CENTRAL GROUND WATER BOARD

MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVINATION

GOVERNMENT OF INDIA

GROUND WATER YEAR BOOK OF HARYANA STATE (2013-2014)

North Western Region
CHANDIGARH
November 2014

CENTRAL GROUND WATER BOARD

North Western Region
CHANDIGARH

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Regional Director

FOREWORD

Central Ground Water Board has been monitoring ground water levels and ground water quality of the country since 1968 to depict the spatial and temporal variation of ground water regime. The changes in water levels and quality are result of the development pattern of the ground water resources for irrigation and drinking water needs. Analyses of water level fluctuations are aimed at observing seasonal, annual and decadal variations. Therefore, the accurate monitoring of the ground water levels and its quality both in time and space are the main pre-requisites for assessment, scientific development and planning of this vital resource.

Central Ground Water Board has established 455 ground water observation wells which include 209 dug wells and 247 piezometers in Haryana State. These observation wells are being monitored four times a year during May, August, November and January. This activity is simultaneously undertaken throughout the country. This report presents the observations and findings for the period from May 2013 to January 2014. However, with integration of ground water observation wells presently being monitored by Ground Water Cell, Department Of Agriculture, Government of Haryana, into monitoring network of CGWB Chandigarh, the total number of ground water observation wells as on 31-03-2014 has reached 866 ground water observation wells which include 472 dug wells and 394 piezometers for monitoring phreatic aquifers. Besides, there are 45 deep piezometers for monitoring confined/ semi- confined aquifers.

Shri M. L Angurala, Scientist 'C' and Ms. Iti Gupta, Scientist 'B' have put their concerted efforts in compiling and analysing the data and prepare the report in the present form. Chemical quality of ground water has been compiled by Mrs. B. P. Singh, Scientist 'C'. The editing and processing of the report has been carried out by the officers of the Report and Publication Section (Dr. P.K. Naik, Superindending Hydrogeologist and Sh Tejdeep Singh, Scientist C).

This report incorporates all the analytical data on ground water monitoring done in Haryana State and provides valuable information on prevailing ground water regime to the user agencies and other stakeholders.

(Dr. S. K. Jain)
Regional Director

GROUND WATER YEAR BOOK
HARYANA STATE
2013-2014

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GROUND WATER YEAR BOOK
HARYANA STATE
2013 - 2014

1.0 INTRODUCTION

The Haryana State is located between North latitudes 27^0 39' & 30^0 55' and East longitudes 74^0 27' & 77^0 35' covering an area of 44,212 sq. km. The state is sub-divided into nine physiographic units and is drained by two major rivers Ghaggar and Yamuna. There are four irrigation systems in the state namely Western Yamuna canal, Bhakra canal, Agra canal and Ghaggar canal.

Three geological groups are represented in the state viz. Pre-Cambrian, Tertiary and Quaternary. The Quaternary group comprises of Alluvium which occupies 97% of the area of the state. The tertiary group is represented by the outermost zone of the Siwalik system composed mainly of sandstones, clay and boulders. The rocks of Pre-Cambrian age which form part of the Aravalli hill ranges are exposed in Gurgaon, Mewat and Faridabad districts and as small outcrops in other Southern districts. The thickness of alluvium deposits decreases from North to South.

Central Ground Water Board, North Western Region, Chandigarh has established Ground Water Observation Wells (GWOW) in Haryana State for monitoring the water levels. As on 31.03.2013, there were 478 ground water observation wells which included 204 dug wells and 274 piezometers for monitoring phreatic aquifers. However, with integration of ground water observation wells presently being monitored by Ground Water Cell, Department Of Agriculture, Government of Haryana, into monitoring network of CGWB Chandigarh, the total number of ground water observation wells as on 31-03-2014 has reached 866 ground water observation wells which include 472 dug wells and 394 piezometers for monitoring phreatic aquifers. Besides, there are 45 deep piezometers for monitoring confined/ semi- confined aquifers.

The Ground Water Observation Wells are shown in Plate-1 and district wise split is given in Table 1. The density of the observation wells being monitored in the state of Haryana is given in Table 2 and depicted in Plate 2.

Plate-1: Locations of National Hydrograph Observation Stations

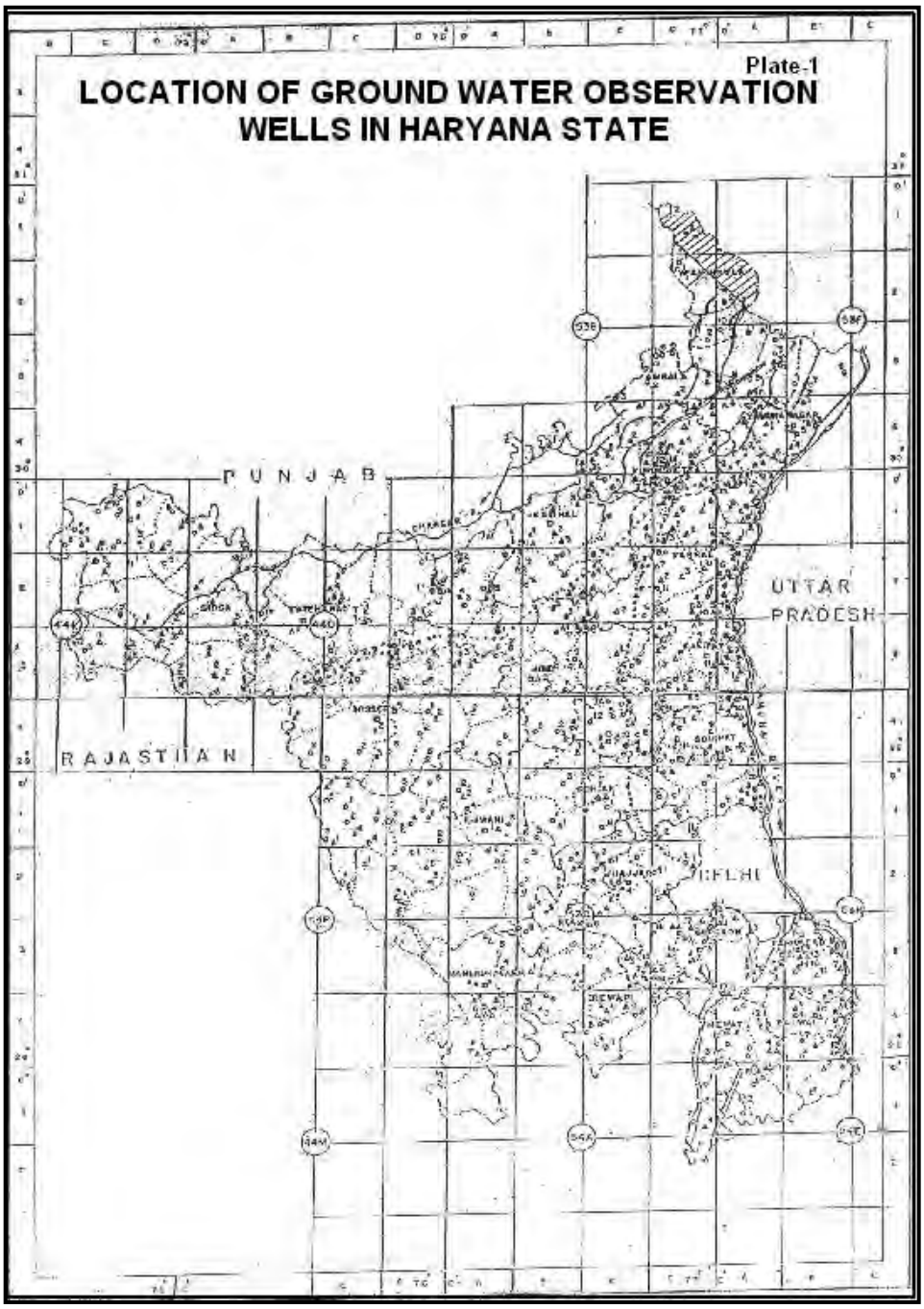


Table 1. District wise ground water observation wells in Haryana State.

S. No.	Districts	No. of Ground water observation wells as on 31.3.2013			No. of Ground water observation wells established as on 31.3.2014			Total no. of Ground water observation wells operational as on 31.3.2014		
		Dug wells	Pz's	Total	Dug wells	Pz's	Total	Dug wells	Pz's	Total
1.	Ambala	8	4	12	8	13	21	16	17	33
2.	Bhiwani	24	13	37	7	10	17	31	23	54
3.	Faridabad	0	8	8	21	0	21	21	8	29
4.	Fatehabad	4	5	9	11	7	18	15	12	27
5.	Gurgaon	2	23	25	9	9	18	11	32	43
6.	Hissar	24	15	39	18	1	19	42	16	58
7.	Jhajjar	15	4	19	13	3	16	28	7	35
8.	Jind	10	15	25	21	3	24	31	18	49
9.	Kaithal	6	15	21	8	7	15	14	22	36
10.	Karnal	3	42	45	2	24	26	5	66	71
11.	Kurukshetra	0	21	21	17	1	18	17	22	39
12.	Mahendergarh	2	6	8	15	3	18	17	9	26
13.	Mewat	9	2	11	5	10	15	14	12	26
14.	Palwal	10	17	27	17	0	17	27	17	44
15.	Panchkula	8	1	9	10	2	12	18	3	21
16.	Panipat	4	23	27	6	5	11	10	28	38
17.	Rewari	8	4	12	9	15	24	17	19	36
18.	Rohtak	12	5	17	16	0	16	28	5	33
19.	Sirsa	26	14	40	16	4	20	42	18	60
20.	Sonipat	20	25	45	15	8	23	35	33	68
21.	Yamunanagar	9	12	21	8	11	19	17	33	40
	Total	204	274	478	252	136	388	456	410	866

Plate 2: Area Represented Single Shallow Ground Water Observation Well In Haryana State.

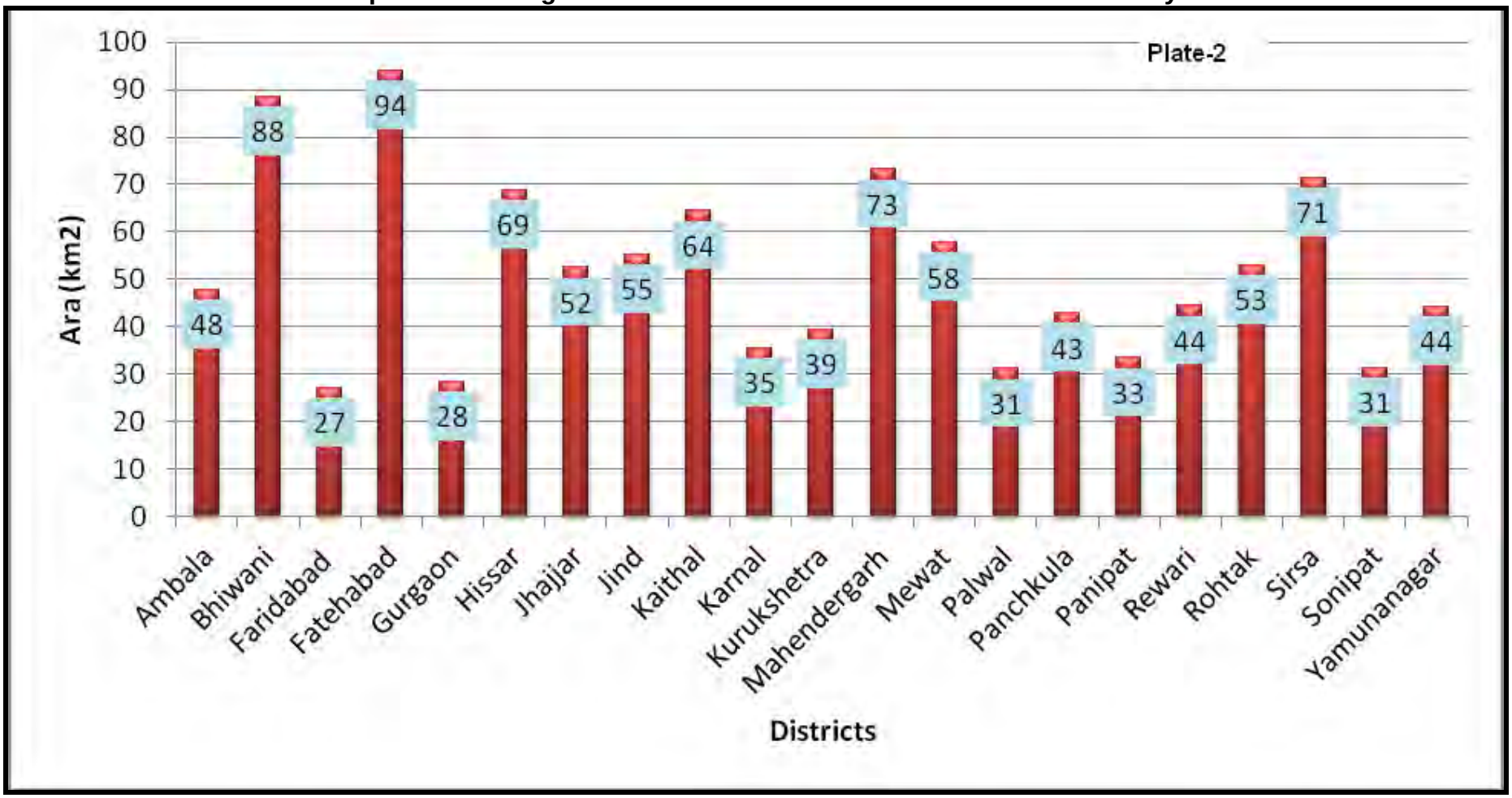


Table 2. Density Area Represented Single Shallow Ground Water Observation Well In Haryana State.

S. No.	District	Area (Km^2)	No. of Shallow Ground water observation wells	Density represented by one GWOW (area/no. of well)
1	AMBALA	1574	33	48
2	BHIWANI	4778	54	88
3	FARIDABAD	782	29	27
4	FATEHABD	2538	27	94
5	GURGAON	1215	43	28
6	HISSAR	3983	58	69
7	JHAJJAR	1834	35	52
8	JIND	2702	49	55
9	KAITHAL	2317	36	64
10	KARNAL	2520	71	35
11	KURUKSHETRA	1530	39	39
12	MAHENDRAGARH	1900	26	73
13	MEWAT	1499	26	58
14	PALWAL	1367	44	31
15	PANCHKULA	898	21	43
16	PANIPAT	1268	38	33
17	REWARI	1595	36	44
18	ROHTAK	1745	33	53
19	SIRSA	4277	60	71
20	SONIPAT	2122	68	31
21	YAMUNA NAGAR	1768	40	44

2.0 GROUND WATER REGIME MONITORING

In order to assess the quantitative change in ground water resources, water levels as a routine were monitored four times May 2013, august 2013, November 2013 and January 2014 during the annual action plan 2013-14.

2.1 DEPTH TO WATER LEVEL

The behaviour of water level in May 2013, August 2013, November 2013 and January 2014 along with maps is discussed in following paragraphs and data is presented in Annexure I. The maximum and minimum water levels recorded in four seasons is given below Table 3.

Table 3 Range of depth to water levels in May, August, November 2013 and January 2014

Range	May-13	Aug-13	Nov-13	Jan-14
Minimum	1.15 m bgl (Hissar district)	0.38 m bgl (Ambala district)	0.20 m bgl (Jhajjar district)	1.20 m bgl (Yamunanagar district)
Maximum	71.60 m bgl (Mahendergarh district)	70.25 m bgl (Rewari district)	70.78 m bgl (Rewari district)	70.00 m bgl (Mahendergarh district)

2.1.1 MAY 2013

The depth to water level during May 2013 varies from 1.15 m bgl (Bas) in Hissar district to 71.60 m bgl (Khatodra-Pz) in Mahendragarh district. Very shallow (0-2m) water level conditions are observed in small patches in the central parts of the state comprising Sonipat, Jhajjar, Bhiwani and Hissar districts. More than 3% wells covering <1% area of state falls in this group which indicates the water logging conditions. Shallow water levels in the range of 2-5 m have been observed in 19% wells covering nearly 12% area mainly in the central parts covering Panipat, Sonipat, Jhajjar, Rohtak, Bhiwani and Hissar districts and in few isolated patches in the other parts. Moderate water levels of 5-10 m occur in 26% wells covering 27% of area of the state in parts Panipat, Sonipat, Jind, Bhiwani, Hissar, Fatehabad, Sirsa, Palwal and Mewat districts and in few isolated patches in the other parts of the state. Moderately deep water levels in the range of 10-20m are observed in nearly 31% wells covering 33% of the area falling in Parts of Panckula, Ambala, Karnal, Kaithal,

Jind, Fatehabad, Sirsa, Bhiwani, Mahendragarh, Rewari, Gurgaon and Faridabad Districts. Deep water levels between 20-40m have been recorded in 19% of wells and about 27% area in parts of Kurukshetra, Kaithal, Karnal, Panipat, Sonipat, Jind, Fatehabad, Sirsa, Bhiwani, Mahendragarh, Gurgaon, Rewari and Faridabad districts. Very deep water levels (>40 m) have also been observed in area falling in parts of Bhiwani district in 2% wells and less than 1% of area. The map depicting water level during May 2013 is shown in Fig. 1.

2.1.2 AUGUST 2013

The depth to water level during August 2013 varies from 0.38 m bgl in Kakru, Ambala district to 70.25 m bgl in Nangal Jamalpur, Rewari district.

Very shallow (0-2m) water levels conditions are observed in patches comprising Sonipat, Rohtak and Jhajjar districts in central part of the state and mewat district in southern part of the state. Nearly 13% wells and nearly 5% area of state fall in this group which indicates the water logging conditions. Shallow water levels in the range of 2-5m have been observed in 16% of wells covering 16% of area mainly central parts covering Panipat, Sonipat, Jhajjar, Rohtak, Bhiwani and Hissar districts and in few isolated patches in the other parts. Moderate water levels in the range of 5-10m occur in more than 27% wells covering 27% area of the state in parts of Rewari, Mahendragarh, Bhiwani, Hissar, Fatehabad, Sirsa, Jind and Sonipat districts. Moderately deep water levels (10-20m) are observed in nearly 28% wells and 31% of area in parts of Ambala, Panipat, Sonipat, Jind, Bhiwani, Hissar, Fatehabad, Sirsa, Palwal and Mewat districts and in few isolated patches in the other parts of the state. Deep water levels in the range of 20-40m have been recorded in more than 13% of wells covering about 17% area. Very deep water levels in the range of 20-40m are recorded in parts of Sonipat, Panipat, Karnal, Kurukshetra, Kaithal, Sirsa, Bhiwani, Mahendragarh, Rewari and Gurgaon districts.

Very deep water levels of >40 m have also been recorded in parts of Bhiwani, Mahendragarh and Rewari districts represented by 3% wells and nearly 4% area of state. The map depicting water level during August 2013 is shown in Fig. 2.

Fig. 1

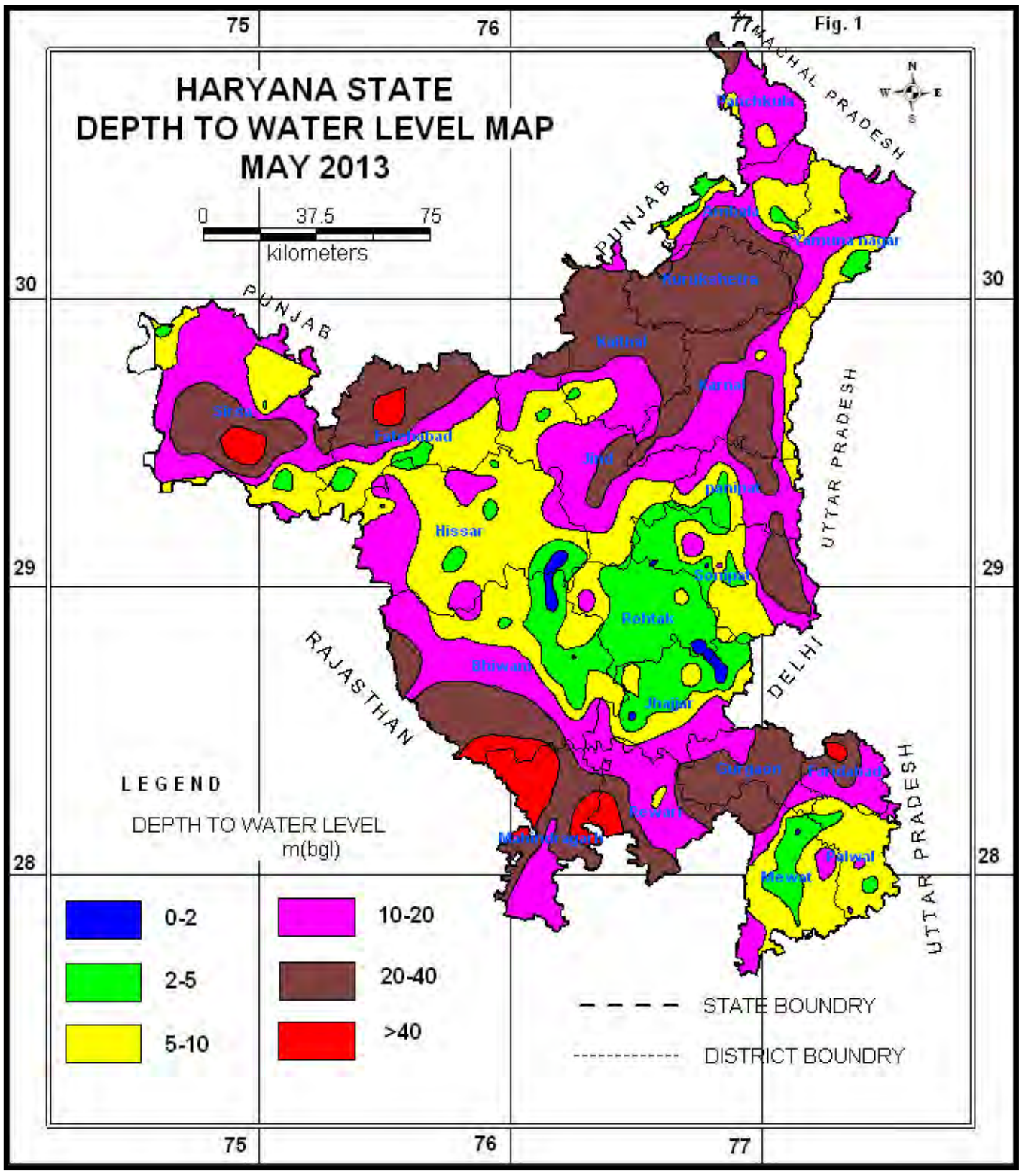
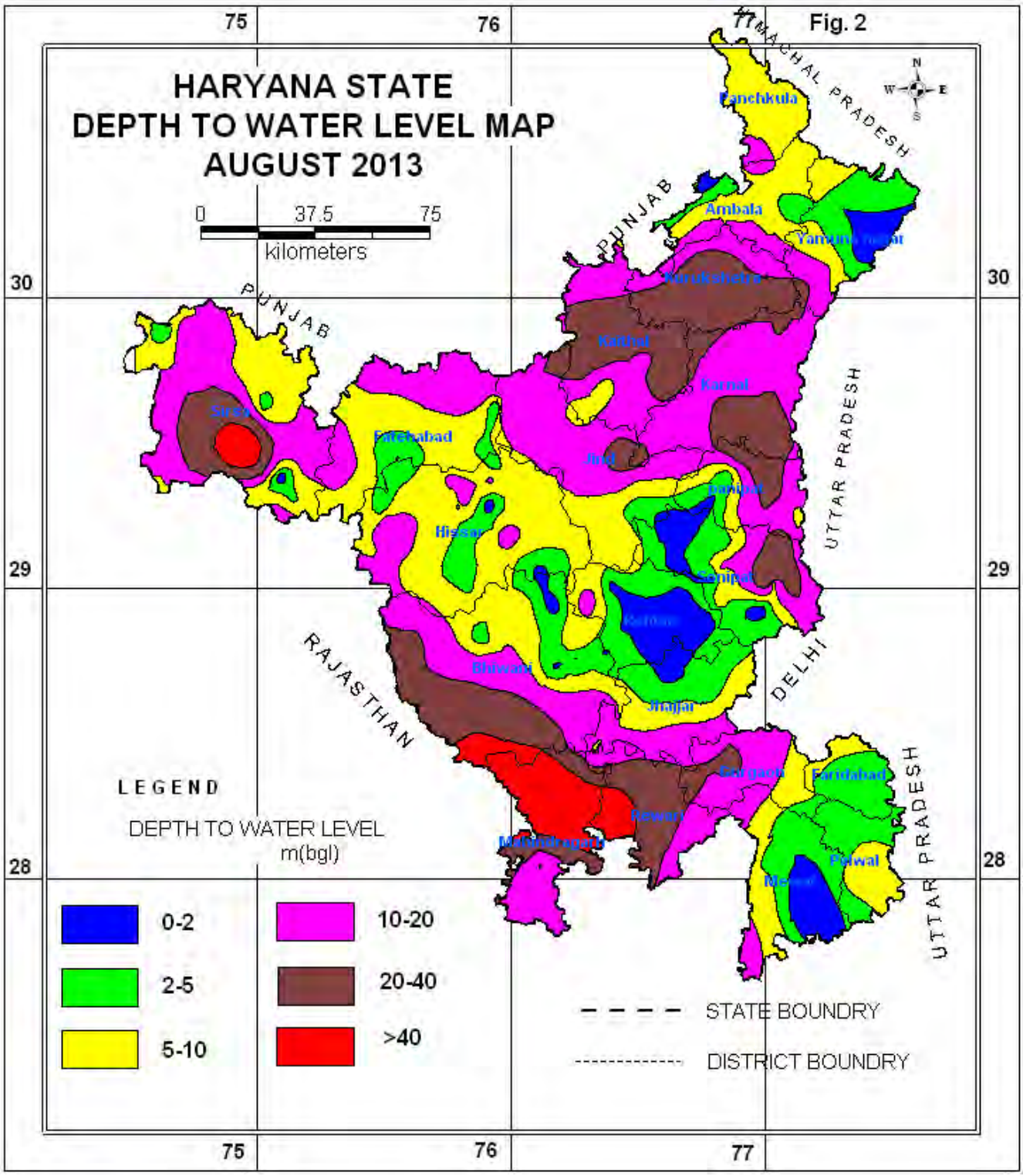

HARYANA STATE
DEPTH TO WATER LEVEL MAP
MAY 2013
0
37.5
75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
UTTAR PRADESH
UTTAR PRADESH
DELHI
RAJASTHAN
Kalka
Ambala
Yamuna Nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
DEPTH TO WATER LEVEL
m(bgl)
0-2
2-5
5-10
10-20
20-40
>40
STATE BOUNDRY
DISTRICT BOUNDRY

Fig. 2


HARYANA STATE
DEPTH TO WATER LEVEL MAP
AUGUST 2013
0
37.5
75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna Nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Mahendragarh
Rewari
Palwal
Mewat
LEGEND
DEPTH TO WATER LEVEL
m(bgl)
0-2
2-5
5-10
10-20
20-40
>40
STATE BOUNDRY
DISTRICT BOUNDRY

2.1.3 NOVEMBER, 2013

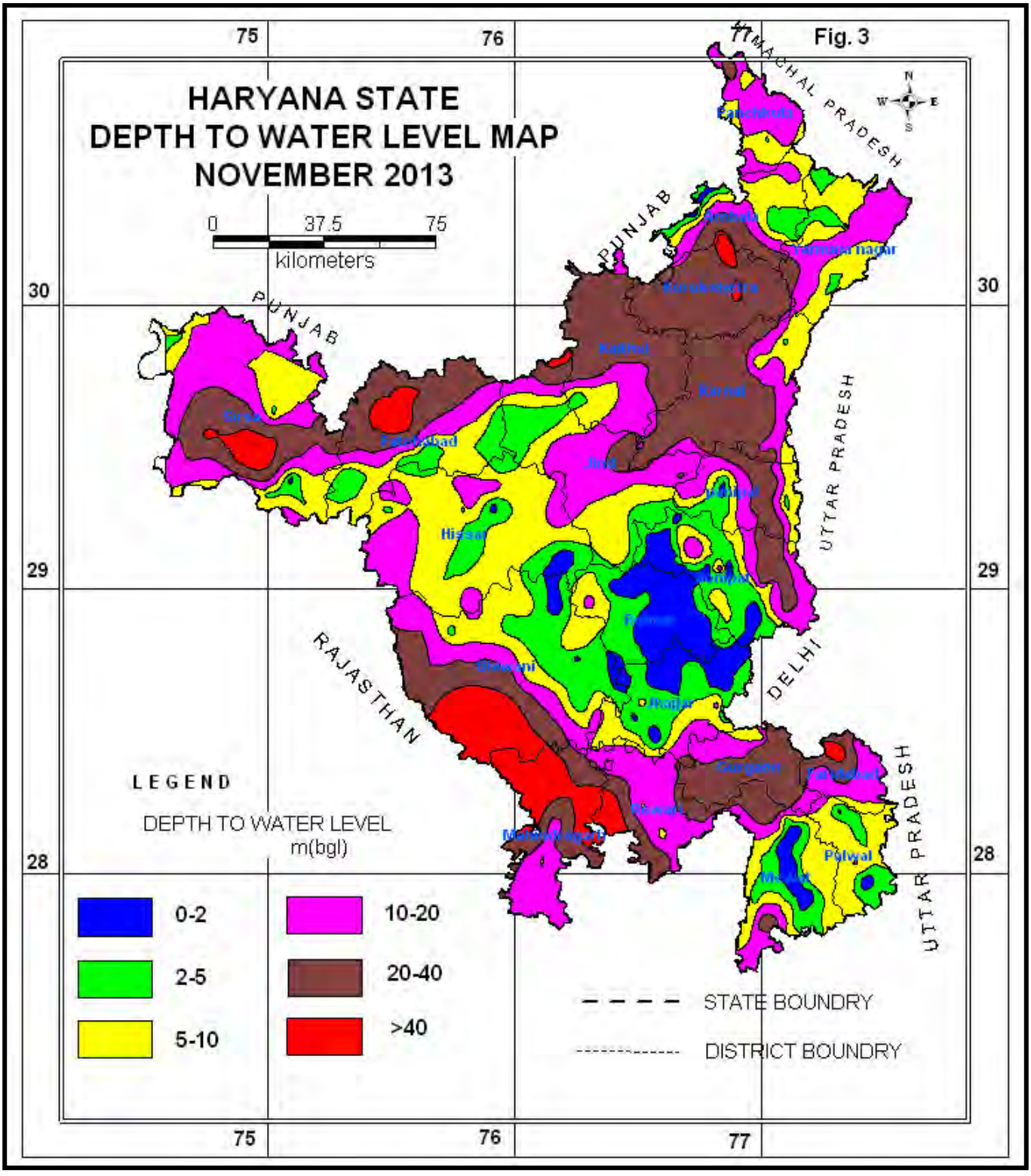
The depth to water level during November 2013 varies from 0.20 m bgl in Bagoa, Jhajjar district to 70.78 m bgl in Nangal Jamalpur, Rewari district. Very shallow (0-2m) water levels conditions are observed in small patches spread covering parts of Sonipat, Jhajjar, Rohtak in the central part of the state and Mewat district in southern part of the state. About 12% wells and 5% area of state fall in this group which indicates the water logging conditions. Shallow water levels in the range of 2-5 m have been observed in nearly 19% wells and 14% of area Panipat, Sonipat, Jhajjar, Rohtak, Bhiwani and Hissar districts and in few isolated patches in the other parts. Water levels of 5-10 m occur in 20% wells covering 24% of area in major part of the state. It is reported from Ambala, Yamuna Nagar, Fatehabad, Sirsa, Hissar, Bhiwani, Gurgaon and Faridabad districts. Similar conditions also prevail in a thick patch encircling the central parts of the state. Moderately deep water levels in the range of 10-20m have been observed in more than 26% wells and 26% of the area covering parts of all districts except the central parts of the state. Deep water levels in the range of 20-40 m have been recorded in 20% of wells and about 26% area covering parts of Sonipat, Panipat, Karnal, Kurukshetra Kaithal, Sirsa, Bhiwani, Mahendragarh, Rewari and Gurgaon districts. Very deep water levels of more than 40 m have also been observed in 3% wells and 6% area covering parts of Bhiwani district adjoining Rajasthan border. The map depicting water level during November 2013 is shown in Fig. 3.

2.1.4 JANUARY, 2014

The depth to water level during January 2014 varies from 1.20 m bgl in Choli, Yamunanagar district to 70 m bgl in Khatodra, Mahendergarh district.

Very shallow (0-2 m) water level conditions are observed in small patches in central part of the state covering parts of Sonipat, Jhajjar and Rohtak districts. 6% wells covering less than 1% area of state indicate the water logging conditions. Shallow water levels in the range of 2-5m have been observed in 22% wells covering more than 11% area mainly in the central part and in few isolated patches in other parts of the state. Moderate water levels in the range of 5-10m occur in 22% wells covering over 30% area of the state in parts of Yamunanagar, Sirsa, Hissar, Fatehabad and Faridabad districts and in central part of the state. Moderately deep water levels in the range of 10-20m have been observed in nearly 31% wells and 33% of the area. Such conditions have been observed all over the state except the central parts. Deep water levels of 20-40m have been recorded in more than 15% of wells and about 21% area in southern parts of the state covering parts of Bhiwani, Mahendragarh, Rewari, Gurgaon and Faridabad districts. Deep water level conditions have also been observed in parts of Sonipat, Karnal, Kurukshetra, Kaithal and Sirsa districts. Very deep water levels of more than 40 m are recorded in 4% wells and 4% area covering parts of Sirsa district. The map depicting water level during January 2014 is shown in Fig. 4.

