

**CENTRAL GROUND WATER BOARD
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT AND GANGA REJUVINATION
MINISTRY OF JAL SHAKTI
GOVERNMENT OF INDIA**

**GROUND WATER YEAR BOOK
PUNJAB AND CHANDIGARH (UT)
2019-2020**

**North Western Region
Chandigarh**

January, 2021

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प्राक्कथन

केंद्रीय भूजल बोर्ड, राष्ट्रीय सार्वोच्च संगठन 1968 से भूजल स्तर और भूजल गुणवत्ता की नियमित रूप से निगरानी कर रहा है। भूजल व्यवस्था के स्थानिक और सामयिक भिन्नता को चित्रित करने के लिए ये सबसे महत्वपूर्ण पहलू हैं। सिंचाई और पीने के पानी की जरूरतों के लिए भूजल संसाधनों के विकास पैटर्न के लिए जल स्तर और गुणवत्ता में परिवर्तन को जिम्मेदार ठहराया जाता है। जल स्तर के उत्तार-चढ़ाव का विश्लेषण मौसमी, वार्षिक और दशकीय विविधताओं को देखने के उद्देश्य से किया जाता है। इसलिए, स्थानिक और समय दोनों में भूजल स्तर और इसकी गुणवत्ता की सटीक निगरानी, इस महत्वपूर्ण संसाधन के मूल्यांकन, वैज्ञानिक विकास और योजना के लिए मुख्य पूर्व-आवश्यकताएं हैं।

31.3.2020 तक, केंद्रीय भूजल बोर्ड, उत्तरी पश्चिमी क्षेत्र, ने पंजाब राज्य और केंद्रशासित प्रदेश चंडीगढ़ में जल स्तर की निगरानी के लिए 1077 भूजल अवलोकन कुओं की स्थापना की है। पंजाब में 1052 राष्ट्रीय भूजल गुणवत्ता निगरानी कूएं थे, जिसमें पंजाब के गहरे जलभृतों के व्यवहार की निगरानी के लिए, उथले जलभृत की निगरानी के लिए 173 और पीज़ोमीटर और 63 गहरे पीज़ोमीटर शामिल हैं। चंडीगढ़ में 25 अवलोकन कुएं हैं (1 कुआं और 17 पीज़ोमीटर जलोदर जलभृत की निगरानी के लिए) और 7 गहरे पीज़ोमीटर गहरे जलभृत के व्यवहार की निगरानी करते हैं।

लगभग 80% भूजल अवलोकन कुएं विभिन्न नहर प्रणालियों के कमांड क्षेत्रों में आते हैं, प्रमुख नहर कमांडों से बाहर के क्षेत्र पठानकोट, होशियारपुर, नवांशहर, रोपड़ और एस.ए.एस नगर जिलों में स्थित हैं और पूरी तरह से भूजल पर निर्भर करते हैं जो सिंचाई और घरेलू जरूरतों को पूरा करते हैं। यह रिपोर्ट जून 2019 से जनवरी 2020 की अवधि के लिए अवलोकन और निष्कर्षों को प्रस्तुत करती है।

श्रीमती अमनदीप कौर, वैज्ञानिक 'बी' ने आकड़ों को संकलित और विश्लेषण करने और वर्तमान रूप में रिपोर्ट तैयार करने के लिए ठोस प्रयास किए हैं। भूमि जल व्यवस्था निगरानी के अध्याय को श्रीमती अमनदीप कौर, वैज्ञानिक 'बी' द्वारा संकलित और अवलोकित किया गया है, भूजल के रासायनिक गुणवत्ता पर अध्याय का संकलन और अवलोकन श्री ऋषि राज, सहायक रसायनज द्वारा किया गया है। जल मौसम पर अध्याय श्री आदित्य शर्मा, सहायक भूजलमौसमविज्ञानी द्वारा लिखा गया है। श्री एस. के. मोहीद्दीन, वैज्ञानिक- 'सी' ने रिपोर्ट के प्रकाशन व संपादन में महत्वपूर्ण भूमिका प्रदान की है।

यह रिपोर्ट पंजाब और चंडीगढ़ में किए गए भूजल निगरानी पर सभी विश्लेषणात्मक आकड़ों को शामिल करती है और उपयोगकर्ता एजेंसियों और अन्य हितधारकों के लिए प्रचलित भूजल व्यवस्था पर बहुमूल्य जानकारी प्रदान करती है।

अनूप नागर
क्षेत्रीय निदेशक

Ground Water Year Book
Punjab State and Chandigarh (UT)
2019-2020
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GROUND WATER YEAR BOOK
PUNJAB STATE & CHANDIGARH (UT)

1.0 INTRODUCTION

The Punjab State is located between North latitudes $29^{\circ} 32'$ and $32^{\circ} 28'$ and East longitudes $73^{\circ} 50'$ and $77^{\circ} 00'$. The total geographical area of the state is 50476 sq. km. It is surrounded by the states of Himachal Pradesh in the northeast, Jammu and Kashmir in the north and Haryana and Rajasthan in the south and southwest respectively. The State has a flat alluvial plain except a narrow belt along the southwestern parts where stable sand dunes are seen dotting the landscape. The area occupied by the mountains (Himalayan foothills) in northeast, is about 1243 sq km. Perennial Rivers Sutlej, Beas, Ravi and ephemeral river Ghaggar drain the state. It has a vast network of canal system. With the inception of canals, the fertile land of the State started converting into green fields and experienced spectacular achievement in agricultural production with emphasis on cultivation of paddy and high yielding varieties of crops, as a consequence demand for water increased manifold resulting in over exploitation of ground water resources.

The State has been divided into four main divisions viz. Jalandhar, Patiala, Ferozpur and Faridkot, which are further sub-divided into 22 districts, which are further divided into 77 sub-divisions /tehsils and 146 community development blocks.

1.1 Physiography

The State forms a part of vast Indo-Genetic alluvial plain. Physiographically, the State can be divided into seven distinct units, which run parallel to each other.

- I Hilly area: Siwalik Hills on the north and northeastern part.
- ii Eroded hills with flat land (Plateau): forms top of hills.
- iii Intermountain valleys
- IV Piedmont area: (Kandi zone) immediately southwest of hills.
- v. Sirowal zone: lies further southwest of Kandi area which merges with the alluvium of Ravi, Beas, Sutlej and Ghaggar rivers.
- vi. Alluvial plains:
 - a) Active/recent flood plains include meanders and present flood plains.
 - b) Abandoned flood plains include terraces of rivers, abandoned during Recent age.
 - c) Bar upland areas: Higher elevated land which remained beyond the reach of rivers but are composed of ancient river channels deposits (older alluvium) plains.
- vii. Sand Dunes: Covering southwest part.

i) Hilly area :

The outermost low lying Siwalik Hills of the Himalayas occupy the NE part. These are the deposits of the Indus River and comprised of alluvial, derived from the higher mountains, which were swept down by their numerous rivers systems and part of Siwalik rock formations have been

involved in the latest Himalayan tectonic movements by which they have been folded, faulted and elevated into their outermost foothills. These occupy northern and northeastern part of Gurdaspur, Hoshiarpur, Nawanshahr and Ropar (Roop nagar) districts. These hills traverse NW – SE direction and forms the boundary with neighboring State of Himachal Pradesh. In Gurdaspur district, the hills extend from Ravi River on northwest to Beas River on the southeast. In Hoshiarpur and Nawanshahr districts, the hills cover northeast parts and extend from Beas to Satluj Rivers. These foot hills separate the main Himalayan ranges from the vast Indo- Genetic alluvial plains. The hilly region is intersected with numerous streams which remain dry during major part of the year except during rainy season when these carry flood water. The highest peak in the area is 900 m above M.S.L. The hills present uneven topography and at places are highly eroded. The gradient is varying in the hilly areas.

ii) **Eroded hills with flat land:**

These areas lie within Upper Siwalik formations and locally known as 'Beet' meaning waterless. The flat surface lands (plate or table lands) occur in Hoshiarpur district and these are fertile land composed of sandy clay and support irrigational activities.

iii) **Intermountain valleys:**

Intermountain Satluj valleys extend from Nagal to Roper along the Satluj River. It is a longitudinal valley and about 40 Km. in length having an average width of 5 Km. High land river terraces are seen on the north east and eastern part of the area which have been deeply eroded and furrowed to form "bad land" topography. The thickness of valley fill is very limited and here an average of 50 m below ground level. Another valley known as "Soon nadir valley" is an intermountain valley in the outer Himalayas extending from Daulatpur in Himachal Pradesh to Hazipur (Punjab). It runs in southeast-northwest direction and follows the general strike direction of the mountain ranges. It has a length of 20 Km and width ranges between 1.5 km to 3 km and in Punjab State. This valley portion extends along the left bank of Soon nadir and along its right bank, Siwalik Hills are exposed.

iv) **Piedmont areas:**

The transitional area between the alluvial plains and mountainous range of the Himalayan foot hills forms the Piedmont area shown in Plate-1.2. These consist of alluvial fans which have been dissected by hill torrents and small perennial streams; much of the detritus material has been reworked separately by sheet flooding. The lower southeast slopes of the piedmont forms 'Sirowal zone'. In Punjab State, piedmont area is known as "Kandi", and occupies Southwest part of lower Siwalik Hills. The gradient is steeper near the hills and gentler towards plains. The width of 'Kandi belt' varies from 6-10 km. having rolling type of the topography. In Gurdaspur district, the spring line runs parallel to the southwestern boundary with 'Sirowal zone'. But in Hoshiarpur, and Ropar

districts, the spring line (auto flow) do not exist hence boundary between Kandi and Sirowal could not be precisely demarcated.

v) **Sirowal Zone:**

It lies further southwest of Kandi belt. The topographic gradient is gentler as compared to Kandi and presents very low relief. In Gurdaspur district, the Sirowal zones occupy immediately SW of spring line and have an undulating topography.

vi) **Alluvial Plains:**

This forms a dominant physiographic unit and consists of alluvium of the Indus River with its present and ancestral tributaries. The alluvium was deposited by Ravi, Satluj, Beas and Ghaggar rivers. The plains have altitude of less than 300 m above M.S.L. The master slope is towards southwest and matches with the course of the rivers. The alluvial plains have been further divided into three sub-physiographic units based on the present relationship of the surface features to the rivers. These are as follows:

- Recent Flood Plains
- Abandoned Flood Plains
- Bar Upland Areas

Recent Flood Plains: These include the meandering zone and present flood plains of the rivers. The meanders, scars, sandbars, natural levees and back water swamps are the conspicuous features of the flood plains. Along the major rivers, there are low flood plains locally called 'Bet'. The recent flood plains are often separated from the upland plains by steep slopes. The water levels are shallow in 'Bet' area.

Abandoned Flood Plains: These are parallel to the rivers and are a few meters higher than the recent flood plains. They represent flood plains that have been abandoned in recent times by the major rivers.

Bar Uplands: These are large areas of relatively older alluvium and found in the Upper Bari Doab area and are elevated lands above the bordering flood plains. These remain beyond the reach of flood waters of the present river systems and are termed as "Bar Uplands". These are the most significant physiographic features of the alluvial plain. Typically, the bar uplands rise abruptly from the abandoned flood plains and are bordered by steep scarps. In Gurdaspur district, bar upland areas are characterized by undulating topography, dendritic drainage pattern and predominance of nodular "kankar".

vii) **Sand Dunes:**

These occupy southwestern part of the state which experiences semiarid type of climate and constitute about 28% of the area. These are spread over about 10-15 percent of the area and cover parts of Firozpur, Mansa, Bathinda, Muktsar, Kapurthala, Sangrur, Faridkot and Patiala districts.

The area is bounded by 29°33' and 30°36' north latitudes and 74°18' & 76°12' east longitudes. These dunes are mostly isolated type and vary in size and height. The sand dunes form a thin layer over the alluvium.

