97 IN THE OFFICE OF THE NCR PLANNING BOARD, IST FLOOR, ZONE-IV, INDIA HABITAT CENTRE, LODHI ROAD, NEW DELHI-110003.

List of the participants is enclosed.

AGENDA ITEM NO. 1: CONFIRMATION OF THE MINUTES OF THE 40TH MEETING OF THE PLANNING COMMITTEE HELD ON 2.12.96.

Shri A.P. Singh, Principal Secretary (Housing), Govt. of U.P. informed that in the 40th Planning Committee meeting, the matter of amendment of Ghaziabad-Loni Master Plan was discussed and approved. Due to non-availability of information, it was not possible to include the proposal for change of land use of 23.5 acres owned by Nyaya Vihar Sehkari Awas Samiti (13.5 acres) adjacent to the proposed Tronica City in Loni and Bank Sehyog Sehkari Awas Samiti and Siddisim Engineering Company (10 acres) adjacent to the site of Delhi Auto and the same was submitted after the last Planning Committee meeting. Shri A.P. Singh further requested that this area may be incorporated in the Ghaziabad Master Plan and the equivalent area would be deducted from the proposed residential area under the Garden City so that the total residential area of 16133 acres for the revised Ghaziabad Master Plan for 2005, remains unchanged. Chief Architect Planner, GDA presented the proposal in the meeting and the same was approved by the Plannning Committee.

The remaining points of the minutes were conformed.

AGENDA ITEM NO.2 : REVIEW OF THE ACTIONS TAKEN ON THE DECISIONS OF THE LAST PLANNING COMMITTEE MEETING HELD ON 2.12.96

i) Sub-Regional Plan for Delhi :

The representatives from the Govt. of NCT-Delhi stated that the Govt. of NCT-Delhi has requested the various concerned departments for their views/comments on the Sub-regional plan for NCT-Delhi and some of the departments have yet to submit their comments to the Govt. of Delhi. It is expected that the views and comments from the various departments will be received within a month's time.

ii) Sub-Regional Plan for Haryana :

Member Secretary has requested Govt. of Haryana to submit the revised sub-regional plan for Haryana after incorporating a 2 km. green belt wherever it is possible and also the Sub-Regional land use plan.

iii) Review of the Regional Plan :

It is informed that the Steering Committee for review of the Regional Plan has been constituted under the chairmanship of Shri S.S. Shafi, Ex-Chief Plan, Govt. of India and Former UN Expert and its first meeting held on 17.1.97.

AGENDA ITEM NO. 3 : CONSIDERATION OF THE FUNCTION PLAN FOR WATER SUPPLY AND DRAINAGE SYSTEM

The Functional Plan of water supply and drainage system for NCR was presented by Shri M.L. Kansal and deliberated in the meeting and the members of the Planning Committee offered their comments and it was decided that the approach could be for preparation of a integrated water management plan including the treatment and disposal of sewerage. The total financial implication should form part of the report. It was also decided to constitute a Sub-group to go into the details of the various aspects of the Functional Plan for water supply and drainage system.

No.K-14011/39(AP)/96-NCRPB(41st)
NCR Planning Board
India Habitat Centre,
Zone-IV, Ist Floor,
Lodhi Road,
New Delhi - 110003

Date : 3.2.97

3/2/97

(R.C. AGGARWAL)
Chief Regional Planner

Copy to : (1) Chairman and members of the Planning Committee
(2) All officers of the Board.

LIST OF PARTICIPANTS

1. Shri Omesh Saigal
Member Secretary
NCR Planning Board
New Delhi

2. Shri A P Singh
Principal Secretary
Housing Deptt. Govt. of U.P.
U.P. Secretariat
Lucknow, U.P.

3. Shri P K Ghosh
Vice Chairman
Delhi Development Authority
Vikas Sadan
New Delhi

4. Shri S S Dhillon
Director
Town & Country Planning & Urban Estate
Sector 18, Madhya Marg
Chandigarh

5. Shri V Suresh
CMD
Hudco
India Habitat Centre
Lodhi Road, New Delhi

6. Shri C S Mehta
Chief Town Planner (NCR)
Town and Country Planning Deptt.
Nagar Niyojan Bhawan, J.L.Nehru Marg
Jaipur, Rajasthan

7. Shri B D Gulati
Chief Co-ordinator Planner
(NCR Planning Cell)
C/o Chief Administrator, HUDA
SCO, Sector 6, Panchkula
Haryana

8. Shri S P S Parihar
Dy. Secretary
Deptt. of Urban Development
Min. of Urban Affairs & Employment
Nirman Bhawan
New Delhi

9. Shri K Sitaraman
Asstt. Secretary (BMCC)
Ministry of Power
Deptt. of Power
Shram Shakti Bhawan
New Delhi

10. Shri Vijay Risbud
Commissioner (Planning)
Delhi Development Authority
Vikas Minar, I P Estate
New Delhi

11. Shri M P Aneja
Senior Planner
Town & Country Planning Deptt.
7, Bandariabag, Lucknow
Uttar Pradesh

12. Dr P S Rana
Executive Director
Hudco
India Habitat Centre
Lodhi Road, New Delhi

13. Shri R Anandakumar
Director
Deptt. of Environment
Ministry of Environment & Forests
Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi

14. Shri P K Jain
Chief Engineer (C) III
DWS & SDU
Varunalaya, Jhandewalan
Delhi

15. Shri Y P Mathew
Superintending Engineer (Urban)
O/o EIC Public Health Haryana
Sector 14, Chandigarh

16. Shri V Rama Swamy
Res. Officer
Land & Building Deptt.
Govt. of Delhi, I P Estate
New Delhi

17. Shri N R Jaswani
Dy. Director (P&M)
DWS & SDU
Varunalaya, Jhandewalan
Delhi

18. Shri T D Bhatia
Town & Country Planner
TCPO, E - Block
Vikas Bhawan
New Delhi

19. Shri T R Kalra
Representative of Chief Engineer (Ganga)
U.P. Irrigation, Ganga Bhawan
Meerut, U.P.

20. Shri R K Jain
Jt. Director (Planning)
Delhi Development Authority
Vikas Minar, I P Estate
New Delhi

21. Shri V K Gupta
Associate Planner (NCR Planning Cell)
Town & Country Planning Deptt.
Navyug Market, Commercial Building
Ghaziabad, U.P.

22. Shri S P Gautam
Advisor (NCRPB)
House No.179
B-Block, Sector-19
NOIDA - 201 301

32. Shri Krishna Pratap
Advisor, NCRPB
16, Sukhdev Vihar
New Delhi - 25

NCRPB

1. Dr N B Johri, RP
1a. Sh N.K. Aneja, DD (PMC).
2. Shri J N Barman, AP
3. Shri N K Bhardwaj, FAO
4. Shri V K Thakore, SRO
5. Shri S Surendra, ATP
6. Shri N K Dhiran, ATP
7. Shri M M A Baig, ATP
8. Shri P Sisupalan, RO
9. Shri Manmohan Singh, RO
10. Shri Abnash Lal, AD(PMC)