Fig. 3


HARYANA STATE
DEPTH TO WATER LEVEL MAP
NOVEMBER 2013
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
DEPTH TO WATER LEVEL
m(bgl)
0-2
2-5
5-10
10-20
20-40
>40
STATE BOUNDRY
DISTRICT BOUNDRY

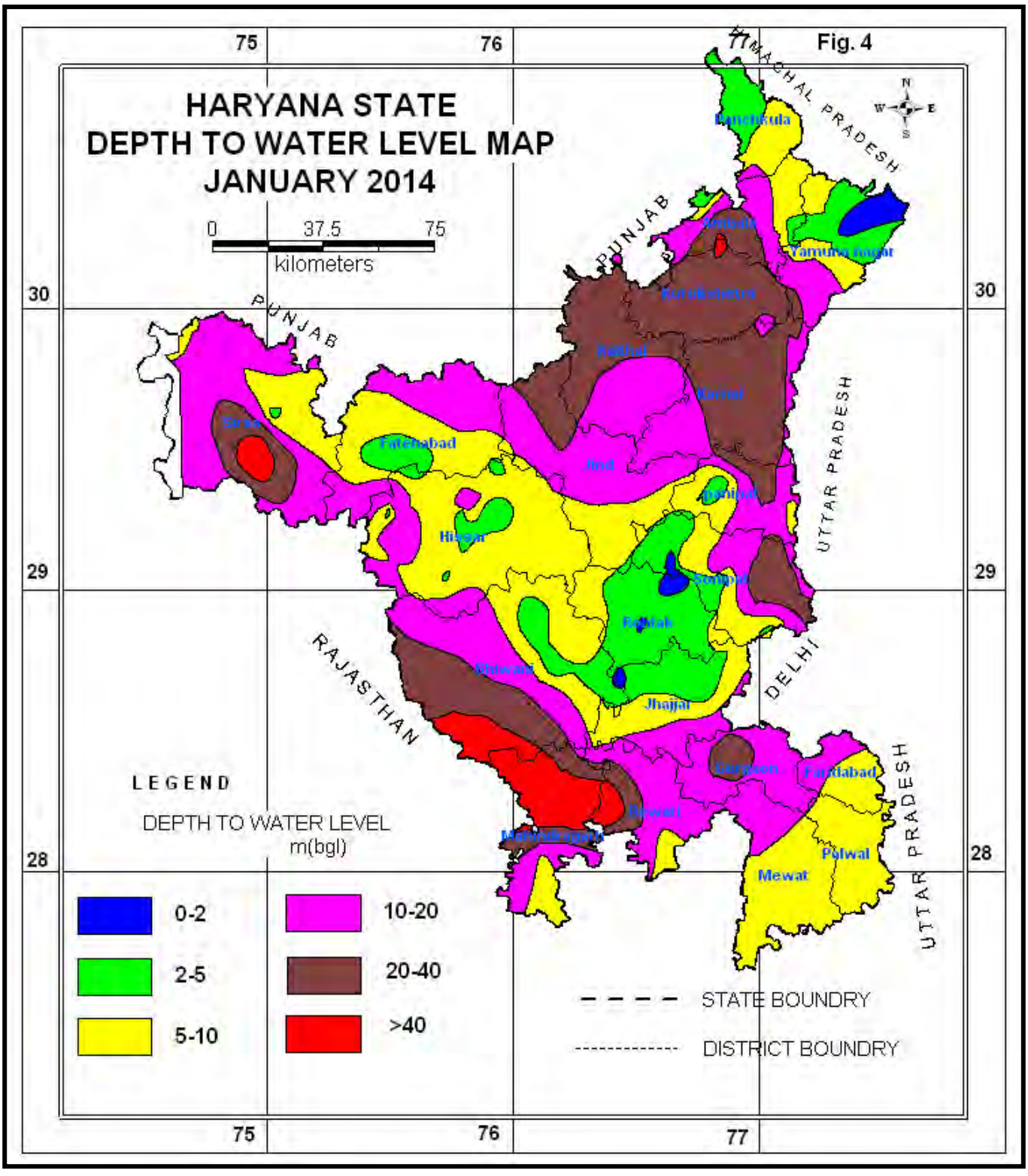
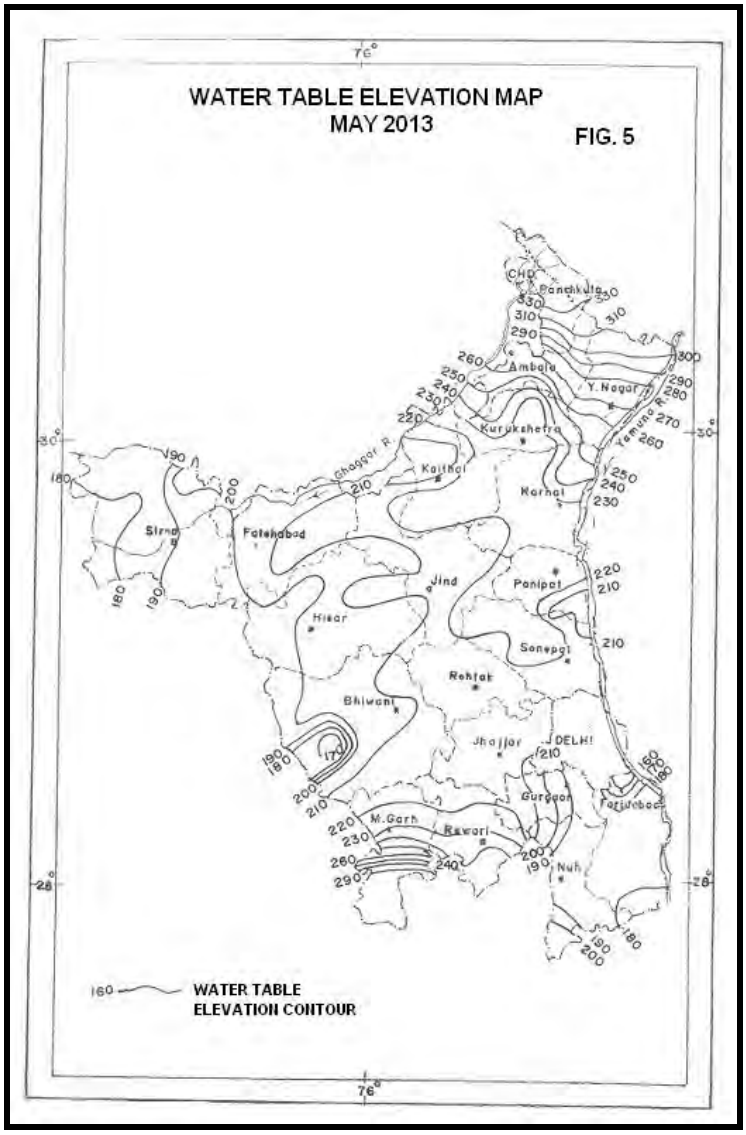


Fig. 4
HARYANA STATE
DEPTH TO WATER LEVEL MAP
JANUARY 2014
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
UTTAR PRADESH
RAJASTHAN
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
DEPTH TO WATER LEVEL
m(bgl)
0-2
2-5
5-10
10-20
20-40
>40
STATE BOUNDRY
DISTRICT BOUNDRY

2.2 WATER TABLE ELEVATION

MAY 2013

Water table elevation contours in the area follows the topography and it varies from 495.84 m amsl in northeastern part in Panchkula district to 163.12 m amsl in southeastern part in Palwal district. The general ground water flow is from Northeast to Southwest direction. However, in the southern part it is towards central part thus creating a closed basin causing water logging conditions in the central Haryana in parts of Rohtak, Bhiwani and Hissar districts. The hydraulic gradient is steep in the northern, eastern and southwestern parts of the State, whereas, it is gentle in the southeastern part. The major part of the state has moderate water table gradients. The sluggish ground water movement (0.07 m/km) observed in central part results in water logging on regional scale as depicted in (Fig.5)



2.3 SEASONAL WATER LEVEL FLUCTUATIONS

In order to know the impact of rainfall and ground water withdrawal during last season, seasonal water level fluctuations are calculated for the period of January 2013 & May 2013, May 2013 & August 2013, May 2013 & November 2013, May 2013 & January 2014. The fluctuations are discussed in the paragraphs below and data is presented in the Annexure II.

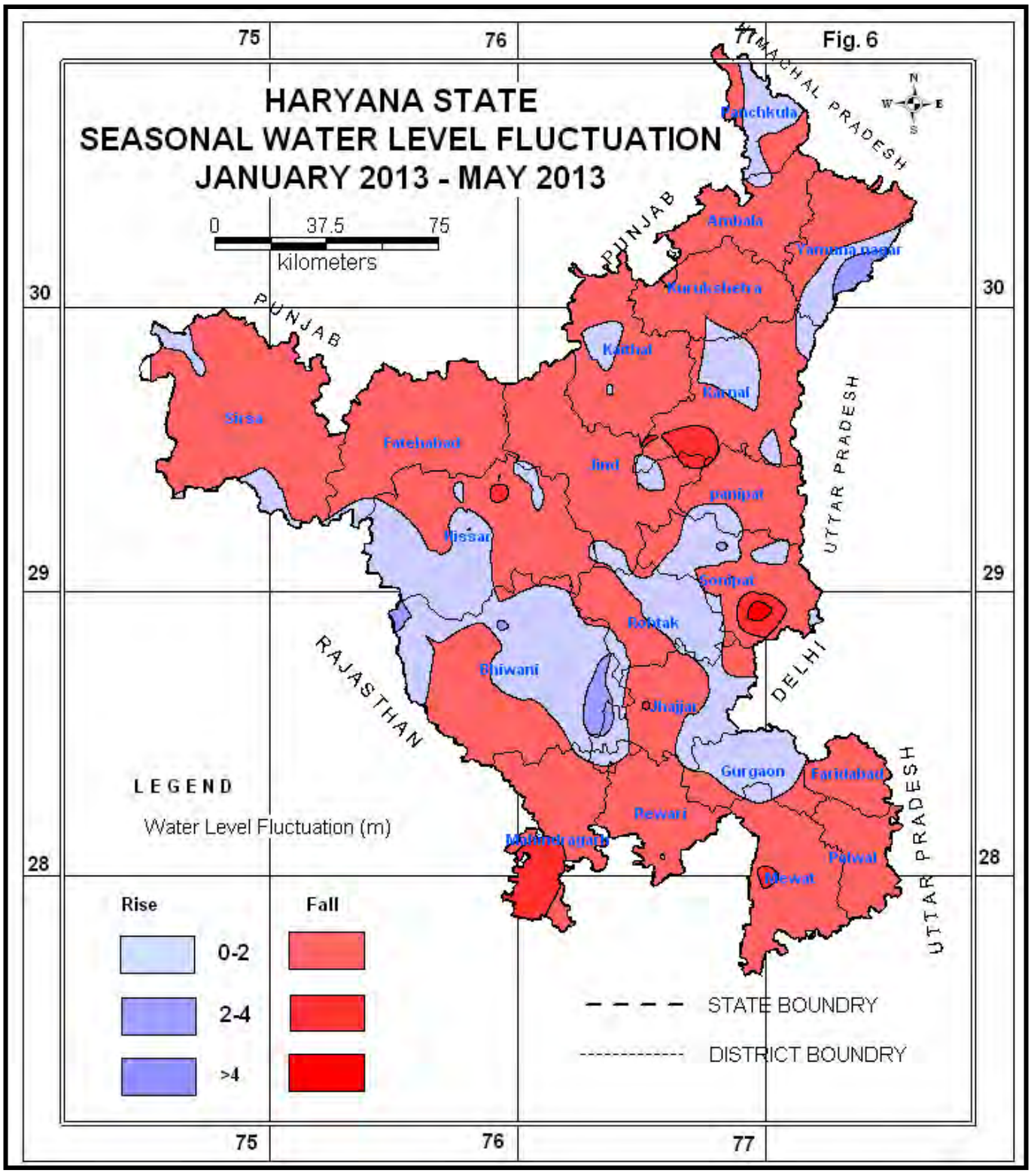
2.3.1 JANUARY 2013 - MAY 2013

Seasonal water level fluctuations between water levels of January 2013 and May 2013 indicate a general decline in 70% of the wells monitored covering 72% area of the State, whereas water level rise has been observed in 30% of the wells covering nearly 28% area. The water level decline in the range of 0-2m has been observed in 64% wells covering 66% of area in all districts. Water level decline 2-4m has been observed in 4% wells covering 5% of area in parts of Jind, Gurgaon, Kaithal, Kurukshetra and Panchkula districts. Water level decline >4 m has been observed in 2% wells covering less than 1% of area in parts. The water level rise in the range 0-2m has been observed in 25% of wells covering 25% area falling in Sirsa, Hissar, Jhajjar, Sonipat, Yamunanagar, Bhiwani and Faridabad districts. Water level rise >2m has been observed in 5% wells covering 3% of area in parts central parts of the state. The map depicting seasonal water level fluctuation during January 2013 & May 2013 is shown in Fig. 6.

2.3.2 MAY 2013 - AUGUST 2013

Seasonal water level fluctuations between water levels of May 2013 - August 2013 indicate water level decline has been recorded in 49% wells in 47% area of the state. Decline in water level in the range of 0-2 m observed in 38% wells and covering 42% area of the state. Water level decline in the range of 2-4m observed in 9% wells and covering 4% area of the state and decline of >4 m observed in 2% wells covering only 1% of the area. Rise in water levels is observed in 51% of the wells monitored in the state covering 53% of the area. Water level rise in the range of 0-2m has been recorded in 38% wells in 43% area. Water level rise in the range of 2-4 m has been observed in 9% wells covering 9% area, whereas water level rise in the range of >4m has been observed in 4% wells covering 1% area. . The map depicting seasonal water level fluctuation during May 2013-August 2013 is shown in Fig. 7.

Fig. 6


HARYANA STATE
SEASONAL WATER LEVEL FLUCTUATION
JANUARY 2013 - MAY 2013
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
UTTAR PRADESH
DELHI
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

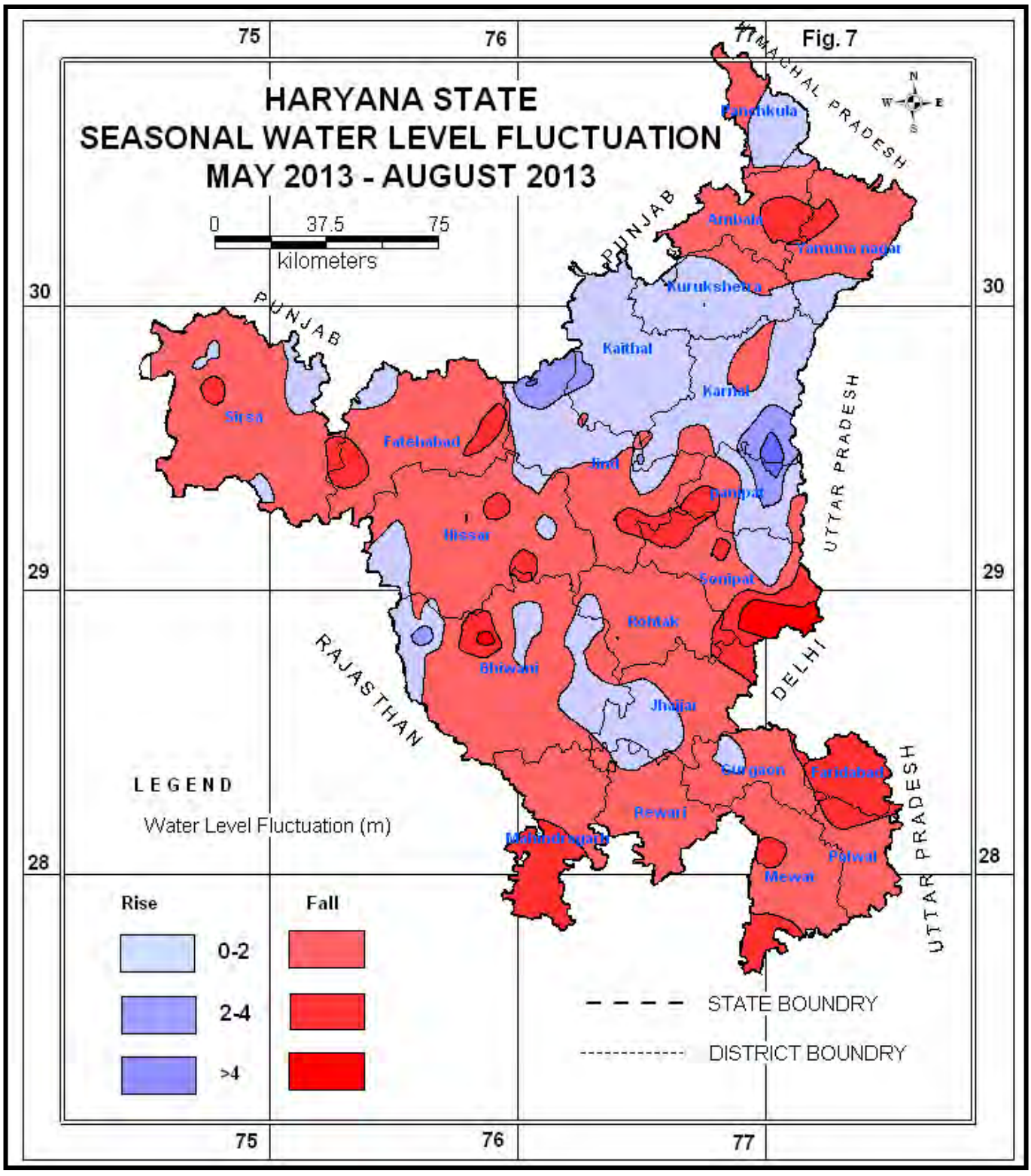


Fig. 7
HARYANA STATE
SEASONAL WATER LEVEL FLUCTUATION
MAY 2013 - AUGUST 2013
0
37.5
75
kilometers
N
W
E
S
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
UTTAR PRADESH
RAJASTHAN
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

2.3.3 MAY 2013 - NOVEMBER 2013

Seasonal water level fluctuations between water levels of May 2013 - November 2013 indicate decline in 38% of the wells monitored covering 37% area in the state whereas in the remaining 62% wells covering 63% area a rise has been recorded during this period.

Water level decline in the range of 0-2 m has been observed in 31% of the wells covering 32% of the area in entire state except central, north western and south eastern parts of the state. The decline more than 2m has been observed in 8% wells and 6% area in pockets in Panipat, Karnal Kurukshetra, Kaithal and Fatehabad districts. The decline of water levels has been more in paddy growing areas due to heavy pumping from ground water during Kharif season in absence of timely rains. The water level rise in the range of 0-2 m has been observed in 62% wells covering 63% area in central parts, Yamunanagar, Ambala, Panchkula, Fatehabad, Bhiwani, Mahendragarh, Rewari and Gurgaon districts. Rise in the range of >2 m has been observed in 10% wells covering 6% area. The map depicting seasonal water level fluctuation during May 2013-November 2013 is shown in Fig. 8.

2.3.4 MAY 2013 - JANUARY 2014

Seasonal water level fluctuations between water levels of May 2013 - January 2014 indicate that 28% wells monitored and 19% area of state has registered decline in water level, whereas, remaining 72% of the wells covering 81% of area in the State have shown rise in water levels.

The decline in the range of 0-2m has been observed in 26% of the wells covering 19% of area in parts of Kaithal Jind Sirsa and Bhiwani districts. Water level decline of more than 2m has been observed in 2% of the wells covering <1% of area in Sirsa and Hissar districts. Water level rise in range of 0-2m has been observed in 62% wells and 70% of area covering all districts of Haryana state. Water level rise in range of >2m has been recorded in 10% wells covering 11% area in small patches scattered all over the state. The map depicting seasonal water level fluctuation during May 2013- January 2014 is shown in Fig. 9.

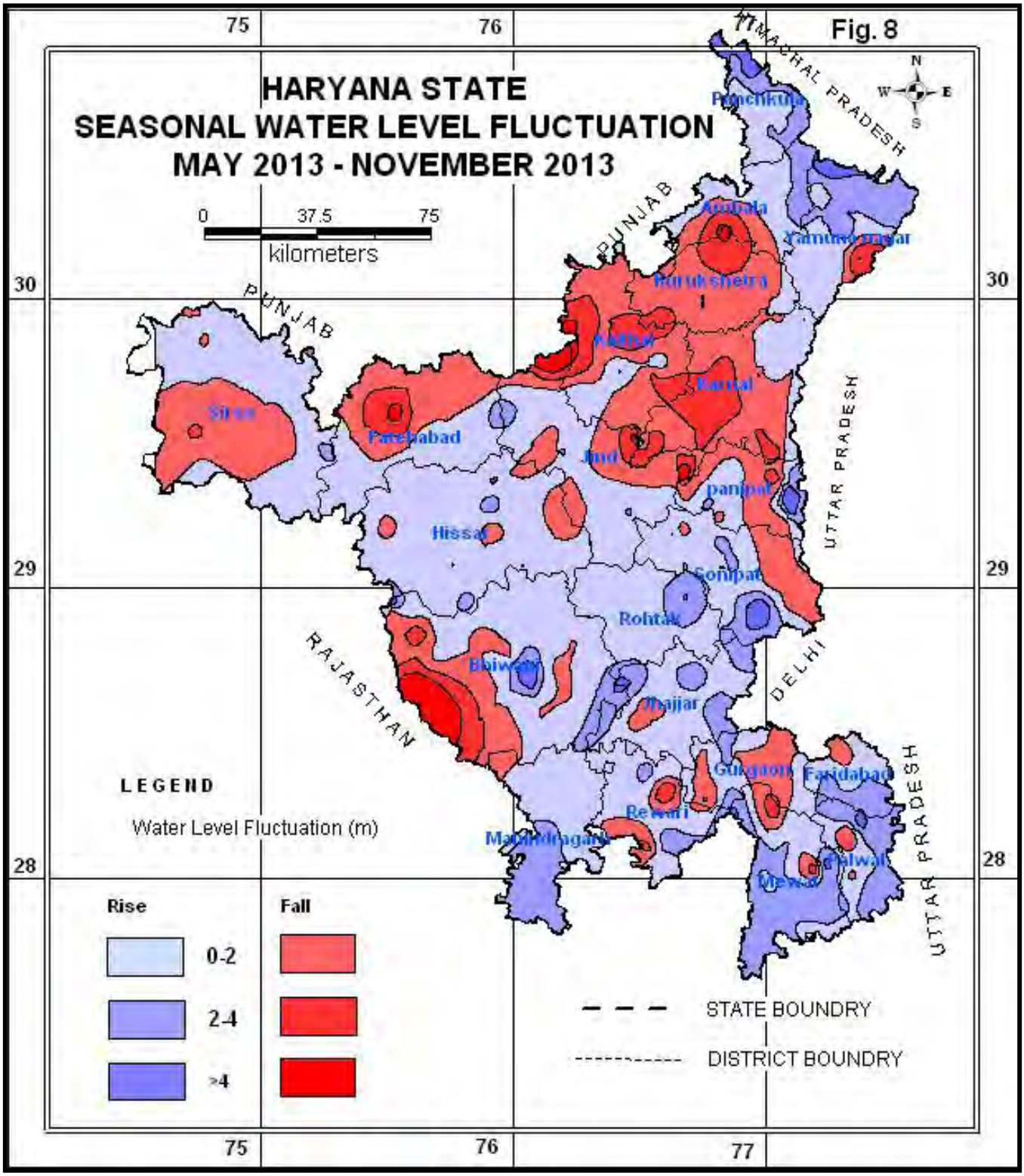
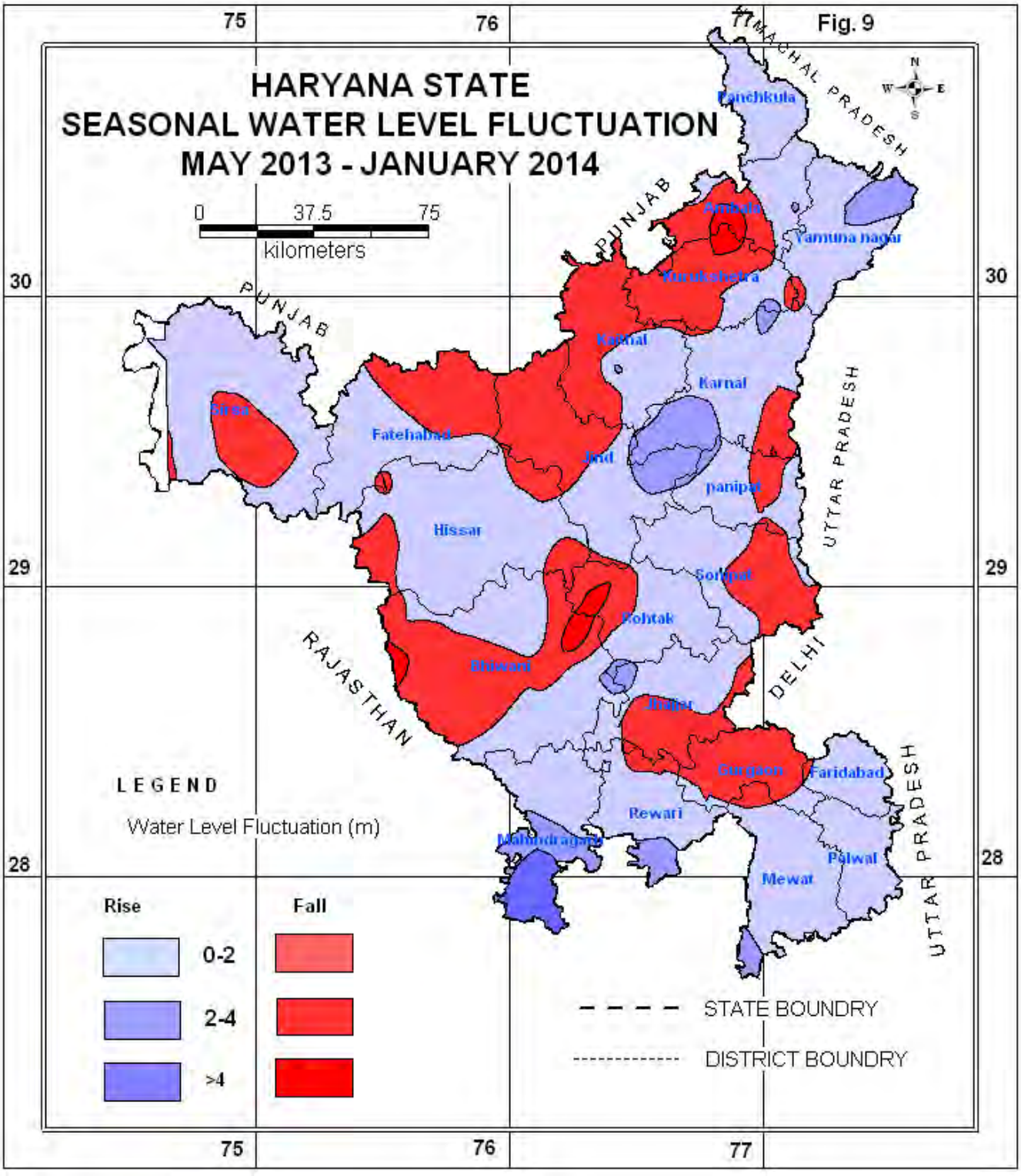


Fig. 8
HARYANA STATE
SEASONAL WATER LEVEL FLUCTUATION
MAY 2013 - NOVEMBER 2013
0
37.5
75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
UTTAR PRADESH
DELHI
Panchkula
Ambala
Yamunanagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

Fig. 9


HARYANA STATE
SEASONAL WATER LEVEL FLUCTUATION
MAY 2013 - JANUARY 2014
0
37.5
75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewar
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

2.4 ANNUAL WATER LEVEL FLUCTUATIONS

In order to know the impact of rainfall and ground water withdrawal during last one year, annual water level fluctuations are calculated for the period of May 2012 & 2013, August 2012 & 2013, November 2012 & 2013 and January 2013 & 2014. The fluctuations are discussed in the paragraphs below and data is presented in the Annexure III.

2.4.1 MAY 2012 & MAY 2013

The annual fluctuation in water level of May 2012 - May 2013 shows that there has been a decline of water levels in about 68% of wells monitored covering 76% area of the state. In the remaining 32% of the wells and 24% of the area water level rise has been recorded. Water level decline in the range of 0-2m has been recorded in 54% wells covering 65% area in parts of Panipat, Karnal, Kurukshetra, Kaithal, Jind, Fatehabad, Sirsa, Bhiwani, Mahendragarh, Sonipat and Rohtak districts. Water level decline in the range of >2m has been recorded in 14% wells and 12% area in patches in parts of Kurukshetra, Kaithal and Sirsa districts. Water level rise in the range of 0-2m has been recorded in 29% of the wells and 21% area covering whole of the state. Water level rise of more than 2m has been observed in 3% wells and 2% area. The map depicting annual water level fluctuation during May 2012 and May 2013 is shown in Fig. 10.

2.4.2 AUGUST 2012 & AUGUST 2013

The annual water level fluctuation for August 2012- August 2013 indicates that there has been a decline in water levels in about 40% of the wells monitored covering 39% area of the State. Water level rise has been recorded in 60% of the wells covering 61% area of the state.

The water level decline in the range of 0-2 m has been recorded in more than 35% of the wells and 33% the area in all districts of the state. Water level decline in the range of >2m has been observed in 5% wells covering 6% area in patches in parts of Karnal, Kurukshetra, Kaithal Jind, Sirsa, Rewari, Gurgaon and Faridabad districts. Water level rise in the range of 0-2m has been recorded in 51% of the wells and 57% area covering whole of the state. Water level rise of more than 2m has been observed in 9% wells and nearly 4% area in small patches. The map depicting annual water level fluctuation during August 2012 - August 2013 is shown in Fig. 11.

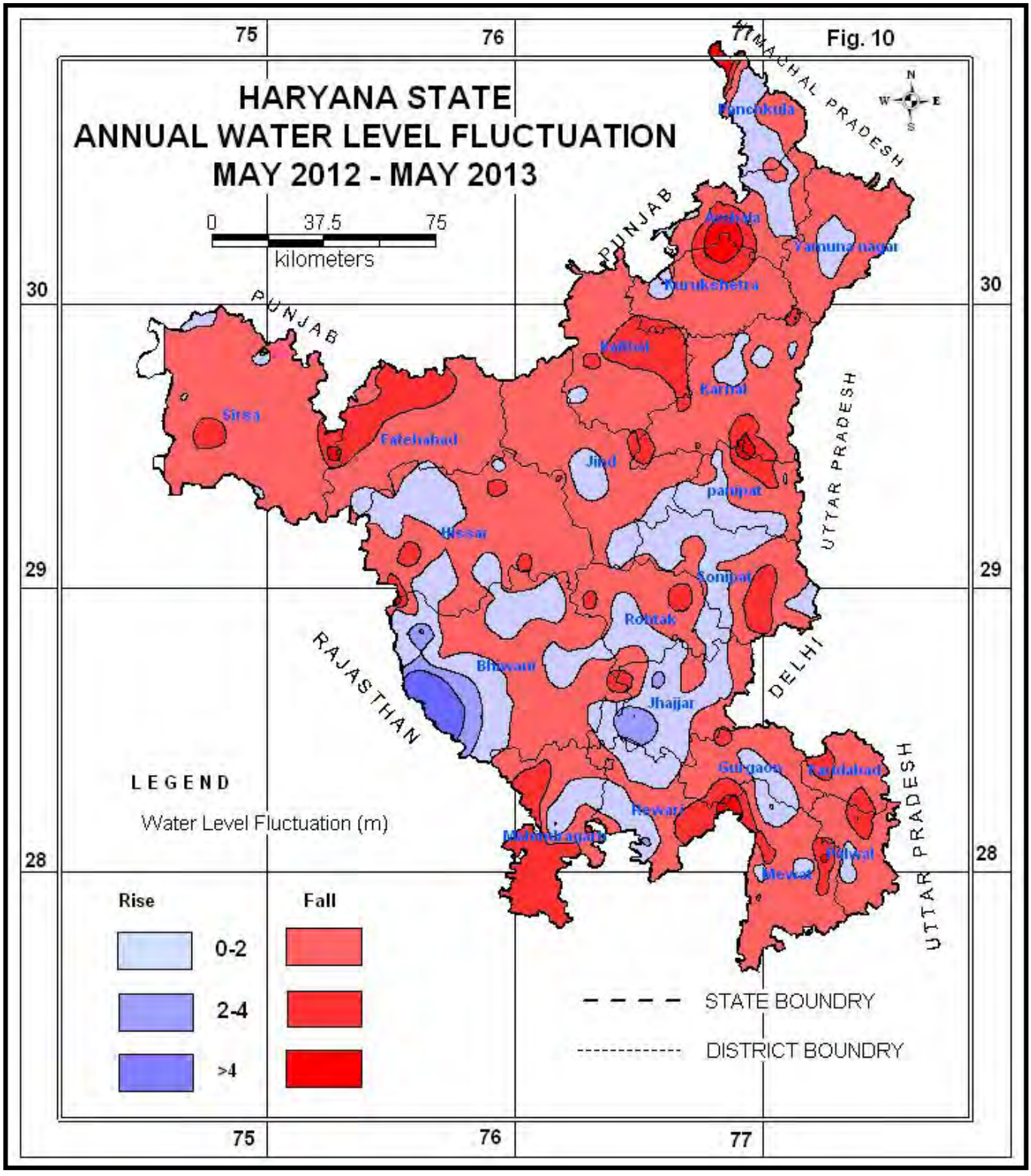
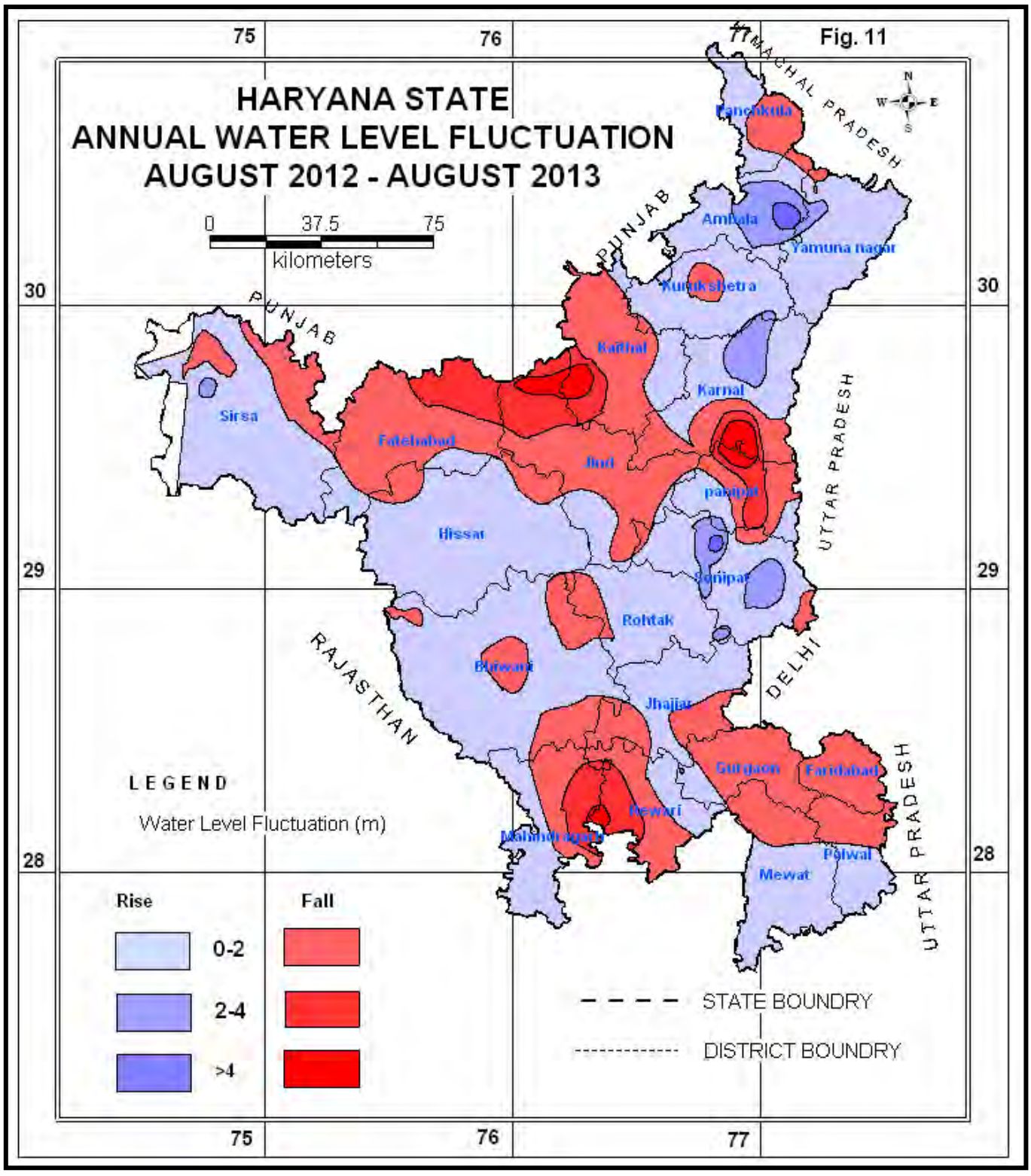


Fig. 10
HARYANA STATE
ANNUAL WATER LEVEL FLUCTUATION
MAY 2012 - MAY 2013
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
UTTAR PRADESH
DELHI
Panchkula
Ambala
Yamunanagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
N
W
E
S
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

Fig. 11


HARYANA STATE
ANNUAL WATER LEVEL FLUCTUATION
AUGUST 2012 - AUGUST 2013
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

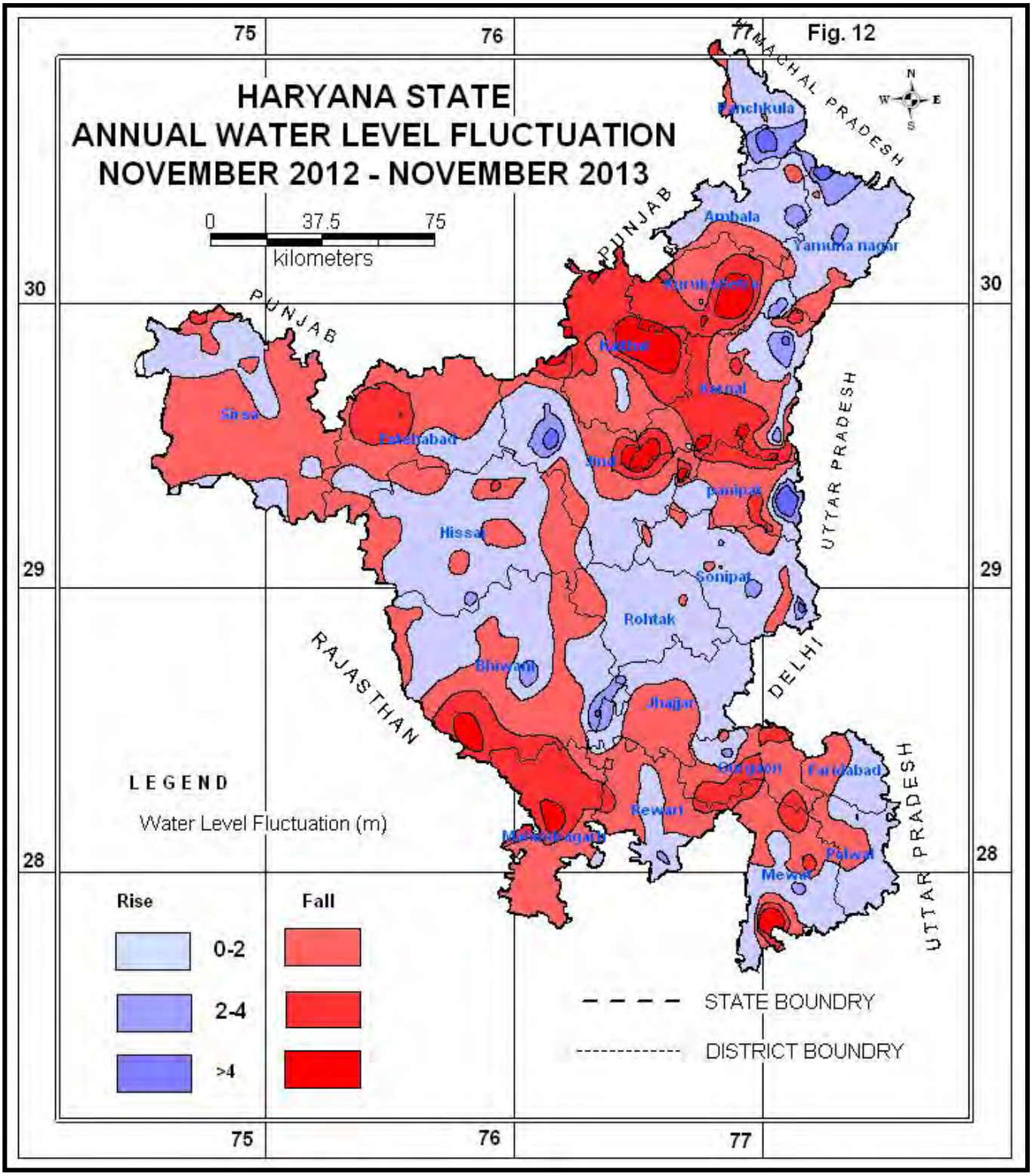
2.4.3 NOVEMBER 2012 & NOVEMBER 2013

The annual water level fluctuation indicates that there has been a decline in water levels in about 46% of the wells monitored covering about 54% area of the state. During the period water level rise has been recorded in 54% wells covering 46% area of the state. Water level decline in the range of 0-2 m has been observed in 32% wells covering 38% area in all districts of the state. However, only in few isolated patches water level decline of more than 2 m has been observed covering 14% wells and more than 16% area of the state. Water level rise in the range between 0-2 m has been recorded in 46% of wells and 43% of the area in parts of Yamunanagar, Kurukshetra, Sirsa, Bhiwani, Mahendragarh, Gurgaon, Rewari, Jhajjar and Rohtak districts. Water level rise of more than 2m has been recorded in 8% wells and 3% area of the state. The decline of water levels has been more in paddy growing areas due to heavy pumping from ground water during Kharif season in the absence of timely rains. The map depicting annual water level fluctuation from November 2011 - November 2013 is shown in Fig. 12.