1.2 Drainage:

The Ravi, Beas, Satluj and Ghaggar rivers along with West and East Beins and the non-perennial choes and Khads drain the Punjab State. The Ravi flows along the northwestern boundary and forms the international boundary with the Pakistan. The Satluj forms the international boundary with Pakistan in the south-western part of the State. Ghaggar river flows along the southeast boundary of the State and forms the boundary with Haryana State except at a few places where villages of Punjab lies on the left bank of Ghaggar river and Haryana villages occupy right bank of the river. All rivers flow in the southwest direction except the Satluj River which roughly flows from east to west up to Harike and from Harike it assumes southwesterly trend upto Fazilka. The Satluj and Beas rivers have been dammed by construction of Bhakra dam and Pong dam respectively. After the Construction of Ropar headworks barrage, the Satluj River has water only during the rainy season on downstream of Ropar. At Harike Patten, it carries the flow regenerated by ground water effluent seepages. Soan nadi originates near Daulatpur (H.P) and all the choes from the Western slopes of Chinta Purni range (H.P.) flow into it. The Soan nadir joins the Satluj near village Bhalan. All the rivers rise from Himalayas and after traversing long courses, they debouch into the plains. Apart from the perennial rivers, there are other important seasonal streams, choes and drains. The sub-mountainous zone is traversed by a number of choes. Some of them contribute to the rivers while others terminate without merging into any river. These 'choes' remain dry for most part of the year. Their discharge is irregular and runoff during the monsoon period.

In Upper Bari Doab tract, Chakki Khad a perennial tributary of the Beas drains mainly the 'Kandi' belt. The Naumuni and Kiran are two tributaries of the Ravi and drain north western parts of this tract. The Patti nala drains the southwestern part of the area and joins the Satluj River. The Kiran nadir originates in north of village Isarampur in the close vicinity of Keshopur Chhamb. It is fed by ground water seepage and the excess water of Upper Bari Doab canal is also diverted into it. In addition to these tributaries, there are several khads traversing 'Kandi' belt which remain dry except during rainy season. Some of the major Khads like 'Pungotri Khad' traverse even beyond the spring line. Such Khads gain water through ground water effluent seepage. The Bist Doab tract is traversed by about 85 hill torrents known as choes, which debouch into plains. There are two main drainage patterns in this tract and both are perennial.

- i) Eastern or White Bein
- ii) The Western or Black Bein.

The eastern or White Bein originates near Garhshankar village of Hoshiarpur district and joins Satluj River near Lohian after traversing the Bist Doab tract. The Nasrala, Mehlan wali, Rajni Devi, Mehandpur, Jaijon choes join the east Bein at different places. The Western or Black Bein rises at Chhamb near Dasuya in Hoshiarpur district and joins the Beas river near Durgapur which is located upstream of its confluence with Satluj at Harike. Janauri, Mehngerwala and Kingranwala join the West Bein. In Ropar district Budki Nadi, Haripur nala, Sugh Rao, Siswan Nadi, Jainti Devi Ki Rao and Patiali Ki Rao forms the major drainage system. These all meets Satluj River except Patiali Ki Rao and Jainti Devi Ki Rao which gives water to Ghaggar River. The third zone forming the southeastern part of the State is drained by Ghaggar River which is perennial. Tangri nadir, Budha nala and Lissara nala are the main seasonal streams in the area. In south western part, some of the important drains are the Phidda drain, Chand Bhanja drain and Jallalabad drain etc.

1.3 Soils

The soils of Punjab have largely developed on alluvium- the material laid by the rivers, under the dominant influence of climate followed by topography and time. The details of the soils found in the state are as follows.

Reddish Chestnut Soils:

These soils occur on stable terraces in the north and north eastern Parts of the state and are found in Pathankot Tehsil of Gurdaspur district, parts of Hoshiarpur, Dasuya and Garh Shankar Tehsil of Hoshiarpur district, Balachaur Tehsil of Nawanshahr district and Ropar, Anandpur Sahib and Kharar Tehsils of Ropar district. These soils are loamy to clay –loamy in nature and are decalcified. Erosion of soils due to water is a very serious problem. The soils are mildly acidic to neutral in reaction. These soils are found in areas having normal rainfall of 800 to 1000mm.

Tropical Arid Brown Soils (Weakly Solonised):

These soils are found in remaining areas of Gurdaspur, Hoshiarpur, Nawanshahr and Ropar districts and most parts of Jalandhar, Kapurthala, Patiala, and whole of Ludhiana, Fatehgarh Sahib Districts and in parts of Amritsar and Sangrur districts. These soils are found in areas having normal annual rainfall of 750 to 1000mm.

Arid Brown Soils, (Solonised):

These soils are found in lower parts of Amritsar, Kapurthala, Jalandhar, Patiala, Sangrur, Ferozpur districts and entire Moga district where the normal rainfall varies from 500 to 700mm. Salinity and alkalinity are the serious problem in these soils. These soils are calcareous in nature and in most cases Kankar layer occurs at 1.0 to 1.5m depth.

Sierozem Soils:

These soils are found in Bathinda, Faridkot, Ferozpur, Mansa and Muktsar districts, where normal rainfall varies 300 500mm. Salinity and alkalinity are the serious problems particularly in the

canal irrigated areas. Wind erosion is also a common feature in this soil. These soils are calcareous in nature and usually have a massive Kankar layer at a depth of 0.75 to 1.25m.

Desert Soils:

These soils are found in southern parts of Ferozpur and Muktsar districts where the normal annual rain fall is less than 300mm. Wind erosion is a serious problem here.

2.0 HYDROMETEOROLOGY

2.1 CLIMATE

PUNJAB STATE

Climate of Punjab State is semi-humid to semi-arid in the North, arid in the South & southwest and semi-arid in the remaining part of the State. The state experiences four seasons in the year namely cold season from November to March, hot season from April to June, southwest monsoon season from last week of June to mid of September and post monsoon season from September to beginning of November. During cold weather season, seasons of western disturbances affect the climate of the state and bring rainfall of light intensity.

Over 75% of the annual rainfall is received in the four rainy months for June to September, only thereby leading to large variations on temporal scale. Rainfall is highly variable in time and space. Normal Rainfall for the State of Punjab is 648 mm, but it has great spatial variations. Rainfall Normals computed using rainfall records of 50 years (1951-2000) as per IMD.

CHANDIGARH (UT)

Chandigarh (UT) has a [humid subtropical climate](#) characterised by a seasonal rhythm: very hot summers, mild winters, unreliable rainfall and great variation in temperature (-1°C to 46°C). The city also receives occasional winter rains from the [Western Disturbance](#) originating over the [Mediterranean Sea](#). The western disturbances usually bring rain predominantly from mid-December to till end of April which can be heavier sometimes with strong winds and hails if the weather turns colder (during March–April months) which usually proves disastrous to the crops. Cold winds usually tend to come from the north near [Shimla](#), and from the State of [Jammu and Kashmir](#), both of which receive their share of snowfall during winter time. Normal rainfall for the State of Chandigarh UT is 1078 mm.

The statistics is provided on 4 seasons i.e. Winter (Jan-Feb), Pre-Monsoon (Mar-May), Southwest (SW) Monsoon (Jun-Sep) and Post-Monsoon (Oct-Dec), and on annual basis. Percent departure of rainfall from Rainfall Normals, besides these statistics, have been colour coded as per their categories. The list of categories, their corresponding ranges and colour codes is given in Table 2.1 below.

Table 2.1: List of categories, their corresponding ranges and colour codes:

CATEGORY	DEPARTURE FROM NORMALS	COLOUR CODE
LARGE EXCESS (LE)	60% or more	
EXCESS (E)	20% to 59%	
NORMAL (N)	-19% to +19%	
DEFICIENT (D)	-20% to -59%	
LARGE DEFICIENT (LD)	-60% to -99%	
NO RAIN	-100%	
NO DATA	Data Not Available	

2.2 SEASONAL & ANNUAL RAINFALL STATISTICS

SEASONAL & ANNUAL RAINFALL STATISTICS OF PUNJAB STATE:

- Entire Punjab State received Actual Annual Rainfall of 690 mm in 2018 and 709 mm in 2019.
- It is observed that during 2018, annual highest rainfall of 1361 mm was received at Rup Nagar (Ropar) District and the lowest rainfall of 254 mm was received at Ferozpur District.
- Similarly in 2019, Annual highest rainfall of 1135 mm was received in Hoshiarpur District and the lowest rainfall of 307 mm was received at Mansa District.
- On comparing with Normal rainfall, it may be observed that, there was (+7%) departure seen in 2018 and (+10 %) departure in 2019 observed in Punjab State.
- In 2019, During SW monsoon season, State received mostly Rainfall 490 mm (69% of annual R/f in 2019) and in 2018, during SW monsoon season state received Rainfall 623 mm (90 % of annual R/f in 2018).
- State wise seasonal and annual observed rainfall and its percentage departure from normal rainfall have been given in Table 2.2, 2.3, 2.4, 2.5, 2.6 & 2.7.

SEASONAL & ANNUAL RAINFALL STATISTICS OF CHANDIGARH (UT):

- Entire Chandigarh (UT) received Actual Annual Rainfall of 1086 mm in 2018 and 940 mm in 2019.
- On comparing with Normal rainfall, it may be seen that, there was (+0.75 %) departure seen in 2018 and (-12.80 %) departure in 2019 observed in Chandigarh UT.
- In 2019, During SW monsoon season, UT received mostly Rainfall 722 mm (77% of annual R/f in 2019) and in 2018 during SW monsoon season UT received 957 mm rainfall (88 % of annual R/f in 2018).

Table 2.2: Seasonal and Actual Annual Rainfall (mm) - Year 2018

STATE	WINTER	PRE-MONSOON	SW MONSOON	POST-MONSOON	ANNUAL RAINFALL (mm)
PUNJAB STATE	25.91	28.63	622.96	12.83	690.33
CHANDIGARH (UT)	57.20	40.90	956.90	30.90	1085.90

Table 2.3: Seasonal and Actual Annual Rainfall (mm) - Year 2019

STATE	WINTER	PRE-MONSOON	SW MONSOON	POST-MONSOON	ANNUAL RAINFALL (mm)
PUNJAB STATE	101.74	55.72	489.94	61.19	708.59
CHANDIGARH (UT)	72.80	81.20	721.90	64.10	940

Table 2.4: Actual Monthly Rainfall (mm) - Year 2018

STATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL R/F (mm)
PUNJAB STATE	9.48	16.43	5.11	14.59	8.93	95.57	184.43	130.29	212.67	5.11	2.88	4.84	690.33
CHANDIGARH (UT)	5.7	51.5	3.0	27.2	10.7	121.5	287.7	286.5	261.2	14.4	8.9	7.6	1085.90

Table 2.5: District wise Seasonal and Actual Annual Rainfall (mm) - Year 2018

S . N	DISTRICT	WINTER	PRE-MONSOON	SW - MONSOON	POST-MONSOON	ANNUAL R/F (mm)
1	AMRITSAR	33.61	25.14	638.58	17.51	714.84
2	BARNALA	13.29	20.7	504.51	1.87	540.37
3	BATHINDA	15.98	20.25	256.38	0.41	293.02
4	FARIDKOT	8.3	24.65	327.44	0.29	360.68
5	FATEHGARH SAHIB	29.61	36.61	833.23	30.35	929.8
6	FIROZPUR	5.49	14.02	232.57	2.33	254.41
7	GURDASPUR	57.93	48.59	876.57	26.22	1009.31
8	HOSHIARPUR	38.76	45.27	1197.74	14.57	1296.34
9	JALANDHAR	29.91	26.04	811.77	3.92	871.64
10	KAPURTHALA	34.89	33.07	842.97	7.36	918.29
11	LUDHIANA	33.6	22.36	762.5	4.97	823.43
12	MANSA	10.83	14.49	256.95	4.82	287.09