2.4.4 JANUARY 2013 - JANUARY 2014

The annual water level fluctuation between water levels of January 2013- January 2014 indicates that there has been a decline in water levels in about 50% of the wells monitored covering 52% area of the State. During the period water level rise has been recorded in 50% wells covering 48% area of the state. Water level decline in the range of 0-2m has been observed in 41% wells covering 50% area in almost all the districts of the state. Decline in 2-4m range has been observed in 9% wells and 2% area. In addition to it <1% wells covering <1% area of the state. During the period, water level rise in range of 0-2m has been recorded in 44% of the wells and 43% area of the State in patches in parts of Yamuna nagar, Ambala, Sirsa, Rewari, Hissar, Fatehabad and Bhiwani districts. Water level rise >2m has been recorded in 6% of the wells and 4% area of the State in small patches. The decline of water levels has been more in paddy growing areas due to heavy pumping from ground water during Kharif season in spite of sufficient rainfall during monsoon. Heavy rain fall has caused rise in water levels. The map depicting annual water level fluctuation from January 2013 - January 2014 is shown in Fig. 13.

Fig. 12


HARYANA STATE
ANNUAL WATER LEVEL FLUCTUATION
NOVEMBER 2012 - NOVEMBER 2013
0
37.5
75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
UTTAR PRADESH
RAJASTHAN
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
N
W
E
S
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
>4
STATE BOUNDRY
DISTRICT BOUNDRY

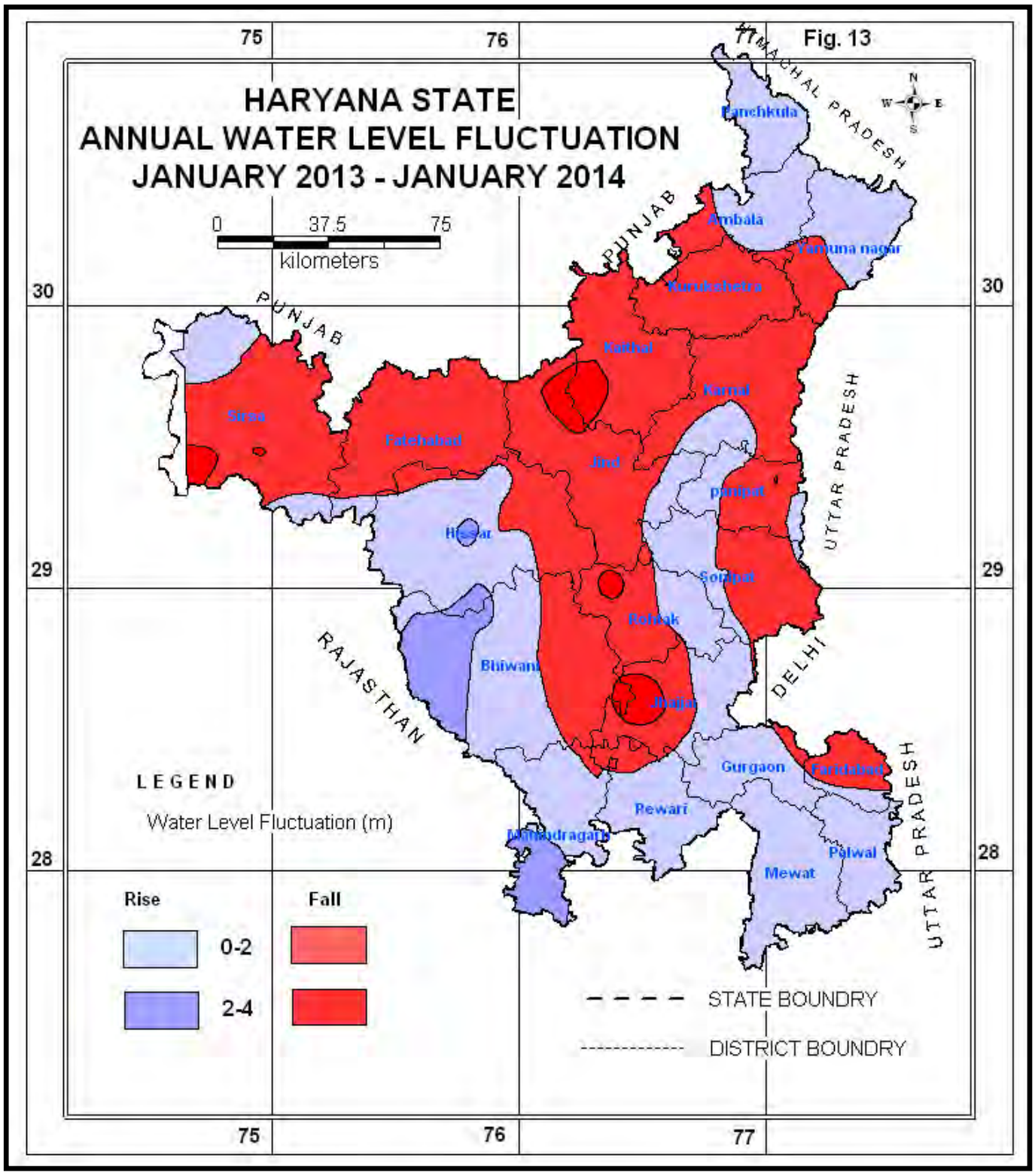


Fig. 13
HARYANA STATE
ANNUAL WATER LEVEL FLUCTUATION
JANUARY 2013 - JANUARY 2014
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
UTTAR PRADESH
RAJASTHAN
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
panipat
Hisar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
STATE BOUNDRY
DISTRICT BOUNDRY

2.5 WATER LEVEL FLUCTUATIONS FROM DECADAL MEAN

Changes in water level behavior since last one decadal have been observed using decadal mean water level data. Mean of water levels of past one decadal of each Ground water observation wells are computed and compared with the water level data of May 2013, August 2013, November 2013 & January 2014. The behaviour of water level over the period under reference is discussed in paragraph below along with maps and data is given in Annexure-IV.

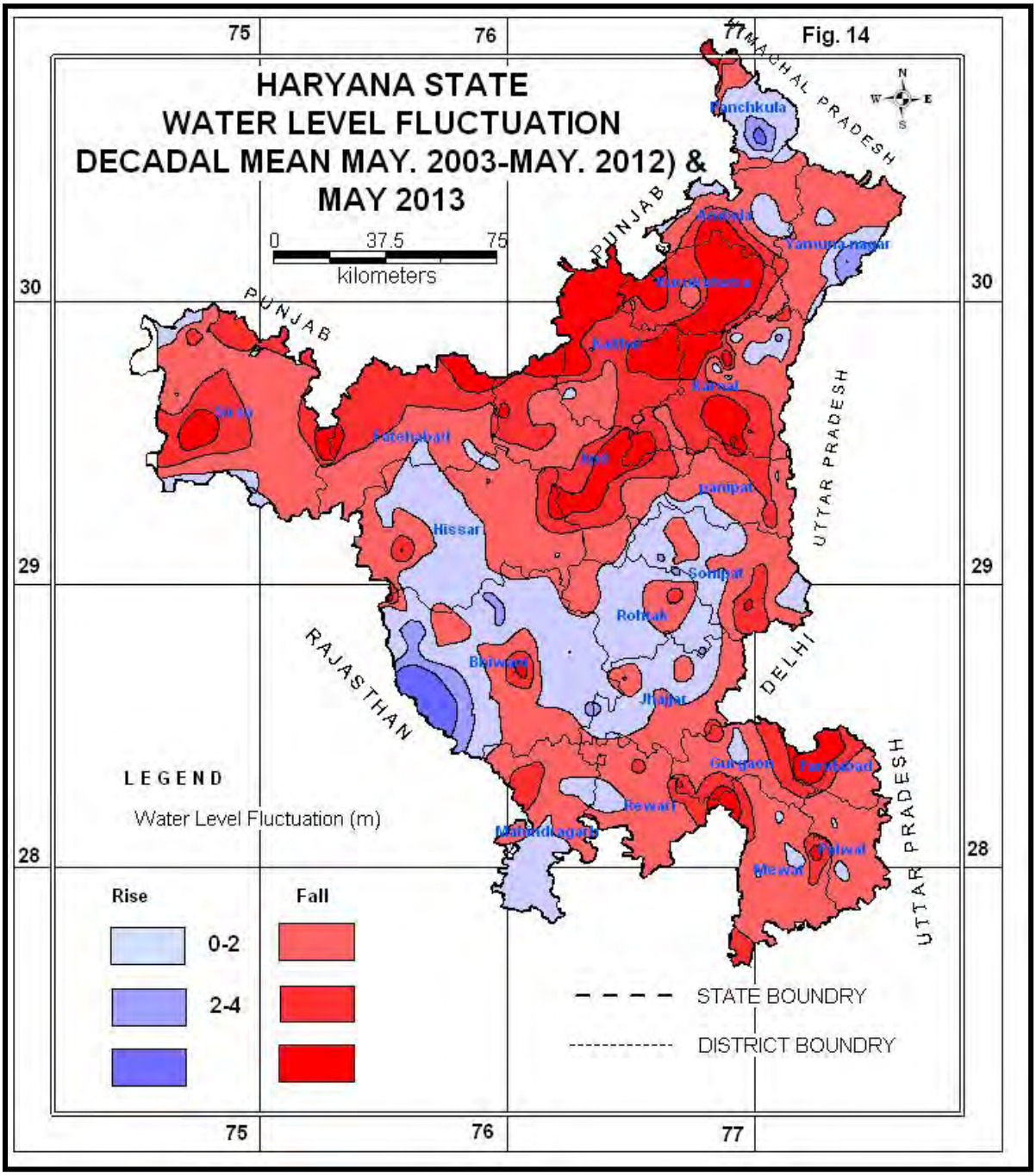
2.5.1 MAY (2003-2012) & MAY 2013

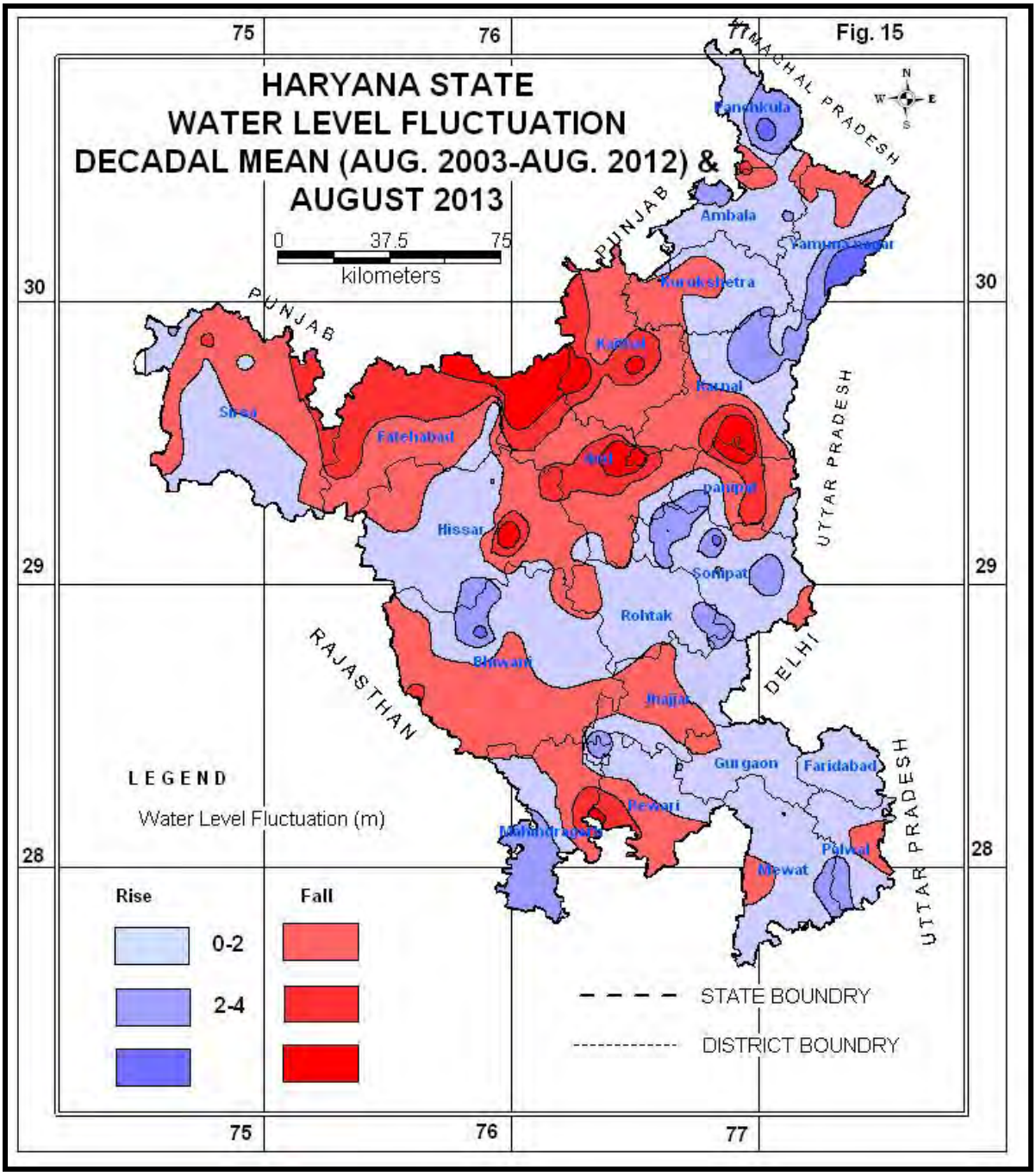
The fluctuation of water level during May 2013 when compared with the average water levels of past 10 years (Decadal mean May 2003-2012) indicate general decline of water level in all districts of Haryana State. About 66% of wells which covers about 75% area of the State have shown water level decline. Whereas, 34% of wells covering 25% area, a rise in water level has been recorded Water level decline in the range of 0-2m has been recorded in 43% of wells covering 47% area of the state in parts of Panchkula, Ambala, Yamunanagar, Sonipat, Panipat, Jind, Sirsa, Bhiwani, Mahendragarh districts and in area covering periphery of central Haryana. Water level decline in the range of 2-4 m has been recorded in 13% of wells covering 18% area of the state in parts of Panipat, Karnal, Kurukshetra, Kaithal, Ambala, Fatehabad, Jind, Bhiwani, Mahendragarh and Rewari, districts. Water level decline of more than 4m has also been observed in 10% wells covering 10% area of the state in parts of Karnal, Kurukshetra and Kaithal districts. Water level rise in the range between 0-2 m has been recorded in 29% of wells and 23% of the area in parts of Yamunanagar, Kurukshetra, Sirsa, Bhiwani, Mahendragarh, Gurgaon, Faridabad, Rewari, Jhajjar and Rohtak districts. Water level rise of more than 2m has been recorded in 5% wells and 3% area in central parts and in few isolated patches all over the State. The map depicting fluctuation from decadal mean during May (2003-2012) & May 2013 is shown in Fig. 14.

2.5.2 AUGUST (2003-2012) & AUGUST 2013

The fluctuation of water level during period under reference indicate decline of water level in most parts of state covering 50%wells and 47% area. Whereas, Water level rise observed in 50% wells and 53% area is concentrated mainly in central and in few isolated patches of the State and eastern parts of Haryana. Water level decline in the range of 0-2 m has been observed in 39% of the wells and 35% area. Water level decline between 2-4 m has been recorded and in 6% of wells and 9% area, whereas decline of more than 4 m has

been observed in 5% of wells and 3% area. Water level rise in the range between 0-2 m has been recorded in 37% of wells and 44% of the area in parts of, Sirsa, Bhiwani, Mahendragarh, Gurgaon, Rewari, Jhajjar and Rohtak districts. Water level rise of 2-4 m has been observed in 9% of wells and 8% of the area and >4m has been recorded in 4% wells and 1% area in northern, southern parts and in few isolated patches in State. The map depicting fluctuation from decadal mean of August (2003-2012) and August 2013 is shown in Fig. 15.





2.5.3 NOVEMBER (2003-2012) & NOVEMBER 2013

The fluctuation of water level during November 2013 when compared with Decadal mean November 2003-2012, indicate general decline of water level in 50% of the wells monitored covering 60% area in entire northern, eastern and southern parts of the State. Whereas, water level rise has been recorded in 50% wells covering 40% area. The water level decline in the range of 0-2m has been observed in about 29% of wells monitored covering 32% area spread all over the State. Water level decline in the range of 2-4 m has

been observed in about 10% of wells covering 15% area in large patches in parts of Sonipat, Panipat, Karnal, Kurukshetra, Kaithal, Jind, Fatehabad, Sirsa, Bhiwani, Mahendragarh, Rewari, Gurgaon and Faridabad districts. The water level decline of more than 4m has been observed in about 10% of wells monitored covering 13% area in parts of Kaithal, Karnal, Kurukshetra, Jind and Sirsa districts. The situation is alarming in these districts owing to over exploitation of ground water for irrigation of late varieties of paddy crops. Water levels going below the long term average are an indicator of high level of development of ground water resources. Water level rise in range of 0-2m has shown in 44% wells covering 36% area the central parts of the State and in patches in the west and southeastern parts. Water level rise of more than 2m has also been observed in 6% wells and 4% area in patches in southern parts of the state. The map depicting water level fluctuation between decadal mean during November (2003-2012) and November 2013 is shown in Fig. 16.

2.5.4 JANUARY (2004-2013) & JANUARY 2014

The fluctuation of water level during January 2014 when compared with the average water levels of past 10 years (Decadal mean January 2003-2012) indicate general decline of water level in 54% of wells monitored covering 67% of the area mainly in northern, eastern and southern parts of the State. Water level rise has been observed in nearly 46% wells monitored covering 33% area of the state.

Water level decline in the range of 0-2 m have been observed in 35% of wells covering 46% area almost in all the districts except south western parts of the State. Water level decline in the range of 2-4m has been observed in about 15% of wells and 15% area in parts of Ambala, Kurukshetra, Karnal, Panipat, Jind, Kaithal, Sirsa districts. Water level decline in range of >4m has been recorded in 4% of wells and 5% area covering the parts of, Karnal, Kurukshetra, Kaithal and Jind districts forming a very large patch in northern part of the State. Water level rise in the range of 0-2m has been observed in 40% wells covering 27% area in central parts of the State besides, small patches in Sirsa, Bhiwani, Gurgaon and Faridabad districts. Water level rise in the range of 2-4m has been observed in 4% wells covering 4% area, rise more than 4m has been observed in 2% wells covering 2% area. The map depicting water level fluctuation between decadal mean during January (2004-2013) and January 2014 is shown in Fig. 17.

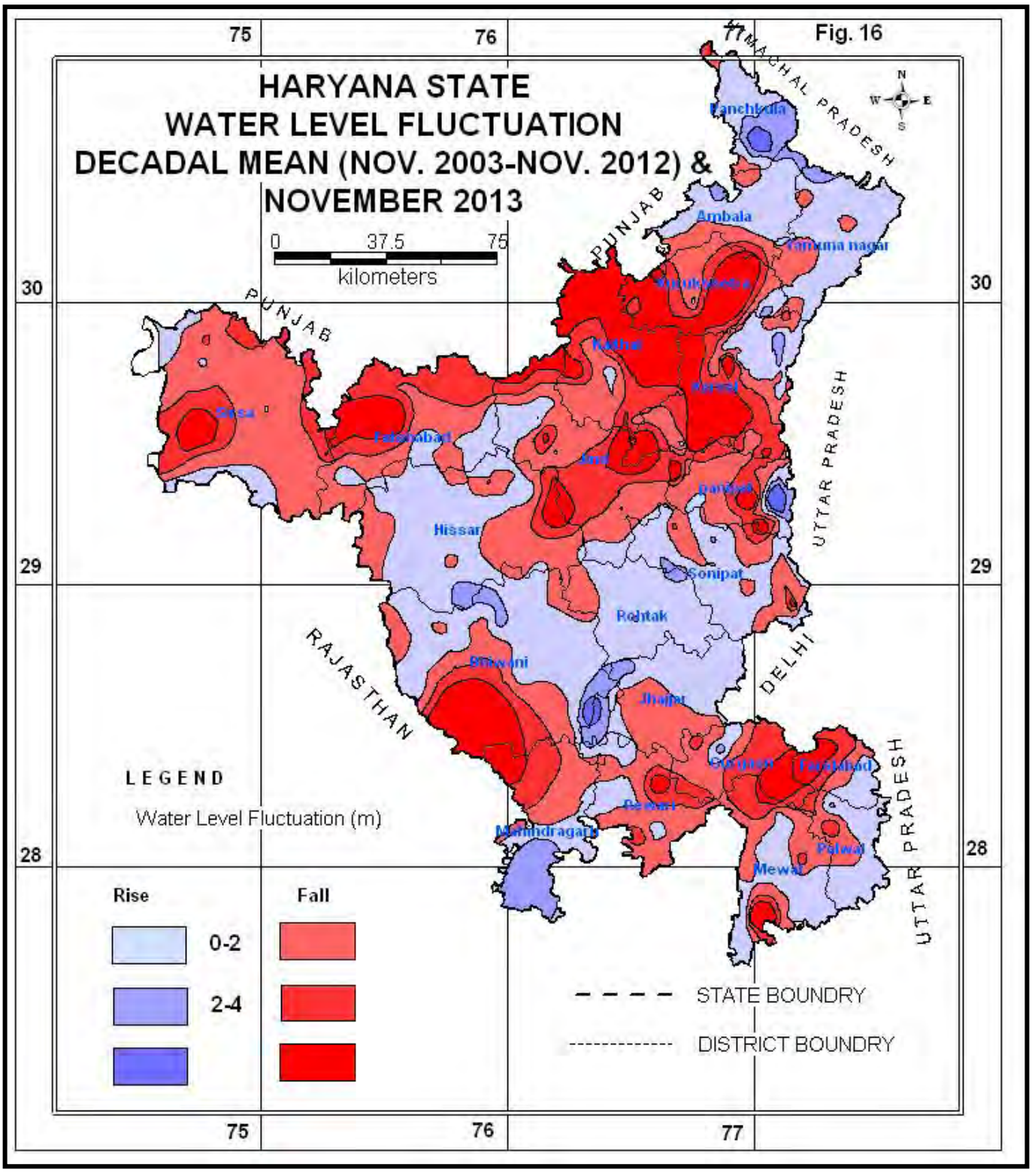


Fig. 16
HARYANA STATE
WATER LEVEL FLUCTUATION
DECADAL MEAN (NOV. 2003-NOV. 2012) &
NOVEMBER 2013
0 37.5 75
kilometers
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kaithal
Karnal
Sirsa
Faridabad
Jind
Panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
STATE BOUNDRY
DISTRICT BOUNDRY

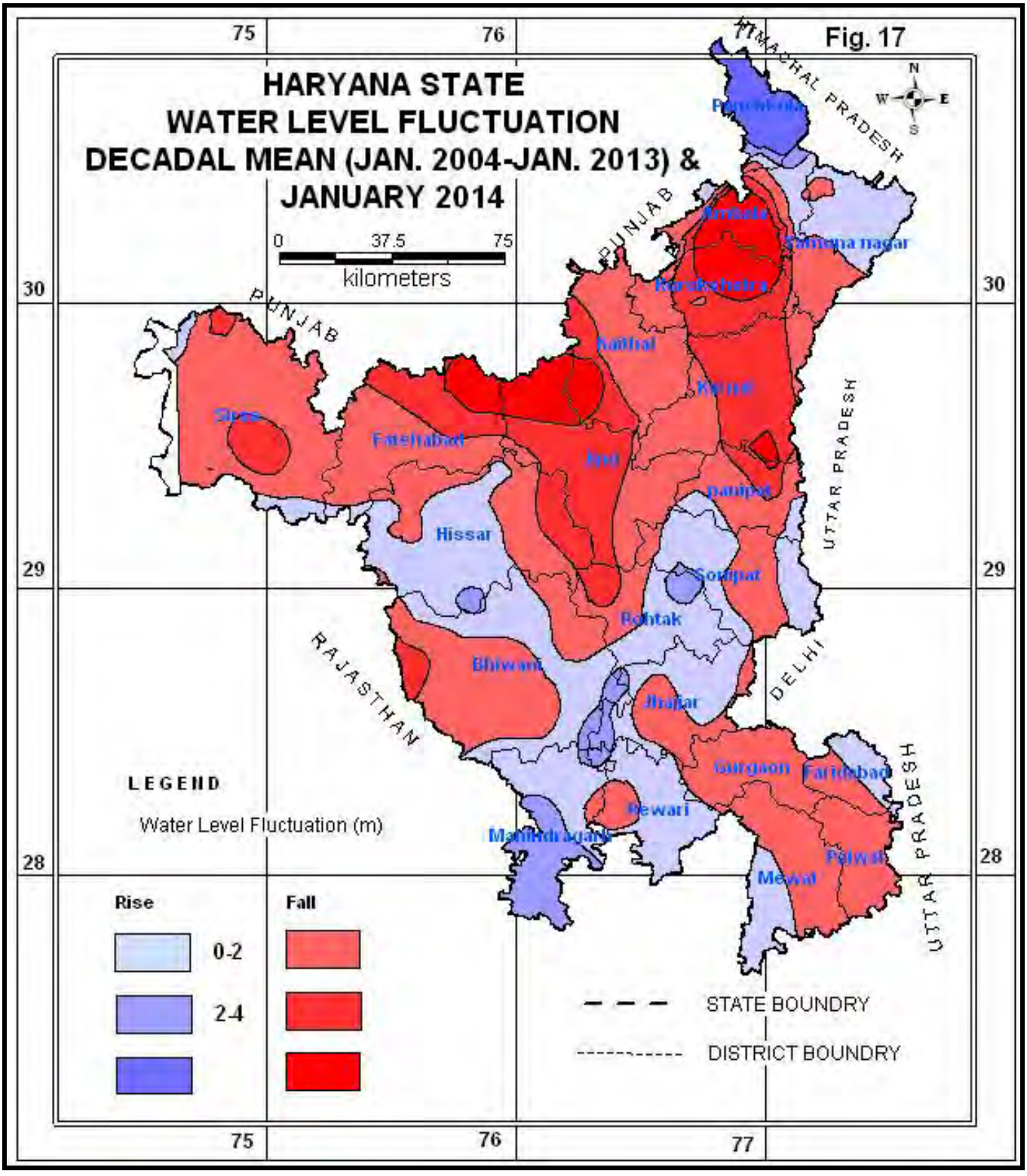


Fig. 17
HARYANA STATE
WATER LEVEL FLUCTUATION
DECADAL MEAN (JAN. 2004-JAN. 2013) &
JANUARY 2014
0 37.5 75
kilometers
N
W E
S
75
76
77
30
29
28
HIMACHAL PRADESH
PUNJAB
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
UTTAR PRADESH
Panchkula
Ambala
Yamuna nagar
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hissar
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Faridabad
Rewari
Mahendragarh
Palwal
Mewat
LEGEND
Water Level Fluctuation (m)
Rise
Fall
0-2
2-4
STATE BOUNDRY
DISTRICT BOUNDRY

3.0 GROUNDWATER QUALITY IN HARYANA

Natural quality of ground water is dependent on geological characteristics and climatic conditions. It is further influenced and generally degraded by human activities. Indiscriminate extraction of groundwater for day to day uses, application of fertilizers in agriculture and unscientific disposal of industrial waste have great impact on ground water quality. The quality of ground water is normally ascertained through concentration values of number of physical, chemical and biological parameters present in it. Concentration of these parameters affects its acceptability and usefulness for domestic, agriculture, industrial and other purposes. It is, therefore, essential to know the chemical composition of ground water to determine its suitability for the intended use. Knowledge of quality of ground water not only helps in finding its suitability for various purposes, but it also helps in taking effective remedial measures for its improvement on scientific lines. In rural as well as in urban area of Haryana State, ground water is a major resource for drinking and other uses. Wherever surface water is inadequate or unavailable, ground water is exploited for drinking and irrigation purposes.In the backdrop of various uses of ground water, its quality is monitored annually by CGWB, NWR Chandigarh through dedicated ground water monitoring stations (GWOW) of dug wells and/or hand pumps of shallow depth.

3.1 SAMPLING & ANALYSIS

Three hundred and twenty (320) water samples were collected in 1-liter capacity good quality polyethylene bottle from national ground water monitoring stations distributed over 19 districts of Haryana during May 2013. Sampling points are mostly open dug wells and hand pumps, which are fully or at least are partially in use. Chemical analysis was carried out for major cations (Ca, Mg, Na, K) and anions (CO3, HCO3, Cl, SO4, NO3, F) in addition to pH, EC, TH as CaCO3, in the Chemical Laboratory at Chandigarh. Standard analytical procedures as given in APHA 2012 were followed. Results of chemical analysis of water samples are placed in Annexure V.

3.2 COMPOSITION OF GROUND WATER

Chemical analysis shows that ground water is slightly to moderate alkaline with pH ranging between 7.05 (Mangali, district Hissar) and 9.25 pH units (Meoka district Gurgaon). EC (salinity) is found to vary widely with a minimum value of 62 µS/cm at Bawani Khera in district Bhiwani and a maximum value of 20920 µS/cm at 25°C at Phagu in district Sirsa. Among anions, carbonate though generally absent in ground water samples is found in significant no. of water samples and it varies from nil to 136 mg/l. Bicarbonate varies from 13 to 859 mg/l, chloride varies from nil to 4933 mg/l and sulphate varies from nil to 642 mg/l. However, exceptionally high concentrations of 6000 mg/l of sulphate is also encountered in, district Sirsa (Phagu). Nitrate, an indicator of domestic, irrigation and industrial contamination, is found at many locations. Its concentration in State varies from nil to 1150mg/l. Fluoride is found to be present in all the water samples and it varies from nil to 9.15 mg/l. However, very high concentration of Fluoride have been observed in groundwater of Siwani (16.0 mg/l) in Bhiwani district, Bhurtawala(15.6 mg/l) in Sirsa district and Gusai Khera (30.1 mg/l) in Jind district. In about 18.4% of the samples, it is found more than the drinking water limit of 1.5 mg/l F (BIS 2012). Among cations, calcium is found to vary from 3.0 mg/l to 549 mg/l whereas magnesium generally varies from nil to 337 mg/l however, its exceptionally high concentration of 655 mg/l has been found at Phagu in district Sirsa. Sodium is found to range between 1.4 mg/l and 1550 mg/l. However, exceptionally high concentrations of 4282 mg/l of sodium are also encountered at Phagu in district Sirsa respectively. Potassium in ground waters is normally below 10 mg/l and its higher concentration indicates contamination from point as well as non-point sources. In Haryana, potassium in shallow waters is found to range from nil to as high as 484 mg/l. Very high potassium concentrations of 737 mg/l, and 1460 mg/l are observed at Balana in Jind district and Charra in Jhajjar district, respectively. Hardness reported as $CaCO_3$ varies between 30 mg/l and 2505 mg/l indicating wide variation. However, very hard water with concentration as high as of 4069 mg/l are also encountered at Phagu in district Sirsa. The district-wise concentration range of various chemical constituents in ground water is given in Annexure-V.

Table 4. District wise distribution of chemical constituents in groundwater of Haryana State (GWMS 2013).