13	MOGA	17.63	23.28	439.14	4.22	484.27
14	MUKTSAR	7.02	26.29	300.57	0.19	334.07
15	PATIALA	26.64	36.8	725.14	44.48	833.06
16	RUPNAGAR	52.09	52.41	1221.39	35.33	1361.22
17	SANGRUR	17.21	29.32	517.19	15.03	578.75
18	SAS NAGAR	44.4	41.39	853.45	27.3	966.54
19	NAWANSHAHR	38.9	30.35	973.97	16.84	1060.06
20	TARN TARAN	27.15	22.64	595.52	16.63	661.94
21	CHANDIGARH	57.2	40.9	956.9	30.9	1085.9

Table 2.6: Actual Monthly Rainfall (mm) - Year 2019

STATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL R/F (mm)
PUNJAB STATE	32.72	69.02	10.67	24.61	20.44	27.54	204.14	181.32	76.94	7.75	23.2	30.24	708.59
CHANDIGARH (UT)	19.7	53.1	25.9	35.2	20.1	22.3	306.8	244.7	148.1	0.2	31.8	32.1	940

Table2.7: District wise Seasonal and Annual Actual Rainfall (mm) - Year 2019

S. N	DISTRICT	WINTER	PRE-MONSOON	SW MONSOON	POST-MONSOON	ANNUAL R/F (mm)
1	AMRITSAR	132.61	41.03	435.38	87.48	696.5
2	BARNALA	59.44	50.54	346.23	49.92	506.13
3	BATHINDA	39.59	44.54	352.24	41.8	478.17
4	FARIDKOT	34.06	62.62	327.28	42.86	466.82
5	FATEHGARH SAHIB	64.31	52.92	676.16	51.86	845.25
6	FEROZPUR	29.06	60.2	244.81	34.89	368.96
7	GURDASPUR	273.08	52.02	597.88	112.33	1035.31
8	HOSHIARPUR	201.22	71.01	770.56	92.15	1134.94
9	JALANDHAR	140.58	54.28	621.75	63.6	880.21
10	KAPURTHALA	167.28	59.02	778.06	85.22	1089.58
11	LUDHIANA	117.55	55.24	562.71	53.89	789.39
12	MANSA	29.22	33.78	212.42	31.46	306.88
13	MOGA	79.84	48.36	394.49	57.6	580.29
14	MUKTSAR	28.03	67.23	349.05	26.49	470.8
15	PATIALA	74.63	60.38	629.04	56.48	820.53
16	RUPNAGAR	146.39	73.44	797.5	92.82	1110.15
17	SAS NAGAR	71.79	71.24	631.16	55.23	829.42
18	SANGRUR	65.62	53.97	381.62	44.97	546.18
19	SBS NAGAR	139.65	59.98	630.84	80.41	910.88
20	TARN TARAN	112.1	53.82	513.11	82.18	761.21
21	CHANDIGARH	72.80	81.20	721.90	64.10	940

2.3 DEVIATION IN ACTUAL ANNUAL RAINFALL FROM NORMAL RAINFALL:

Deviation in Actual Annual Rainfall from Normal Rainfall for the States of Punjab & UT Chandigarh w.r.t India represents that during 2018 & 2019, there is normal rainfall observed at Punjab & Chandigarh UT and for whole Country during 2018 deficient rainfall (-22%) deviation observed and in 2019 normal rainfall (+3%) observed. Deviation is shown in table 8 and corresponding graphs are given as fig 1 & fig 2.

Table- 2.8: Deviation in Actual Annual Rainfall from Normal Rainfall of Punjab & UT Chandigarh w.r.t India

INDIA				PUNJAB			CHANDIGARH		
YEAR	NORMAL R/F (mm)	ACTUAL R/F (mm)	% DEVIATION FROM NORMAL	NORMAL R/F (mm)	ACTUAL R/F (mm)	DEVIATION FROM NORMAL	NORMAL R/F (mm)	ACTUAL R/F (mm)	% DEVIATION FROM NORMAL
2018	1220	955	22% (Deficient)	648	690	7%(Normal)	1078	1086	0.76 % (Normal)
2019	1220	1261	3% (Normal)	648	709	10% (Normal)	1078	940	-12.80 % (Normal)

Fig 2.1: DEVIATION IN ACTUAL ANNUAL RAINFALL OF PUNJAB & CHANDIGARH UT

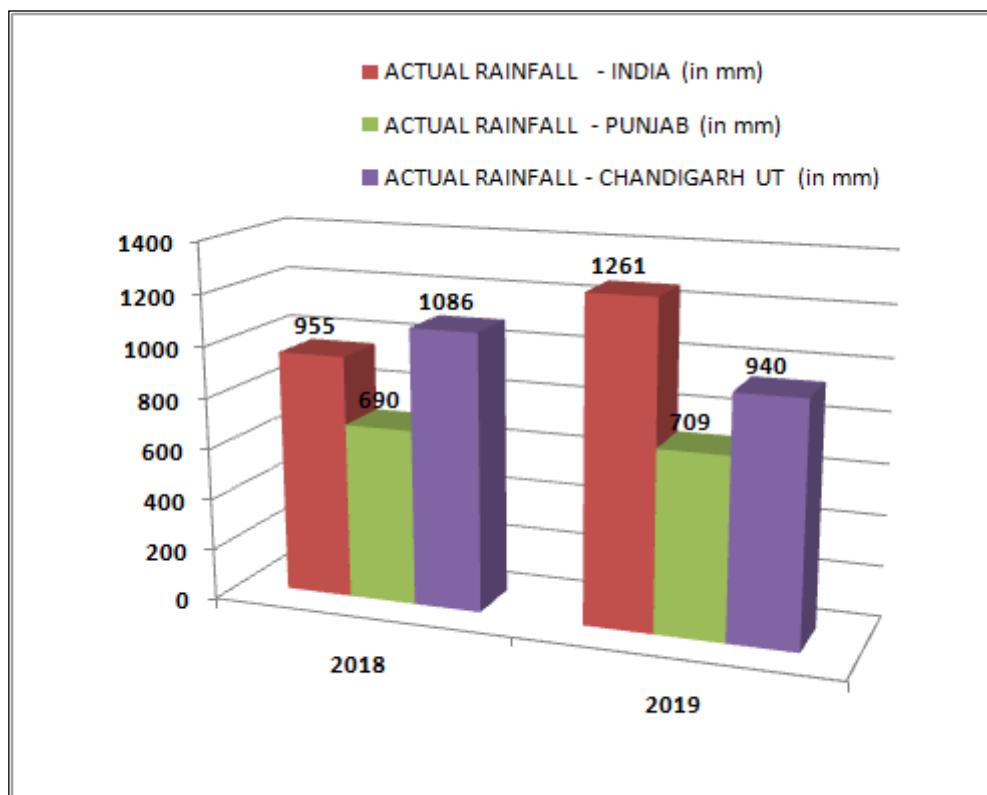
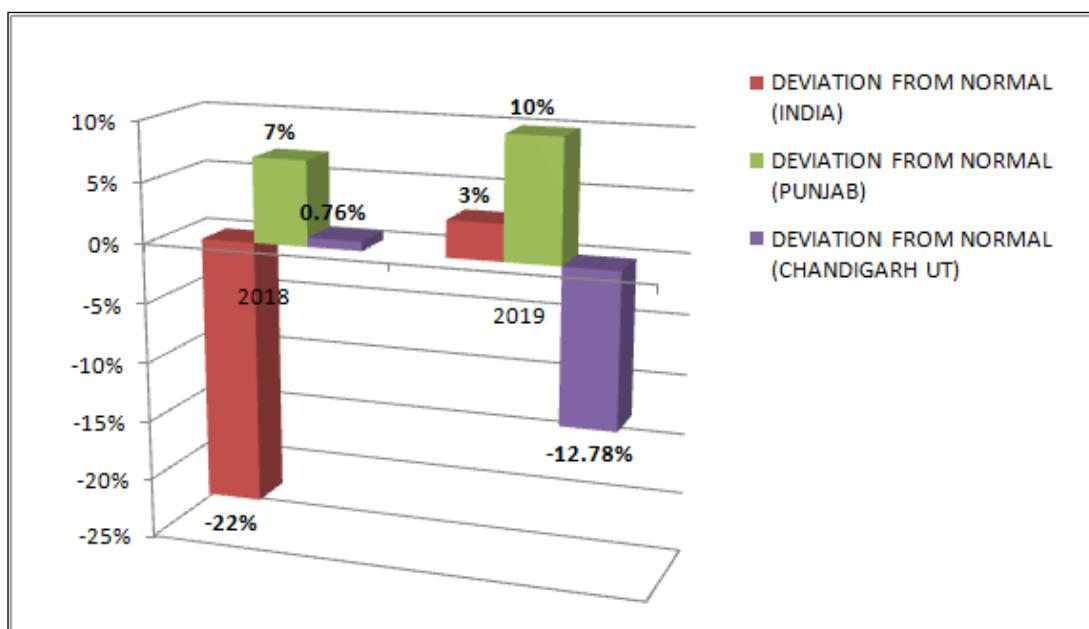


Fig 2.2: PERCENTAGE DEVIATION IN ACTUAL ANNUAL RAINFALL OF PUNJAB & CHANDIGARH w.r.t INDIA:



2.4 RAINFALL ANALYSIS 2018 V/s 2019 FOR THE STATE OF PUNJAB &

CHANDIGARH:

RAINFALL ANALYSIS OF PUNJAB STATE:

➤ There are two seasons of rainfall in the state. The south-west monsoon season, the principal source of ground water sets in last week of June and withdraws towards end of September and contributes about 80% of annual average rainfall. Another period of rainfall is winter rain from December to March is about 20% of total rainfall which is mostly absorbed into the soil.

➤ The annual rainfall in 2019 over the state of Punjab is quite uneven which increases from 307 mm in Mansa to 1135 mm at Hoshiarpur.

➤ The lowest rainfall of 27% less than their corresponding normals of IMD are recorded at Mansa and the highest rainfall of 134% more than the IMD annual normal is received at Kapurthala during 2019.

➤ The annual rainfall of 2019 when analysed and compared to the rainfall of 2018, it is observed that out of all districts Bathinda district is showing maximum rise of rainfall which is 63% more than the rainfall of last year 2018. The rise in rainfall of 2019 as compared to 2018 shows in Faridkot (+29%), Firozpur (+45%), Gurdaspur (+3%), Jalandhar (+1%), Kapurthala (+19%), Mansa (+7%), Moga (+20%), Muktsar (+41%), Tarn Taran (+15%).

➤ Similarly it is observed that out of all districts Maximum fall in rainfall observed at Rupnagar district which is 18% less than the rainfall of last year 2018 and the fall in rainfall in remaining districts shows in Amritsar (3%), Barnala (6%), Fatehgarh Sahib (9%), Hoshiarpur (12%), Ludhiana (4%), Patiala (2%), SAS Nagar (14%), Sangrur (6%), Nawanshahr (14%).

RAINFALL ANALYSIS OF CHANDIGARH (UT):

➤ In Chandigarh (UT) the annual rainfall for the year 2019 was 940 mm which is about 13% less than the previous year (2018) rainfall of 1086 mm and 13% less than the normal rainfall (i.e. 1078 mm).

➤ Over 75% of the annual rainfall is received in the four rainy months for June to September, only thereby leading to large variations on temporal scale.

2.5 DEVIATION OF 2019 RAINFALL FROM 2018 & NORMAL RAINFALL:

Deviation in Actual Annual Rainfall 2019 from Normal Rainfall represents that only two districts showing Large Excess rainfall namely Kapurthala (+134%) and Tarn Taran (+70%) and 05 districts showing excess in rainfall namely Fatehgarh sahib (+22%), Hoshiarpur (+21%), Jalandhar (+22%), Muktsar (+24%), Rupnagar (+29%) and only one district showing deficient rainfall i.e Mansa (-27%) and in remaining districts normal rainfall observed. Deviation of 2019 Rainfall from 2018 Annual

Rainfall and from Normal Rainfall is given in table 9 and corresponding graphs are given as fig. 2.3, fig 2.4, fig 2.5, fig 2.6, fig 2.7, fig 2.8.