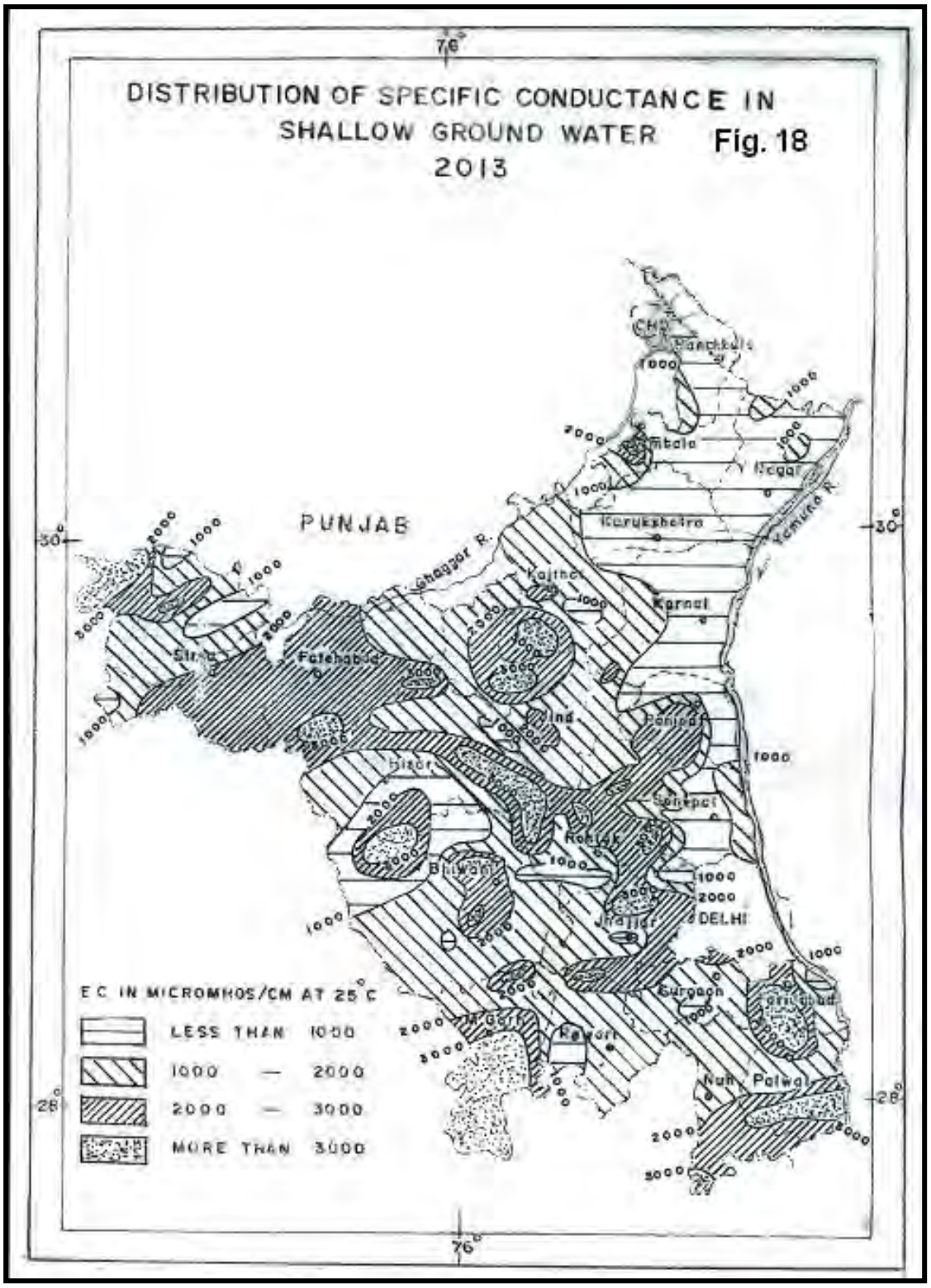
S.No.	District	No of Samples	Range	pH	EC at 25^0C in µS/cm	CO_3	HCO_3	Cl	SO_4	NO_3	F	PO4	Ca	Mg	Na	K	SiO2	T.H as $CaCO_3$	SAR	RSC in meq/l
						<---------- Concentration in mg/l ----------→														
1	Ambala	13	Min	7.27	395	0	106	5.3	10	0	0.13	0.13	3	1.3	29	0	5.4	66	0.966	-1.1
			Max	8.93	3900	80	828	493	550	44	1.25	0.13	31	93	269	737	17	454	8.407	4.5
2	Bhiwani	30	Min	7.8	62	0	13	6.74	5	0.51	0.02	0	8	0	1.4	0.5	2.5	30	0.111	-15.1
			Max	9.05	7970	101	717	1919	1375	375	16	0.43	212	209	1450	115	21	1100	29.62	11.0
3	Faridabad	9	Min	7.08	813	0	151	71	62	15	0.19	0	11	22	113	4.8	19	181	3.665	-27.0
			Max	8.74	4608	47	821	1254	568	240	1.88	0.09	314	170	784	75	30	1482	18.48	10.0
4	Fatehabad	5	Min	8.2	737	35	155	21	64	9.6	0.51	0.01	7.9	13	48	0.2	17	104	1.097	-11.4
			Max	8.82	2398	47	263	320	900	84	2.1	0.01	119	105	262	137	27	728	7.637	2.8
5	Gurgaon	18	Min	7.72	638	0	73	18	2.4	7.01	0.15	0	11	12	58	0.9	17	75	1.706	-47.2
			Max	9.25	10320	71	489	3420	1040	284	4.35	0.106	448	337	1340	80	28	2505	18.21	8.8
6	Hissar	31	Min	7.05	295	18	54	21	0	0.6	0.13	0.009	12	8	5.1	1.3	5.9	135	0.158	-40.1
			Max	8.72	6850	59	789	1084	2300	276	2.27	0.33	433	268	881	298	35	2184	13.27	2.4
7	Jhajjar	8	Min	7.95	386	0	103	27	26	3	0.14	0.038	15	17	18	2.5	13	155	0.629	-25.1
			Max	8.83	5744	89	785	1168	640	1000	5.57	0.536	256	187	530	1460	31	1343	8.324	4.4
8	Jind	17	Min	7.62	899	12	84	42	20	5.5	0.19	0.01	12	10	62	2	20	94	1.16	-14.8
			Max	9.24	4825	94	813	667	1250	235	30.1	0.06	162	182	1112	484	30	832	31.25	9.9
9	Kaithal	19	Min	7.78	546	0	124	14	75	0.3	0.08	nd	10	1.1	34	2.3	11	51	1.246	-15.5
			Max	9.05	6115	110	610	915	780	642	3.62	nd	114	191	940	118	20	929	27.36	7.6
10	Karnal	32	Min	7.28	346	0	100	7.1	0	0	0.14	nd	8.2	0	6.4	1.6	9.1	41	0	-8.9
			Max	8.77	2213	104	541	241	320	498	4.94	nd	82	126	411	69	20	628	15.55	9.7
11	Kurukshetra	21	Min	7.7	255	0	106	5.3	0	0	0.27	nd	10	12	16	2.9	13	97	0	-1.8
			Max	8.69	1246	49	442	216	170	18	1.43	nd	53	46	176	37	27	276	4.99	4.4
12	Mahendergarh	6	Min	8.08	1227	0	181	205	64	63	0.56	0.069	13	14	235	3.5	24	91	8.947	-9.7
			Max	9.03	4322	30	375	1147	448	136	0.8	0.116	109	101	770	22	32	634	21.55	4.3
13	Palwal	5	Min	8.28	1745	0	266	267	120	14	0.17	0.07	8.6	29	340	4.1	14	160	8.427	-11.9
			Max	8.81	5650	71	592	1247	700	135	1.76	0.151	77	211	908	345	29	932	19.33	6.5
13	Panchkula	7	Min	7.55	308	0	139	11	4.8	6.7	0.12	0	34	5.1	18	1	16	117	0.728	-7.6
			Max	8.5	1520	24	453	156	156	214	0.49	0.012	113	74	150	4.2	18	586	3.096	1.1
14	Panipat	19	Min	7.3	475	0	25	6.74	42	0	0.13	0.02	8.42	13	54	1.4	12	105	1.513	-6.3
			Max	8.9	2685	136	591	327	730	22	7.52	0.13	88	107	533	170	28	500	15.8	8.4
15	Rewari	5	Min	7.75	546	0	139	28	24	24	0.11	0.06	15	40	35	1.1	23	224	1.016	-15.2
			Max	8.67	4795	24	512	1089	435	180	0.55	0.47	116	216	440	280	28	1181	5.577	-0.2
16	Rohtak	10	Min	7.73	255	0	64	13	0	1.38	0.14	0.05	20	4.86	6.6	1.4	4.39	100	0.274	-26.0
			Max	8.5	7315	76	704	1109	2240	1150	2.9	0.06	280	253	1198	350	25	1511	14.86	2.2
17	Sirsa	21	Min	7.75	256	12	48	6.9	4	1	0.18	0.01	24	12	4.4	2.9	12	137	0.164	-78.1
			Max	8.98	20920	94	586	4933	6000	1043	15.6	0.03	549	655	4282	327	25	4069	29.22	6.7
18	Sonepat	25	Min	7.78	295	0	76	13	1	0	0.2	0.03	13	13	5.2	1	5.07	95	0.194	-22.4
			Max	8.65	7735	63	859	1552	1306	430	2.75	0.6	176	214	1550	355	28	1321	26.03	6.0
19	Yamunanagar	18	Min	7.68	244	7.2	118	0	0	0	0.06	nd	8.2	0	5.7	1	7.1	92	0.173	-6.8
			Max	8.61	1648	36	544	277	290	119	0.42	nd	200	56	208	190	18	520	5.166	3.7
Haryana		**320**	**Min**	**7.05**	**62**	**0**	**13**	**0**	**0**	**0**	**0.02**	**0**	**3**	**0**	**1.4**	**0**	**2.5**	**30**	0	-78.1
			Max	**9.25**	**20920**	**136**	**859**	**4933**	**6000**	**1150**	**30.1**	**0.6**	**549**	**655**	**4282**	**1460**	**35**	**4069**	31.25	11.0

3.3 DISTRIBUTION OF ELECTRICAL CONDUCTANCE (EC)

EC, a primary indicator of dissolved mineral content, varies from 62 µS/cm to 10320 µS/cm at 25°C. However highly saline ground water with EC value of 20920 µS/cm is encountered at Phagu in district Sirsa. About 37% of the water samples have EC less than 750 µs/cm, 48.1% have EC between 750 and 3000 µs/cm and the remaining 15% of the samples have EC more than 3000µs/cm (Table 1). Water with low EC (<750) are found mostly in Ambala, Panchkula, Panipat, Karnal, Kurukshetra and Yamunanagar districts, water with intermediate EC (750-3000) are found mostly in Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon,Jind, Hissar, Kaithal, Karnal, Rewari, Panipat, Sirsa, Sonepat, and Yamunanagar districts and samples with high EC (>3000) are found scattered throughout the State. However, most of them are from Bhiwani, Faridabad, Gurgaon, Hissar, Jhajjar, Jind, Mohindergarh, Rohtak, Sirsa and Sonepat districts (Fig.18). The reason for high salinity in ground water of these areas may be due to natural concentration of salts as there is more evapo-transpiration than precipitation (Semi-arid climatic conditions) and lack of drainage.

3.4 DISTRIBUTION OF CHLORIDE

The distribution of chloride in ground water follows the distribution pattern of EC and it ranges from nil to 1919 mg/l. However ground water with Chloride values of 4933 mg/l is encountered at Phagu in district Sirsa, 3420 mg/l at Mubarikpur in Gurgaon district and 2300 mg/l at Sadalpur in Hissar district. Chloride above 400 mg/l, in drinking water, may give salty taste to consumers. Bureau of Indian Standards (BIS 2012) has assigned a desirable concentration of 250 mg/l chlorides in drinking water. This limit can be extended to 1000 mg/l in case no other source with desirable chloride concentration is available. Out of 320 samples analyzed, 65% have chloride below desirable limit (250mg/l), 29.1% have between desirable and permissible level (250-1000 mg/l) and the remaining 5.9% of samples have chloride more than the permissible limit of 1000 mg/l (Table-5). Spatial distribution of chloride in ground water indicates that some sites at Bhiwani, Gurgaon, Hissar, Rohtak, Jhajjar, Mahendergarh, Rewari, Jhajjar, Sirsa, Sonepat and Rohtak districts (Fig.19) have chloride concentration above 1000 mg/l. High concentration of chloride is mostly observed in samples having high sodium content indicating highly saline nature of these shallow ground waters.


DISTRIBUTION OF SPECIFIC CONDUCTANCE IN SHALLOW GROUND WATER
2013
Fig. 18
PUNJAB
Ghaggar R.
Yamuna R.
Panchkula
Ambala
Nagal
Kurukshetra
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonipat
Rohtak
Bhiwani
Jhajjar
DELHI
Gurgaon
Faridabad
Rewari
Nuh
Palwal
76°
30°
28°
EC IN MICROMHOS/CM AT 25°C
LESS THAN 1000
1000 — 2000
2000 — 3000
MORE THAN 3000

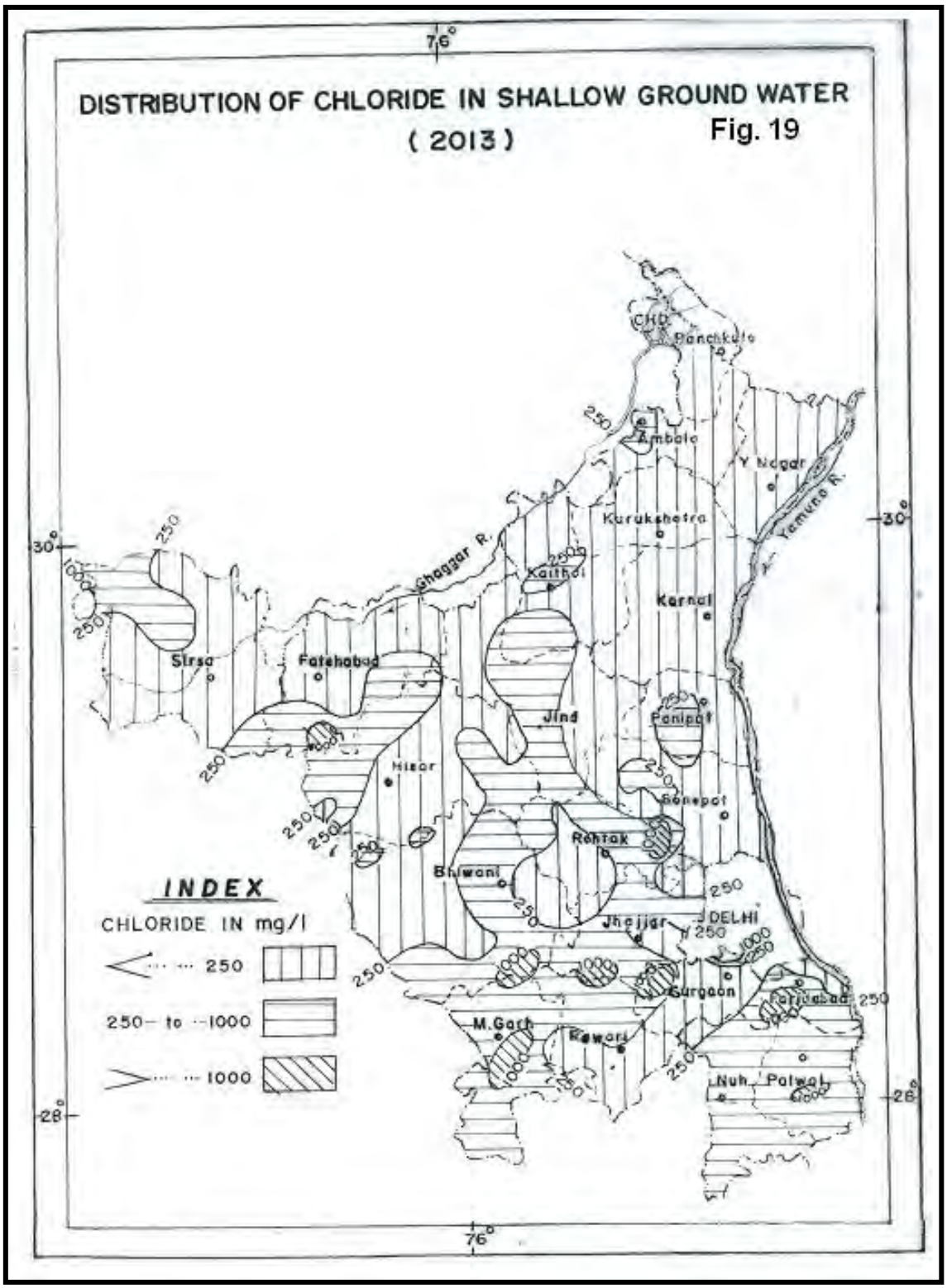

DISTRIBUTION OF CHLORIDE IN SHALLOW GROUND WATER
(2013)
Fig. 19
INDEX
CHLORIDE IN mg/l
250
250- to -1000
1000
CHD
Panchkula
Ambala
Y.Nagar
Yamuna R.
Kurukshetra
Ghaggar R.
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonepat
Rohtak
Bhiwani
Jhajjar
DELHI
Gurgaon
Faridabad
M.Garh
Rewari
Nuh
Palwal
76°
30°
28°

Table 5. District wise distribution of ground water samples in different classes of drinking water suitability.

S. No.	District	N	EC in 25^0C in µS/cm			Cl in mg/l			F in mg/l			NO_3 in mg/l		
			<750	750-3000	>3000	<250	250-1000	>1000	<1.0	1.0-1.5	>1.5	<45	45-100	>100
1	Ambala	13	4	8	1	12	1	0	12	1	0	13	0	0
2	Bhiwani	30	9	16	5	23	5	2	17	3	10	22	2	6
3	Faridabad	9	0	5	4	4	4	1	6	0	3	6	1	2
4	Fatehabad	5	1	4	0	4	1	0	3	1	1	3	2	0
5	Gurgaon	18	5	10	3	9	6	3	13	1	4	11	3	4
6	Hissar	31	8	18	5	17	13	1	20	7	4	22	6	3
7	Jhajjar	8	1	3	4	2	4	2	5	1	2	4	2	2
8	Jind	17	0	14	3	7	10	0	7	4	6	10	3	4
9	Kaithal	19	13	3	3	8	11	0	16	0	3	9	6	4
10	Karnal	32	21	11	0	32	0	0	26	4	2	30	0	2
11	Kurukshetra	22	18	4	0	15	7	0	19	3	0	22	0	0
12	Mahendergarh	6	1	2	3	2	1	3	6	0	0	1	4	1
13	Palwal	5	0	2	3	0	4	1	2	2	1	2	0	3
14	Panckula	7	5	2	0	7	0	0	5	1	1	7	0	0
15	Panipat	19	6	13	0	9	10	0	14	1	4	19	0	0
16	Rewari	5	1	3	1	4	0	1	1	1	3	5	0	0
17	Rohtak	10	3	4	3	5	4	1	6	2	2	8	0	2
18	Sirsa	21	4	10	7	12	7	2	11	2	8	12	3	6
19	Sonepat	25	6	16	3	19	4	2	18	4	3	21	2	2
20	Yamunanagar	18	12	6	0	17	1	0	16	0	2	18	0	0
	Total 320		**118**	**154**	**48**	**208**	**93**	**19**	**223**	**38**	**59**	**245**	**34**	**41**

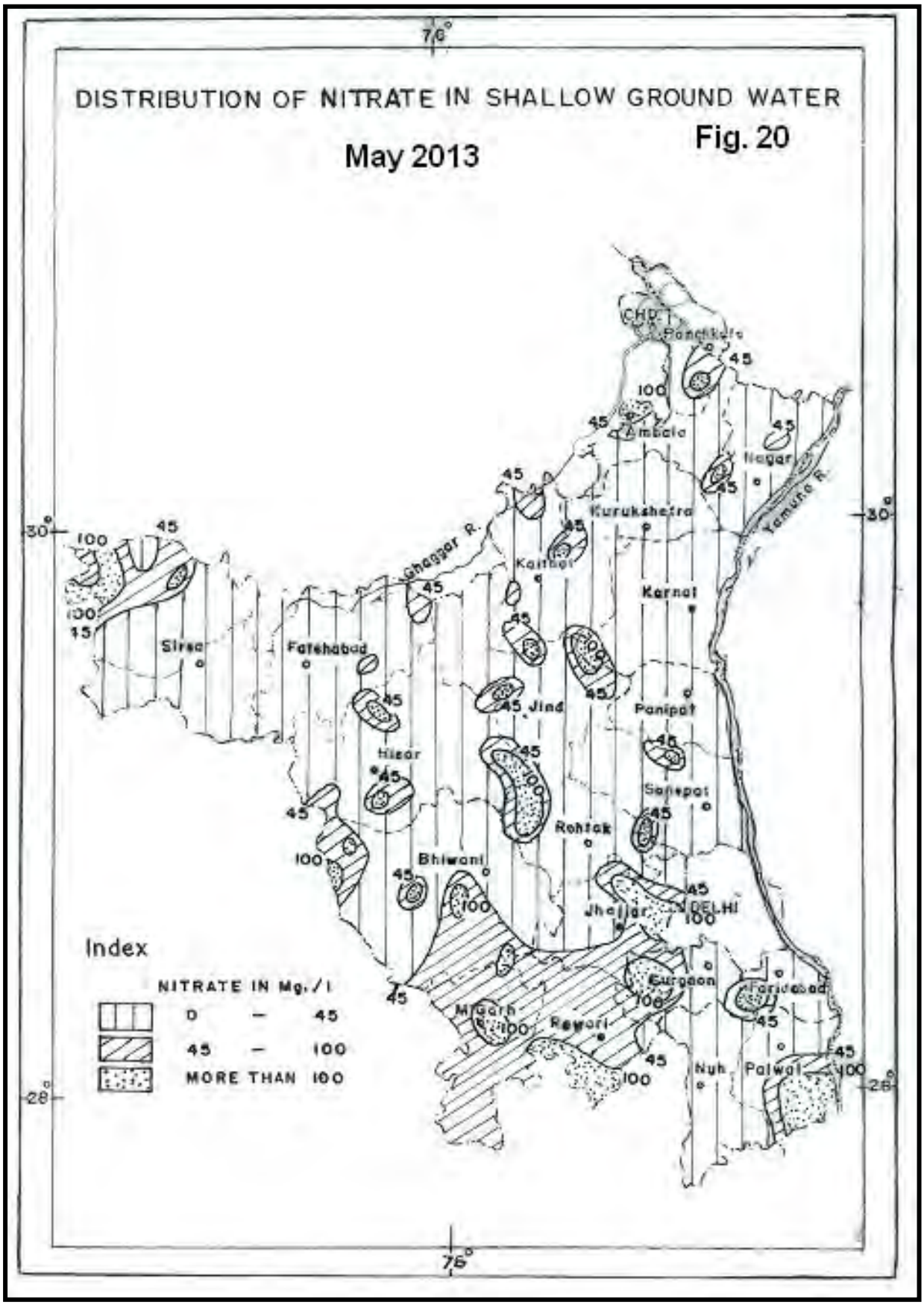
n= No. of samples.

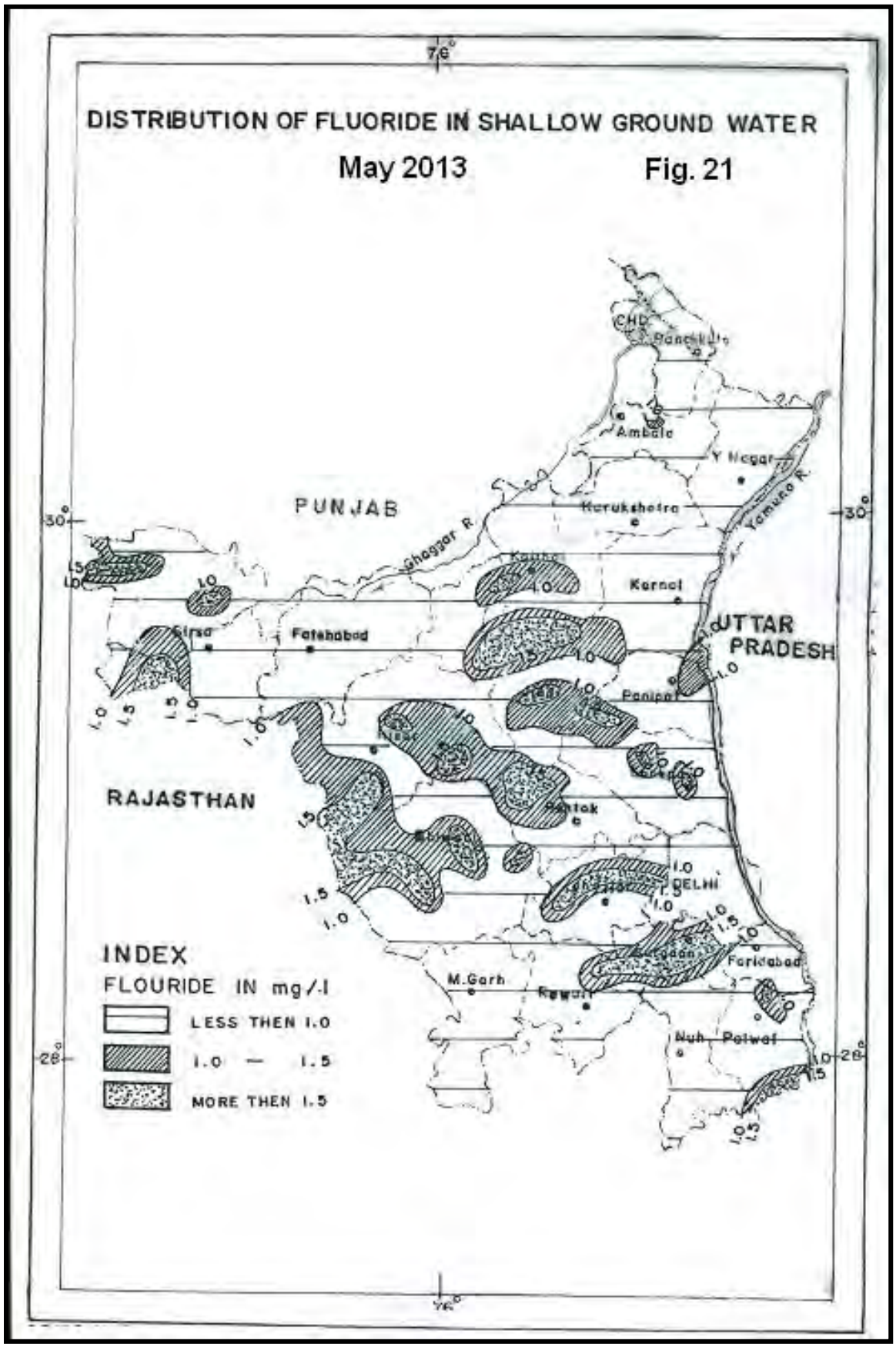
3.5 DISTRIBUTION OF NITRATE

Presence of nitrate above 5.0 mg/l in ground water reflects contamination at some stage of its percolation and circulation. The probable major sources of nitrate content in ground water are excessive application of fertilizers, bacterial nitrification of organic nitrogen, seepage from animal and human wastes and atmospheric inputs. In the State, nitrate varies from nil to 642mg/l. exceptionally high concentrations of 1150 mg/l are encountered at Meham, district Rohtak, 1043 mg/l at Dabwali in Sirsa district and 1000 mg/l at Charra in Jhajjar district. Spatial distribution of nitrate indicates that nitrate is less than 45 mg/l in majority of the areas (Fig.20). Out of 320 samples analyzed, 77% of the samples have nitrate within BIS limit of 45 mg/l for drinking waters (Table 6) and 23% have nitrate more than 45 mg/l. Out of these 23% samples, 12.8% of samples, mostly from districts of Bhiwani, Faridabad, Gurgaon, Hissar, Jhajjar, Jind, Karnal, Kaithal, Mahendergarh, Palwa; Rohtak, Sirsa and Sonipat districts have nitrate contents even more than 100mg/l.

3.6 DISTRIBUTION OF FLUORIDE

Fluoride, in small amounts in drinking water, is beneficial in reducing dental decay but when present in large amounts, has deleterious effects ranging from staining of tooth enamel to skeletal fluorosis. The fluoride contents in ground water of the State ranges from traces to 9.15 mg/l at Haluwas, district Bhiwani. However, very high concentrations of Fluoride have been observed in groundwater of Siwani (16.0 mg/l) in Bhiwani district, Bhurtawala(15.6 mg/l) in Sirsa district and Gusai Khera (30.1 mg/l) in Jind district. Spatial distribution of fluoride indicates that fluoride is less than 1.5 mg/l in 70% samples. It is between 1.0 and 1.5 mg/l in 11.9% samples and is above 1.5 mg/l in the remaining 18.4% samples (Table 5). Ground waters with fluoride above 1.5 mg/l are found mostly in parts of Bhiwani, Faridabad, Gurgaon, Hissar, Jind, Kaithal, Karnal, Palwal, Rohtak, Sirsa and Sonepat districts (Fig. 21) and are not suitable for drinking purpose. At many places, fluoride above 1.5 mg/l is observed in areas where agricultural activities are dominant. The likely causes for high fluoride in ground water are (i) leaching from phosphatic fertilizers where it is present as an impurity and (ii) depletion of calcium either due to precipitation or exchange phenomenon.


DISTRIBUTION OF NITRATE IN SHALLOW GROUND WATER
May 2013
Fig. 20
76°
75°
30°
28°
CHD
Panchkula
Ambala
Yamuna Nagar
Kurukshetra
Ghaggar R.
Kaithal
Karnal
Sirsa
Fatehabad
Jind
Panipat
Hisar
Sonepat
Rohtak
Bhiwani
Jhajjar
DELHI
Gurgaon
Faridabad
Mewat
Rewari
Nuh
Palwal
Index
NITRATE IN Mg./l
0 — 45
45 — 100
MORE THAN 100


DISTRIBUTION OF FLUORIDE IN SHALLOW GROUND WATER
May 2013
Fig. 21
PUNJAB
RAJASTHAN
UTTAR PRADESH
DELHI
CHD
Panchkula
Ambala
Y Nagar
Kurukshetra
Yamuna R.
Ghaggar R.
Karnal
Kaithal
Sirsa
Fatehabad
Panipat
Rohtak
Jhajjar
Gurgaon
Faridabad
M.Garh
Rewari
Nuh
Palwal
INDEX
FLOURIDE IN mg/l
LESS THEN 1.0
1.0 — 1.5
MORE THEN 1.5
30°
28°
76°

3.7 TYPES OF GROUND WATER

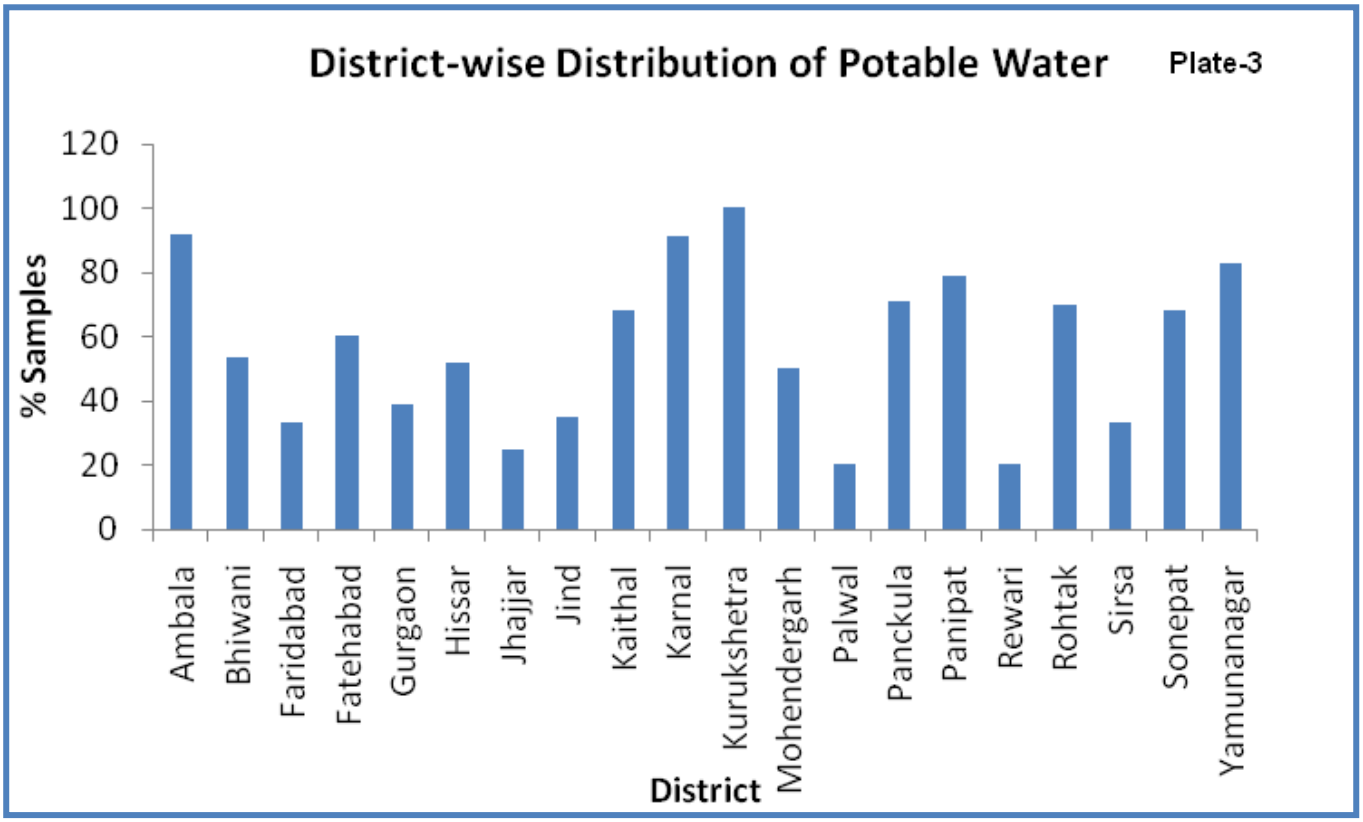
Considering the predominance of the cation and anion in the chemical composition of ground water, its type is determined and its relation with its occurrence in an area as well as with its salinity is studied. It is found that no discernible relationship between type of water and its occurrence in any particular area could be established. Nearly all types of waters are available in each district of the State. However, study of relation of water type with salinity of the water clearly indicates that nearly 30% ground waters of the State are fresh, have low salinity and predominance of calcium or magnesium or calcium + magnesium cations and bicarbonate as anion. Ground waters having intermediate salinity are mostly mixed cation type - HCO_3 type. At some places HCO_3-type of waters with sodium as dominant cation are also encountered in low to moderately saline ground waters. This can be attributed either to precipitation of $CaCO_3$ due to loss of CO_2 or dissolution of Na-salts from the topsoil layers or to ion exchange reaction during the downward percolation of water. At some isolated locations (8%), sulphate is found to be dominant anion. In the remaining ground waters, where salinity is high; mostly Na is the dominant cation and Cl or Cl + SO_4+NO_3 (mixed anion) are dominant. Nevertheless, a few exceptions have also been found in these simple and well-defined types of ground waters.

3.8 SUITABILITY OF GROUND WATER FOR DRINKING

Salinity, nitrate, sulphate, fluoride, hardness and alkalinity are the parameters normally considered for evaluating the suitability of drinking water. BIS have assigned desirable and permissible concentration limits for these constituents. Based on BIS recommendations, ground water occurring in the northern and north-eastern areas of the State is suitable for drinking. However, ground water at several places in the southern and western parts of the State is not suitable for drinking either due to one or more constituent exceeding the maximum permissible limits. Waters falling under different classes of suitability for drinking uses are shown in Table 5 and district-wise distribution of potable waters based upon EC, Cl, NO_3 & F contents are shown as bar diagram in Fig 3.

On perusal of Bar diagram, it is observed that ground water occurring in the districts of Ambala, Bhiwani, Fatehabad, Hissar, Karnal, Kaithal Kurukshetra, Panchkula, Panipat Rohtak, Sonipat and Yamunanagar are mostly suitable for drinking as more than 50% water samples are having all the above quality parameters within the permissible limits. In the districts of Faridabad, Gurgaon, Jind, Mahendergarh and Sirsa 30-50% water samples

are having potable quality as per BIS 2012 standards. Ground water is mostly unsuitable for drinking due to one or more of these constituents exceeding the maximum permissible limits in Jhajjar, Palwal and Rewari as these districts have less than 30% ground waters having chemical parameters within the permissible limits.



3.9 SUITABILITY GROUND WATER FOR IRRIGATION

The suitability of ground water for irrigation is assessed based on EC, SAR and RSC values of waters. The diagram, suggested by USSL staff by taking EC and SAR into consideration is widely used for determining the irrigational classes of water. Salinity in terms of EC varies widely from 62 µS/cm to 20920 in µS/cm at 25^0C while SAR values range from nil (Dongar Majri, district Karnal) to 31,25 (Uchana, district Jind). Based on EC and SAR values, plot of USSL diagram indicates that about 75% of the samples fall under C_2S_1, C_2S_2, C_3S_1, C_3S_2, C_4S_1, and C_4S_2 classes of irrigation water. Continuous use of such waters may lead to low to vary high salinity hazards, while they may not cause sodium hazards because of low SAR. The water samples having

C_3S_3, C_3S_4, C_4S_3, C_4S_4, and classes may lead to salinity as well as sodium hazards when used for irrigation under normal practices. However, these waters can be used for irrigation along with an appropriate quantity of gypsum.

The ground waters in the districts of Ambala, Fatehabad, Kaithal, Karnal, Kurukshetra, Panchkula, Panipat, Sonepat and Yamunanagar are mostly of C_1, C_2, C_3 salinity and S_1-S_2 sodicity classes. Such waters can be used for irrigation on soils with good permeability for growing salt tolerant or semi salt tolerant crops. Addition of small quantity of gypsum may improve the permeability of the soil and avoid the sodium hazards. Ground waters from southern and western part of Haryana comprising of districts of Bhiwani, Faridabad, Gurgaon, Jind, Jhajjar, Mahendergarh, Rohtak, Rewari, Sirsa, and Palwal fall under C_4S_1, C_4S_2, C_3S_3, C_3S_3, C_4S_2, C_4S_3 and C_4S_4 classes. Use of such waters for irrigation under normal conditions may lead to both high to very high salinity as well as sodium hazards. Alkali hazards of irrigation ground waters are estimated through the computation of Residual sodium carbonate (RSC) also known as Eaton's Index. The values of RSC of ground waters are found to vary from below zero to 11.0 meq/l (Gopi, district Bhiwani). Based on Eaton's index, it is found that 72% of the waters are rated fit, 12% marginal and the remaining 16% unfit for irrigational uses. The distribution of ground waters in various Eaton's index and irrigation rating based on USSL classification is given in table-6.

Table-6 District wise Irrigation Rating of Ground Water Samples.

Based on Eaton's index and USSL Classification					
S.No	*District*	IRRIGATION SUITABILITY			
		EATON's INDEX (RSC in meq/l)			*USSL Classification*
		Safe <1.25	Marginal 1.25-2.5	Unsafe >2.5	
1	Ambala	5	3	5	C2S1, C_3S_1, C_4S_2
2	Bhiwani	21	2	7	C_1S_1, C_2S_1, C_3S_1, C_3S_2, , C_3S_4, C_4S_1, C_4S_2, C_4S_3, C_4S_4
3	Faridabad	5	2	2	C_3S_1, C_3S_2, C_3S_3, C_4S_2, C_4S_4
4	Fatehabad	3	0	2	C_2S_1, C_3S_1, C_3S_2
5	Gurgaon	12	3	3	C_3S_1, C_3S_2, C_3S_4, C_4S_2, C_4S_3, C_4S_4
6	Hissar	29	2	0	C_2S_1, C_3S_1, C_4S_2, C_4S_3,C_4S_4
7	Jhajjar	6	1	1	C_3S_1, C_4S_1,C_4S_2
8	Jind	12	2	3	C_3S_1, C_3S_2, C_4S_1, C_4S_2,C_4S_3, C_4S_4
9	Kaithal	13	2	4	C_2S_1, C_3S_1, C_3S_3,C_4S_2, C_4S_3,C_4S_4
10	Karnal	21	6	5	C_2S_1, C_3S_1, C_3S_2, C_3S_3
11	Kurukshetra	13	6	3	C_2S_1, C_3S_1
12	Mahendergarh	4	1	1	C_3S_2,C_3S_4, C_4S_4
13	Palwal	3	0	2	C_3S_2,C_4S_2, C_4S_3 C_4S_4
14	Panckula	7	0	0	C_2S_1 C_3S_1,
15	Panipat	12	3	4	C_2S_1, C_3S_1, C_3S_2, C_4S_4
16	Rewari	5	0	0	C_2S_1, C_3S_1, C_4S_2
17	Rohtak	9	1	0	C_2S_1, C_3S_1, C_4S_1, C_4S_2, C_4S_3, C_4S_4
18	Sirsa	16	2	3	C_2S_1, C_3S_1, C_3S_2, C_3S_3, C_4S_1, $C_4S_2C_4S_4$
19	Sonepat	20	0	5	C_2S_1, C_3S_1, C_3S_2, C_3S_3, C_4S_2, C_4S_3, C_4S_4
20	Yamunanagar	14	2	2	C_1S_1,C_2S_1, C_3S_1
	Total - 320	**230**	**38**	**52**	

3.10 SUITABILITY OF GROUND WATER FOR INDUSTRIES.

Industries, in general, use water for variety of works depending upon the nature and size of the industry. As such specifications for suitability of water for industries vary widely depending upon the process in each industry. Therefore, chemical quality of water and its suitability could not be discussed due to diversified nature of industries.

3.11 TEMPORAL VARIATION

The temporal changes in ground water quality are studied by considering important parameters such as salinity (EC), chloride, nitrate and fluoride contents of waters. The percent well waters falling in desirable, permissible and unsuitable classes of BIS-2012 standards during 2013 are compared with percent well waters in same classes during 2009. Table shows increase or decrease of percent well water falling in various suitability classes for drinking purposes.

Table-7 Periodic Variation in Suitability Classes of ground water samples.

Parameter	Class	% of Samples					Periodic Variation 2009-13
		2009 (n=338)	2010 (n=355)	2011 (n=359)	2012 (n= 331)	2013 (n=320)	
Salinity as EC (in µS/cm at 25^0C)	<750	19	25	30	29	37	+18
	750-3000	60	60	49	50	48	-12
	>3000	21	15	21	21	15	-6
Chloride as Cl (in mg/l)	<250	59	62	65	64	65	+6
	250 - 1000	34	34	29	28	29	-5
	>1000	7	4	6	8	6	-1
Nitrate as NO_3 (in mg/l)	< 45	62	79	73	69	77	+15
	> 45	38	21	27	31	23	-15
Fluoride as F (in mg/l)	<1.0	61	57	69	62	70	+9
	1.0 - 1.50	14	18	15	15	12	-2
	>1.50	25	25	16	23	18	-7

n = no. of samples

It is evident from the table above that there is an improvement in the quality of ground water, based on the parameters considered, from 2009 to 2013, as indicated by decrease in the percent samples having concentrations beyond permissible limits and increase in percent samples having desirable quality. The ground water quality based on salinity and nitrate content shows marked improvement as there is increase of nearly 18% and 15% samples respectively falling within the desirable level and decrease in percentage of well waters falling under unsuitable class. Similarly, there has been an improvement in water quality with respect to Chloride(6%) and Fluoride(9%) with the increase in water samples

falling in suitable class for drinking water. On comparing the percent wells of 2012 and 2013 for potability and considering a change of ± 1% as constant, it is observed that there water quality in respect of salinity, nitrate and fluoride content has improved by 8%. There is not much change in chloride content during the year. The improvements in the ground water quality can be due to (i) general awareness among public on the importance of quality of this invaluable resource, (ii) dilution of ground water on account of increased recharge to ground water due to man-made structures and (iii) increased availability of surface water for irrigation uses.

3.12 CONCLUSION & RECOMMENDATIONS (CHEMICAL QUALITY)

From the discussion above, it can be concluded that in Haryana

1. Shallow ground water occurring in northern and northeastern parts is suitable for drinking as well as for irrigation.
2. Shallow ground water occurring in central parts has intermediate quality and is permitted for drinking use in case there is no alternative source. However, it is suitable for irrigation on well-drained soil for salt tolerant crops such as wheat, maize, barley etc.
3. Shallow ground water occurring in southern and western parts is not suitable for drinking as well as for customary irrigation. The reason for unsuitability for drinking uses is high concentrations of either salinity or nitrate or fluoride. The reason for rejection for irrigation uses is high salinity coupled with high SAR and RSC more than 2.5 meq/l. However, these waters can be used for irrigation in conjunction with surface water.

ANNEXURE- I

DEPTH TO WATER LEVEL

DISTRICT	S. No.	Locations	May-13 (in mbgl)	Aug-13 (in mbgl)	Nov-13 (in mbgl)	Jan-14 (in mbgl)
AMBALA	1	Ambala Cantt	2.42	-	1.62	-
	2	Balana	2.06	-	1.17	-
	3	Dhanaura	6.30	2.90	3.30	4.20
	4	Kakru	1.98	0.38	1.34	1.41
	5	Khanahmadpur	4.17	-	2.31	2.86
	6	Mulana	3.27	-	2.42	-
	7	Naraingarh	14.09	-	11.84	-
	8	Panjokhra	5.20	3.25	2.83	-
	9	Pinjola	4.14	3.54	2.59	-
BHIWANI	10	Badala	1.85	1.95	1.75	-
	11	Bajina	11.22	11.30	11.36	11.37
	12	Bamla	6.93	7.18	6.97	9.68
	13	Baundkalan	2.86	1.81	1.98	-
	14	Bhawani khera DW	5.93	6.45	6.35	-
	15	Bhawani Khera Pz	7.00	6.96	6.11	-
	16	Bohal	6.78	5.95	6.15	-
	17	Chirya	15.06	14.36	12.79	-
	18	Dadri1	2.39	-	2.28	-
	19	Dhanana	1.26	0.94	1.04	-
	20	Gopi	-	-	55.40	-
	21	Gurera	15.40	15.95	15.84	-
	22	Gurera-pz	19.12	-	14.35	-
	23	Haluwas	2.10	1.72	2.43	2.65
	24	Imlota	-	-	3.01	-
	25	Isharwal	18.40	17.10	15.98	-
	26	Jhumpa	26.99	27.90	27.77	29.30
	27	Jhumpa Kalan	-	-	26.56	-
	28	Juikalan	-	28.44	-	-
	29	Juikalan Pz	19.35	-	27.11	-
	30	Lachhmanpur	8.19	3.20	8.91	-
	31	Lohani	13.90	-	7.45	-
	32	Mauhala	17.00	20.50	20.07	-
	33	Mehrana	14.80	15.80	11.35	-
	34	Miran	5.17	-	3.71	-
	35	Miran-Pz	6.27	-	4.26	-
	36	Nayaatela	20.26	20.21	20.36	20.01
	37	Pataudi Khurd	-	-	10.60	-
	38	Sagban	4.40	-	3.99	-
	39	Sangwan PZM	4.40	-	3.99	-

	40	Sanwar	5.05	-	4.28	3.75
	41	Singhani-pz	-	-	68.87	-
	42	Siwani	13.60	13.47	13.49	13.40
	43	Sui	4.72	-	3.34	3.30
	44	Tosham	6.41	6.00	5.43	-
	45	Tosham-Pz	8.00	-	8.19	-
FARIDABAD	46	Achheja	7.85	-	5.65	-
	47	Badraun	7.15	-	2.45	-
	48	Baghaula	4.80	2.39	1.64	-
	49	Ballabhgarh	26.99	-	26.10	-
	50	Bamnikhera	6.80	-	-	-
	51	Barauli-Pz	10.12	-	-	-
	52	Bhopani	19.10	-	17.86	-
	53	Dighaut	11.49	-	10.51	-
	54	Hathin	13.87	-	9.16	-
	55	Hodel	10.12	-	8.19	-
	56	Hodel1	10.12	-	8.19	-
	57	Jaindapur	-	-	9.30	-
	58	Jawan- Pz	-	-	9.39	-
	59	Kabulpur	14.75	-	13.10	-
	60	Khambi	3.71	-	0.73	-
	61	Kot	9.81	-	6.11	-
	62	Lakhnaka	6.44	-	9.40	-
	63	Lalwa	6.00	-	3.30	-
	64	NH-IV CHQ PZ S	48.72	-	49.66	-
	65	Pali2	19.60	-	17.65	-
	66	Palwal	5.20	-	4.00	-
	67	Palwal-Pz	7.10	-	12.30	-
	68	Rasul Pur	6.98	5.74	5.49	5.64
	69	Thekarka	-	-	0.90	-
	70	Tigaon-Pz	-	-	19.10	-
	71	Tumsara	7.33	5.98	7.68	-
FATEHABAD	72	Aharwan S	51.59	-	56.34	-
	73	Badopal	2.33	1.93	2.05	2.10
	74	Jandli Kalan	4.12	-	3.01	-
	75	Mehu Wala Pz	3.68	-	2.69	-
	76	Nahla	8.52	6.61	8.16	-
	77	Ratia -Pz	40.09	-	42.06	-
	78	Sadalpur	7.06	-	6.95	-
	79	Samain	5.04	1.95	2.17	-
	80	Sohu	5.51	-	5.05	-
	81	Tohana	16.67	15.68	17.45	-

GURGAON	82	Akaira	6.40	5.80	5.00	-
	83	Akbarpur	1.80	-	0.90	-
	84	Basonda Tripati-Pz	-	-	23.77	-
	85	Chandu Tikly	10.60	-	9.05	-
	86	Fazilpur Badli-Pz	21.80	22.20	18.70	23.20
	87	Firozepur Jhirka	13.25	10.75	9.40	-
	88	Gulaltha	-	1.20	-	-
	89	Gurgaon	35.35	-	35.75	-
	90	Gurgaon Pz	35.35	-	35.75	-
	91	Haila Mandi	-	-	26.32	-
	92	Indri	3.34	2.20	3.28	-
	93	Jaraon Pz	-	-	12.87	-
	94	Jhanjrola	-	-	6.87	-
	95	Kasan	-	-	34.10	-
	96	Khera Khurrampur-Pz	17.47	17.35	15.60	-
	97	Kheri1	4.05	-	2.68	-
	98	Khori Kalan	-	-	15.06	-
	99	Lokra-Pz	30.62	-	32.80	-
	100	Luhingakalan	4.91	-	3.05	-
	101	Malab	6.70	3.74	3.94	-
	102	Meoka-Pz	18.10	-	18.90	-
	103	Mouzabad	33.90	-	32.55	-
	104	Mubarakpur	15.30	-	12.35	-
	105	Nagina	6.60	-	3.64	-
	106	Naharika-Pz	-	-	28.95	-
	107	Nuh1	3.69	-	1.34	-
	108	Nurgarh-Pz	21.70	21.40	21.00	-
	109	Pipaka	30.10	-	33.05	-
	110	Pipaka-Shashola	30.10	-	33.05	-
	111	Rangla Dhani-Pz	31.70	-	27.30	-
	112	Raoli	11.00	-	-	-
	113	Sikarwa	4.10	-	0.94	-
	114	Siwari-Pz	13.57	13.50	13.50	14.07
	115	Sohna	-	-	30.20	-
	116	Wazirpur-Pz	16.30	-	17.14	-
HISAR	117	Adampur-Pz	4.22	3.44	3.52	3.53
	118	Agroha-Pz	9.21	-	8.84	-
	119	Balawas1	15.22	-	12.90	13.95
	120	Balsamand	14.70	-	14.05	-
	121	Balsamand-Pz	16.00	-	15.26	16.20
	122	Banbhauri-Pz	5.82	6.40	6.04	6.30
	123	Barwala S	-	12.56	-	-

	124	Barwala1	11.81	10.49	11.97	-
	125	Barwala-Pz	9.57	9.55	9.37	9.45
	126	Bas	1.15	-	0.57	-
	127	Basra	18.48	19.10	19.34	19.29
	128	Behbalpur-Pz	4.71	3.50	3.74	3.62
	129	Chanaut	5.27	4.61	5.71	5.02
	130	Chawdhariwas	9.19	8.83	8.80	8.79
	131	Dhamundicross	6.87	3.55	4.83	-
	132	Dhansu	5.25	4.71	4.60	4.67
	133	Ghaibipur	4.46	4.00	4.15	4.03
	134	Ghursal-Pz	-	8.70	10.77	8.85
	135	Hissar	7.22	6.81	6.51	-
	136	Hissar-Pz	7.21	6.70	6.40	-
	137	Juglan	7.98	8.17	7.06	-
	138	Kanoh-Pz	11.19	11.00	10.61	-
	139	Khanda Kheri-Pz	-	-	7.56	-
	140	Kherijalab-Pz	7.30	7.30	6.67	-
	141	Khotkalan	10.73	10.13	10.40	-
	142	Kirori	13.67	13.00	13.01	-
	143	Kirtan	13.02	12.30	11.26	-
	144	Mangali-Pz	5.59	5.26	4.80	-
	145	Mirka	3.22	2.40	3.24	-
	146	Mothmajri	8.14	8.37	7.67	-
	147	Muklan	6.67	-	-	-
	148	Narnaud S	11.43	-	-	-
	149	Rajli Cross	4.08	0.57	1.10	-
	150	Rajthal1	14.13	-	15.55	-
	151	Samani	5.46	-	4.98	-
	152	Sorkhi-Pz	2.37	1.45	2.01	-
	153	Umra	7.54	-	6.20	-
JHAJJAR	154	Badli	14.80	-	11.02	-
	155	Bagoa	4.83	-	0.20	1.50
	156	Bahadurgarh	-	-	4.08	-
	157	Chamanpura	2.10	1.65	0.25	-
	158	Chhara	7.60		4.11	-
	159	Chuchakwas	4.98	5.56	5.44	5.71
	160	Dighal	2.09	1.72	1.03	-
	161	Dubhaldhan	5.88		2.75	-
	162	Dulhera	3.44	2.99	2.19	2.83
	163	Gabhana	-	-	1.58	-
	164	Jhajjar	3.42	-	2.00	-
	165	Jhajjar1	3.15	-	2.90	-
	166	Kulasi	2.90	-	0.40	-
	167	Majra Deswal	6.09	-	2.12	-

	168	Mudsa	1.18	-	1.60	-
	169	Sankol	1.63	-	0.32	-
	170	Subnah	-	-	1.00	-
	171	Wazirpur	2.10	-	0.99	-
JIND	172	Alewa	31.95	31.60		
	173	Alewa Pz	-	-	32.51	-
	174	ATI Krishna1(s)	21.40	-	-	-
	175	Baroda	16.60	-	16.34	-
	176	Bhuslana-Pz	15.19	-	16.70	-
	177	Brahmanwas	9.99	9.70	9.30	-
	178	Chhabri	7.12	4.53	5.02	-
	179	Dhandauli Pz	38.38	-	46.15	-
	180	Dorana Pz	21.30	-	25.75	-
	181	Ghaso	14.37	-	9.72	-
	182	Jhamula	6.36	5.72	5.32	-
	183	Julana Pz	6.64	-	5.45	6.00
	184	Kharwal	14.34	14.96	-	-
	185	Khatkaran	13.84	13.65	13.64	-
	186	Korar	11.94	16.16	12.46	-
	187	Mohal Khera Pz	6.28	-	4.60	-
	188	Narwana S	3.55	-	2.04	-
	189	Narwana S-Pz	3.55	-	2.19	-
	190	Pillukhera	6.18	6.25	5.91	-
	191	Safidon (s)	13.50	-	14.64	-
	192	Safidon 1(s)	13.05	-	21.39	-
	193	Uchana	18.20	18.70	18.18	-
	194	Uchana Pz	19.35	-	16.95	-
KAITHAL	195	Guhna	23.59	26.18	26.36	25.58
	196	Jakhauli-Pz	10.23	11.60	10.76	10.40
	197	Jandaula-Pz	27.05	-	29.57	-
	198	Jateri	19.73	21.35	21.81	-
	199	Kalayat	3.49	-	2.31	-
	200	Kalayat S	4.27	-	3.66	-
	201	Kathana-Pz	11.92	13.20	12.92	13.15
	202	Kelaram	6.90	7.61	6.35	-
	203	Kheorak-Pz	28.85	-	32.75	-
	204	Manaspatti-Pz	33.22	34.15	34.82	34.70
	205	Mataur	7.35	7.21	6.31	-
	206	Mundri	16.85	17.25	16.76	-
	207	Padla 1(s)	36.81	-	39.41	-
	208	Peoda_Pz	12.92	14.16	10.85	10.70
	209	Pundri(s)	23.67	-	22.82	-
	210	Rajaund-Pz	12.22	-	12.65	-
	211	Rajound S	11.62	-	12.45	10.70

	212	Sirsal-Pz	21.50	-	25.16	-
	213	Titiana 1(s)	20.72	-	21.50	-
KARNAL	214	Amin S	28.72	-	29.03	-
	215	Anjanthali-Pz	-	-	21.22	-
	216	Balhera-s	6.63	-	6.00	-
	217	Baragaon-Pz	18.82	-	17.00	-
	218	Biana-Pz	8.79	-	7.43	-
	219	Dadupur Khurd-Pz	13.76	13.12	12.92	-
	220	Dingar Majra-Pz	34.92	37.55	35.25	34.20
	221	Domsi D	23.20		23.75	-
	222	Faridpur-Pz	25.90	32.00	29.10	28.10
	223	Gangatheri	23.65	26.30	26.85	
	224	Garhi Khajur S	15.93	-	16.35	-
	225	Gharaunda-Pz	30.03	-	32.27	-
	226	Ghiar-Pz	8.76	-	8.42	-
	227	Indri	11.59	-	10.15	-
	228	Jabhala-Pz	19.27	19.26	17.35	16.75
	229	Jalmana PZ	-	-	24.42	-
	230	Jaroli Khurd-Pz	6.85	-	7.05	-
	231	Jhanjari-Pz	14.73	-	15.98	-
	232	Jundla1	18.39	-	20.75	-
	233	Kachhwa Pz	17.11	-	-	-
	234	Kalri Jagir S	8.09	-	7.05	-
	235	Kurlan-Pz	19.55	19.45	-	-
	236	Kutail S	23.47	-	24.30	-
	237	Majra Roran	20.83	-	21.46	-
	238	Makhala S	7.12	-	7.14	-
	239	Manak Majra-Pz	22.92	-	22.91	-
	240	Mohidinpur-Pz	-	-	16.45	-
	241	Mound S	19.99	-	22.48	-
	242	Nalvi Kalan-Pz	-	-	13.88	-
	243	Nanhera	5.38	-	4.17	-
	244	Nilokheri-Pz	21.26	-	21.64	-
	245	Padhana-DW	17.17	-	17.85	-
	246	Phurlak S	22.84	-	24.17	-
	247	Phusgarh-Pz	21.49	-	21.80	-
	248	Rambha-Pz	7.56	-	7.01	-
	249	Randauli-Pz	9.87	-	7.96	-
	250	Rattak-Pz	23.05	-	24.54	-
	251	Sagga-Pz	19.71	-	22.47	-
	252	Salarpur-Pz	-	-	11.35	-
	253	Salwan-B	17.58	17.10	19.88	13.90
	254	Sambli-Pz-M	-	-	21.65	-

	255	Sambli-Pz-S	-	-	21.21	-
	256	Saunkra S	20.58	-	22.11	-
	257	Sugar Cane Breeding Farm	23.10	-	23.03	-
	258	Taraori-Pz	20.48	-	21.51	-
	259	Udana-Pz	31.56	-	31.69	-
KURUKSHETRA	260	Bachki-Pz	29.15	30.10	30.37	29.40
	261	Ban- Pz	25.20	26.50	25.08	25.70
	262	Baronda-Pz	21.38	21.40	20.60	18.55
	263	Berthala S	35.93	-	37.43	-
	264	Bodhni (s)	31.03	-	32.79	-
	265	Dabkhera-Pz	34.88	34.40	34.35	-
	266	Hatira (s)	21.15	-	22.36	-
	267	Ishaque S	26.42	-	27.55	-
	268	Kaulapur S	38.94	-	40.43	-
	269	Malikpur-Singhpura-Pz	30.81	35.60	31.41	31.00
	270	Murtzapur-Pz	23.60	24.97	26.00	24.54
	271	Samalkhi-Pz	39.82	-	44.35	43.50
	272	Sirsala-Pz	33.44	-	34.37	-
MAHENDRAGARH	273	Buchawas	26.02	-	-	-
	274	Buwana-Pz	43.90	42.40	42.60	
	275	Deroli Ahir	-	-	13.10	-
	276	Deroli Ahir1	15.90	-	13.80	-
	277	Khatodra-Pz	71.60	70.12	70.12	70.00
	278	Lukhi	14.91	-	14.31	-
	279	Narnaul	13.31	9.80	9.63	8.90
PANCHKULA	280	Devnagar(Panchkula)	9.00	8.36	9.17	-
	281	Dharampur	13.70	-	8.60	-
	282	Kakar Majra	11.26	-	10.17	-
	283	Khera	30.06	-	27.67	-
	284	Mehranwali	28.41	-	16.45	-
	285	Parwala	17.20	-	16.35	-
	286	Patwi	13.63	13.54	12.82	12.84
	287	Raipurrani	6.73	7.88	4.50	5.20
PANIPAT	288	Babail Pz S	12.00	-	12.35	-
	289	Babail VS-Pz	11.90	-	-	-
	290	Bhallour Pz	12.22	-	2.67	-
	291	Dakadla S	22.11	-	23.16	-
	292	Dharamgarh S	13.21	-	-	-
	293	Etola-Pz-M	-	-	13.45	-
	294	Etola-Pz-S	-	-	13.31	-
	295	Hathwala-Pz	10.45	9.33	8.81	8.60

	296	Israna Pz	3.65	-	3.15	-
	297	Karhansh Pz	-	-	31.60	-
	298	Khalila Manjran	4.38	1.45	2.01	-
	299	Khelalla Pehl S	-	-	24.02	-
	300	Lohari (s)	-	-	1.24	-
	301	Nariana-PZ	-	19.05	17.62	-
	302	Nimbri- Pz	25.61	29.40	27.84	26.48
	303	Patti Kalyana S	-	-	31.05	-
	304	Puther Pz	-	-	9.05	-
	305	Sanauli Khurd-Pz	11.40	11.85	10.48	10.90
	306	Shahpur	2.26	-	2.86	-
	307	Sink	5.69	-	5.00	-
	308	Untilya	4.05	3.00	2.95	3.30
	309	Urlana Kalan	11.88	-	12.99	-
REWARI	310	Bahu	-	9.65	9.40	10.05
	311	Balawas	23.08	-	25.67	-
	312	Bawal	20.90	20.25	20.50	-
	313	Bawal DW	20.90	-	20.05	-
	314	Bawal Pz	28.00	-	24.67	-
	315	Gangaichajat	9.05	-	13.10	-
	316	Guriani	18.37	-	15.91	-
	317	Karnawas	11.65	-	8.95	9.60
	318	Kosli	-	-	12.80	12.90
	319	Mandola-Pz	60.12	60.00	61.45	60.00
	320	Nangal Jamalpur-Pz	70.92	70.25	70.78	-
	321	Rholiawas-Pz	10.65	-	9.88	-
	322	Sangwari	12.36	-	-	-
ROHTAK	323	Baland	2.08	-	1.51	-
	324	Bhal Anandpur	-	0.99	1.85	1.93
	325	Hassangarh	6.70	3.10	4.07	6.10
	326	Kalanaur	2.17	2.18	-	-
	327	Kalanaur Pz	-	3.26	-	-
	328	Kansala	3.23	1.48	1.74	-
	329	Kharawar	5.55	-	1.43	-
	330	Lakhan Majara	2.70	-	0.89	-
	331	Lakhan Majra Pz	2.70	-	0.89	-
	332	Madina	3.61	-	2.85	-
	333	Mahem	12.10	12.25	10.99	-
	334	Nidhana	2.50	1.50	1.41	4.55
	335	Rukhi	3.37	-	1.25	1.56
	336	Samargopalpur	2.87	2.27	2.11	-
	337	Sampla	1.37	-	0.66	-

	338	Sampla-Pz	1.37	-	-	-
SIRSA	339	Bhuratwala-Pz	11.24	-	10.81	10.10
	340	Chormar	16.66	16.32	16.34	-
	341	Chotala-Pz	9.76	9.10	9.02	-
	342	Dabwali Dw	9.55	9.25	9.15	-
	343	Dabwali -Pz S	7.37	-	7.92	-
	344	Darba Kalan-Pz	2.02	0.85	1.51	-
	345	Ding	20.41	16.81	17.73	-
	346	Ganga	9.75	9.60	-	-
	347	Ghushiana	14.14	13.51	13.90	13.46
	348	Gigorani	5.42	4.71	4.97	-
	349	Goriwala	16.98	17.35	16.77	16.65
	350	Goriwala-Pz	16.19	15.95	15.81	15.90
	351	Jamal	5.66	-	5.40	-
	352	Jamal- Pz	5.72	5.90	4.01	-
	353	Kalanwali Mandi-Pz	7.86	7.45	7.50	-
	354	Kaluwana	11.22	10.77	11.12	10.79
	355	Karamsana	9.23	8.97	9.19	-
	356	Kash Ram Dhab	12.28	10.51	13.30	12.85
	357	Khuiyan	13.76	14.20	13.90	-
	358	Mammer Khera-Pz	18.97	18.60	-	-
	359	Mangala-Pz	61.26	61.20	63.02	63.15
	360	Manjiyana	14.28	13.22	13.64	13.96
	361	Mastian	15.97	14.63	14.43	14.47
	362	Mithri	16.60	-	15.68	-
	363	Nuhian Wali	15.13	14.90	15.06	-
	364	Odhan Pz	14.66	-	14.18	-
	365	Panniwala Mota	10.53	9.24	10.12	9.82
	366	Phaggu-Pz	4.50	4.29	4.47	4.35
	367	Rasalia Khera	19.32	15.93	19.20	19.31
	368	Rori -DW	8.01	9.09	7.56	-
	369	Saktakhera	4.55	3.04	4.32	-
	370	Shergarh-DW	-	8.26	9.01	8.25
	371	Sherpura	15.58	15.27	15.10	-
	372	Sirsa-Pz	33.81	-	34.90	-
	373	Sri Jiwan Nagar-B	38.55	-	40.77	-
	374	Taruwana	7.96	7.57	7.83	-
	375	Tejakhera	5.37	-	3.90	-
SONIPAT	376	Ahulana	2.90	1.98	1.72	1.65
	377	Anwali-Pz	2.55	-	-	-
	378	Barauli-Pz	-	8.50	7.90	-

	379	Barswani- DW	5.14	-	3.94	-
	380	Barwasni Pz (s)	-	-	4.77	-
	381	Bega Pz	-	-	12.65	-
	382	Bhainswal	3.63	1.60	2.04	2.38
	383	Bhunderi	2.06	1.68	1.86	-
	384	Bichpuri1	6.73	-	7.43	-
	385	Bohela	3.99	-	1.09	-
	386	Butana	4.04	0.83	2.00	2.86
	387	Chirana	2.65	2.55	1.98	-
	388	Datauli-Pz	22.22	24.05	23.57	22.64
	389	Farmana	7.64	6.90	6.42	-
	390	Garhwal	2.75	-	1.79	-
	391	Gohana Pz	17.66	-	16.57	-
	392	Jagsi	1.97	-	1.24	-
	393	Janti Khurd-Pz	12.90	-	10.90	-
	394	Jhakauli- Pz	-	-	15.17	-
	395	Kami- PZ	32.00	32.65	32.91	32.54
	396	Kathura Pz	1.94	-	1.26	-
	397	Khanpur Kalan-Pz	6.05	2.44	3.34	-
	398	KheoraPz	-	-	27.11	-
	399	Lath	1.67	-	1.33	-
	400	Machhri	3.11	-	1.60	3.85
	401	Mahara	7.86	-	6.18	6.85
	402	Manauli-Pz	-	12.35	11.69	-
	403	Mohana Pzm	-	-	2.25	-
	404	Mundlana DW	4.73	-	3.03	-
	405	Mundlana- Pz	-	-	2.65	-
	406	Murthal-Pz	31.13	29.40	31.85	31.80
	407	Nahri	-	4.04	3.88	4.43
	408	Pinana	6.47	5.85	4.38	4.15
	409	Pugthala-Pz	6.05	6.55	5.56	-
	410	Purkhas-Pz	12.65	11.48	13.02	11.65
	411	Rai(Bahalgarh)	22.75	-	23.54	-
	412	Rathdhana-Pz	20.25	15.80	21.27	20.85
	413	Rohat	6.51	0.86	0.58	-
	414	Rukhi-Pz	3.37	-	1.28	-
	415	Sisnah	7.02	-	5.42	-
YAMUNANAGAR	416	Amadalpur	3.32	1.43	5.73	-
	417	Bhambauli-1 (m)	17.09	-	16.36	-
	418	Bilaspur DW	4.66	-	2.41	3.11
	419	Chhachrauli S	15.35	-	11.95	-
	420	Choli	3.37	1.89	1.26	1.20
	421	Dhanauri S	14.45	-	12.86	-

	422	Dhaurang S	15.76	-	13.90	-
	423	Jhiwarheri S	30.06	-	29.58	-
	424	Khizrabad	16.74	-	12.95	-
	425	Mustafabad DW	9.10	7.30	7.13	7.95
	426	Mustafabad-Pz	-	-	14.16	-
	427	Naggal-S	5.82	-	4.27	-
	428	Radaur S	15.23	-	13.88	-
	429	Rasulpur	-	7.81	-	-
	430	Rasulpur DW	8.09	7.81	3.35	-
	431	Sabri	7.08	4.70	5.23	5.50
	432	Sadhaura	-	-	4.85	-
	433	Sadhaura DW	8.43	7.37	6.33	7.15
	434	Sadhaura S	7.63	6.77	6.73	-
	435	Shadipur	5.90	-	4.48	-

ANNEXURE-II

SEASONAL WATER LEVEL FLUCTUATION (m)

DISTRICT	Sl. No.	Locations	Jan2013 &May2013	May2013 &Aug2013	May2013 &Nov2013	May2013 &Jan2014
AMBALA	1	Ambala Cantt	-	-	0.80	-
	2	Balana	-	-	0.89	-
	3	Dhanaura	-0.70	3.40	3.00	2.10
	4	Kakru	-0.54	1.60	0.64	0.57
	5	Khanahmadpur	-	-	1.86	1.31
	6	Mulana	-	-	0.85	-
	7	Naraingarh	-	-	2.25	-
	8	Panjokhra	-1.50	1.95	2.37	-
	9	Pinjola	-0.65	0.60	1.55	-
BHIWANI	10	Badala	-	-0.10	0.10	-
	11	Bajina	0.98	-0.08	-0.14	-0.15
	12	Bamla	-	-0.25	-0.04	-2.75
	13	Baundkalan	2.04	1.05	0.88	-
	14	Bhawani khera DW	1.87	-0.52	-0.42	-
	15	Bhawani Khera Pz	-	0.04	0.89	-
	16	Bohal	0.02	0.83	0.63	-
	17	Chirya	-	0.70	2.27	-
	18	Dadri1	-	-	0.11	-
	19	Dhanana	0.94	0.32	0.22	-
	20	Gopi	2.55	-	-	-
	21	Gurera	-	-0.55	-0.44	-
	22	Gurera-pz	-	-	4.77	-
	23	Haluwas	0.05	0.38	-0.33	-0.55
	24	Isharwal	-0.20	1.30	2.42	-
	25	Jhumpa	-	-0.91	-0.78	-2.31
	26	Juikalan Pz	-	-	-7.76	-
	27	Lachhmanpur	-1.89	4.99	-0.72	-
	28	Lohani	-	-	6.45	-
	29	Mauhala	0.00	-3.50	-3.07	-
	30	Mehrana	3.18	-1.00	3.45	-
	31	Miran	-	-	1.46	-
	32	Miran-Pz	-	-	2.01	-
	33	Nayaatela	-	0.05	-0.10	0.25
	34	Sagban	-	-	0.41	-
	35	Sangwan PZM	-	-	0.41	-

	36	Sanwar	-	-	0.77	1.30
	37	Siwani	1.85	0.13	0.11	0.20
	38	Sui	-	-	1.38	1.42
	39	Tosham	2.29	0.41	0.98	-
	40	Tosham-Pz	-	-	-0.19	-
FARIDABAD	41	Achheja	-	-	2.20	-
	42	Badraun	-	-	4.70	-
	43	Baghaula	-	2.41	3.16	-
	44	Ballabhgarh	-	-	0.89	-
	45	Bhopani	-	-	1.24	-
	46	Dighaut	-	-	0.98	-
	47	Hathin	-	-	4.71	-
	48	Hodel	-	-	1.93	-
	49	Hodel1	-	-	1.93	-
	50	Kabulpur	-	-	1.65	-
	51	Khambi	-	-	2.98	-
	52	Kot	-	-	3.70	-
	53	Lakhnaka	-	-	-2.96	-
	54	Lalwa	-	-	2.70	-
	55	NH-IV CHQ PZ S	-	-	-0.94	-
	56	Pali2	-	-	1.95	-
	57	Palwal	-	-	1.20	-
	58	Palwal-Pz	-	-	-5.20	-
	59	Rasul Pur	-1.24	1.24	1.49	1.34
	60	Thekarka	-	1.35	-	-
	61	Tumsara	-	-	-0.35	-
FATEHABAD	62	Aharwan S	-	-	-4.75	-
	63	Badopal	-0.67	0.40	0.29	0.23
	64	Jandli Kalan	-	-	1.11	-
	65	Mehu Wala Pz	-	-	0.99	-
	66	Nahla	-0.76	1.91	0.36	-
	67	Ratia -Pz	-	-	-1.97	-
	68	Sadalpur	0.17	-	0.11	-
	69	Samain	-2.08	3.09	2.87	-
	70	Sohu	-0.33	-	0.46	-
	71	Tohana	0.00	0.99	-0.78	-0.71
GURGAON	72	Akaira	-2.10	0.60	1.40	-
	73	Akbarpur	-	-	0.90	-
	74	Chandu Tikly	-	-	1.55	-
	75	Fazilpur Badli-Pz	1.51	-0.40	3.10	-1.40
	76	Firozepur Jhirka	-1.55	2.50	3.85	-

	77	Gurgaon	-	-	-0.40	-
	78	Gurgaon Pz	-	-	-0.40	-
	79	Indri	-	1.14	0.06	-
	80	Khera Khurrampur-Pz	-	0.12	1.88	-
	81	Kheri1	-	-	1.37	-
	82	Lokra-Pz	-1.17	-	-2.18	-
	83	Luhingakalan	-	-	1.86	-
	84	Malab	-	2.96	2.76	-
	85	Meoka-Pz	-	-	-0.80	-
	86	Mouzabad	-	-	1.35	-
	87	Mubarakpur	-	-	2.95	-
	88	Nagina	-	-	2.96	-
	89	Nuh1	-	-	2.35	-
	90	Nurgarh-Pz	-	0.30	0.70	-
	91	Pipaka	-	-	-2.95	-
	92	Pipaka-Shashola	-	-	-2.95	-
	93	Rangla Dhani-Pz	-	-	4.40	-
	94	Sikarwa	-	-	3.16	-
	95	Siwari-Pz	0.83	0.07	0.07	-0.50
	96	Wazirpur-Pz	-	-	-0.84	-
HISAR	97	Adampur-Pz	-	0.78	0.70	0.69
	98	Agroha-Pz	-	-	0.37	-
	99	Balawas1	1.08	-	2.32	1.27
	100	Balsamand	-	-	0.65	-
	101	Balsamand-Pz	-	-	0.74	-0.20
	102	Banbhauri-Pz	0.28	-0.58	-0.22	-0.48
	103	Barwala1	-3.07	1.32	-0.16	-
	104	Barwala-Pz	0.00	0.02	0.20	0.12
	105	Bas	-	-	0.58	-
	106	Basra	-	-0.62	-0.86	-0.81
	107	Behbalpur-Pz	0.00	1.21	0.97	1.09
	108	Chanaut	-0.30	0.66	-0.44	0.25
	109	Chawdhariwas	0.04	0.36	0.39	0.40
	110	Dhamundicross	-1.84	3.32	2.04	-
	111	Dhansu	2.09	0.54	0.65	0.58
	112	Ghaibipur	-	0.46	0.31	0.43
	113	Hissar	-0.16	0.41	0.71	-
	114	Hissar-Pz	0.34	0.51	0.81	-
	115	Juglan	-	-0.19	0.92	-

	116	Kanoh-Pz	0.11	0.19	0.59	-
	117	Khanda Kheri-Pz	-	0.00	-	-
	118	Kherijalab-Pz	0.25	0.60	0.63	-
	119	Khotkalan	-1.50	0.67	0.33	-0.30
	120	Kirori	-0.12	0.72	0.66	0.39
	121	Kirtan	-	0.33	1.76	0.62
	122	Mangali-Pz	0.09	0.82	0.79	0.81
	123	Mirka	-	-0.23	-0.02	-
	124	Mothmajri	-0.47	-	0.47	0.17
	125	Muklan	0.08	-	-	-
	126	Rajli Cross	-	3.51	2.98	1.98
	127	Rajthal1	-	-	-1.42	-
	128	Samani	-	-	0.48	-
	129	Sorkhi-Pz	-0.37	0.92	0.36	-
	130	Umra	-	-	1.35	0.92
JHAJJAR	131	Badli	-	-	3.78	-
	132	Bagoa	-	-	4.63	3.33
	133	Chamanpura	-	0.45	1.85	-
	134	Chhara	-	-	3.49	-
	135	Chuchakwas	-2.17	-0.58	-0.46	-0.73
	136	Dighal	-	0.37	1.06	-
	137	Dubhaldhan	-	-	3.13	-
	138	Dulhera	0.07	0.45	1.25	0.61
	139	Jhajjar	-1.26	-	1.42	-
	140	Jhajjar1	-0.09	-	0.25	-
	141	Kulasi	-	-	2.50	-
	142	Majra Deswal	-	-	3.97	-
	143	Mudsa	-	-	-0.42	-
	144	Sankol	-	-	1.31	-
	145	Wazirpur	-	-	1.11	-
JIND	146	Alewa	-1.10	0.35	-	-
	147	Baroda	-	-	0.26	-
	148	Bhuslana-Pz	-	-	-1.51	-
	149	Brahmanwas	0.10	0.29	0.69	-
	150	Chhabri	-	2.59	2.10	-
	151	Dhandauli Pz	-	-	-7.77	-
	152	Dorana Pz	-	-	-4.45	-
	153	Ghaso	-	-	4.65	-
	154	Jhamula	0.16	0.64	1.04	-
	155	Julana Pz	-	-	1.19	0.64
	156	Kharwal	-0.68	-0.62	-	-
	157	Khatkaran	-	0.19	0.20	-
	158	Korar	-	-4.22	-0.52	-