Table- 2.9: Deviation of 2019 Rainfall from 2018 Annual Rainfall and from Normal Rainfall:

	DISTRICT	ACTUAL R.F (mm) – 2019	ACTUAL R/F (mm) – 2018	% DEVIATION FROM 2018	NORMAL RAINFALL (mm)	(%) DEVIATION FROM NORMAL	REMARKS
1	AMRITSAR	696.5	714.8	-3 %	687.4	1 %	Normal
2	BARNALA	506.1	540.4	-6 %	450	12 %	Normal
3	BATHINDA	478.2	293	63 %	423.9	13 %	Normal
4	FARIDKOT	466.8	360.7	29 %	444.7	5 %	Normal
5	FATEHGARH SAHIB	845.3	929.8	-9 %	695.2	22 %	Excess
6	FIROZPUR	369	254.4	45 %	435.4	-15 %	Normal
7	GURDASPUR	1035.3	1009.3	3 %	1012.20	2 %	Normal
8	HOSHIARPUR	1134.9	1296.3	-12 %	934.6	21 %	Excess
9	JALANDHAR	880.2	871.6	1 %	722.4	22 %	Excess
10	KAPURTHALA	1089.6	918.3	19 %	466.4	134 %	Large Excess
11	LUDHIANA	789.4	823.4	-4 %	678.8	16 %	Normal
12	MANSA	306.9	287.1	7 %	420	-27 %	Deficient
13	MOGA	580.3	484.3	20 %	497.7	17 %	Normal
4	MUKTSAR	470.8	334.1	41 %	380.6	24 %	Excess
15	PATIALA	820.5	833.1	-2 %	688.2	19 %	Normal
16	RUPNAGAR	1110.2	1361.2	-18 %	858.6	29 %	Excess
17	SAS NAGAR	829.4	966.5	-14 %	819	1 %	Normal
18	SANGRUR	546.2	578.8	-6 %	613.9	-11 %	Normal
19	NAWANSHAHR	910.9	1060.1	-14 %	925.5	-2 %	Normal

20	TARN TARAN	761.2	661.9	15 %	449	70 %	Large Excess
21	CHANDIGARH	940	1086	-13 %	1078	-13 %	Normal

Fig 2.3: VARIATION IN RAINFALL 2018 V/S 2019 – PUNJAB & CHANDIGARH (UT):

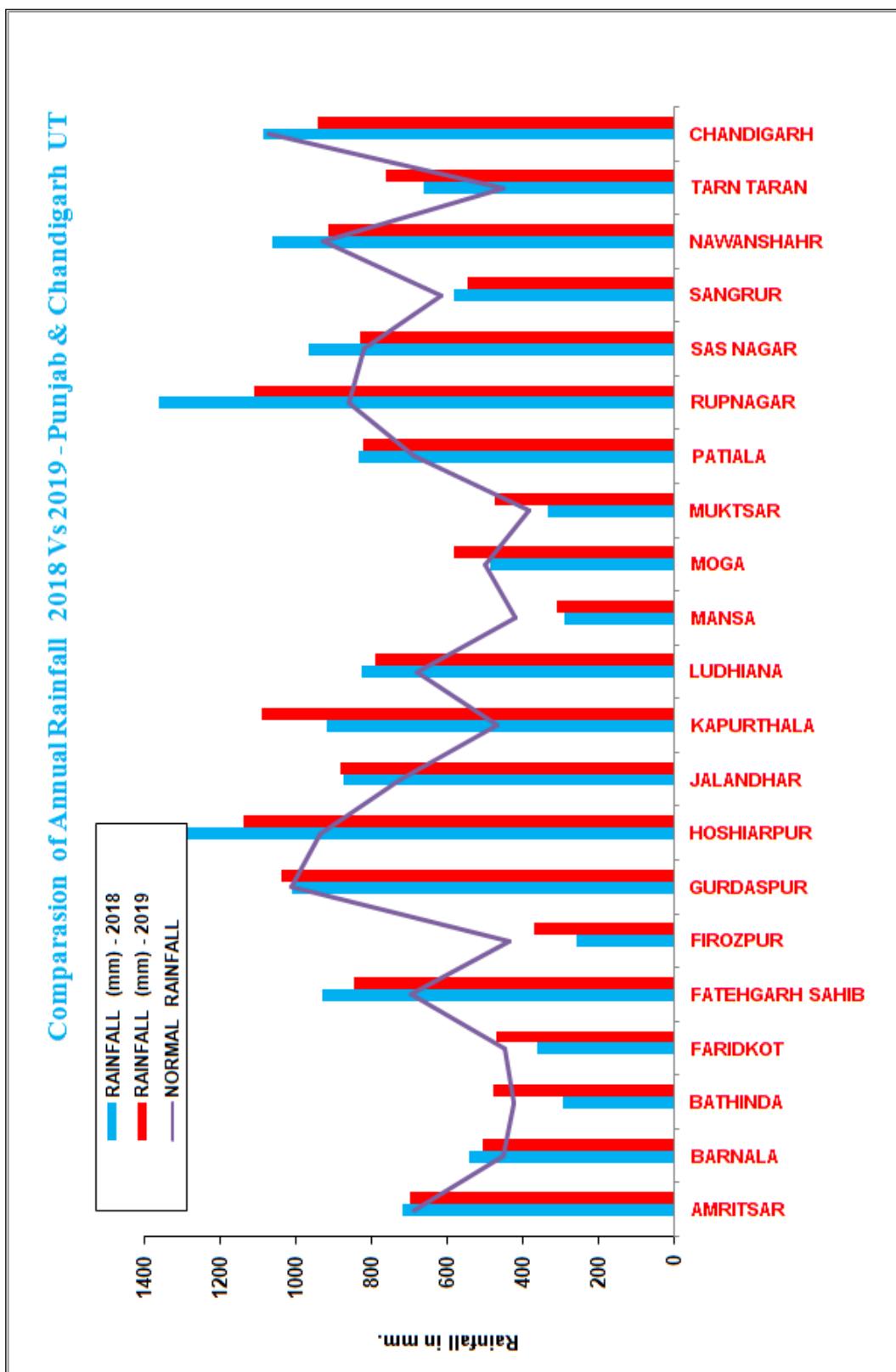


Fig 2.4: PERCENTAGE DEVIATION IN 2019 RAINFALL V/S 2018 :- PUNJAB & CHANDIGARH (UT)

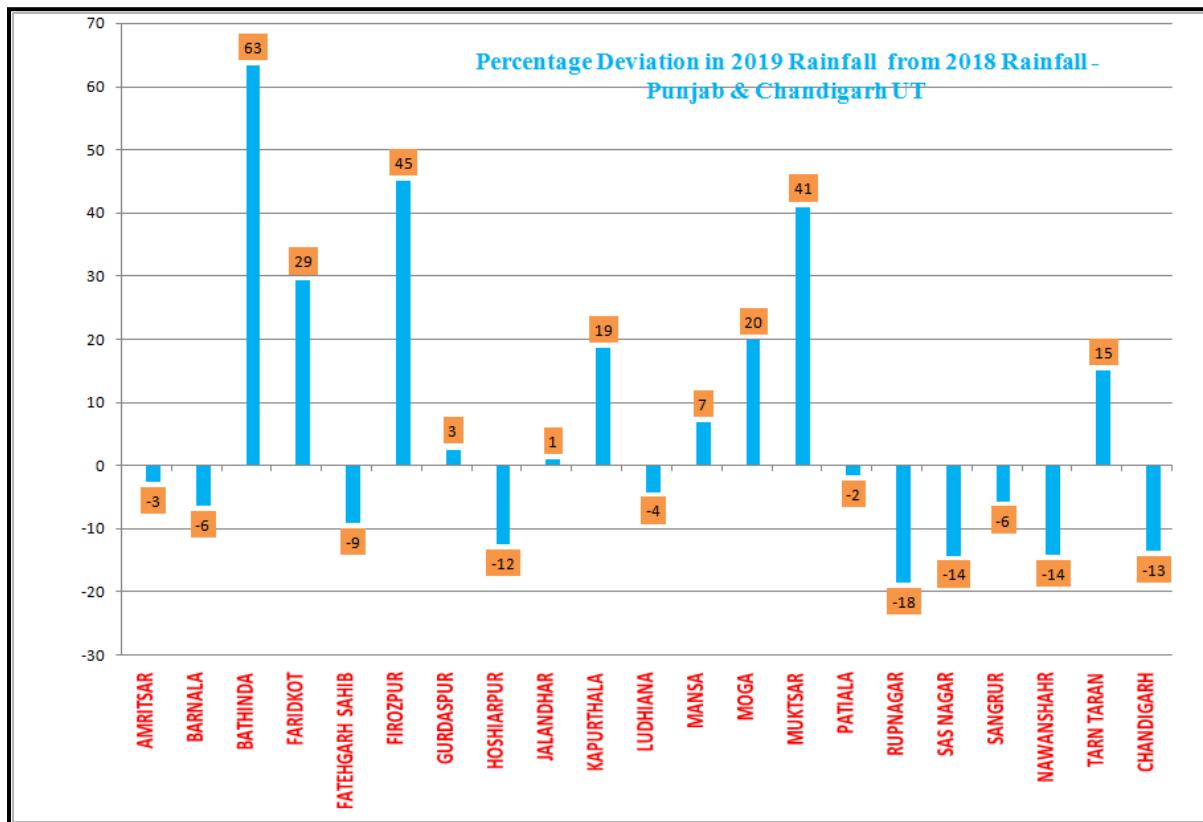


Fig 2.5: DEVIATION IN 2019 RAINFALL FROM NORMAL RAINFALL OF PUNJAB CHANDIGARH (UT):

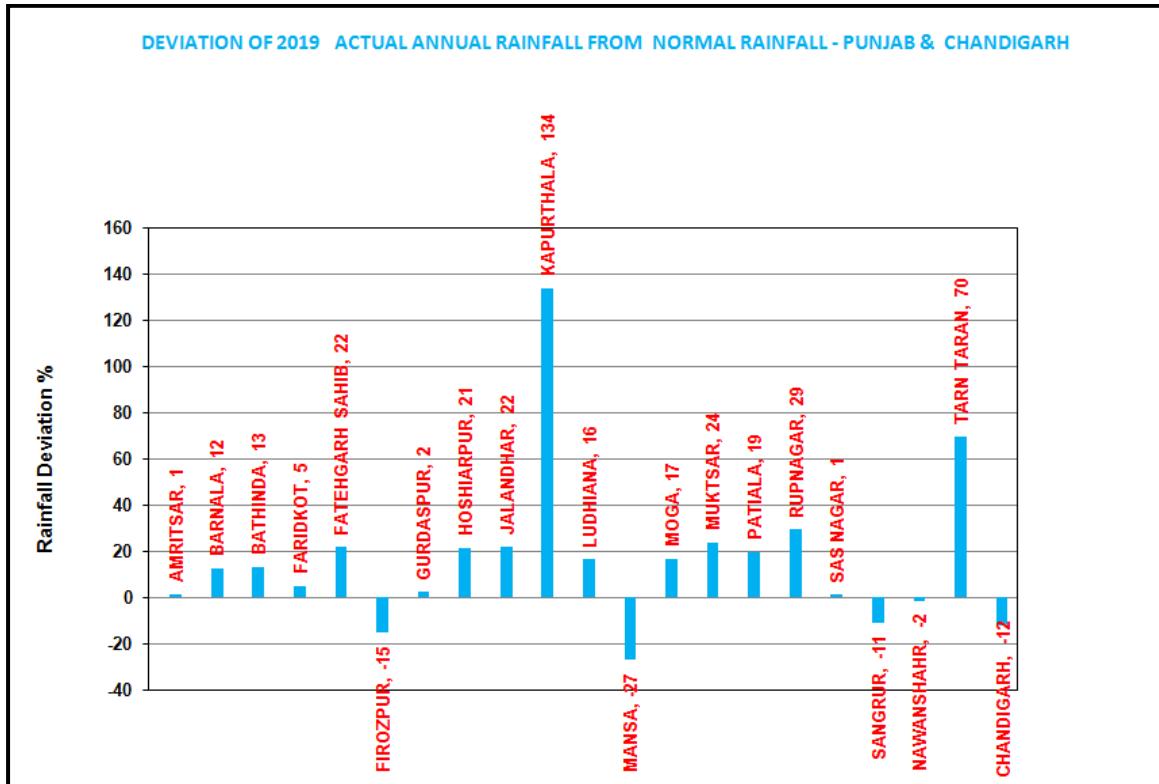


Fig 2.6: ACTUAL ANNUAL RAINFALL MAP OF PUNJAB STATE (YEAR- 2018)