	159	Mohal Khera Pz	-	-	1.68	-
	160	Narwana S	-	-	1.51	-
	161	Narwana S-Pz	-	-	1.36	-
	162	Pillukhera	-	-0.07	0.27	-
	163	Safidon (s)	-	-	-1.14	-
	164	Safidon 1(s)	-	-	-8.34	-
	165	Uchana	-	-0.50	0.02	-1.32
	166	Uchana Pz	-	-	2.40	-
KAITHAL	167	Guhna	-1.61	-2.59	-2.77	-1.99
	168	Jakhauli-Pz	-1.03	-1.37	-0.53	-0.17
	169	Jandaula-Pz	-	-	-2.52	-
	170	Jateri	-0.73	-1.62	-2.08	-
	171	Kalayat	-1.28	-	1.18	-
	172	Kalayat S	-	-	0.61	-
	173	Kathana-Pz	-	-1.28	-1.00	-1.23
	174	Kelaram	0.08	-0.71	0.55	-
	175	Kheorak-Pz	-	-	-3.90	-
	176	Manaspatti-Pz	0.32	-0.93	-1.60	-1.48
	177	Mataur	-0.54	0.14	1.04	-
	178	Mundri	-1.20	-0.40	0.09	-
	179	Padla 1(s)	-	-	-2.60	-
	180	Peoda_Pz	-	-1.24	2.07	2.22
	181	Pundri(s)	-	-	0.85	-
	182	Rajaund-Pz	-1.73	-	-0.43	-
	183	Rajound S	-	-	-0.83	0.92
	184	Sirsal-Pz	-0.04	-	-3.66	-
	185	Titiana 1(s)	-	-	-0.78	-
KARNAL	186	Amin S	-	-	-0.31	-
	187	Balhera-s	-	-	0.63	-
	188	Baragaon-Pz	-	-	1.82	-
	189	Biana-Pz	-	-	1.36	-
	190	Dadupur Khurd-Pz	-	0.64	0.84	-
	191	Dingar Majra-Pz	-0.11	-2.63	-0.33	0.72
	192	Domsi D	-	-	-0.55	-
	193	Faridpur-Pz	0.25	-6.10	-3.20	-2.20
	194	Gangatheri	1.55	-2.65	-3.20	-
	195	Garhi Khajur S	-	-	-0.42	-
	196	Gharaunda-Pz	-	-	-2.24	-
	197	Ghiar-Pz	-	-	0.34	-
	198	Indri	-	-	1.44	-
	199	Jabhala-Pz	-	0.01	1.92	2.52

	200	Jaroli Khurd-Pz	-0.45	-	-0.20	-
	201	Jhanjari-Pz	-	-	-1.25	-
	202	Jundla1	-	-	-2.36	-
	203	Kachhwa Pz	0.21	-	-	-
	204	Kalri Jagir S	-	-	1.04	-
	205	Kurlan-Pz	-1.95	0.10	-	-
	206	Kutail S	-	-	-0.83	-
	207	Majra Roran	-	-	-0.63	-
	208	Makhala S	-	-	-0.02	-
	209	Manak Majra-Pz	-	-	0.01	-
	210	Mound S	-	-	-2.49	-
	211	Nanhera	-	-	1.21	-
	212	Nilokheri-Pz	-	-	-0.38	-
	213	Padhana-DW	-	-	-0.68	-
	214	Phurlak S	-	-	-1.33	-
	215	Phusgarh-Pz	-	-	-0.31	-
	216	Rambha-Pz	-	-	0.55	-
	217	Randauli-Pz	-	-	1.91	-
	218	Rattak-Pz	-	-	-1.49	-
	219	Sagga-Pz	-	-	-2.76	-
	220	Salwan-B	-3.38	0.48	-2.30	3.68
	221	Saunkra S	-	-	-1.53	-
	222	Sugar Cane Breeding Farm	-	-	0.07	-
	223	Taraori-Pz	-	-	-1.03	-
	224	Udana-Pz	-	-	-0.13	-
KURUKSHETRA	225	Bachki-Pz	-0.35	-0.95	-1.22	-0.25
	226	Ban- Pz	-0.20	-1.30	0.13	-0.50
	227	Baronda-Pz	-	-0.02	0.78	2.83
	228	Berthala S	-	-	-1.50	-
	229	Bodhni (s)	-	-	-1.76	-
	230	Dabkhera-Pz	-1.26	0.48	0.53	-
	231	Hatira (s)	-	-	-1.21	-
	232	Ishaque S	-	-	-1.13	-
	233	Kaulapur S	-	-	-1.49	-
	234	Malikpur-Singhpura-Pz	-0.31	-4.79	-0.60	-0.19
	235	Murtzapur-Pz	0.00	-1.37	-2.40	-0.94
	236	Samalkhi-Pz	-	-	-4.53	-3.68
	237	Sirsala-Pz	-	-	-0.93	-
MAHENDRA GARH	238	Buwana-Pz	-0.80	1.50	1.30	-
	239	Deroli Ahir1	-	-	2.10	-

	240	Khatodra-Pz	-	1.48	1.48	1.60
	241	Lukhi	-	-	0.60	-
	242	Narnaul	-2.26	3.51	3.69	4.41
PANCHKULA	243	Devnagar (Panchkula)	-0.10	0.64	-0.17	-
	244	Dharampur	-	-	5.10	-
	245	Kakar Majra	-	-	1.09	-
	246	Khera	-	-	2.39	-
	247	Mehranwali	-	-	11.96	-
	248	Parwala	0.50	-	0.85	-
	249	Patwi	0.46	0.09	0.82	0.79
	250	Raipurrani	-0.35	-1.15	2.23	1.53
PANIPAT	251	Babail Pz S	-	-	-0.35	-
	252	Bhallour Pz	-	-	9.55	-
	253	Dakadla S	-	-	-1.05	-
	254	Hathwala-Pz	-0.85	1.12	1.64	1.85
	255	Israna Pz	-	-	0.50	-
	256	Khalila Manjran	-	2.93	2.37	-
	257	Nimbri- Pz	-1.22	-3.79	-2.23	-0.87
	258	Sanauli Khurd-Pz	-0.89	-0.45	0.92	0.50
	259	Shahpur	-	-	-0.60	-
	260	Sink	-	-	0.69	-
	261	Untilya	-	1.05	1.11	0.75
	262	Urlana Kalan	-0.32	-	-1.11	-
REWARI	263	Balawas	-	-	-2.59	-
	264	Bawal	-0.25	0.65	0.40	-
	265	Bawal DW	0.30	-	0.85	-
	266	Bawal Pz	-	-	3.33	-
	267	Gangaichajat	-	-	-4.05	-
	268	Guriani	-	-	2.46	-
	269	Karnawas	-	-	2.70	2.05
	270	Mandola-Pz	-	0.12	-1.33	0.12
	271	Nangal Jamalpur-Pz	-	0.67	0.14	-
	272	Rholiawas-Pz	-1.15	-	0.77	-
ROHTAK	273	Baland	-	-	0.57	-
	274	Hassangarh	-0.40	3.60	2.63	0.60
	275	Kalanaur	-0.02	-0.01	-	-
	276	Kansala	1.35	1.75	1.50	-
	277	Kharawar	-	-	4.12	-
	278	Lakhan Majara	-	-	1.81	-
	279	Lakhan Majra	-	-	1.81	-

		Pz				
	280	Madina	-0.20	-	0.76	-
	281	Mahem	-1.15	-0.15	1.11	-
	282	Nidhana	-0.24	1.00	1.10	-2.05
	283	Rukhi	-	-	2.12	1.81
	284	Samargopalpur	0.05	0.60	0.76	-
	285	Sampla	-	-	0.71	-
SIRSA	286	Bhuratwala-Pz	-	-	0.43	1.14
	287	Chormar	-	0.34	0.32	-
	288	Chotala-Pz	-	0.66	0.74	-
	289	Dabwali Dw	-	0.30	0.40	-
	290	Dabwali -Pz S	-	-	-0.55	-
	291	Darba Kalan-Pz	-0.31	1.17	0.51	-
	292	Ding	-	3.60	2.68	-
	293	Ganga	-0.07	0.15	-	-
	294	Ghushiana	0.06	0.63	0.24	0.68
	295	Gigorani	-0.80	0.71	0.45	-
	296	Goriwala	0.07	-0.37	0.21	0.33
	297	Goriwala-Pz	-	0.24	0.38	0.29
	298	Jamal	0.59	-	0.27	-
	299	Jamal- Pz	-	-0.18	1.71	-
	300	Kalanwali Mandi-Pz	-	0.41	0.36	-
	301	Kaluwana	-0.49	0.45	0.10	0.43
	302	Karamsana	0.14	0.26	0.04	-
	303	Kash Ram Dhab	-1.98	1.77	-1.02	-0.57
	304	Khuiyan	-0.26	-0.44	-0.14	-
	305	Mammer Khera-Pz	-0.02	0.37	-	-
	306	Mangala-Pz	-0.16	0.06	-1.76	-1.89
	307	Manjiyana	-	1.06	0.65	0.32
	308	Mastian	-	1.34	1.54	1.50
	309	Mithri	-	-	0.92	-
	310	Nuhian Wali	-	0.23	0.07	-
	311	Odhan Pz	-	-	0.48	-
	312	Panniwala Mota	-0.82	1.29	0.41	0.71
	313	Phaggu-Pz	-	0.21	0.04	0.15
	314	Rasalia Khera	-0.07	3.39	0.12	0.01
	315	Rori -DW	-0.52	-1.08	0.45	-
	316	Saktakhera	0.10	1.51	0.23	-

	317	Sherpura	-0.15	0.31	0.48	-
	318	Sirsa-Pz	-	-	-1.09	-
	319	Sri Jiwan Nagar-B	-	-	-2.22	-
	320	Taruwana	-	0.39	0.13	-
	321	Tejakhera	-	-	1.47	-
SONIPAT	322	Ahulana	0.25	0.92	1.18	1.25
	323	Barswani- DW	-	-	1.20	-
	324	Bhainswal	-0.88	2.03	1.59	1.25
	325	Bhunderi	0.41	0.38	0.20	-
	326	Bichpuri1	-	-	-0.70	-
	327	Bohela	-	-	2.90	-
	328	Butana	-0.12	3.21	2.04	1.18
	329	Chirana		0.10	0.67	-
	330	Datauli-Pz	0.19	-1.83	-1.35	-0.42
	331	Farmana	0.06	0.74	1.23	-
	332	Garhwal	-1.13	-	0.96	-
	333	Gohana Pz	-	-	1.09	-
	334	Jagsi	-	-	0.73	-
	335	Janti Khurd-Pz	-	-	2.00	-
	336	Kami- PZ	-0.30	-0.65	-0.91	-0.54
	337	Kathura Pz	-	-	0.68	-
	338	Khanpur Kalan-Pz	2.37	3.61	2.71	-
	339	Lath	-0.24	-	0.34	-
	340	Machhri	0.02	-	1.51	-0.74
	341	Mahara	0.14	-	1.68	1.01
	342	Mundlana DW	-	-	1.70	-
	343	Murthal-Pz	-0.28	1.73	-0.72	-0.67
	344	Pinana	-0.47	0.62	2.10	2.32
	345	Pugthala-Pz	-0.05	-0.50	0.49	-
	346	Purkhas-Pz	-1.22	1.17	-0.37	1.00
	347	Rai(Bahalgarh)	-	-	-0.79	-
	348	Rathdhana-Pz	0.05	4.45	-1.02	-0.60
	349	Rohat	-5.25	5.65	5.93	-
	350	Rukhi-Pz	0.18	-	2.10	-
	351	Sisnah	-	-	1.60	-
YAMUNA NAGAR	352	Amadalpur	1.52	1.89	-2.41	-
	353	Bhambauli-1 (m)	-	-	0.73	-
	354	Bilaspur DW	-	-	2.25	1.55
	355	Chhachrauli S	-	-	3.40	-
	356	Choli	-1.67	1.48	2.11	2.17

	357	Dhanauri S	-	-	1.59	-
	358	Dhaurang S	-	-	1.86	-
	359	Jhiwarheri S	-	-	0.48	-
	360	Khizrabad	-	-	3.79	-
	361	Mustafabad DW	-1.72	1.80	1.97	1.15
	362	Naggal-S	-	-	1.55	-
	363	Radaur S	-	-	1.35	-
	364	Rasulpur DW	-1.48	0.28	4.74	-
	365	Sabri	-0.02	2.38	1.85	1.58
	366	Sadhaura	-	1.06	-	-
	367	Sadhaura DW	-1.28	0.86	2.10	1.28
	368	Sadhaura S	-1.01	-	0.90	-
	369	Shadipur	-	-	1.42	-

ANNEXURE-III

ANNUAL WATER LEVEL FLUCTUATION (m)

DISTRICT	Sl. No.	Locations	May 2012 & 2013	Aug 2012 & 2013	Nov 2012 & 2013	Jan 2013 &2014
AMBALA	1	Ambala Cantt	-1.04	-	0.21	-
	2	Balana	0.38	-	0.74	-
	3	Dhanaura	0	5.20	3.20	1.40
	4	Kakru	-0.23	1.50	0.27	0.03
	5	Khanahmadpur	0.01	-	1.37	-
	6	Mulana	0.43	-	0.52	-
	7	Naraingarh	0.1	-	-0.91	-
	8	Panjokhra	-0.52	-	2.01	-
	9	Pinjola	0.25	1.65	1.10	-
BHIWANI	10	Badala	0.86	-	0.62	-
	11	Bajina	-0.42	-0.67	-0.84	0.83
	12	Bamla	-0.84	-0.35	0.03	-
	13	Baundkalan	0.94	0.85	0.61	-
	14	Bhawani khera DW	1.47	0.96	0.80	-
	15	Bhawani Khera Pz	0.45	-	-	-
	16	Bohal	0.01	0.25	0.80	-
	17	Chirya	-1.25	-	-1.15	-
	18	Dadri1	-0.35	-	-0.28	-
	19	Dhanana	0.61	-0.35	-0.20	-
	20	Gopi	-	-	-1.50	-
	21	Gurera	0.62	-0.05	-0.64	-
	22	Gurera-pz	-4.95	-	0.95	-
	23	Haluwas	1.1	0.98	-0.23	-0.50
	24	Imlota	-	-	0.26	-
	25	Isharwal	-0.54	0.85	1.66	-
	26	Jhumpa	0	-	-1.50	-
	27	Jhumpa Kalan	-	-	0.14	-
	28	Juikalan Pz	8.51	-	0.29	-
	29	Lachhmanpur	-0.67	-	-1.02	-
	30	Lohani	-1.76	-	3.39	-
	31	Mauhala	4.3	-	0.98	-
	32	Mehrana	1.02	-	4.30	-
	33	Miran	-0.83	-	0.09	-
	34	Miran-Pz	-1.55	-	0.05	-
	35	Nayaatela	-0.93	-	-1.47	-
	36	Pataudi Khurd	-	-	1.17	-
	37	Sagban	0.72	-	0.78	-
	38	Sangwan PZM	0.72	-	0.78	-

	39	Sanwar	-1.27	-	0.54	-
	40	Singhani-pz	-	-	-4.68	-
	41	Siwani	0.04	-0.22	-0.17	2.05
	42	Sui	-0.4	-	0.21	-
	43	Tosham	-0.36	0.80	0.13	-
	44	Tosham-Pz	2.47	-	-0.69	-
FARIDABAD	45	Achheja	-0.01	-	1.79	-
	46	Amarpur Pzm	-4.05	-		-
	47	Badraun	-1.4	-	2.10	-
	48	Baghaula	-0.79	-	1.16	-
	49	Ballabhgarh	-	-	0.02	-
	50	Bamnikhera	0.92	-	-	-
	51	Bhopani	-0.9	-	0.74	-
	52	Dighaut	-4.68	-	-	-
	53	Hathin	-1.12	-	-0.04	-
	54	Hodel	-1.39	-	0.78	-
	55	Hodel1	-	-	0.78	-
	56	Kabulpur	-0.65	-	0.85	-
	57	Khambi	-1.15	-	1.67	-
	58	Kot	-2.37	-	1.68	-
	59	Lakhnaka	1.07	-	-3.48	-
	60	Lalwa	-3.02	-	-0.65	-
	61	NH-IV CHQ PZ S	-	-	-1.34	-
	62	Pali2	-2.6	-	-1.23	-
	63	Palwal	-	-	2.02	-
	64	Palwal-Pz	-0.12	-	-4.25	-
	65	Rasul Pur	-0.24	-	-1.40	0.10
	66	Thekarka	-	-	-0.59	-
	67	Tumsara	1.25	-	-0.05	-
FATEHABAD	68	Aharwan S	-1.97	-	-4.05	-
	69	Badopal	-0.6	-0.70	-1.14	-0.44
	70	Jandli Kalan	-0.17	-	0.95	-
	71	Mehu Wala Pz	-0.52	-	0.48	-
	72	Nahla	-0.9	0.84	0.17	-
	73	Ratia -Pz	-2.62	-	-1.86	-
	74	Sadalpur	0.57	-	-0.07	-
	75	Samain	-1.9	-	0.51	-
	76	Sohu	-0.5	-	0.09	-
	77	Tohana	-1.59	-	-1.15	-0.71
GURGAON	78	Akaira	2.4	0.10	0.32	-
	79	Chandu Tikly	-0.7	-	0.55	-
	80	Fazilpur Badli-Pz	-0.57	-	2.80	0.11

	81	Firozepur Jhirka	-1.25	1.65	1.30	-
	82	Gurgaon	-1.9	-	-2.49	-
	83	Gurgaon Pz	-1.15	-	-1.74	-
	84	Indri	-	-	-3.14	-
	85	Jaraon Pz	-	-	-1.16	-
	86	Jhanjrola	-	-	-2.43	-
	87	Kasan	-	-	-2.90	-
	88	Khera Khurrampur-Pz	-	-1.65	0.81	-
	89	Kheri1	-0.97	-	1.30	-
	90	Kherla	0.05	-	-	-
	91	Khori Kalan	-	-	-1.69	-
	92	Lokra-Pz	-	-	-3.27	-
	93	Luhingakalan	-1.92	-	0.03	-
	94	Malab	-1.04	0.08	-0.61	-
	95	Meoka-Pz	-3.01	-	-1.80	-
	96	Mouzabad	0.5	-	-0.29	-
	97	Mubarakpur	-1.2	-	-0.24	-
	98	Nagina	-3	-	0.52	-
	99	Naharika-Pz	-2.07	-	-9.97	-
	100	Nuh1	-	-	1.85	-
	101	Nurgarh-Pz	-1.49	2.10	-0.80	-
	102	Pipaka	-0.1	-	-1.58	-
	103	Pipaka-Shashola	2.6	-	-1.58	-
	104	Rangla Dhani-Pz	1.6	-	-3.40	-
	105	Sikarwa	-5.3	-	2.51	-
	106	Siwari-Pz	-0.17	-0.99	-	0.33
HISAR	107	Adampur-Pz	0.29	-	0.79	-
	108	Agroha-Pz	1.3	-	0.01	-
	109	Balawas1	-0.72	-	2.32	2.35
	110	Balsamand	-1.5	-	0.41	-
	111	Balsamand-Pz	-0.2	-	0.34	-
	112	Banbhauri-Pz	-0.36	-0.96	0.05	-0.20
	113	Barwala1	-3.24	-	-3.49	-
	114	Barwala-Pz	-1	1.51	1.70	0.12
	115	Bas	-0.04	-	-0.27	-
	116	Basra	1.14	0.30	-1.01	-
	117	Behbalpur-Pz	0	-	0.72	1.09
	118	Chanaut	-0.25	1.36	-0.68	-0.05
	119	Chawdhariwas	0.69	0.80	0.51	0.44
	120	Dhamundicross	-2.6	0.85	0.20	-
	121	Dhansu	-0.87	0.87	0.63	2.67

	122	Ghaibipur	0.21	0.69	-	-
	123	Ghursal-Pz	-	0.55	-1.37	0.45
	124	Hissar	-0.02	-	0.86	-
	125	Hissar S	-	0.35	-	-
	126	Hissar-Pz	-0.01	-	0.87	-
	127	Juglan	0.27	0.08	-	-
	128	Kanoh-Pz	-0.01	0.35	0.60	-
	129	Kherijalab-Pz	-0.79	-	1.10	-
	130	Khotkalan	-2.17	-0.25	-0.97	-1.80
	131	Kirori	-0.09	0.59	0.34	0.27
	132	Kirtan	-0.44	-	0.27	-
	133	Mangali-Pz	0.56	0.62	0.80	0.90
	134	Mirka	-0.1	-	-0.91	-
	135	Mothmajri	-0.87	0.30	0.00	-0.30
	136	Muklan	0.53	-	-	-
	137	Narnaud S	-3.57	-	-	-
	138	Rajli Cross	-1.32	-	1.10	-
	139	Rajthal1	-	-	-1.01	-
	140	Samani	0.15	-	-1.65	-
	141	Sorkhi-Pz	-0.23	0.15	0.23	-
	142	Umra	0.56	-	1.51	-
JHAJJAR	143	Badli	-	-	0.48	-
	144	Bagoa	-3.62	-	2.30	-
	145	Chamanpura	1.15	1.60	-	-
	146	Chhara	-1.79	-	0.38	-
	147	Chuchakwas	0.65	0.08	-1.96	-2.90
	148	Dighal	0.88	-	0.50	-
	149	Dubhaldhan	-1.43	-	1.45	-
	150	Dulhera	0.9	-	1.26	0.68
	151	Gabhana	-	-	0.43	-
	152	Jhajjar	0.08	-	-0.67	-
	153	Jhajjar1	0.35	-	-1.15	-
	154	Kulasi	-1.03	-	0.90	-
	155	Mudsa	4.02	-	-1.06	-
	156	Sankol	0.47	-	1.79	-
	157	Wazirpur	2.72	-	0.25	-
JIND	158	Alewa	-1.45	-	-	-
	159	Baroda	-0.71	-	-0.32	-
	160	Bhuslana-Pz	-0.6	-	-0.47	-
	161	Brahmanwas	1.38	-0.32	0.10	-
	162	Chhabri	-0.39	-	0.09	-
	163	Dhandauli Pz	-	-	-4.83	-
	164	Dorana Pz	-	-	-1.78	-
	165	Ghaso	-0.36	-	5.94	-

	166	Jhamula	-0.48	0.88	1.17	-
	167	Julana Pz	-	-	1.75	-
	168	Kharwal	-1.47	-	-	-
	169	Khatkaran	1.01	-	0.58	-
	170	Korar	-1.6	-	-0.08	-
	171	Mohal Khera Pz	-0.52	-	2.18	-
	172	Narwana S	-	-	2.24	-
	173	Narwana S-Pz	-	-	2.04	-
	174	Pillukhera	-0.55	-4.16	0.08	-
	175	Safidon (s)	-0.65	-	0.26	-
	176	Safidon 1(s)	-0.2	-	-7.92	-
	177	Uchana	-0.53	-0.38	0.41	-
	178	Uchana Pz	-	-	0.20	-
KAITHAL	179	Guhna	-1.55	-5.70	-2.03	-3.60
	180	Jakhauli-Pz	-1.77	-0.80	0.44	-1.20
	181	Jandaula-Pz	-2.93	-	-	-
	182	Jateri	-0.16	0.18	-2.51	-
	183	Kalayat	0.63	-	-0.17	-
	184	Kalayat S	-	-	-1.80	-
	185	Kathana-Pz	-0.77	-1.20	-0.57	-
	186	Kelaram	-0.59	-	-1.46	-
	187	Kheorak-Pz	-3.6	-	-7.35	-
	188	Manaspatti-Pz	-1.92	-0.92	-0.72	-1.16
	189	Mataur	-0.93	-	-0.56	-
	190	Mundri	-2	-0.65	-	-
	191	Padla 1(s)	-2.79	-	-3.26	-
	192	Peoda_Pz	-1.56	-	0.75	-
	193	Pundri(s)	-3.86	-	-4.62	-
	194	Rajaund-Pz	-1.67	-	-1.40	-
	195	Sirsal-Pz	-2.23	-	-3.69	-
	196	Titiana 1(s)	-	-	-4.04	-
KARNAL	197	Amin S	-1.28	-	-0.68	-
	198	Anjanthali-Pz	-	-	0.91	-
	199	Balhera-s	-1.18	-	-3.45	-
	200	Baragaon-Pz	-1.31	-	1.38	-
	201	Biana-Pz	0.17	-	2.31	-
	202	Dadupur Khurd-Pz	-0.52	3.04	1.88	-
	203	Dingar Majra-Pz	-5.8	-9.45	-3.75	0.61
	204	Domsi D	-0.85	-	-1.27	
	205	Faridpur-Pz	-2.3	-0.40	-5.10	-1.95
	206	Gangatheri	-	-1.35	-8.30	-
	207	Garhi Khajur S	-	-	3.64	-
	208	Gharaunda-Pz	-1.88	-	-1.48	-

	209	Ghiar-Pz	-0.01	-	2.20	-
	210	Indri	-0.42	-	3.15	-
	211	Jabhala-Pz	-4.95	-1.18	-2.55	-
	212	Jaroli Khurd-Pz	-0.32	-	-0.55	-
	213	Jhanjari-Pz	-0.11	-	-0.51	-
	214	Jundla1	-1.09	-	-2.44	-
	215	Kachhwa Pz	0.21	-	-	-
	216	Kalri Jagir S	-4.27	-	-4.10	-
	217	Kurlan-Pz	-2.89	0.10	-	-
	218	Kutail S	-1.34	-	-2.01	-
	219	Majra Roran	-	-	-3.01	-
	220	Makhala S	-0.01	-	-1.93	-
	221	Manak Majra-Pz	0.83	-	0.92	-
	222	Mohidinpur-Pz	-	-	-1.24	-
	223	Mound S	-1.93	-	-4.26	-
	224	Nalvi Kalan-Pz	-	-	0.57	-
	225	Nanhera	-	-	5.10	-
	226	Nilokheri-Pz	-0.76	-	-0.18	-
	227	Padhana-DW	-0.72	-	0.47	-
	228	Phurlak S	-3.91	-	-4.50	-
	229	Phusgarh-Pz	-1.44	-	-1.38	-
	230	Rambha-Pz	1.01	-	0.62	-
	231	Randauli-Pz	-0.17	-	0.64	-
	232	Rattak-Pz	-1.87	-	-0.90	-
	233	Sagga-Pz	0.79	-	-0.56	-
	234	Salarpur-Pz	-	-	1.57	-
	235	Salwan-B	-2.21	0.00	-4.55	0.30
	236	Saunkra S	1.35	-	-3.73	-
	237	Sugar Cane Breeding Farm	-	-	-0.13	-
	238	Taraori-Pz	-0.38	-	0.87	-
	239	Udana-Pz	-1.43	-	1.06	-
KURUKSHETRA	240	Bachki-Pz	-0.51	-0.95	-1.07	-0.60
	241	Ban- Pz	-0.96	0.32	2.23	-0.70
	242	Baronda-Pz	-1.59	2.50	3.90	-
	243	Berthala S	0.52	-	-2.26	-
	244	Bodhni (s)	-2.33	-	-3.59	-
	245	Dabkhera-Pz	-1.04	1.88	3.01	-
	246	Hatira (s)	-1.17	-	-4.26	-
	247	Ishaque S	-	-	-3.30	-
	248	Kaulapur S	1.57	-	-8.43	-
	249	Malikpur-Singhpura-Pz	-1.1	-0.60	-1.91	-0.50
	250	Murtzapur-Pz	-	-	-0.69	-0.94

	251	Samalkhi-Pz	-6.8	-	-0.65	-
	252	Sirsala-Pz	-1.55	-	-2.17	-
MAHENDRAGARH	253	Buchawas	0.32	-	-	-
	254	Buwana-Pz	-1.85	-	-2.58	-
	255	Deroli Ahir	-	-	-7.48	-
	256	Deroli Ahir1	2.09	-	-2.65	-
	257	Khatodra-Pz	-3.07	-	-3.62	-
	258	Lukhi	-0.62	-	-1.29	-
	259	Narnaul	-3.81	1.00	-0.79	2.15
PANCHKULA	260	Devnagar(Panchkula)	0.39	0.34	-0.10	-
	261	Dharampur	0.6	-	1.95	-
	262	Kakar Majra	-0.3	-	0.78	-
	263	Khera	-	-	0.94	-
	264	Mehranwali	-13.2	-	-2.45	-
	265	Parwala	-0.3	-	-0.15	-
	266	Patwi	0.5	-	1.20	1.25
	267	Raipurrani	1.1	-0.42	8.03	1.18
PANIPAT	268	Babail Pz S	-	-	-1.90	-
	269	Babail VS-Pz	-1.35	-	-	-
	270	Bhallour Pz	-1.62	-	10.75	-
	271	Dakadla S	0.95	-	-0.10	-
	272	Dharamgarh S	0.46	-	-	-
	273	Hathwala-Pz	-0.71	1.04	2.00	1.00
	274	Israna Pz	0.09	-	-0.62	-
	275	Karhansh Pz	-	-	-0.90	-
	276	Khalila Manjran	0.62	-	0.87	-
	277	Khelalla Pehl S	-	-	-2.72	-
	278	Lohari (s)	-	-	-0.38	-
	279	Nariana-PZ	-	-3.23	-2.48	-
	280	Nimbri- Pz	-2.45	-1.88	-1.03	-2.09
	281	Patti Kalyana S	-	-	-2.35	-
	282	Puther Pz	-	-	-0.19	-
	283	Sanauli Khurd-Pz	0.36	-0.75	1.28	-0.39
	284	Shahpur	1.72	-	-1.31	-
	285	Sink	0.66	-	0.09	-
	286	Untilya	0.03	-0.20	-0.45	-
	287	Urlana Kalan	0.44	-	2.00	-
REWARI	288	Bahu	-	-	0.70	-
	289	Balawas	2.39	-	0.00	-
	290	Bawal	-0.25	-	-0.53	-
	291	Bawal DW	-0.7	-	5.80	-
	292	Bawal Pz	-0.7	-	1.18	-

	293	Gangaichajat	0.02	-	-	-
	294	Guriani	-	-	0.19	-
	295	Karnawas	-0.43	-	0.03	-
	296	Kosli	-	-	-0.38	-
	297	Mandola-Pz	1.68	-	-2.85	-
	298	Nangal Jamalpur-Pz	-2.42	-4.60	0.12	-
	299	Rholiawas-Pz	-0.3	-	0.22	-
	300	Sangwari	-2.84	-	-	-
ROHTAK	301	Baland	0.38	-	0.04	-
	302	Bhal Anandpur	-	1.82	0.02	-0.14
	303	Hassangarh	-	2.10	1.30	0.20
	304	Kalanaur	0.27	-0.05	-	-
	305	Kalanaur Pz	-	-0.03	-	-
	306	Kansala	1.22	1.80	0.42	-
	307	Kharawar	-3.07	-	-0.06	-
	308	Lakhan Majara	-1.15	-	0.61	-
	309	Lakhan Majra Pz	-1.36	-	0.61	-
	310	Madina	1.01	-	0.53	-
	311	Mahem	-2.45	-1.20	-0.98	-
	312	Nidhana	-0.61	1.03	1.00	-2.29
	313	Rukhi	-	-	1.05	-
	314	Samargopalpur	-0.84	-	1.02	-
	315	Sampla	-0.5	-	0.23	-
	316	Sampla-Pz	1.31	-	-	-
SIRSA	317	Bhuratwala-Pz	-0.6	-	-0.08	-
	318	Chormar	-1.11	-1.20	0.14	-
	319	Chotala-Pz	-0.63	-	0.08	-
	320	Dabwali Dw	0.55	0.70	-3.80	-
	321	Dabwali -Pz S	2.1	-	-2.57	-
	322	Darba Kalan-Pz	-0.1	0.60	-0.08	-
	323	Ding	-4.99	-	-1.58	-
	324	Ganga	-0.35	-0.10	-	-
	325	Ghushiana	-1.45	0.69	0.03	0.74
	326	Gigorani	-0.82	0.27	-0.48	-
	327	Goriwala	-0.01	-0.30	0.36	0.40
	328	Goriwala-Pz	-0.33	0.25	0.41	-
	329	Jamal	0.29	-	0.33	-
	330	Jamal- Pz	-1.02	-	0.97	-
	331	Kalanwali Mandi-Pz	8.22	-	0.00	-
	332	Kaluwana	-0.52	-	-0.21	-0.06
	333	Karamsana	-0.53	0.54	0.17	-

	334	Kash Ram Dhab	-0.39	1.74	-1.33	-2.55
	335	Khuiyan	-0.42	-1.30	-0.41	-
	336	Mammer Khera-Pz	0.1	0.00	-	-
	337	Mangala-Pz	-1.96	-	-1.50	-2.05
	338	Manjiyana	-0.43	-	0.52	-
	339	Mastian	-1.8	-	0.15	-
	340	Mithri	-1.17	-	0.28	-
	341	Nuhian Wali	-0.72	-0.05	-0.17	-
	342	Odhan Pz	-0.91	-	0.06	-
	343	Panniwala Mota	-0.47	0.49	-0.13	-0.11
	344	Phaggu-Pz	-	-	0.30	-
	345	Rasalia Khera	-0.44	2.86	-0.15	-0.06
	346	Rori -DW	-0.52	-1.20	-	-
	347	Saktakhera	-0.14	1.64	0.11	-
	348	Shergarh-DW	-	-	-	0.94
	349	Sherpura	-0.06	0.25	0.31	-
	350	Sirsa-Pz	-1.11	-	-1.35	-
	351	Sri Jiwan Nagar-B	-2.72	-	-0.97	-
	352	Taruwana	-0.1	-	-	-
	353	Tejakhera	-	-	1.39	-
SONIPAT	354	Ahulana	0.24	0.33	0.88	1.50
	355	Anwali-Pz	-0.19	-	-	-
	356	Barauli-Pz	-	3.32	0.52	-
	357	Barwasni Pz (s)	-	-	2.97	-
	358	Bega Pz	-	-	-0.95	-
	359	Bhainswal	0.37	2.40	0.38	0.37
	360	Bhunderi	1.68	-	0.57	-
	361	Bichpuri1	0.9	-	0.02	-
	362	Bohela	-0.18	-	0.67	-
	363	Butana	0.47	-	1.83	-
	364	Chirana	1.13	-	-0.08	
	365	Datauli-Pz	-0.67	-	0.68	-0.23
	366	Farmana	0.75	-	1.63	-
	367	Garhwal	0.47	-	-0.08	-
	368	Gohana Pz	-1.43	-	1.99	-
	369	Jagsi	0.22	-	-0.52	-
	370	Janti Khurd-Pz	-2.15	-	1.94	-
	371	Jhakauli- Pz	-	-	6.10	-
	372	Kami- PZ	-2.94	-	0.46	-0.84
	373	Kathura Pz	-0.25	-	0.01	-
	374	Khanpur Kalan-Pz	-	5.06	2.19	-

	375	KheoraPz	-	-	-0.11	-
	376	Lath	0.82	-	-0.32	-
	377	Machhri	0.19	-	0.03	-0.72
	378	Mahara	0.18	-	1.01	1.15
	379	Manauli-Pz	-	-0.39	0.40	-
	380	Mohana Pzm	-	-	1.85	-
	381	Mundlana DW	-	-	0.70	-
	382	Mundlana- Pz	-	-	1.38	-
	383	Murthal-Pz	-	-	-0.26	-0.95
	384	Nahri	-	0.94	-0.44	-0.45
	385	Pinana	0.29	-0.10	1.73	1.85
	386	Pugthala-Pz	1.29	0.15	0.78	-
	387	Purkhas-Pz	-0.58	0.87	-0.14	-0.22
	388	Rai(Bahalgarh)	0.26	-	-0.36	-
	389	Rathdhana-Pz	0.18	-	-0.06	-0.55
	390	Rohat	-3.51	-	0.86	-
	391	Rukhi-Pz	-0.82	-	1.03	-
	392	Sisnah	0.39	-	1.11	-
YAMUNAN AGAR	393	Bilaspur DW	0.13	-	1.39	-
	394	Chhachrauli S	0.46	-	3.14	-
	395	Choli	-1.2	0.41	0.78	0.50
	396	Dhanauri S	-	-	0.24	-
	397	Dhaurang S	-0.26	-	1.40	-
	398	Jhiwarheri S	-	-	-0.86	-
	399	Khizrabad	-0.72	-	-	-
	400	Mustafabad DW	-0.17	0.15	-	-0.57
	401	Naggal-S	-0.34	-	-0.12	-
	402	Radaur S	-	-	0.08	-
	403	Rasulpur DW	-1.62	-0.10	4.56	-
	404	Sabri	-0.58	2.40	2.15	1.56
	405	Sadhaura DW	-0.64	-0.21	0.34	0.00
	406	Sadhaura S	-0.78	-	-0.53	-
	407	Shadipur	0.12	-	-0.36	-

ANNEXURE- IV

DECADAL MEAN WATER LEVEL FLUCTUATION (m)