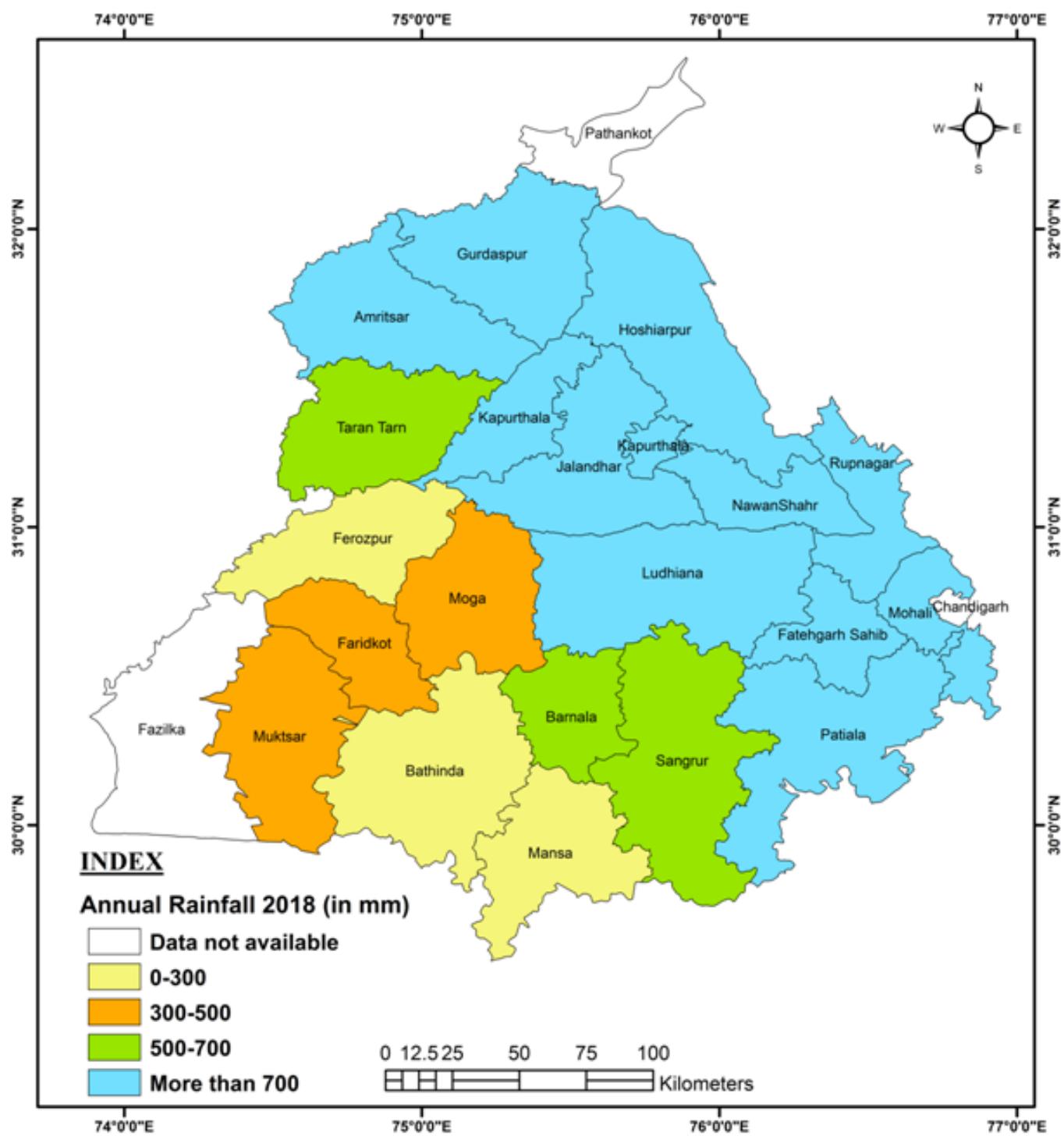


Fig 2.7: ACTUAL ANNUAL RAINFALL MAP OF PUNJAB STATE (YEAR- 2019)

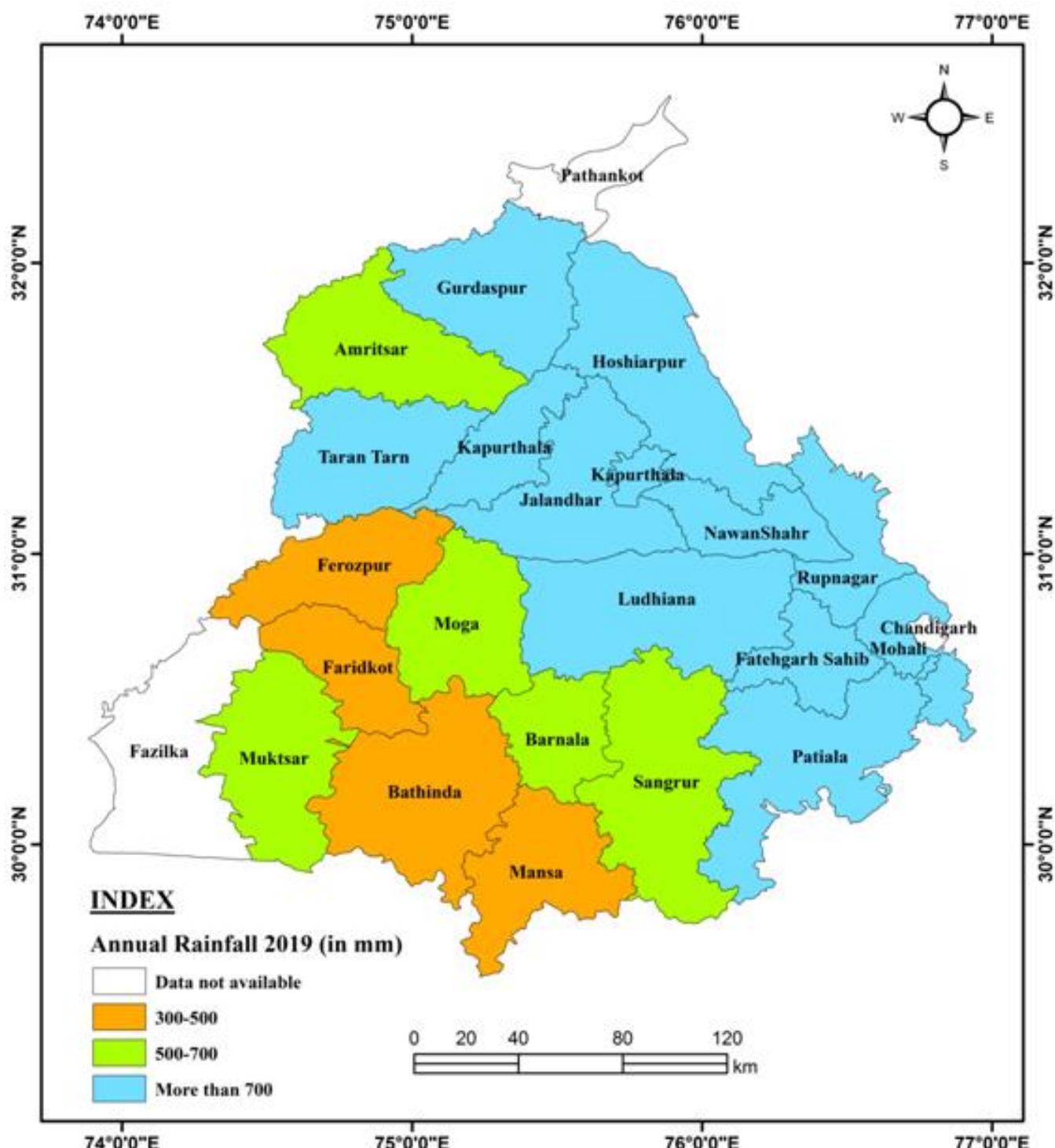
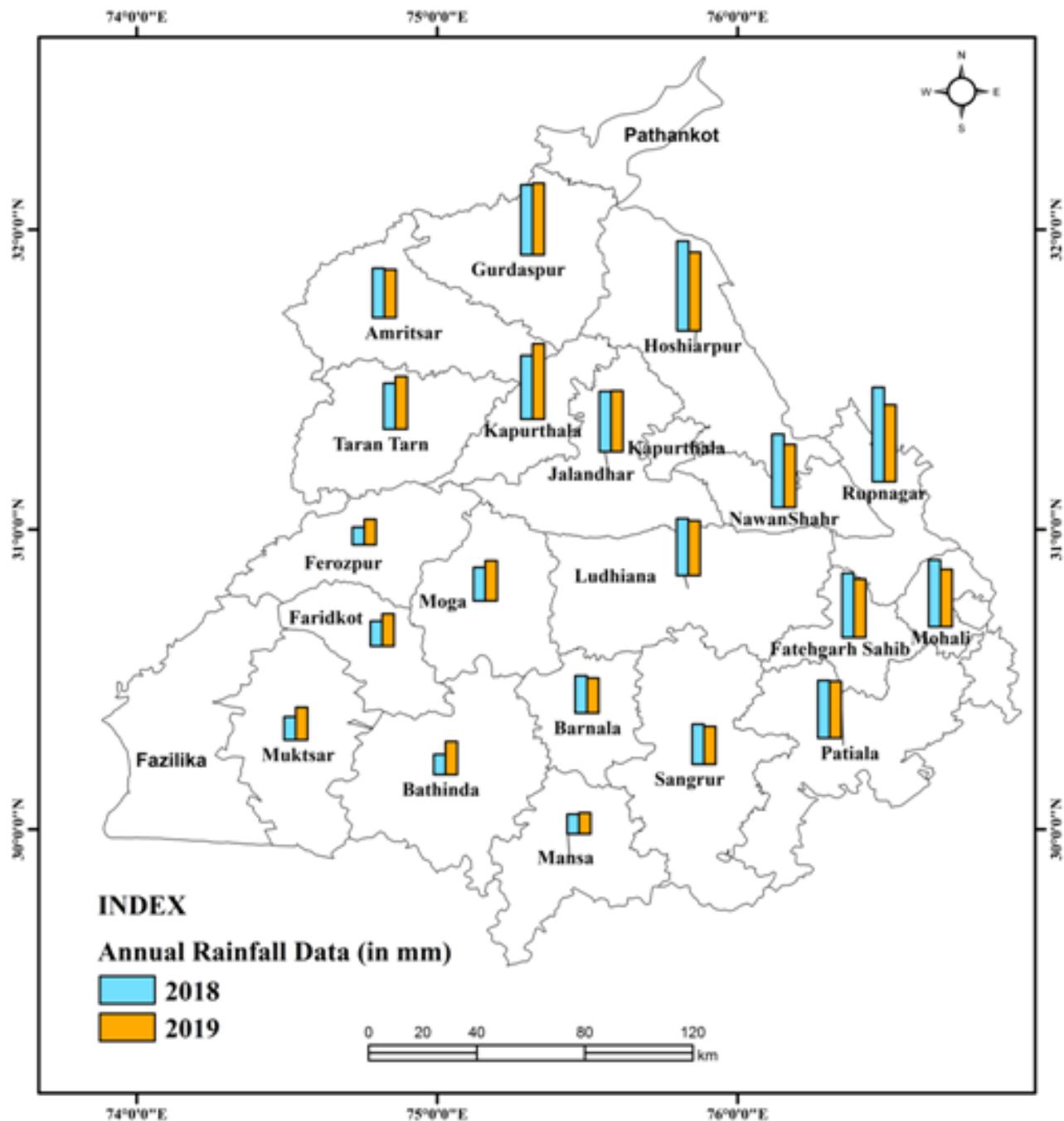


Fig 2.8: COMPARISON MAP OF ACTUAL ANNUAL RAINFALL: PUNJAB STATE (2018 v/s 2019):



2.8 BEHAVIOUR OF RAINFALL AND ITS VARIABILITY & DECADAL FLUCTUATION IN ANNUAL AND SOUTH WEST MONSOON RAINFALL FROM 2000 TO 2019 & DEPARTURE FROM NORMAL:

Changes in rainfall behaviour since last one decade are determined using decadal data. Rainfall of past two decades of Punjab & Chandigarh UT is computed and compared with the normal rainfall of the given monitoring to determine the decadal fluctuation. Decadal Fluctuation in Annual and South West Monsoon Rainfall from 2000 to 2019 & its Departure from Normal rainfall is analyzed.

Decadal Fluctuation in Annual and South West Monsoon Rainfall for the State of Punjab

There is Deficient rainfall observed in during the years 2000, 2002, 2004, 2009, 2014, 2016 and there is excess in rainfall observed in Punjab State in 2008, 2011, 2012 and in remaining years normal rainfall observed. In 2008, there is highest departure (+47%) observed and the lowest departure (-36%) observed in 2004.

Decadal Fluctuation in Annual and South West Monsoon Rainfall for Chandigarh UT:

There is Deficient rainfall observed in During the years 2002, 2004, 2005, 2009, 2014, 2015, 2016, 2017 and there is excess in rainfall observed in 2003, 2007, 2008, 2011 and in remaining years normal rainfall observed. In 2008, there is highest departure (+45%) observed and the lowest departure (-47%) observed in 2016.

The annual and SW monsoon rainfall and their departures from normal rainfall from the years 2000 to 2019 are shown in Table 2.10 & 2.11 and their corresponding graphs are represented by fig.2.9, fig 2.10, fig 2.11, fig 2.12, fig 2.13, fig 2.14, fig 2.15 & fig 2.16.

Table2. 10 : Departure in Annual Rainfall & SW Monsoon Rainfall of Punjab State (2000-2019)

YEAR	SW – MONSOON RAINFALL (MM)				ANNUAL RAINFALL (MM)					REMARKS
	ACTUAL RAINFALL (INDIA)	ACTUAL RAINFALL (PUNJAB)	% DEPARTURE FROM NORMAL (INDIA)	% DEPARTURE FROM NORMAL (PUNJAB)	ANNUAL RAINFALL (INDIA)	ANNUAL RAINFALL (PUNJAB)	% DEPARTURE (INDIA)	REMARKS	% DEPARTURE (PUNJAB)	
2000	860.53	375.62	-5.90	-24.94	1091.82	466.00	-10.49	Normal	-27.88	Deficient
2001	755.89	437.98	-17.34	-12.48	995.6	536.67	-18.38	Normal	-16.94	Normal
2002	662.71	383.89	-27.53	-23.29	895.53	483.19	-26.58	Deficient	-25.22	Deficient
2003	866.16	559.64	-5.28	11.83	1201.14	711.96	-1.53	Normal	10.19	Normal
2004	721.77	276.33	-21.07	-44.78	1102.69	413.52	-9.60	Normal	-36.00	Deficient
2005	809.29	441.45	-11.50	-11.78	1201.07	582.70	-1.53	Normal	-9.82	Normal
2006	827.4	468.69	-9.52	-6.34	1046.52	623.70	-14.20	Normal	-3.47	Normal
2007	909.85	549.28	-0.50	9.76	1169.32	746.39	-4.14	Normal	15.52	Normal
2008	830.43	777.38	-9.19	55.35	1039.94	953.09	-14.74	Normal	47.51	Excess
2009	698.11	395.57	-23.66	-20.95	929.97	496.14	-23.76	Deficient	-23.21	Deficient
2010	862.9	525.4	-5.64	4.99	1211.11	581.82	-0.71	Normal	-9.95	Normal
2011	926.23	780.04	1.29	55.88	1118.15	925.74	-8.33	Normal	43.27	Excess

2012	845	622.18	-7.60	24.33	1040.17	785.59	-14.72	Normal	21.58	Excess
2013	925.46	546.17	1.20	9.14	1209.04	684.47	-0.88	Normal	5.93	Normal
2014	784.63	320.58	-14.20	-35.94	1074.81	494.12	-11.88	Normal	-23.53	Deficient
2015	749.55	404.52	-18.03	-19.16	1089.65	616.83	-10.67	Normal	-4.53	Normal
2016	835.21	409.12	-8.67	-18.24	1039.92	495.28	-14.75	Normal	-23.35	Deficient
2017	813.21	444.02	-11.07	-11.27	1060.85	570.36	-13.03	Normal	-11.73	Normal
2018	772.75	622.96	-15.50	24.49	955.41	690.34	-21.67	Deficient	6.84	Normal
2019	930.36	489.94	1.74	-2.09	1261.01	708.58	21.05	Deficient	9.67	Normal

Fig 2.9: DEVIATION IN ACTUAL ANNUAL RAINFALL OF PUNJAB STATE

(PERIOD 2000-2019)

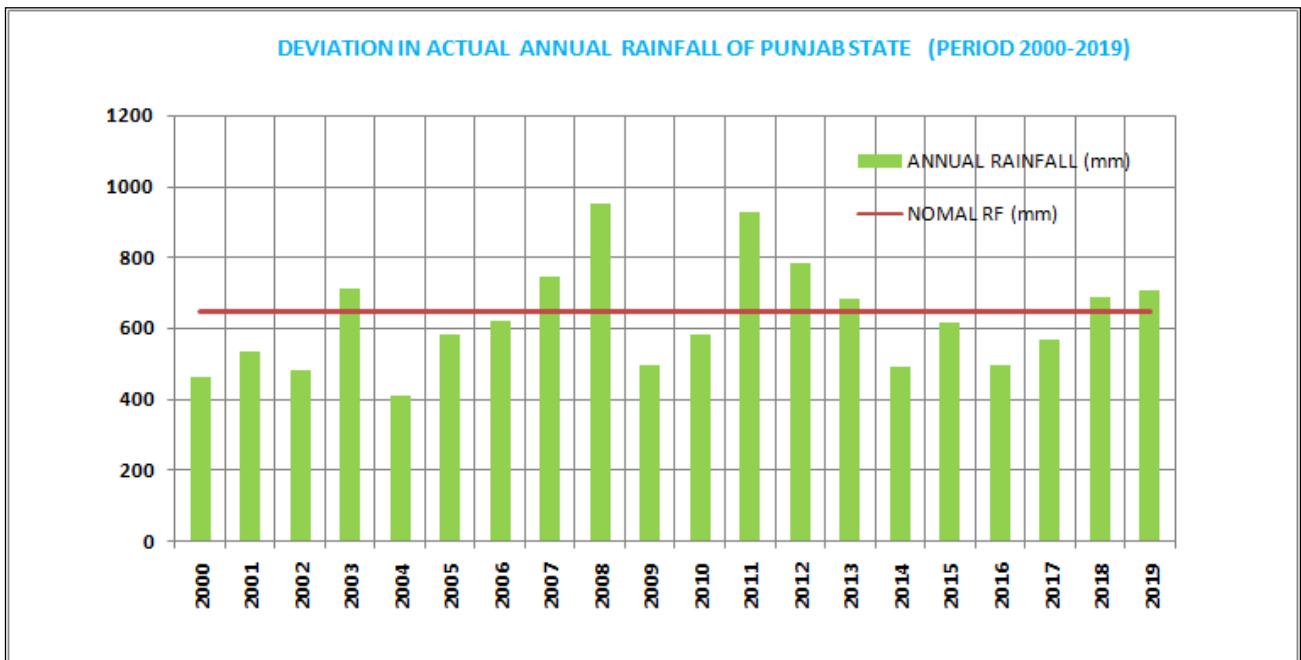
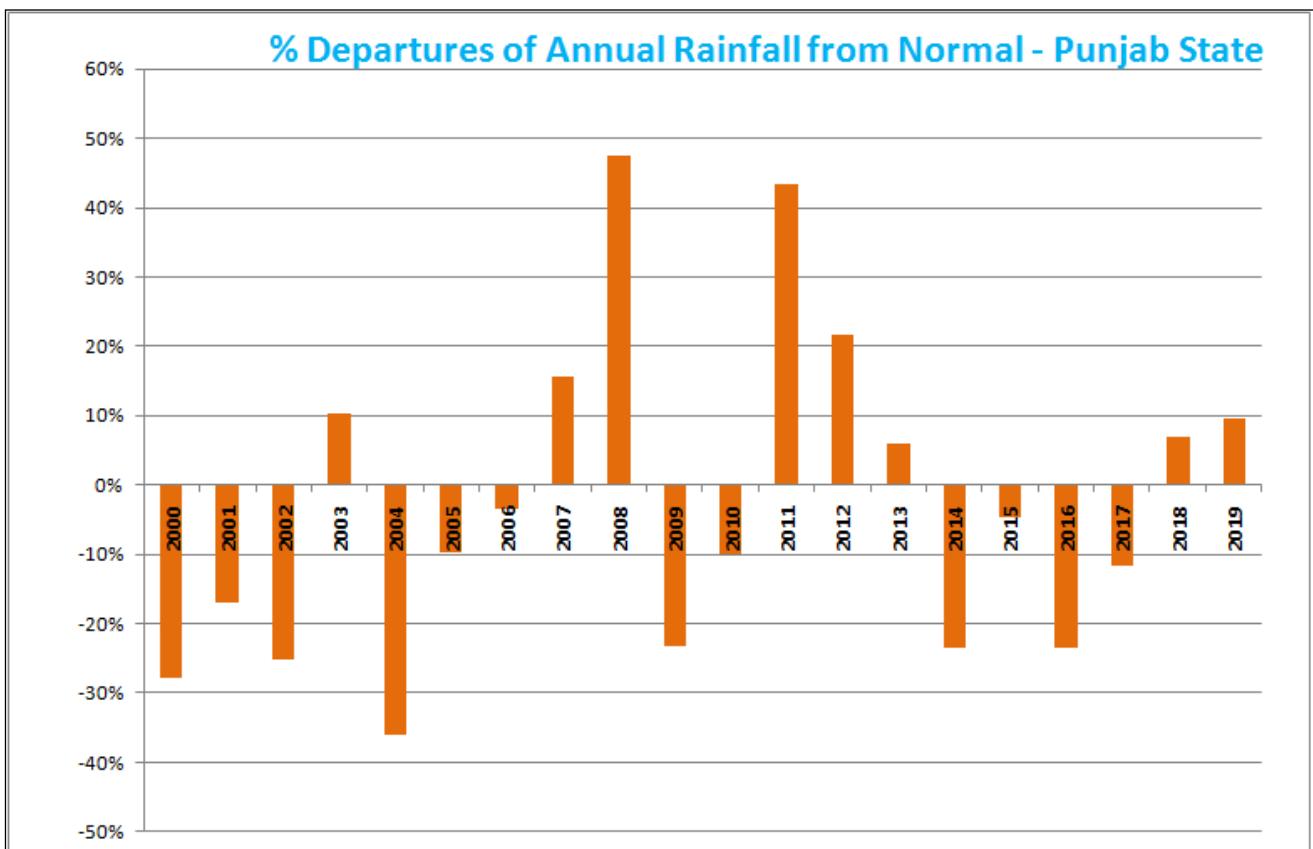
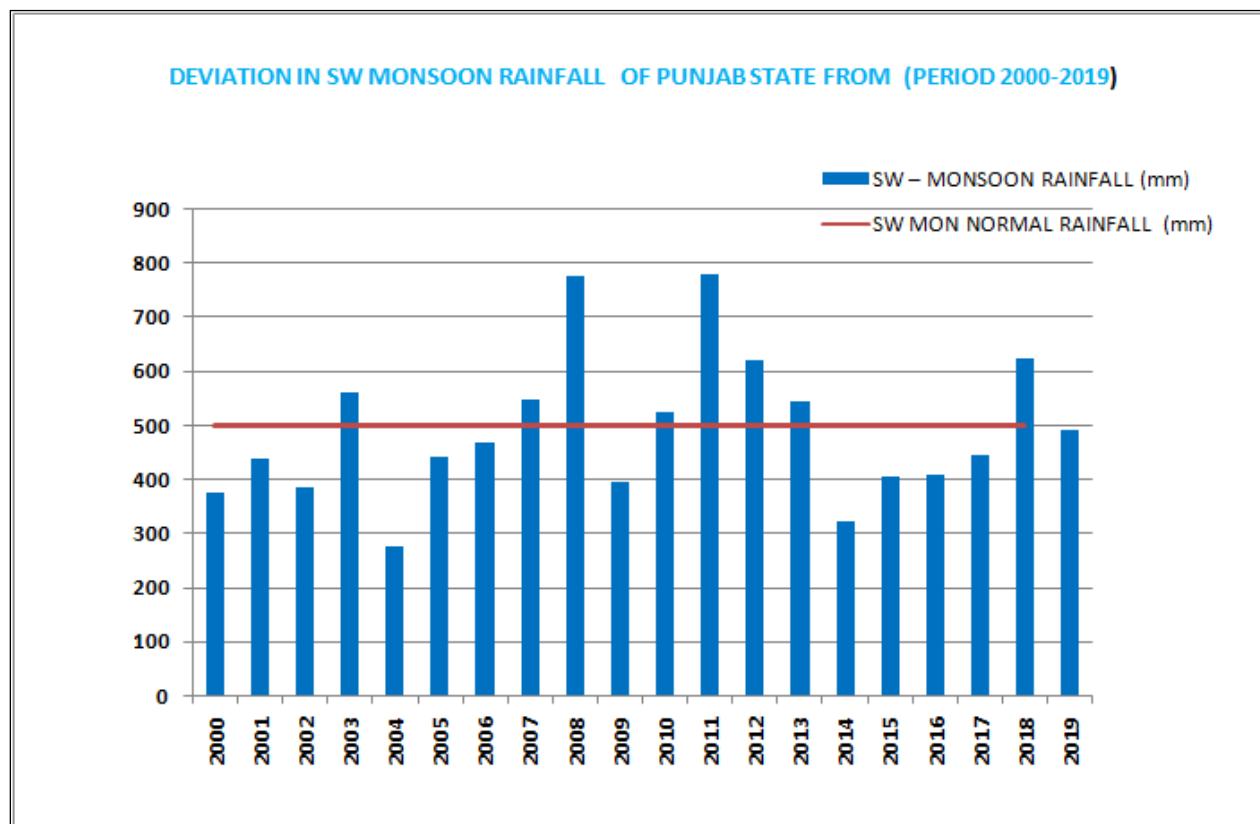