DISTRICT	Sl. No.	Locations	2003-2012 & May 2013	2003-2012 & Aug 2013	2003-2012 & Nov 2013	2004-2013 & Jan 2014
AMBALA	1	Ambala Cantt	-0.11	-	-0.59	-
	2	Balana	-0.07	-	-0.37	-
	3	Dhanaura	0.35	-2.30	-1.29	-0.74
	4	Kakru	-1.65	-2.54	-1.34	-1.55
	5	Khanahmadpur	-0.41	-	-0.92	-0.80
	6	Mulana	-1.37	-	-1.57	-
	7	Naraingarh	0.63	-	-0.26	-
	8	Panjokhra	-0.91	-2.55	-3.01	-
	9	Pinjola	-0.50	-0.72	-0.63	-
BHIWANI	10	Badala	-2.02	-1.66	-1.26	-
	11	Bajina	0.35	0.66	0.99	0.77
	12	Bamla	-1.31	-1.11	-1.07	1.63
	13	Baundkalan	-0.96	-1.25	-0.36	-
	14	Bhawani khera DW	-2.22	-1.28	-1.41	-
	15	Bhawani Khera Pz	-0.78	-0.70	-0.97	-
	16	Bohal	-2.21	-2.85	-2.51	-
	17	Chirya	1.66	1.52	0.44	-
	18	Dadri1	-0.55		-0.25	-
	19	Dhanana	-0.57	0.00	0.07	-
	20	Gopi	-	-	5.80	-
	21	Gurera	-0.63	-	0.14	-
	22	Gurera-pz	4.76	0.45	-0.68	-
	23	Haluwas	-1.75	-1.80	-0.78	-0.39
	24	Imlota	-	-0.29	0.69	-
	25	Isharwal	-0.14	0.49	-0.52	-
	26	Jhumpa	-0.56	-	1.17	2.63
	27	Jhumpa Kalan	-	-	-0.19	-
	28	Juikalan Pz	-8.51	2.16	-1.52	-
	29	Lachhmanpur	-0.12	-4.78	0.96	-
	30	Lohani	5.17	-	-1.44	-
	31	Mauhala	-3.88	0.62	-0.10	-
	32	Mehrana	-2.49	1.20	-5.96	-
	33	Miran	1.09	-	0.39	-
	34	Miran-Pz	1.76	-	-0.07	-
	35	Nayaatela	0.03	1.22	1.61	0.79
	36	Pataudi Khurd	-	-	-0.91	-
	37	Sagban	-2.52	-	-2.45	-
	38	Sangwan PZM	-2.08	-	-2.34	-
	39	Sanwar	-0.41	-	-0.83	-1.06

	40	Singhani-pz	-0.06	-	9.04	-
	41	Siwani	-0.07	0.05	-0.24	-0.10
	42	Sui	-0.60	-	-0.72	-0.91
	43	Tosham	-1.23	-0.47	-0.79	-
	44	Tosham-Pz	-	-	0.20	-
FARIDABAD	45	Achheja	0.58	-	-0.57	-
	46	Badraun	1.75	-	-1.26	-
	47	Baghaula	0.15	-1.95	-2.24	-
	48	Ballabhgarh	2.12	-	2.24	-
	49	Bamnikhera	1.37	-	-	-
	50	Barauli-Pz	1.75	-	-	-
	51	Bhopani	3.20	-	2.47	-
	52	Dighaut	1.60	-	1.58	-
	53	Hathin	5.18	-	0.70	-
	54	Hodel	0.70	-	-0.35	-
	55	Hodel1	-0.24	-	-1.54	-
	56	Jaindapur	-	-	2.07	-
	57	Kabulpur	1.03	-	-0.21	-
	58	Khambi	0.20	-	-1.63	-
	59	Kot	2.26	-	-0.80	-
	60	Lakhnaka	-0.69	-	2.85	-
	61	Lalwa	0.91	-	-0.90	-
	62	NH-IV CHQ PZ S	6.25	-	4.65	-
	63	Pali2	6.59	-	5.16	-
	64	Palwal	-0.10	-	-0.25	-
	65	Palwal-Pz	-0.20	-	5.56	-
	66	Rasul Pur	1.42	1.04	0.66	0.32
	67	Thekarka	-	-	-0.92	-
	68	Tumsara	-0.53	-2.29	0.02	-
FATEHABAD	69	Aharwan S	2.53	-	6.82	-
	70	Badopal	0.54	0.54	0.86	0.66
	71	Jandli Kalan	-0.16	-	-1.05	-
	72	Mehu Wala Pz	0.12	-	-0.35	-
	73	Nahla	1.60	0.22	1.67	-
	74	Ratia -Pz	2.62	-	1.86	-
	75	Sadalpur	0.40	-	0.34	-
	76	Samain	1.52	-1.45	-0.81	-
	77	Sohu	-0.10	-	-0.28	-
	78	Tohana	4.54	3.78	3.78	5.23
GURGAON	79	Akaira	0.36	1.73	1.13	-
	80	Akbarpur	0.55	-	-0.29	-
	81	Chandu Tikly	-0.19	-	-1.09	-
	82	Fazilpur Badli-Pz	0.57	-0.20	-2.80	1.60

	83	Firozepur Jhirka	1.82	-0.68	-1.54	-
	84	Gulaltha	-	-1.93	-1.07	-
	85	Gurgaon	2.70	-	2.82	-
	86	Gurgaon Pz	2.28	-	2.99	-
	87	Haila Mandi	-	-	0.54	-
	88	Indri	-0.17	0.02	-0.57	-
	89	Jaraon Pz	-	-	1.52	-
	90	Jhanjrola	-	-	2.21	-
	91	Kasan	-	-	3.02	-
	92	Khera Khurrampur-Pz	0.97	1.65	2.38	-
	93	Kheri1	-0.18	-	-0.57	-
	94	Khori Kalan	-	-	1.69	-
	95	Lokra-Pz	1.92	-	3.27	-
	96	Luhingakalan	0.30	-	-0.41	-
	97	Malab	1.50	-1.03	-0.34	-
	98	Meoka-Pz	-0.94	-	1.11	-
	99	Mouzabad	4.55	-	3.31	-
	100	Mubarakpur	3.38	-	1.29	-
	101	Nagina	1.13	-	-0.28	-
	102	Naharika-Pz	-	-	10.35	-
	103	Nuh1	0.05	-	-0.94	-
	104	Nurgarh-Pz	0.10	-2.10	0.80	-
	105	Pipaka	3.20	-	6.58	-
	106	Pipaka-Shashola	-1.60	-	1.58	-
	107	Rangla Dhani-Pz	6.19	-	1.89	-
	108	Raoli	2.77	-	-	-
	109	Sikarwa	0.78	-	-1.08	-
	110	Siwari-Pz	-	0.99	-	0.25
	111	Sohna	0.17	-	5.63	-
HISAR	112	Adampur-Pz	-0.29	-	-0.34	-1.35
	113	Agroha-Pz	-1.30	-	-0.01	-
	114	Balawas1	-1.59	-	-3.30	-2.70
	115	Balsamand	0.56	-	0.04	-
	116	Balsamand-Pz	0.20	-	-0.34	0.80
	117	Banbhauri-Pz	0.36	0.96	-0.04	0.96
	118	Barwala1	2.08	0.11	2.28	-
	119	Barwala-Pz	1.00	-1.51	-1.70	-0.04
	120	Bas	-0.02	-	0.26	-
	121	Basra	-0.27	0.45	0.75	0.42
	122	Behbalpur-Pz	0.00	-	-0.72	-0.85
	123	Chanaut	0.12	-1.24	0.30	-0.23
	124	Chawdhariwas	-2.00	-1.80	-1.88	-1.85

	125	Dhamundicross	1.54	-0.00	1.28	-
	126	Dhansu	-1.42	-1.81	-1.73	-1.71
	127	Ghaibipur	-0.44	-0.33	-0.20	-0.42
	128	Ghursal-Pz	-	-0.55	1.37	-0.40
	129	Hissar	-0.15	-0.33	-0.64	-
	130	Hissar-Pz	0.01	-0.35	-0.87	-
	131	Juglan	-0.01	-0.62	-1.46	-
	132	Kanoh-Pz	0.01	-0.35	0.09	-
	133	Kherijalab-Pz	0.79	-	-1.10	-
	134	Khotkalan	3.84	3.49	3.97	3.94
	135	Kirori	-0.30	-0.88	-0.54	-0.26
	136	Kirtan	0.66	0.17	-0.47	0.25
	137	Mangali-Pz	-0.56	-0.62	-0.80	-0.85
	138	Mirka	-0.42	-0.58	0.34	-
	139	Mothmajri	1.54	1.12	2.20	2.01
	140	Muklan	-1.07	-	-	-
	141	Narnaud S	4.10	-	-	-
	142	Rajli Cross	1.30	-1.17	-0.82	0.04
	143	Rajthal1	4.66	-	6.10	-
	144	Samani	-1.70	-	-1.28	-
	145	Sorkhi-Pz	0.23	-0.15	-0.23	-
	146	Umra	-0.08	-	-0.44	-0.96
JHAJJAR	147	Badli	1.22	-	-1.77	-
	148	Bagoa	0.28	-	-3.38	-2.77
	149	Bahadurgarh	-	-	-0.57	-
	150	Chamanpura	-0.92	0.10	-1.22	-
	151	Chhara	**1.16**	-	-1.55	-
	152	Chuchakwas	-0.15	1.03	1.24	1.17
	153	Dighal	-0.53	0.35	-0.53	-
	154	Dubhaldhan	0.14	-	-2.51	-
	155	Dulhera	-1.45	-1.01	-1.93	-1.10
	156	Gabhana	-	-	-0.23	-
	157	Jhajjar	-0.32	-	-0.93	-
	158	Jhajjar1	0.22	-	0.80	-
	159	Kulasi	1.19	-	-0.51	-
	160	Majra Deswal	2.27	-	-1.35	-
	161	Mudsa	-1.14	-	0.56	-
	162	Sankol	0.02	-	-1.04	-
	163	Subnah	-	-	0.68	-
	164	Wazirpur	-0.22	-	-0.07	-
JIND	165	Alewa	8.82	7.81	-	-
	166	ATI Krishna1(s)	4.59	-	-	-
	167	Baroda	0.64	-	0.82	-
	168	Bhuslana-Pz	0.80	-	1.16	-

	169	Brahmanwas	0.60	1.00	1.18	-
	170	Chhabri	2.34	1.54	2.02	-
	171	Dhandauli Pz	-	-	4.83	-
	172	Dorana Pz	5.53	-	6.07	-
	173	Ghaso	3.38	-	4.73	-
	174	Jhamula	0.36	-0.41	-0.46	-
	175	Julana Pz	-	-	-1.75	-
	176	Kharwal	4.50	4.60		-
	177	Khatkaran	1.87	2.19	2.22	-
	178	Korar	3.79	7.99	4.53	-
	179	Mohal Khera Pz	1.11	-	-0.74	-
	180	Narwana S	0.55	-	-0.56	-
	181	Narwana S-Pz	-	-	-2.04	-
	182	Pillukhera	0.63	1.01	1.19	-
	183	Safidon (s)	2.46	-	2.97	-
	184	Safidon 1(s)	2.76	-	10.37	-
	185	Uchana	0.34	0.62	0.69	2.94
	186	Uchana Pz	-	-	-0.20	-
KAITHAL	187	Guhna	5.84	7.21	6.58	7.09
	188	Jakhauli-Pz	1.77	0.80	0.02	2.10
	189	Jateri	3.32	2.00	4.59	-
	190	Jandaula-Pz	2.93	-	-	-
	191	Kalayat	-0.87	-	-0.38	-
	192	Kalayat S	-0.53	-	1.43	-
	193	Kathana-Pz	0.77	1.20	0.57	2.65
	194	Kelaram	1.08	1.55	0.90	-
	195	Kheorak-Pz	3.60	-	7.35	-
	196	Manaspatti-Pz	1.92	0.92	0.72	1.93
	197	Mataur	1.62	1.36	0.99	-
	198	Mundri	4.89	4.95	5.23	-
	199	Padla 1(s)	6.60	-	3.00	-
	200	Peoda_Pz	1.56	-	-0.75	0.80
	201	Pundri(s)	8.54	-	6.98	-
	202	Rajaund-Pz	1.67	-	1.40	-
	203	Rajound S	3.16	-	4.29	2.08
	204	Sirsal-Pz	2.23	-	3.69	-
	205	Titiana 1(s)	7.81	-	7.23	-
KARNAL	206	Amin S	5.24	-	2.71	-
	207	Anjanthali-Pz	-	-	-0.91	-
	208	Balhera-s	1.48	-	3.79	-
	209	Baragaon-Pz	1.31	-	-1.38	-
	210	Biana-Pz	-0.37	-	-1.87	-
	211	Dadupur Khurd-Pz	0.52	-3.04	-1.88	-
	212	Dingar Majra-Pz	5.80	9.45	2.40	3.96

	213	Domsi D	2.11	0.40	1.49	-
	214	Faridpur-Pz	2.30	8.46	5.10	4.63
	215	Gangatheri	7.16	-	10.07	-
	216	Garhi Khajur S	2.34	-	2.29	-
	217	Gharaunda-Pz	1.88	-	1.48	-
	218	Ghiar-Pz	0.01	-	-2.20	-
	219	Indri	0.32	-	-0.92	-
	220	Jabhala-Pz	4.95	1.18	2.55	-
	221	Jaroli Khurd-Pz	0.32	-	0.55	-
	222	Jhanjari-Pz	0.11	-	0.51	-
	223	Jundla1	5.14	-	6.28	-
	224	Kachhwa Pz	-0.21	-	-	-
	225	Kalri Jagir S	3.88	-	3.08	-
	226	Kurlan-Pz	2.89	-0.10	-	-
	227	Kutail S	3.43	-	3.84	-
	228	Majra Roran	8.35	-	7.44	-
	229	Makhala S	0.27	-	0.57	-
	230	Manak Majra-Pz	-0.83	-	-0.92	-
	231	Mohidinpur-Pz	4.91	-	1.24	-
	232	Mound S	-	-	5.76	-
	233	Nalvi Kalan-Pz	-	-	-0.57	-
	234	Nanhera	-2.94	-	-4.02	-
	235	Nilokheri-Pz	0.76	-	0.18	-
	236	Padhana-DW	0.72	-	-0.47	-
	237	Phurlak S	6.33	-	6.27	-
	238	Phusgarh-Pz	1.44	-	1.38	-
	239	Rambha-Pz	-1.01	-	-0.62	-
	240	Randauli-Pz	0.17	-	-0.64	-
	241	Rattak-Pz	1.87	-	0.90	-
	242	Sagga-Pz	-0.79	-	0.56	-
	243	Salarpur-Pz	-	-	-1.57	-
	244	Salwan-B	3.94	1.61	5.41	0.25
	245	Saunkra S	6.23		7.97	-
	246	Sugar Cane Breeding Farm	-	-	0.47	-
	247	Taraori-Pz	0.38	-	-0.87	-
	248	Udana-Pz	1.43	-	-1.06	-
KURUKSHETRA	249	Bachki-Pz		0.95	1.07	2.70
	250	Ban- Pz	0.51	-0.32	-1.00	1.90
	251	Baronda-Pz	0.96	-2.50	-3.90	2.05
	252	Berthala S	6.00	-	5.93	-
	253	Bodhni (s)	7.70	-	7.41	-
	254	Dabkhera-Pz	2.33	-1.88	-1.88	-
	255	Hatira (s)	4.63	-	4.12	-
	256	Ishaque S	5.88	-	6.26	-

	257	Kaulapur S	11.38	-	11.31	-
	258	Malikpur-Singhpura-Pz	-1.57	0.60	0.45	0.61
	259	Murtzapur-Pz	1.10	-	0.69	2.44
	260	Samalkhi-Pz	6.80	-	0.65	20.90
	261	Sirsala-Pz	1.55	-	2.17	-
MAHENDRA GARH	262	Buwana-Pz	-0.16	-	2.58	-
	263	Buwana-Pz	1.85	-	-	-
	264	Deroli Ahir	-	-	2.28	-
	265	Deroli Ahir1	-0.11	-	-1.44	-
	266	Khatodra-Pz	3.07	-	3.62	-
	267	Lukhi	0.98	-	0.63	-
	268	Narnaul	-1.36	-3.55	-3.40	-3.93
PANCHKULA	269	Devnagar(Panchkula)	-0.61	-0.55	-0.71	-
	270	Dharampur	0.76	-	-0.60	-
	271	Kakar Majra	0.83	-	-0.17	-
	272	Khera	0.83	-	-0.71	-
	273	Mehranwali	12.93	-	2.65	-
	274	Parwala	-2.04	-	-2.07	-
	275	Patwi	1.92	2.79	1.85	1.42
	276	Raipurrani	-5.83	-4.76	-8.68	-6.20
PANIPAT	277	Babail Pz S	2.25	-	1.90	-
	278	Bhallour Pz	1.62	-	-10.75	-
	279	Dakadla S	2.58	-	2.62	-
	280	Dharamgarh S	1.52	-	-	-
	281	Hathwala-Pz	0.71	-1.04	-1.62	-0.86
	282	Israna Pz	0.10	-	0.86	-
	283	Karhansh Pz	-0.25	-	0.90	-
	284	Khalila Manjran	-	-2.73	-0.39	-
	285	Khelalla Pehl S	-	-	7.01	-
	286	Lohari (s)	-	-	0.37	-
	287	Nariana-PZ	-	3.23	2.48	-
	288	Nimbri- Pz	2.45	1.88	1.13	3.44
	289	Patti Kalyana S	-	-	6.70	-
	290	Puther Pz	-	-	0.19	-
	291	Sanauli Khurd-Pz	-0.36	0.75	-1.28	0.60
	292	Shahpur	-0.91	-	1.80	-
	293	Sink	-0.05	-	0.12	-
	294	Untilya	0.18	0.22	0.41	0.59
	295	Urlana Kalan	0.89	-	1.21	-
REWARI	296	Bahu	-	-3.28	-2.71	-3.04
	297	Balawas	0.49	-	3.06	-
	298	Bawal	1.18	1.67	1.38	-

	299	Bawal DW	1.12	-	0.08	-
	300	Bawal Pz	2.14	-	-0.07	-
	301	Gangaichajat	0.60	-	5.61	-
	302	Guriani	2.30	-	0.17	-
	303	Karnawas	0.48	-	-0.59	-1.33
	304	Kosli	-	-	-0.45	-0.50
	305	Mandola-Pz	-1.68	-	-0.84	1.70
	306	Nangal Jamalpur-Pz	2.42	4.60	-0.12	-
	307	Rholiawas-Pz	0.30	-	-0.22	-
	308	Sangwari	0.66	-	-	-
ROHTAK	309	Baland	-0.40	-	-0.19	-
	310	Bhal Anandpur	-	-0.93	0.03	-0.01
	311	Hassangarh	-0.33	-2.56	-1.74	-0.59
	312	Kalanaur	-1.66	-1.19	-	-
	313	Kalanaur Pz	-	-0.86	-	-
	314	Kansala	-1.37	-2.38	-1.15	-
	315	Kharawar	2.70	-	-0.21	-
	316	Lakhan Majara	-0.40	-	-1.88	-
	317	Lakhan Majra Pz	-0.56	-	-0.65	-
	318	Madina	-0.89	-	-0.83	-
	319	Mahem	1.37	1.44	1.15	-
	320	Nidhana	-0.39	-0.88	-0.71	2.30
	321	Rukhi	-2.78	-	-3.89	-3.82
	322	Samargopalpur	-0.32	-0.27	-0.43	-
	323	Sampla	-0.71	-	-1.35	-
	324	Sampla-Pz	-2.34	-	-	-
SIRSA	325	Bhuratwala-Pz	0.60	-	0.08	-0.04
	326	Chormar	1.72	1.41	1.29	-
	327	Chotala-Pz	0.63	-	-0.08	-
	328	Dabwali Dw	0.04	-0.10	0.23	-
	329	Dabwali -Pz S	-3.13	-	-1.36	-
	330	Darba Kalan-Pz	0.10	-0.60	0.08	-
	331	Ding	6.58	3.28	4.06	-
	332	Ganga	1.73	1.68	-	-
	333	Ghushiana	0.15	-0.77	0.05	-0.96
	334	Gigorani	0.38	0.03	0.30	-
	335	Goriwala	1.92	1.87	0.90	0.94
	336	Goriwala-Pz	0.33	-0.25	-0.41	0.03
	337	Jamal	-2.25	-	-2.07	-
	338	Jamal- Pz	1.02	-	-0.34	-
	339	Kalanwali Mandi-Pz	-8.22	-	0.00	-
	340	Kaluwana	0.74	0.50	0.71	0.44

	341	Karamsana	-1.46	-1.48	-1.26	-
	342	Kash Ram Dhab	2.23	0.60	2.91	2.28
	343	Khuiyan	1.91	2.48	2.18	-
	344	Mammer Khera-Pz	-0.10	0.00	-	-
	345	Mangala-Pz	1.96	-	0.85	3.34
	346	Manjiyana	2.06	1.34	1.83	2.34
	347	Mastian	2.65	1.55	1.14	1.47
	348	Mithri	3.85	1.60	2.54	-
	349	Nuhian Wali	2.13	-	1.74	-
	350	Odhan Pz	1.35	-	1.28	-
	351	Panniwala Mota	0.66	-0.47	0.39	0.10
	352	Phaggu-Pz	-	-	-0.07	-
	353	Rasalia Khera	1.99	-1.51	1.44	1.27
	354	Rori -DW	1.85	3.18	2.09	-
	355	Saktakhera	-0.70	-2.14	-0.74	-
	356	Sherpura	0.50	0.14	0.05	-
	357	Shergarh-DW	-	-	-	-0.96
	358	Sirsa-Pz	1.11	-	1.35	-
	359	Sri Jiwan Nagar-B	6.19	-	6.24	-
	360	Taruwana	1.13	0.89	1.17	-
	361	Tejakhera	-0.21	-	-1.29	-
SONIPAT	362	Ahulana	-0.69	-1.19	-1.22	-1.39
	363	Anwali-Pz	0.19	-	-	-
	364	Barauli-Pz	-	-3.32	-0.52	-
	365	Barswani- DW	0.87	-	0.07	-
	366	Barwasni Pz (s)	-	-	0.63	-
	367	Bega Pz	-	-	0.95	-
	368	Bhainswal	-1.07	-1.61	-1.25	-1.23
	369	Bhunderi	-2.21	-2.61	-1.96	-
	370	Bichpuri1	1.30	-	2.32	-
	371	Bohela	0.37	-	-0.58	-
	372	Butana	0.03	-4.02	-0.75	-0.30
	373	Chirana	-1.59	-1.00	-0.72	-
	374	Datauli-Pz	0.67	-	-0.48	-0.19
	375	Farmana	-1.48	-1.42	-1.94	-
	376	Garhwal	-0.60	-	-0.63	-
	377	Gohana Pz	1.68	-	1.51	-
	378	Jagsi	-0.58	-	-0.06	-
	379	Janti Khurd-Pz	2.15	-	-1.94	-
	380	Jhakauli- Pz	-	-	5.30	-
	381	Kami- PZ	2.94	-	-0.46	0.17
	382	Kathura Pz	-0.93	-	-0.43	-
	383	Khanpur Kalan-	-	-5.06	-2.19	-

		Pz				
	384	KheoraPz	-	-	1.66	-
	385	Lath	-0.23	-	0.28	-
	386	Machhri	-0.17	-	-0.27	1.79
	387	Mahara	-0.05	-	-0.59	-0.30
	388	Manauli-Pz	-	0.39	-0.40	-
	389	Mohana Pzm	-	-	-1.64	-
	390	Mundlana DW	-	-	-0.32	-
	391	Mundlana- Pz	-	-	-1.26	-
	392	Murthal-Pz	-	-	0.26	-0.41
	393	Nahri	-	-0.25	0.41	0.50
	394	Pinana	0.61	0.42	-0.84	-1.29
	395	Pugthala-Pz	-1.29	-0.15	-0.78	-
	396	Purkhas-Pz	0.58	-0.87	0.14	-0.69
	397	Rai(Bahalgarh)	-0.49	-	0.01	-
	398	Rathdhana-Pz	-0.18	-	0.06	-1.13
	399	Rohat	4.45	-0.83	-0.32	-
	400	Rukhi-Pz	0.82	-	-0.55	-
	401	Sisnah	0.20	-	-0.34	-
YAMUNAN AGAR	402	Amadalpur	-4.02	-5.91	-1.44	-
	403	Bhambauli-1 (m)	1.43	-	1.05	-
	404	Bilaspur DW	-0.75	-	-1.57	-1.49
	405	Chhachrauli S	1.03	-	-1.51	-
	406	Choli	0.41	0.52	-0.17	-0.53
	407	Dhanauri S	1.73	-	1.01	-
	408	Dhaurang S	1.34	-	-0.26	-
	409	Jhiwarheri S	2.39	-	0.69	-
	410	Khizrabad	0.67	-	-1.46	-
	411	Mustafabad DW	1.16	0.03	0.61	0.63
	412	Mustafabad-Pz	-	-	1.46	-
	413	Naggal-S	0.52	-	-0.62	-
	414	Radaur S	1.10	-	-0.02	-
	415	Rasulpur	-	0.93	-	-
	416	Rasulpur DW	1.15	1.22	-2.51	-
	417	Sabri	0.46	-1.43	-0.67	-0.61
	418	Sadhaura	-	-	-0.74	-
	419	Sadhaura DW	1.28	0.66	-0.17	0.65
	420	Sadhaura S	1.53	1.41	1.56	-
	421	Shadipur	-0.29	-	-0.70	-

ANNEXURE 5. RESULTS OF CHEMICAL ANALYSIS OF WATER SAMPLES FROM GWOW IN HARYANA (2013)

SR	LOCATION	WELL NO.	pH	EC in µS/cm at 25^{0}C	CO_3	HCO_3	Cl	SO_4	NO_3	F	PO4	Ca	Mg	Na	K	SiO2	T.H	SAR	RSC in meq/l
					mg/l														
1	**DISTRICT AMBALA**																		
1	PANJOKHERA	53B-3D9	8.93	765	37	168	64	100	nd	0.68	nd	22	1.3	150	0.3	10	66	8.41	2.78
2	KAKRU	53B-3D8	8.83	1311	55	380	128	10	17	0.57	nd	16	42	198	3.4	12	214	5.91	3.81
3	NARAINGARH	53F-3A1	8.63	473	12	118	5.3	100	13	0.31	nd	14	33	29	3.1	9.7	171	0.97	-1.08
4	MULANA	53F-3A4	8.74	395	21	149	11	55	nd	0.14	nd	11	11	74	1.1	15	71	3.78	1.69
5	UPLANA	53F-3AP2	8.89	957	80	324	28	80	7	0.39	nd	3	52	139	3.4	16	222	4.06	3.55
6	SAHA	53B-3DP3	8.79	702	37	137	46	110	41	0.43	0.13	12	36	100	0	11	179	3.26	-0.08
7	BALANA	53B-3C2	7.27	3900	nil	828	493	550	44	0.32	nd	29	93	269	737	12	454	5.49	4.47
8	PINJOLA	53B-3C3	8.22	1118	nil	124	128	250	1.2	0.82	nd	29	21	181	6	9	158	6.25	-1.14
9	NAGGAL	53B-3C1	8.38	1116	37	336	113	95	1.0	0.73	nd	18	37	180	7.6	17	199	5.58	2.80
10	AMBALA	53B3DP5D	8.81	1362	55	261	99	225	15	1.25	nd	20	45	209	5	16	235	5.93	1.41
11	DHANAURI	53F-3AP4	8.64	839	37	180	92	90	7	0.29	nd	18	30	130	1.1	7.3	168	4.36	0.82
12	DHANAURA	53F-3A12	8.50	544	12	106	71	90	1	0.13	nd	31	12	79	2.3	17	128	3.05	-0.40
13	AMBALA Cantt	53B-3D1A	8.71	792	43	212	46	145	nd	0.67	nd	10	37	126	0	5.4	179	4.12	1.37
2	**DISTRICT BHIWANI**																		
14	SIWANI	44P-1C1	9.05	3515	50	717	463	410	195	16	0.01	20	24	830	4	8.3	150	29.62	10.45
15	MIRAN	44P-1C3	Leaked																
16	ISHWARWAL	44P-1C4	8.6	754	38	141	68	160	5.7	1.52	nd	24	46	92	3.5	4.1	250	2.54	-1.40
17	GURERA	44P-1C5	8.6	874	38	167	61	172	60	1.7	nd	40	80	38	7.7	9.6	430	0.80	-4.57
18	MOHILLA	44P-1C6	8.5	430	25	153	21	56	1.2	0.62	nd	28	29	32	1.3	2.8	190	1.01	-0.44
19	TOSHAM	44P-1D1	8.3	835	13	77	170	145	0.74	0.65	nd	124	24	31	2.9	6.0	410	0.67	-6.47
20	BAJINA	44P-2D2	7.98	1432	0	256	157	40	375	0.65	nd	88	105	57	3.6	16	650	0.97	-8.83
21	BOHAL	44P-1D3	8.3	268	13	115	13	18	0.76	0.36	nd	24	19	5.8	3.5	13	140	0.21	-0.44
22	LACHAMAN-PURA	44P-1D4	8.5	885	50	269	102	65	19	1.15	nd	40	97	17	1.6	21	500	0.33	-3.90
23	JUI KALLAN	44P-2D3	8.7	362	13	115	21	70	3.06	0.75	0.11	40	12	32	2	2.5	150	1.14	-0.66
24	DHANANA	53D-1A1	8.55	1240	38	167	225	95	13	0.12	nd	40	49	120	45	21	310	3.01	-2.02
25	BAWANIKHERA	53D-1A2	7.8	62	nil	13	6.74	12	0.51	0.02	0.03	12	0	1.4	0.5	ND	30	0.11	-0.39
26	BAMLA	53D-1A3	7.98	345	nil	141	27	12	18	0.31	0.43	36	9.73	20	8.9	6	130	0.76	-0.29
27	SUI	53D-1A4	8.2	3060	nil	269	327	1080	24	3.35	nd	104	134	470	6	14	811	7.18	-11.80
28	BAUND KALLAN	53D-1B5	8.2	1843	nil	320	75	685	5.89	2.43	0.07	68	73	280	8	14	470	5.62	-4.15
29	NAYA ATELA	53D-2A1	8.82	1200	76	423	75	55	65	0.69	0.06	8	12	285	1.5	21	70	14.89	8.08
30	HALLUWAS	53D-2A2	8.75	2375	88	551	266	285	17	9.15	0.09	28	46	480	2.5	13	260	12.97	6.78
31	LOHANI	53D-2A5	8.12	3045	nil	205	400	692	143	0.58	nd	204	95	245	115	17	900	3.55	-14.63
32	DADRI	53D-2B2		Leaked															
33	SANWAR	53D-2B4	8.25	1300	nil	154	306	90	4.69	0.94	0.06	68	56	118	2.8	14	400	2.57	-5.47
34	MEHRANA	53D-2B5	8.85	995	76	231	129	5	35	0.35	0.06	16	49	132	3.4	21	240	3.70	1.49
35	CHIRIYA	53D-3B1	8.0	7970	nil	615	1919	855	200	2	0.05	96	209	1450	15	17	1100	19.03	-11.90
36	JHUMPA	44P-1C2	8.9	1345	63	346	82	105	138	3.5	0.01	28	22	265	1	7.8	160	9.10	4.56
37	BARWAH	44P-1CP2	8.50	1035	62	427	27	56	1.69	4.15	0.03	17	33	178	2.2	18	176	5.80	5.50
38	BIJLANWAS	44P-2D2	8.78	652	38	243	48	110	3.7	0.9	0.09	48	12	120	14	18	170	4.01	1.87
39	SAGBAN	44P-1DP4	7.92	7595	nil	372	1722	1375	37	1.25	0.04	136	175	1425	38	16	1061	19.05	-15.08
40	SANGARPUR	44P-2D1	8.25	1680	nil	77	48	712	106	4.3	0.01	212	39	130	0.6	16	690	2.15	-12.52
41	TOSHAM	44P-1D1	8.45	1000	38	115	136	138	4.32	1.2	0.04	68	15	110	26	14	230	3.15	-1.48
42	KALANAGAR	53D-1B1	8.25	250	nil	90	13	35	2.55	0.18	0.07	24	14	5.5	2.5	3.2	120	0.22	-0.87
43	GOPI	44P-2DP1	8.86	1995	101	551	293	70	22	0.61	0.06	12	9.7	490	2	18	70	25.51	11.00

3	**DISTRICT FARIDABAD**																			
44	PALI	53H-3AP2	7.08	4608	nil	163	1254	310	219	0.19	nd	314	170	430	21	27	1482	4.86	-26.98
45	BHOPANI	53H-3BP5	8.58	813	24	242	71	62	30	0.67	nd	21	31	113	5	30	181	3.66	1.17
46	TIGORI	53H-4BP16	8.54	3550	47	574	691	324	22	1.54	0.02	17	106	656	7	22	480	13.05	1.41
47	JAWAN	53H-4BP5	8.74	3182	42	821	403	312	28	1.87	nd	11	52	660	9	24	240	18.48	10.03
48	BADRAUN	53H-4BP4	8.39	1098	18	447	82	65	15	1.88	nd	28	35	170	18	22	213	5.06	3.65
49	AMARPURA	53H-4BP9	8.49	1528	18	175	221	264	29	0.2	nd	23	74	190	7.1	29	362	4.35	-3.77
50	NHH	53H-3BP3	8.48	2010	12	151	524	168	22	0.51	nd	36	22	410	19.0	27	181	13.28	-0.73
51	JAINDPUR	53H-4AP7	8.14	4304	nil	640	680	568	240	0.92	0.09	34	124	784	7.3	19	597	13.98	-1.41
52	BAMNIKHERA	53H-4B7	8.29	1983	nil	495	182	290	87	0.67	0.09	34	51	315	75.0	23	293	7.98	2.22
4	**DISTRICT FATEHABAD**																			
53	SAMAIN	44O-2D3	8.66	1246	47	263	146	100	42	0.92	0.01	25	73	48	137	26	364	1.10	-1.37
54	TOHANA	44O-2D1	8.77	1160	35	263	111	105	84	2.10	nd	7.9	30	210	11	19	146	7.64	2.62
55	BADOPAL	44O-3C1	8.23	2398	nil	191	146	900	9.6	0.95	0.01	119	105	262	12.0	19	728	4.22	-11.44
56	LOHA KHERA	44O2DP2M	8.82	737	35	227	21	64	28	1.50	0.01	20	13	119	0.2	17	104	5.09	2.82
57	JANDLI KALAN	44O-2CP5	8.2	52091	nil	155	320	460	54	0.51	nd	104	94	207	7.5	27	645	3.54	-10.38
5	**DISTRICT GURGAON**																			
58	GURGAON	53D-3DP5	8.73	928	30	248	85	30	89	0.16	0.09	13	34	145	1.9	23	171	4.81	1.62
59	CHANDU	53D-3DP7	8.80	1436	48	314	189	86	85	1.48	0.02	15	52	235	5.4	19	251	6.45	1.72
60	MUBARIKPUR	53D-3DP5	7.88	10320	nil	175	3420	256	163	0.15	0.04	448	337	1340	6.2	22	2505	11.65	-47.20
61	FAJILPURBALDI	53D-3DP15	8.45	1610	24	423	139	32	284	0.81	0.05	30	53	260	2.2	22	293	6.61	1.88
62	KHERO KHORAPAR	53D-3DP16	7.72	5909	36	73	1731	360	148	0.16	0.06	339	192	665	4.9	25	1636	7.15	-30.31
63	SIWANI	44P-1C1	8.29	1565	nil	193	442	36	29	0.23	0.06	72	93	135	2.6	22	565	2.48	-8.08
64	MANCHANA	53D-3DP8	7.97	8310	nil	181	2294	1040	13	0.5	0.05	290	246	1260	5.5	22	1737	13.16	-31.74
65	NURGARH	53D-3CP5	8.68	2610	30	296	603	132	55	4.35	0.04	40	47	490	0.9	17	293	12.45	-0.01
66	HAILEY MANDIR	53D-3DP6	8.8	2033	47	405	313	96	131	1.63	0.05	15	18	442	1.4	21	112	18.21	5.98
67	LOKRA	53D-3DP14	8.84	638	36	284	18	2.4	33	0.46	0.05	15	17	114	1.2	22	107	4.79	3.71
68	MEOKA	53D-3DP9	9.25	1190	71	489	61	4	34	2.35	0.08	11	12	262	1.2	18	75	13.01	8.84
69	MANESAR	53D-3DP12	8.44	656	12	212	93	4.8	17	2.44	0.11	30	35	58	2.4	28	219	1.71	-0.50
70	SOHANA	53H-4AP2						LEAKED												
71	AKAIRA	53D-4D3	8.05	1822	nil	180	442	150	7.01	0.31	0.022	138	55	165	8.9	21	570	3.00	-8.46
72	NUH	53H-4A3	8.45	1776	24	206	267	280	43	0.40	0.036	80	36	218	80	25	350	5.09	-2.78
73	INDRI	53H-4A4						LEAKED												
74	MALAB	53H-4A5						LEAKED												
75	RAOLI	54A-2D1	8.03	3280	nil	190	800	400	40	0.81	nd	100	128	450	4.8	26	778	7.03	-12.40
6	**DISTRICT HISSAR**																			
76	UKLANA	44O-2D2	8.22	3430	nil	383	459	850	26	0.59	0.01	50	129	552	15	23	655	9.38	-6.83
77	AGROHA	44O-3C2	8.49	2189	59	263	347	270	0.6	0.16	0.01	12	78	170	298	25	354	3.95	-0.74
78	SIWANI	44O-3C3	8.52	1815	35	95	459	150	55	0.13	0.03	37	61	207	151	24	343	4.86	-4.14
79	BARWALA	44O-3D3	8.22	1246	nil	514	69	175	9.4	2	0.09	33	53	187	15	20	302	4.69	2.42
80	SAHU	44O-3D6	8.39	1608	24	203	327	145	20	0.7	0.01	33	119	115	12	21	572	2.09	-7.31
81	BHAMBHAURI	53C-3AP3	8.22	1392	nil	72	466	nd	8.7	0.21	0.03	158	51	48	2.8	21	603	0.85	-10.90
82	RAJLI CROSS	44O-3D8	7.80	2220	nil	143	167	800	3.6	1.17	0.01	133	78	249	6.5	15	653	4.24	-10.71
83	KIRORI	44O-3D9	8.16	2497	nil	215	459	220	276	0.13	0.02	87	164	142	65	31	891	2.07	-14.30
84	BALSAMAND	44O-4B2	7.87	1205	nil	311	195	85	3.5	0.21	0.01	33	58	99	68	30	322	2.40	-1.32
85	BHEBALPUR	44O-3DP2	8.06	2720	nil	120	42	1300	9	1.88	0.07	212	185	101	13	14	1297	1.22	-23.83
86	CHANNAUT	44O-4D1B	7.81	295	nil	107	21	40	1	0.3	nd	42	8	10	3	6	137	0.37	-1.00
87	CHADHRIWAS	44O-4C3	7.96	750	nil	263	111	76	3.4	1.25	0.05	33	66	41	13	29	354	0.95	-2.76
88	BASRA	44O-4C5	8.25	1811	nil	418	299	100	97	1.32	0.05	33	124	149	29	25	593	2.66	-4.99