Fig 2.10: % DEPARTURE OF RAINFALL FROM NORMAL (PERIOD 2000-2019)



**Fig2.11: DEVIATION IN SW MONSOON RAINFALL OF PUNJAB STATE
(PERIOD 2000-2019)**



**Fig 2.12: % DEPARTURE IN SW MONSOON RAINFALL FROM NORMAL
(PERIOD 2000-2019)**

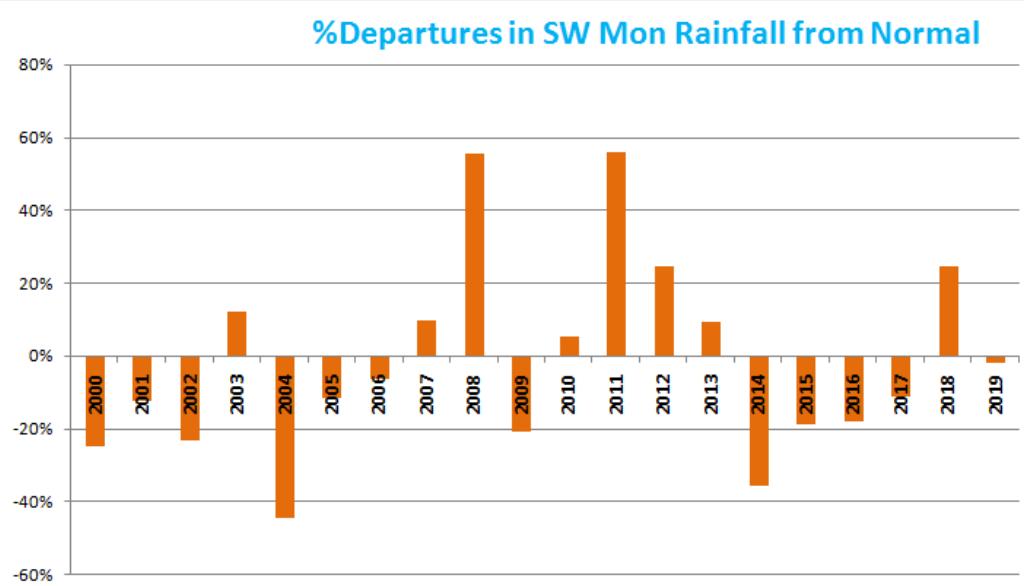


Table2. 11 : Departure in Annual Rainfall & SW Monsoon Rainfall of Chandigarh UT (2000-2019)

YEAR	SW – MONSOON RAINFALL (MM)				ANNUAL RAINFALL (MM)					REMARKS
	ACTUAL RAINFALL (INDIA)	ACTUAL RAINFALL (CHANDIGARH UT)	% DEPARTURE FROM NORMAL (INDIA)	% DEPARTURE FROM NORMAL (CHANDIGARH UT)	ANNUAL RAINFALL (INDIA)	ANNUAL RAINFALL (CHANDIGARH UT)	% DEPARTURE (INDIA)	REMARKS	% DEPARTURE (CHANDIGARH UT)	
2000	860.53	1029.8	-5.90	21.64	1091.82	1243.5	-10.49	Normal	15.35	Normal
2001	755.89	1023.1	-17.34	20.85	995.6	1199.1	-18.38	Normal	11.23	Normal
2002	662.71	624	-27.53	-26.29	895.53	852.8	-26.58	Deficient	-20.89	Deficient
2003	866.16	1188.9	-5.28	40.43	1201.14	1352.1	-1.53	Normal	25.43	Excess
2004	721.77	649.3	-21.07	-23.30	1102.69	850.6	-9.60	Normal	-21.09	Deficient
2005	809.29	621.8	-11.50	-26.55	1201.07	814.3	-1.53	Normal	-24.46	Deficient
2006	827.4	637.7	-9.52	-24.68	1046.52	878.6	-14.20	Normal	-18.50	Normal
2007	909.85	991.7	-0.50	17.14	1169.32	1520.3	-4.14	Normal	41.03	Excess
2008	830.43	1294	-9.19	52.85	1039.94	1560.4	-14.74	Normal	44.75	Excess
2009	698.11	742.4	-23.66	-12.31	929.97	859.8	-23.76	Deficient	-20.24	Deficient
2010	862.9	1116.1	-5.64	31.83	1211.11	1239.6	-0.71	Normal	14.99	Normal

2011	926.23	1360.3	1.29	60.68	1118.15	1515.3	-8.33	Normal	40.57	Excess
2012	845	848.6	-7.60	0.24	1040.17	1004.1	-14.72	Normal	-6.86	Normal
2013	925.46	782.7	1.20	-7.55	1209.04	1026.2	-0.88	Normal	-4.81	Normal
2014	784.63	413.5	-14.20	-51.16	1074.81	819.1	-11.88	Normal	-24.02	Deficient
2015	749.55	566.4	-18.03	-33.10	1089.65	824	-10.67	Normal	-23.56	Deficient
2016	835.21	423.2	-8.67	-50.01	1039.92	575.4	-14.75	Normal	-46.62	Deficient
2017	813.21	704.2	-11.07	-16.82	1060.85	857.7	-13.03	Normal	-20.44	Deficient
2018	772.75	956.9	-15.50	13.03	955.41	1085.9	-21.67	Deficient	0.73	Normal
2019	930.36	721.9	1.74	-14.73	1261.01	940	21.05	Deficient	-12.80	Normal

REFERENCE: <https://data.gov.in/node/87154/download>, <https://data.gov.in/catalog/district-rainfall-normal-mm-monthly-seasonal-and-annual-data-period-1951-2000>,
[https://indiawris.gov.in/wris/#/http://hydro.imd.gov.in/hydrometweb/\(S\(osdeiu45tfdt1vesfkqaypze\)\)/DistrictRaifall.aspx](https://indiawris.gov.in/wris/#/http://hydro.imd.gov.in/hydrometweb/(S(osdeiu45tfdt1vesfkqaypze))/DistrictRaifall.aspx)

Fig 2.13: DEVIATION IN ANNUAL RAINFALL OF CHANDIGARH UT (PERIOD 2000-2019)

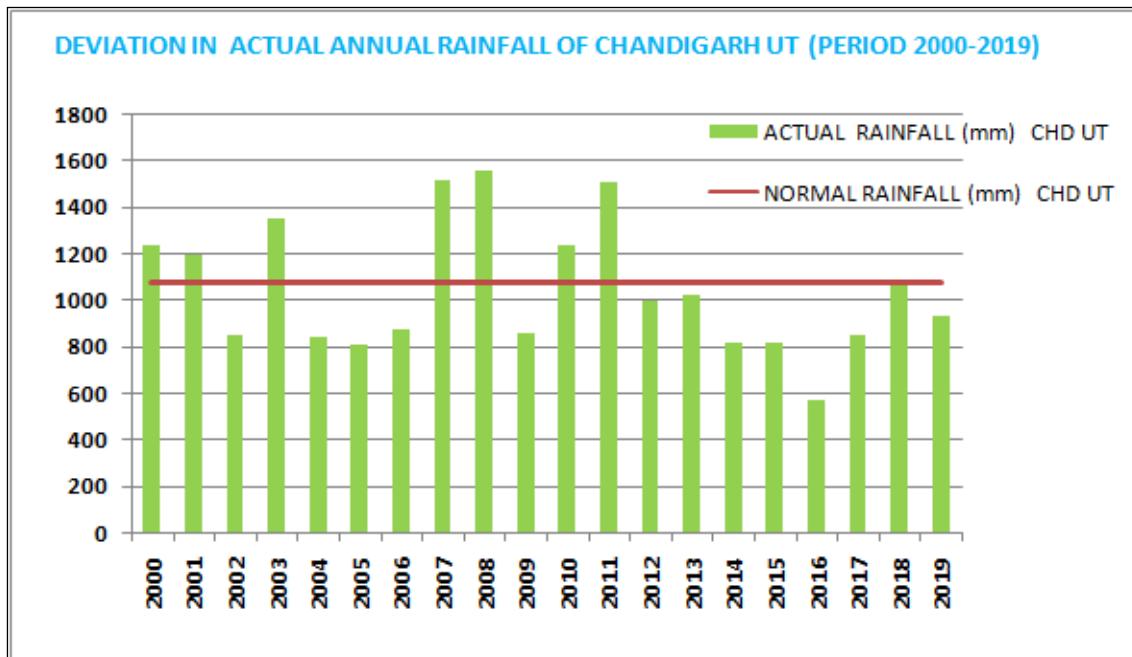


Fig 2.14: % DEPARTURE OF RAINFALL FROM NORMAL (PERIOD 2000-2019)