89	KIRTAN	44O-4C6	7.65	1895	nil	277	368	310	18	0.15	0.01	121	76	149	83	28	614	2.61	-7.75
90	DHANSU	44O-4D4	8.30	365	nil	120	28	68	1	0.64	0.12	46	20	5.1	2.3	9	198	0.16	-1.97
91	UMRA	44O-4D5	8.39	303	18	54	35	70	3	0.19	0.02	29	23	14	2.7	18	166	0.47	-1.85
92	MIRKA	44O-4D6	7.94	1658	nil	179	181	390	95	0.62	0.03	87	78	159	5.5	35	541	2.98	-7.82
93	BALAWAS	44P-1D5	8.06	2198	nil	789	306	140	16	0.85	0.02	25	154	206	77	22	695	3.40	-0.98
94	KOTH KALAN	53C-3A5	8.52	1056	24	180	132	105	76	0.34	0.01	42	38	128	5	20	260	3.45	-1.47
95	MOTHMAJRA	53C-4A2	8.06	3822	nil	634	479	875	9.7	1.47	0.01	58	114	685	14	16	614	12.03	-1.88
96	RAMPUR DAMUNDI	53C-4A3	7.98	668	nil	251	49	145	6.8	2.27	nd	62	45	41	4.4	22	343	0.97	-2.68
97	BAS	53C-4A5	7.78	1560	nil	442	153	250	8.7	1.16	0.29	46	43	258	3.0	11	291	6.57	1.41
98	GAINPURA	53C-3A9	8.26	3976	nil	430	695	800	90	0.8	0.16	71	245	482	12	23	1186	6.09	-16.64
99	NARNAUD	53C4AP1S	8	3080	nil	383	368	560	251	0.86	0.33	58	53	581	8.0	17	364	13.27	-0.98
100	KHERI JALAB	53C-3AP4	8.02	734	nil	203	62	135	15	0.84	0.10	25	43	66	21.0	17	239	1.86	-1.46
101	HISSAR	54O-4CP2	8.59	439	24	108	35	85	1.2	1.22	nd	33	33	23	1.3	26	219	0.68	-1.79
102	SORKHI	53C-4AP2	7.94	2438	nil	335	577	190	69	0.34	0.01	75	126	203	151	29	707	3.33	-8.61
103	MANGALI	44O-4CP3	7.05	2131	nil	514	250	280	236	2.13	0.01	37	78	361	45	24	416	7.73	0.16
104	KANOH	44O-3DP4	8.28	773	nil	155	153	62	21	0.31	nd	62	43	41	4.0	22	333	0.98	-4.09
105	SADALPUR	44O-3B4	7.69	6850	nil	215	1084	2300	43	1.16	0.01	433	268	881	52	21	2184	8.20	-40.12
106	RAJTHAL	53C-3A7	8.72	429	18	102	21	95	1	0.83	0.11	21	20	48	3	17	135	1.80	-0.42
7	**DISTRICT JHAJJAR**																		
107	SALAWAS	53D-3B2	7.95	3744	nil	103	1168	104	78	0.25	0.04	256	171	270	3.7	20	1343	3.21	-25.15
108	CHUCHAKWAS	53D-2C3	8.37	1588	nil	447	281	26	9.4	5.57	0.05	39	45	138	200	19	282	3.57	1.68
109	BAGOA	53D-2B8	8.20	1730	6	562	224	114	19	0.14	0.54	85	56	100	205	16	442	2.07	0.56
110	JHAJJAR	53D-2C2	8.28	386	nil	133	27	40	3	0.31	0.05	34	17	18	2.5	13	155	0.63	-0.92
111	DIGHAL	53D-1C2	8.26	2196	nil	212	545	144	55	0.47	0.12	79	76	160	245	17	511	3.08	-6.72
112	CHAMANPURA	53D-2C1	8.65	3496	nil	658	442	640	41	1.18	0.15	19	175	530	12	31	767	8.32	-4.56
113	CHHARA	53D-2C7	8.83	5744	24	785	670	440	1000	3.27	0.09	15	104	300	1460	13	464	6.05	4.36
114	DULHERA	53D-2D9	7.99	4198	89	381	1097	216	106	0.35	0.08	102	187	400	238	21	1023	5.44	-11.26
8	**DISTRICT JIND**																		
115	KORAR	53C-2A5	7.62	2015	nil	490	320	210	24	1.10	0.02	37	73	263	100	21	395	5.77	0.18
116	BHUSALANA	53C-3BP2	8.86	1126	12	407	42	240	12	1.22	nd	12	71	160	11.0	27	323	3.88	0.63
117	CHABRI	53C-3B3	8.15	1632	nil	359	139	360	19	1.63	0.01	17	56	282	8	22	270	7.43	0.43
118	JHANJ KALAN	53C-3B7	8.2	2091	nil	155	320	460	54	0.51	nd	104	94	207	8	27	645	3.54	-10.38
119	PILLU KHERA	53C-3B9	9.24	1330	94	299	56	240	11	4.44	0.06	12	20	295	2.0	21	115	12.12	5.79
120	BRAHAMANWAS	53C-4B2	8.13	2038	nil	84	660	20	14	0.19	nd	162	99	100	6.0	27	811	1.53	-14.85
121	JAMULA	53C-4B3	8.51	4003	59	173	667	560	235	1.84	nd	33	182	237	484	22	832	3.58	-11.81
122	GUSAI KHERA	53C-4B1	7.96	1260	nil	108	320	120	29	0.21	nd	121	58	62	10	21	541	1.16	-9.04
123	KHARAL	44O-2D8	8.20	2641	nil	263	188	825	54	30.1	0.01	21	10	611	36.0	20	94	27.48	2.44
124	SAFIDON	53C-3C1	8.36	899	24	335	49	42	72	0.83	0.01	33	63	62	8	25	343	1.46	-0.54
125	NAHLA	44O-3D1	8.26	2004	nil	813	63	140	154	0.78	nd	108	66	220	10	21	541	4.11	2.51
126	KISHANPURA	53C-3BP3	8.57	2346	47	311	313	440	14	1.02	nd	21	99	361	7.5	28	458	7.33	-2.53
127	ALEWA	53C-3B1	8.84	1494	59	407	97	290	5.5	0.90	0.01	17	56	277	6.6	24	271	7.30	3.18
128	DUDHANA(DORANA)	53C-2BP3	8.92	3161	71	383	334	720	19	1.65	0.01	83	56	660	4.0	21	250	13.73	-0.10
129	UCHANA	53C-3A1	8.79	4825	82	730	417	1250	7.3	6.99	nd	12	51	1112	10.0	20	239	31.25	9.90
130	NARWANA	53C-3C2	8.42	1890	35	227	264	200	154	1.16	nd	54	78	213	34.0	22	458	4.34	-4.22
131	KHATKARAN	53C-3A2	8.18	1367		167	295	66	105	0.21	nd	87	66	98	5.6	30	489	1.93	-7.03
9	**DISTRICT KAITHAL**																		
132	TITIANA	53B-4BP2	8.85	1107	43	436	25	80	0.9	3.28	nd	18	1.1	230	2.9	11	51	14.23	7.59
133	PADLA	53C-1BP1	7.95	2373	nil	386	461	250	4.4	1.28	nd	84	110	252	13	18	663	4.26	-6.91
134	GUHNA	53C-1B3	8.75	906	55	336	28	90	2.2	1.24	nd	10	21	178.0	6.8	13	112	7.34	5.11

135	KALAYAT	53C-2B2	8.30	3302	nil	124	674	625	7	0.31	nd	37	191	350	32.0	18	878	5.14	-15.52
136	MATAUR	53C-2B6	8.05	6115	nil	610	915	700	642	1.58	nd	82	176	940	45.0	17	929	13.42	-8.57
137	KELRAM	53C-2B3	8.11	2628	nil	243	461	500	2.9	0.08	nd	114	94	246	118.0	20	674	4.13	-9.44
138	KAITHAL	53C-1BP2	8.15	2209	nil	436	259	360	7.9	1.5	nd	90	50	310	9.7	15	429	6.50	-1.46
139	MUNDRI	53C-1C7	8.24	646	nil	230	46	75	4.3	1.12	nd	12	27	34	93	14	143	1.25	0.95
140	PUNDRI	53C-1C4	8.07	1384	nil	479	131	160	8.5	0.7	nd	33	79	154	7.6	19	408	3.32	-0.29
141	JATERI	53C-2C7	8.55	874	18	143	117	125	41	1.1	nd	29	50	87	10	20	276	2.27	-2.62
142	RAJAUND	53C-2B4	8.76	546	24	137	14	100	2.6	0.77	nd	33	17	60	6.9	17	153	2.12	0.00
143	JAKHAULI	53C-2BP4	9.05	3835	110	299	489	780	2.9	3.62	nd	20	42	759	16	14	276	22.13	4.11
144	BHAMA	53C-2CP4	8.28	1911	nil	473	142	340	7.7	0.89	nd	27	67	265	28	20	342	6.23	0.89
145	SISALA	53C-2CP5	8.25	1067	nil	423	21	225	7.1	0.85	nd	29	52	151	8.2		286	3.88	1.21
146	KATHANA	53C-2BP5	7.97	2994	nil	349	369	550	132	1.64	nd	98	139	310	9.4	17	817	4.72	-10.60
147	PEODA	53C-1BP5	8.71	660	37	196	35	75	10	1	nd	27	17	49	8.3	16	237	1.82	1.70
148	KHEORAK	53C-1BP3	7.78	1720	nil	305	255	75	155	0.5	nd	94	69	148	14	15	520	2.83	-5.37
149	MANASPATI	53C-1BP4	8.84	1097	37	237	67	200	27	0.68	nd	14	17	220	6.4	18	107	9.35	3.02
150	JHANJ KALAN	53C-3B7	8.68	2766	31	143	766	150	0.3	1.09	nd	20	10	600	2.3	13	92	27.36	1.56
10	**DISTRICT KARNAL**																		
151	DHOMSI	53G-1AP4	8.49	618	58	272	18	nd	6	0.9	nd	22	26	78	6.2	18	163	2.67	3.15
152	INDRI	53G-1AP8	8.21	867	nil	100	43	320	0.2	0.39	nd	70	51	39	9	14	382	0.87	-6.05
153	KARNALCITY INST	53C-2DP1	7.28	395	nil	249	14	nd	1.5	0.97	nd	37	0	55	5.5	18	92	2.49	2.23
154	SALWAN	53C-2C6	8.77	856	55	274	35	60	2.1	4.94	nd	12	26	188	1.6	11	41	6.99	3.59
155	BALA	53C-2D10	8.45	564	18	156	28	100	10	0.66	nd	35	19	63	6.1	16	163	2.13	-0.15
156	JUNDALA	53C-2D2		LEAKED															
157	CHARPURA	53G-1AP2	8.42	381	12	137	7.1	55	0	0.43	nd	18	16	39	2.9	13	112	1.61	0.43
158	SHEIKHPURA	53G-2AP1	8.54	490	12	187	14	70	1.9	0.36	nd	27	27	39	5.2	15	179	1.27	-0.10
159	KUTAIL	53G-2AP4	8.67	795	61	224	18	110	19	0.82	nd	14	31	127	5.9	14	163	4.33	2.46
160	KARIRWALI	53G-2AP6	7.97	1088	nil	249	96	250	4	0.6	nd	82	57	73	6.8	19	439	1.52	-4.70
161	GHARI KHAJUR	53G-2AP3	8.4	723	9.2	174	18	180	nd	1.03	nd	37	45	44	5.8	15	276	1.15	-2.39
162	BADHERA	53C-1D7	8.65	761	43	230	64	50	7.6	0.14	nd	8.2	24	99	69	10	117	3.95	2.82
163	NANHERA	53G-1AP6	8.27	357	nil	206	14	nd	nd	0.38	nd	29	3.6	44	3	14	87	2.05	1.63
164	MAKHLA	53G-1AP10	7.97	489	nil	221	25	35	1.8	0.45	nd	47	0	62	2.9	12	117	2.49	1.28
165	KALRI JAGSI	53G-1AP7	8.44	473	12	168	53	7	nd	0.48	nd	27	14	53	4.3	16	122	2.06	0.65
166	SALARPUR	53G-1AP12	8.37	487	18	168	7.1	70	nd	0.66	nd	32	12	54	2.9	12	133	2.07	0.77
167	AUNKANA KOTHI	53C-1DP8	8.64	577	37	187	11	62	7.5	0.53	nd	22	51	52	5.5	18	184	1.39	-0.99
168	DAULATPUR KHURD	53C-1DP12	8.57	452	12	168	18	50	2.8	0.92	nd	43	17	26	4.4	12	179	0.85	-0.39
169	SANGOI	53G-1AP13	8.28	346	nil	137	14	50	nd	0.35	nd	53	7.4	6.4	3.2	9	163	0.22	-1.01
170	JAROLI KHURD	53G-1AP11	7.45	424	nil	124	7.1	105	9.9	0.2	nd	29	22	23	11	11	163	0.78	-1.22
171	NALVI KALAN	53G-2AP8	8.52	508	24	180	11	50	2.2	0.57	nd	29	15	58	4	13	133	2.18	1.07
172	MOHIDINPUR	53G-2AP7	8.73	412	9.2	199	7.1	30	0.7	1.24	nd	29	5	61	2.1	11	92	2.75	1.71
173	FARIDPUR	53G-3AP4	8.35	478	12	230	14	25	nd	1.02	nd	27	6.2	75	2.6	14	92	3.39	2.31
174	DONGAR MAJRA	53C-2DP10	8.06	580	nil	224	21	75	3.7	0.8	nd	24	29		5.2	16	179	0.00	0.09
175	KARNAL I CSSRI	53C-2DP8	8.37	468	12	174	21	75	4	0.98	nd	31	32	26	5.1	15	209	0.78	-0.93
176	KURLAN	53C-2CP8	8.28	2213	0	224	206	250	498	0.68	nd	45	126	232	12	17	628	4.02	-8.94
177	JASHALA	53C-2CP6	8.55	1890	104	541	110	150	111	1.89	nd	20	20	411	5.9	15	133	15.55	9.69
178	GANGATHERI	53C-3B8	8.00	984	0	330	121	80	23	0.37	nd	35	79	56	10	20	413	1.20	-2.84
179	MANJURAN	53C-2D8	8.34	1075	37	448	14	100	20	1.18	nd	25	45	145	9.5	17	245	4.01	3.63
180	NISSANG	53C-2D7	8.59	605	31	218	28	60	8.3	0.66	nd	22	31	70	6	15	184	2.25	0.96
181	MAJRI RORAN	53C-1CP4	8.1	1495	nil	330	241	150	19	0.34	nd	39	61	176	12	18	423	4.10	-1.55
182	JALMANA	53C-2CP7	8.55	1137	60	255	103	150	25	0.62	nd	12	67	144	7.3	17	306	3.58	0.07

11	**DISTRICT KURUKSHETRA**																			
183	BARTHALA	53B-4DP9	8.25	640	nil	224	25	110	18	0.27	nd	27	31	71	8.1	25	194	2.21	-0.23
184	BODHANI	53B-4CP5	8.67	792	24	324	39	100	nd	1.43	nd	16	26	139	7.0	18	148	4.99	3.17
185	KAULPUR	53B-4DP10	8.03	487	nil	224	18	55	9.7	0.73	nd	35	24	38	5.1	16	224	1.21	-0.05
186	BAM	53G-1AP12	7.7	740	nil	324	67	nd	14	0.7	nd	53	35	46	6.5	18	276	1.20	-0.21
187	SAMALAKHI	53B-2BP14	8.3	440	nil	211	7.1	60	nd	0.31	nd	10	19	64	5.1	15	102	2.74	1.40
188	BARONDA	53B-1AP15	8.36	642	12	293	18	50	13	0.3	nd	20	27	64	37	24	163	2.19	1.98
189	RAM SARAI MAJRI	53F-4AP9	7.99	540	nil	230	35	50	nd	0.4	nd	39	25	41	5.1	27	199	1.26	-0.23
190	DABKHERA	53P-4DP12	8.28	430	nil	237	18	10	5.5	0.76	nd	18	20	50	5.7	17	128	1.93	1.34
191	SISAULA	53P-4DP7	8.4	625	37	218	35	50	7.2	0.49	nd	14	39	69	7.3	21	194	2.15	0.90
192	MALIKPUR SINGHPURA	53B-4DP13	8.34	675	31	168	18	160	4.8	0.45	nd	18	36	80	7.3	ND	194	2.51	-0.07
193	HATIRA	53C-1DP9	8.3	427	nil	218	32	25	nd	0.42	nd	16	30	37	3.6	20	163	1.26	0.31
194	THANA	53C-1CP6	8.02	776	nil	442	21	40	5.8	1.16	nd	16	25	136	4	17	143	4.95	4.39
195	MURTAJAPUR	53C-1DP12	8.24	322	nil	115	18	50	7	0.4	nd	28	15	16	2.9	18	133	0.61	-0.75
196	BACHKI	53B-4DP12	8.69	586	49	168	92	nd	nd	1.33	nd	25	20	88	4	15	143	3.18	1.49
197	ISHAQ	53B-4BP3	8.30	1246	nil	206	216	170	nd	0.61	nd	45	36	176	7.6	17	260	4.74	-1.83
198	PEHOWA	53B-1C1	8.30	622	nil	311	14	40	1.6	0.5	nd	27	46	26	7.3	20	255	0.71	-0.03
199	SHABAD	53B-4DP1	8.00	570	nil	299	21	35	nd	0.41	nd	24	16	83	2.9	14	128	3.22	2.39
200	SANTOKHPUR	53B-4CP4	8.50	900	49	342	60	35	12	0.65	nd	25	42	117	5.8	13	235	3.32	2.54
201	AMIN	53C-1DP6	8.12	687	nil	243	21	130	11	0.28	nd	33	32	69	9.8	21	214	2.05	-0.30
202	KURKSHETRA	53C-1DP11	8.39	255	6	106	5.3		2.9	0.45	nd	18	15				107	0.00	-0.19
203	JADAULA	53C-1CP8	7.97	532	nil	243	18	60	6.2	0.59	nd	39	35	24	5	19	240	0.67	-0.84
204	MATAHANA	53C-1D9	8.22	595	nil	292	21	45	7.8	0.64	nd	18	12	101	6.5	24	97	4.53	2.90
12	**DISTRICT MAHENDERGARH**																			
205	KHOTODRA	53D-3AP3	8.27	3612	nil	206	1040	132	100	0.8	0.09	49	61	680	7.3	31	373	15.31	-4.09
206	NARNAUL	53D-4A1	8.08	4128	nil	181	1147	344	86	0.63	0.12	109	88	732	9.1	32	634	12.65	-9.71
207	MOHINDERGARH	53D-4AP2	8.26	4322	nil	181	1090	448	136	0.69	0.11	77	101	770	6.2	31	607	13.59	-9.18
208	LUKHI	53D-3A2	9.03	2016	nil	375	267	300	63	0.66	0.10	13	14	470	3.5	25	91	21.55	4.35
209	BOWANA	53D-3B7	8.70	1227	30	223	205	64	75	0.56	0.07	21	19	235	22	24	133	8.95	2.04
210	BOHU	53D-3B1						LEAKED											
13	**DISTRICT PALWAL**																			
211	PALWAL	53H-4B1	8.28	1745	nil	483	267	138	18	1.1	0.11	28	34	340	4.1	20	208	10.21	3.72
212	HODEL	54E-1BP1	8.81	2492	nil	592	378	120	135	1.76	0.07	17	29	565	4.3	14	160	19.33	6.47
213	HASSANPUR	54E-1B2A	8.75	3288	71	266	705	270	104	0.17	0.15	15	92	395	345	29	416	8.43	-1.59
214	THOMSARA	53H-4B2	8.8	5650	47	320	1247	700	102	0.28	0.14	8.6	211	908	115	23	890	13.25	-10.97
215	KOT	54E-1A7	8.44	4358	47	314	940	680	14	1.1	0.10	77	180	655	11	19	932	9.33	-11.93
14	**DISTRICT PANCHKULA**																			
216	MAHARAULI	53B1D2	7.68	308	nil	157	11	4.8	11	0.12	nd	38	5.1	18	1.5	18	117	0.73	0.26
217	DHARAMPUR	53B-1D1	8.50	519	24	157	39	41	40	0.23	nd	68	13	35	1.0	ND	224	1.02	-1.09
218	DEVI NAGAR	53B-2D1(a)	8.09	418	nil	229	11	15	6.7	0.23	nd	38	9	42	2.4	18	133	1.59	1.12
219	PARWALA	53F-2A4	7.87	560	nil	284	16	28	24	0.22	nd	40	25	46	2.1	18	203	1.41	0.60
220	RAIPURRANI	53F2A2	8.05	403	nil	139	21	19	48	0.14	nd	34	13	30	1.2	16	139	1.11	-0.49
221	KAKAR MAJRA	53F-3A10	7.55	1520	nil	254	156	144	214	0.33	0.012	113	74	85	4.2	17	586	1.53	-7.56
222	PATWI	53B-3D2	7.69	1425	nil	453	145	156	20	0.49	0.011	56	74	150	4.2	17	442	3.10	-1.46
15	**DISTRICT PANIPAT**																			
223	UNTALA	53C-3D1	8.37	2450	74	591	259	265	5.3	0.78	0.02	17	92	286	170	18	420	6.07	3.74
224	BABAIL	3G-3AP3	8.48	605	37	214	21	55	nd	1.07	0.03	21	18	92	3	22	126	3.56	2.21
225	SINK	53C-3CP2	8.60	1145	62	427	34	72	3.6	5.33	0.05	21	13	225	1.4	16	105	9.51	6.95
226	LOHARI	53C-3DP8	8.38	2085	37	113	279	505	6.2	0.2	0.08	25	77	316	14	26	378	7.06	-4.49

227	ISRANA	53C-3DP2	7.90	2095	nil	264	252	450	8.7	0.48	0.03	55	43	335	5	19	315	8.22	-1.95
228	URLANA KALAN	53C-3CA5	8.06	1747	nil	540	204	165	14	0.74	0.05	42	77	185	77	20	420	3.92	0.42
229	KHALIL-MAJRAN	53C-3C6	8.90	2685	136	516	184	465	3.9	7.52	0.03	8.42	51	533	24	18	231	15.26	8.38
230	DIKADLA	53G-4AP4	8.75	2135	74	201	95	730	nd	0.21	0.03	13	107	325	9	27	473	6.50	-3.69
231	SHAHPUR	53C-3D2	7.3	2115	nil	359	327	422	18	1.58	0.04	88	68	325	12	12	500	6.33	-4.10
232	KHALILA-PEHLADPUR	53C-3DP5	8.05	665	nil	314	34	52	3.7	0.55	0.1	34	38	54	5.5	27	242	1.51	0.32
233	PATTI-KALYANA	53G-4AP3	8.42	608	50	176	34	63	4.1	0.51	0.08	17	43	55	6	28	221	1.62	0.17
234	SHIMLA MOLANA	53C-3DP6	8.55	605	50	176	34	50	3.1	0.51	0.02	17	41	54	5.5	27	210	1.62	0.33
235	KHARAWAS	53G-4AP7	8.40	2500	99	264	306	408	2.4	4.92	0.13	21	31	487	15	18	179	15.80	4.03
236	GOLI	53C-3DP10	8.32	790	37	264	41	75	14	0.13	0.02	17	46	88	5.2	25	231	2.52	0.93
237	HATHWALA	53G-4AP6	8.48	475	37	151	13	54	nd	0.77	0.06	13	18	72	3	18	105	3.04	1.58
238	NARAH	53C-3D7	8.10	910	nil	402	75	42	22	0.78	nd	29	61	77	6.6	22	326	1.86	0.12
239	KARHNASH	53G-4AP7	8.10	832	nil	239	82	90	12	0.21	0.06	25	28	110	4	17	179	3.59	0.37
240	SANAULI	53G-3AP7	8.58	677	74	214	6.74	82	0	0.33	0.08	13	41	88	3	27	200	2.70	1.95
241	KHANDRAN	53C-3D9	8.30	2105	25	25	279	585	5.76	0.19	0.05	29	74	311	14	26	378	6.97	-6.29
16	**DISTRICT REWARI**																		
242	BAWAL	53D-4C2	8.01	1554	nil	338	203	96	180	0.25	0.08	15	132	103	4.7	24	581	1.86	-6.06
243	KARANWAS	53D-4C6	8.49	1463	nil	362	178	146	51	0.55	0.47	15	94	165	1.1	23	426	3.49	-2.55
244	MANDALA	53D-4BP4	8.67	546	24	212	28	30	24	0.25	0.09	24	40	35	2.8	28	224	1.02	-0.21
245	NANGAL JAMALPUR	53D-4B5	8.35	884	18	139	150	24	126	0.11	0.07	36	53	71	1.9	27	309	1.76	-3.28
246	BHALAUT	53D-1C5	7.75	4795	nil	512	1089	435	101	0.14	0.06	116	216	440	280	27	1181	5.58	-15.16
17	**DISTRICT ROHTAK**																		
247	RUKHI	53C-4C7	8.30	255	25	64	13	12	1.4	0.22	0.06	36	4.86	6.6	2.6	4.39	110	0.27	-0.31
248	LAKHAN MAJRA	53C-4B6	7.88	6212	nil	256	578	2240	6.9	2.9	nd	280	197	840	32	17	1511	9.41	-25.98
249	NIDANA	53D-1A1	7.88	1815	nil	333	306	165	43	1.05	nd	84	92	120	53	24	590	2.15	-6.30
250	MEHAM	53D-1B2	8.18	7315	nil	704	939	1382	1150	2.8	nd	76	253	1198	350	14	1231	14.86	-13.06
251	MADINA	53D-1B3	8.45	1547	76	308	204	176	4.9	1.38	0.06	36	58	239	6	18	331	5.74	1.01
252	SAMARGOPALPUR	53D-1C4	7.92	2800	nil	513	613	106	2.0	0.33	0.06	44	119	260	184	25	600	4.62	-3.57
253	SAMPLA	53D-1D2	8.50	465	50	128	27	18	2.5	0.77	0.05	36	29	17	4.1	12	210	0.51	-0.42
254	KANSALA	53D-1D8	7.73	4445	nil	513	1109	345	103	0.14	0.05	104	221	420	280	25	1171	5.35	-14.96
255	HASSANGARH	53D-1D10	7.99	790	nil	436	68	nd	1.51	0.52	0.05	36	61	40	26	23	341	0.94	0.33
256	BHALUND	53C-1C8	8.45	597	38	179	27	95	4.8	0.39	0.06	20	12	116	1.4	22	100	5.06	2.22
18	**DISTRICT SIRSA**																		
257	DABWALI	44K-1C1	8.07	4015	nil	96	466	390	1043	0.23	nd	114	186	255	302	12	1049	3.42	-19.41
258	CHAUTALA	44K-1C3	8.04	6569	nil	466	1070	1600	110	0.92	nd	102	152	1266	18	24	882	18.57	-9.95
259	GORIWALA	44K-IC5	8.06	2320	nil	263	278	540	68	0.43	nd	71	60	351	33.0	25	421	7.42	-4.17
260	TEJA KHERA	44K-IC6	8.98	3199	94	382	334	720	67	3.05	nd	55	41	598	112.0	20	304	14.87	3.28
261	GANGA	44K-IC8	8.08	2223	nil	418	229	370	119	0.54	nd	55	57	149	327	25	372	3.36	-0.58
262	MAMAR KHERA	44K-2CP2	8.33	1230	18	149	118	300	18	0.27	nd	86	33	135	76	15	353	3.14	-3.96
263	MANGIANA	44K-1D1	8.38	438	24	239	21	4	3	0.41	nd	27	40	12	8.6	14	235	0.34	0.08
264	NUHIANWALI	44K-1D6	8.01	5877	nil	215	973	1500	68	0.97	nd	184	157	944	17	20	1107	12.35	-18.57
265	KHUIYA MALKANA	44K-1D4	8.76	1047	35	215	49	240	43	1.71	nd	31	33	169	9.4	19	216	5.04	0.43
266	BHURTAWALA	44K-3DP2	8.19	2277	nil	586	63	580	11	15.6	0.03	24	21	500	5	13	147	17.99	6.68
267	SAKTA KHERA	44K-1C2	7.9	3085	nil	263	320	950	157	0.66	0.01	188	212	216	13	23	1343	2.57	-22.51
268	SIRI JIWAN NAGAR	44K-2C2A	8.44	1210	59	323	56	220	6.8	1.09	nd	39	43	181	9	19	274	4.76	1.78
269	RASILA KHERA	44K-2D1	8.49	2578	35	454	257	500	23	8.01	nd	34	31	537	9	19	186	16.03	4.36
270	PANNIWALA MOTA	44K-2D5	8.35	256	12	48	6.9	75	1	0.18	0.01	35	12	4.4	3	12	137	0.16	-1.55
271	PHAGU	44O-2AP6	7.83	20920	nil	191	4933	6000	1	0.28	0.01	549	655	4282	55	19	4069	29.22	-78.13
272	KALANWALI	44K-1DP3	8.22	804	nil	215	69	125	36	0.21	nd	39	36	84	8.8	18	245	2.33	-1.38

273	KARAMSANA	44K-3C4	7.75	1531	nil	299	125	350	42	1.03	0.01	90	76	100	52	23	539	1.88	-5.84
274	MITHRI	44K-1DP1	8.34	2199	35	418	188	350	145	2.02	0.01	39	57	372	13	21	333	8.88	1.38
275	RORI	44O-2A1	8.66	524	18	126	97	50	3.7	1.74	nd	43	19	46	35	15	186	1.47	-1.04
276	MASITAN	44K-1C9	8.4	3397	35	275	452	740	103	2.23	nd	110	57	578	13	19	510	11.15	-4.50
277	KASHI RAM KA WAS	44K-3C3	8.16	730		226	56	120	21	0.37	nd	59	21	74	8	18	235	2.11	-0.97
19	**DISTRICT SONEPAT**																		
278	BUTANA	53C-4C5	8.32	438	25	90	41	55	3.1	0.38	0.06	28	17	43	2.9	5.1	140	1.58	-0.49
279	GHARWAL	53C-4C12	8.50	1335	63	192	143	260	12	0.9	0.05	32	92	130	5.4	19	460	2.64	-3.92
280	JAGSI	53C-4C6	8.07	1870	nil	314	218	408	10	1.17	0.05	63	61	270	5	16	410	5.81	-3.01
281	MAHRA	53C-4C14	8.10	1038	nil	448	136	18	3.5	0.62	0.06	32	56	110	28	21	310	2.72	1.14
282	AHULANA	53C-4C10	7.78	6660	nil	243	1552	1058	79	0.84	nd	176	214	930	170	23	1321	11.14	-22.40
283	MACHARI	53C-4D1	8.52	631	50	113	41	135	nd	0.28	0.05	29	49	45	5	14	273	1.18	-1.96
284	BICHPURI	53C-4C4	8.22	2735	nil	678	340	460	24	1.13	0.6	29	66	544	8	21	347	12.76	4.24
285	BARWASNI	53C-4D4	8.65	295	37	76	13	1	0	0.35	0.05	25	18	5.2	7	12	137	0.19	-0.25
286	CHIRANA	53C-4D9	8	2120	nil	730	218	170	63	0.9	0.03	52	41	240	250	21	300	6.04	6.00
287	PINANA	53C4D13	8.55	922	62	214	89	115	14	0.55	0.06	25	69	84	8	18	347	1.96	-1.35
288	BHAINSWAL	53C-4D3	8.15	791	nil	423	34	25	5.6	0.9	0.07	40	56	42	6.7	21	330	1.01	0.33
289	SISNAH	53D-1D1	8.20	1565	nil	282	197	305	10	0.49	0.06	44	102	136	11	19	530	2.57	-5.96
290	FARMANA	53D-1D6	8.15	7735	nil	859	1150	1306	430	1.99	0.06	48	134	1550	25	28	670	26.03	0.66
291	NAHRI	53H-1A7	8.42	845	37	226	55	108	1.84	0.77	0.07	17	43	100	4	20	221	2.94	0.55
292	KATHURA	53C-4C9				Leaked													
293	RAI	53H-1AP3	8.50	1342	50	201	177	198	7.1	0.44	0.06	21	72	164	9	19	347	3.82	-2.01
294	JAKHAULI	53H-1AP6	8.08	2480	nil	427	272	628	18	0.20	0.06	51	82	432	9	21	462	8.72	-2.29
295	BEGA	53G-4AP9	8.48	410	37	113	13	40	nd	0.35	0.04	13	23	41	2	23	126	1.58	0.55
296	MURTAL	53G-4AP12	8.18	1382	nil	276	129	290	19	0.82	0.05	38	49	198	6	16	294	5.00	-1.40
297	KAMI	53G-4AP11	8.15	589	nil	352	21	20	12	1.38	0.05	34	49	28	7	17	284	0.72	0.04
298	DATAULI	53G-4AP10	8.05	1400	nil	402	68	260	2.1	0.25	0.04	17	36	235	5	27	189	7.41	2.78
299	PUGTHAL	53C-4DP7	8.28	5030	nil	503	769	910	192	1.25	0.37	114	192	500	355	26	1072	6.64	-13.23
300	PURKHAS	53C-4DP8	8.48	990	50	327	34	108	12	1.87	0.07	17	26	167	13	20	147	5.94	4.04
301	KHANPUR KALLAN	53C-4DP5	8.25	1305	nil	364	116	215	nd	2.75	0.05	17	13	270	1	16	95	11.99	4.05
302	LATH	53C-4D2	8.17	2856	nil	264	551	522	5.6	0.70	0.08	130	105	360	7	15	757	5.69	-10.80
20	**DISTRICT YAMUNANAGAR**																		
303	RASULPUR	53F-3A5	7.68	1310	nil	221	273	120	3.8	0.06	nd	200	4.9	80	1.4	14	520	1.53	-6.76
304	SADHURA	53F-3AP3		LEAKED															
305	SABRI	53F-3A9	8.44	550	36	213	11	25	8.9	0.32	nd	49	2.4	68	1.6	16	133	2.57	2.05
306	BILASPUR	53F-3B1	8.04	975	nil	352	92	15	112	0.39	nd	94	22	89	1.3	11	327	2.15	-0.73
307	KHIJRABAD	53F-3B6	8.23	390	nil	221	0	35	7	0.08	nd	78	2.4	5.7	1.7	10	209	0.17	-0.47
308	CHOLI	53F-3B7	8.25	1648	nil	544	216	10	87	0.37	nd	119	2.4	208	54	16	306	5.17	2.78
309	BHAMBHAULI	53F-4A4	8.61	464	29	154	7.1	50	nd	0.36	nd	20	25	34	5.2	17	153	1.20	0.44
310	MUSTAFABAD	53F-4A7	8.35	1646	27	250	277	120	119	0.27	nd	78	17	165	190	9	268	4.41	-0.29
311	SHADIPUR	53F-4B5	8.43	377	14	176	3.5	24	nd	0.25	nd	8.2	30	21	6.2	17	143	0.76	0.47
312	NAGGAL	53F-4BP4	8.13	1037	nil	323	11	290	nd	0.15	nd	53	56	93	14	13	367	2.12	-1.96
313	GAURANG	53F-4A3	8.25	391	nil	191	35	15	nd	0.34	nd	39	15	29	5.6	17	158	1.00	-0.05
314	CHACHRAULI	53F-4B1	8.42	340	7.2	184	18	nd	2.9	0.15	nd	47	3.6	20	3.2	14	133	0.76	0.61
315	JHIWAKHERI	53F-4AP7	8.3	599	nil	338	21	nd	0.1	0.25	nd	37	0	97	6.7	17	92	4.39	3.69
316	RANJITPUR	53F4BP5S	8.26	383	nil	184	21	nd	15	0.16	nd	49	3	26	1	7	133	0.97	0.32
317	RADAUR	53F4AP3S	8.56	322	22	154	11	nd	nd	0.42	nd	18	19	22	1.4	18	123	0.86	0.80
318	YAMUNANAGAR	53F-4BP2	8.46	821	14	147	67	150	23	0.06	nd	20	43	82	12.0	14	230	2.37	-1.66
319	AMDALPUR	53F-4B3	8.54	244	14	118	7.1	nd	1.9	0.2	nd	39	3.6	6.4	3.4	11	112	0.26	0.16

320	KHAN AMDALPUR	53F-4B3	8.5	522	22	221	25	15	0.9	0.32	nd	45	3.8	64	2.3	16	128	2.46	1.80