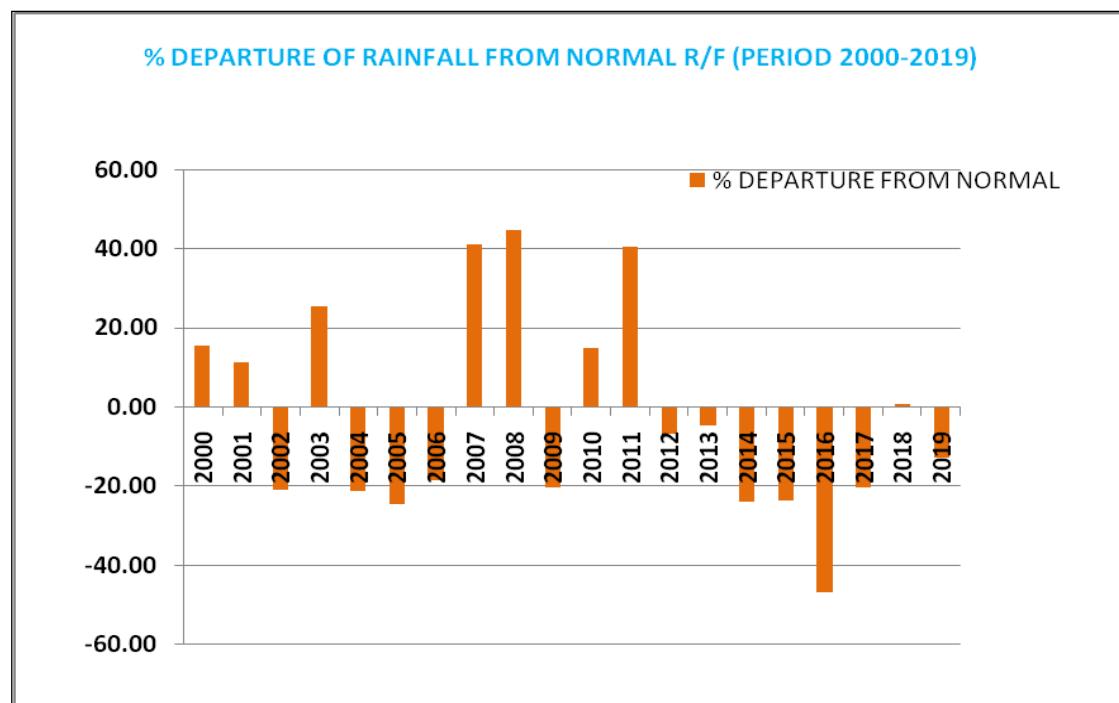


Fig 2.15: DEVIATION IN SW MONSOON RAINFALL OF CHANDIGARH UT

(PERIOD 2000-2019)

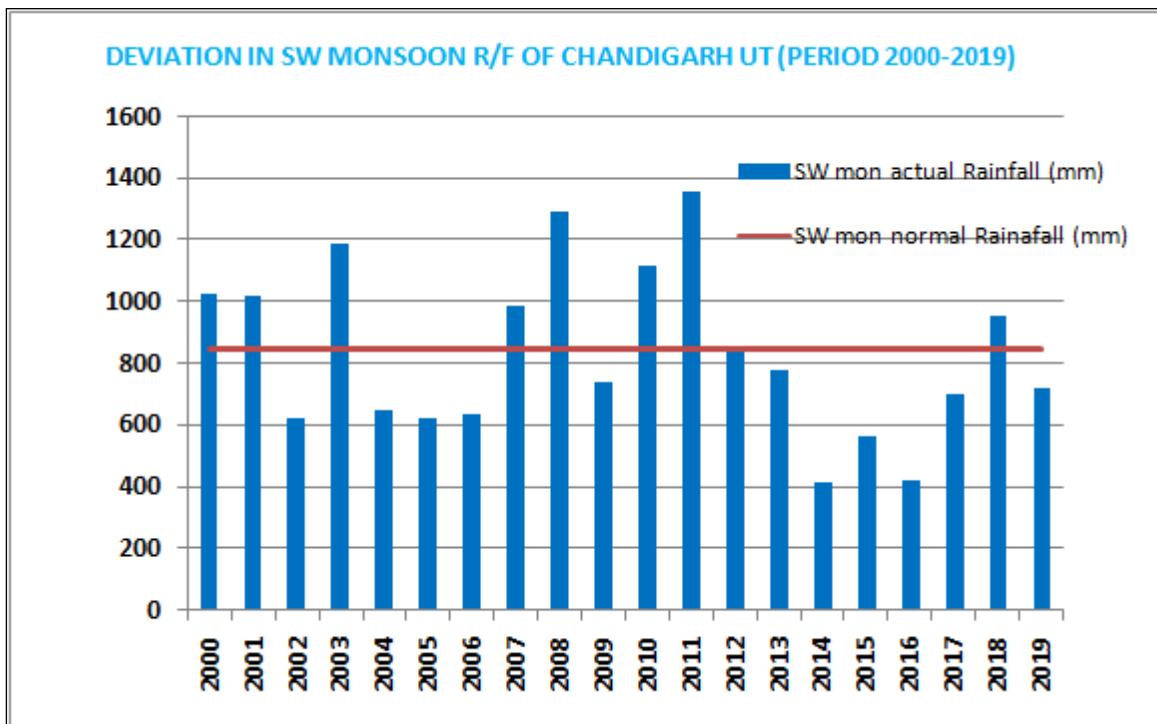
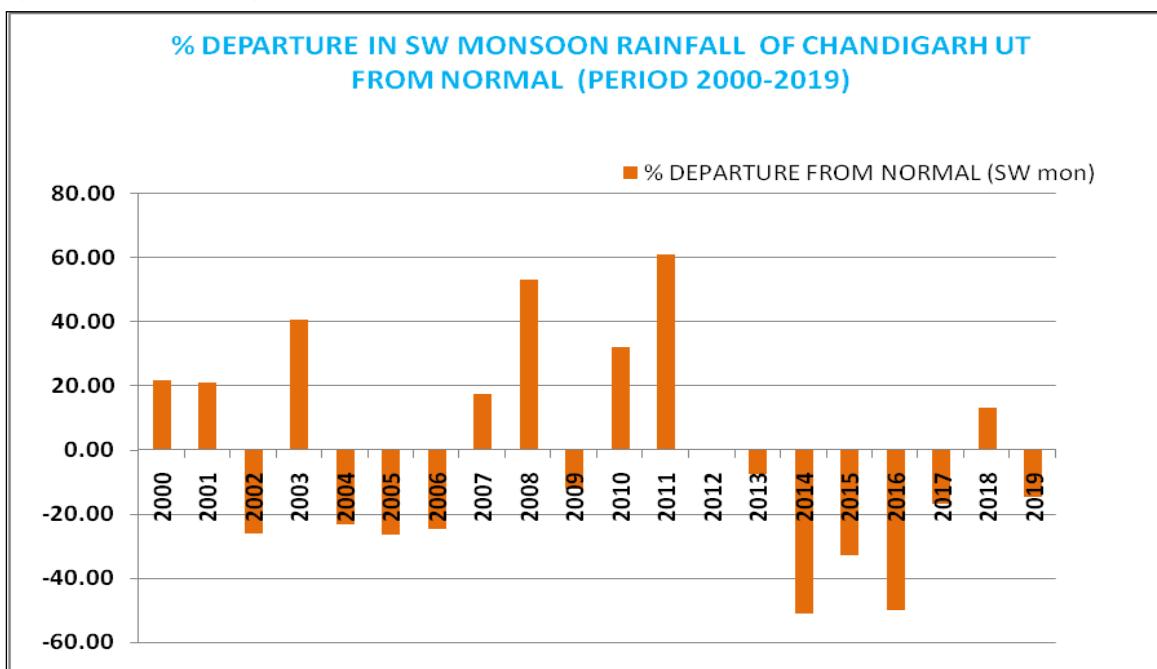


Fig 2.16: % DEPARTURE IN SW MONSOON RAINFALL FROM NORMAL

(PERIOD 2000-2019)



3.0 GENERAL GEOLOGY

The great Indo-Gangetic plain with an area of about 8,50,000 sq. km lies between the Peninsular India and the Himalayas. On the basis of seismic and borehole data, Rao (1973) divided the Indo-Gangetic Plain into five parts, which from west to east are (I) The Indus Basin in Pakistan, (ii) the Indo-Gangetic Basin in Punjab and Haryana, (iii) The Ganga Basin in Uttar Pradesh and Bihar, (iv) The Brahmaputra Basin in Assam, and (v) The Ganga-Brahmaputra Basin in West Bengal and Bangladesh. These basins have been delineated on the basis of subsurface ridges or highs. In the Indo-Gangetic Basin the Quaternary alluvium has been deposited at places on semi-consolidated Tertiary rocks (Siwalik Group) or on a basement of metamorphic and igneous rocks of Precambrian age. The alluvial sediments were laid down by the rivers since Pleistocene in the “fore deep” or a down warp formed in front of the rising Himalayan ranges and thus represents the younger geological formation.

3.1 Geological Set Up

The rock formations ranging in age from middle Miocene to Recent are exposed. They are represented by Siwaliks and Alluvium deposits. The Siwaliks (Middle Miocene to Pleistocene) form hilly tract running in northern and northeastern part of the State. The alluvium deposits (Pleistocene to Recent) constitute the plains of Punjab. The Siwaliks are divided into three lower, middle and upper Siwaliks on the basis of lithology and vertebrate fossils. The Siwalik formations have been folded and faulted due to tectonic activities. The various stratigraphic units exposed in the state are given in table as under:

3.1.1 Aeolian Sand (Wind Blown Sand)

These are medium to fine grained and buff colored sand. They occur in the form of Dunes which are formed as the disintegrated product of the older rocks and found in the southwestern part of the State. The dunes are elongated in shape and are blown sand forming fixed dunes and sandy flats. The dunes are oriented in N-S direction forms ridges which rise from a meter to about ten meters above the surrounding land surface. These sands are brought from the Rajasthan desert and ultimately deposited and shaped by the southwesterly winds which blow across the area from April to June. Generally, the sand dunes contain loose and unconsolidated sand and at places where vegetation has come up

these have been fixed. The sand grains are generally well rounded in shape and mainly consist of quartz and ferromagnesian minerals with flakes of mica.

3.1.2 Alluvium

The greater part of Punjab is occupied by alluvial plains, which are very fertile. The Quaternary alluvial sediments were deposited on semi-consolidated Tertiary rocks and conceals underneath the fringes of Peninsular and extra- Peninsular rocks. Out of the total 50362 Km². area of State, alluvial cover about 38500 Km² spreading over about 76% of area. This vast expanse of plains is constituted by fluvial sediments of Indus river system. Beneath thick alluvium cover, there are southwestern extensions of Siwalik, which are exposed only in northeastern hilly tract of the State. The Siwalik rocks are expected to extend Bathinda which in fact separates the northeastern Punjab plains form Southwestern Rajasthan plains. Based on O.N.G.C. data, the contact between the plains and the Siwalik Hills is believed to be normal in Gurdaspur district and is faulted in Hoshiarpur and Ropar district areas. The thickness of alluvium varies from place to places due to irregularities and undulations .The maximum thickness of 4500 m has been reported near Dasuya in Hoshiarpur district. The thickness of alluvium increases towards northeast. It is comparatively less in the southwestern parts where the rocks of Pre- Cambrian age occur as buried ridges. In the intermountain valleys in north east part, the valley fill is estimated to be around 200 m thick underlain by rocks of Siwalik system. The alluvium comprising sand, gravel and clay is deposited by the Indus river system. In accordance with their mode of deposition by large constantly shifting river, the alluvial deposits are heterogeneous in nature and individual strata have limited horizontal and vertical continuity. The alluvial complex of Pleistocene and Recent age represents the latest phase of sedimentation. It consists principally of fine to medium sand, silt and clay. Beds of gravel and coarse sand are uncommon. It is also associated with fine grained strata, concretionary zones or nodules of kankar. The sand gravel or sand bodies embodied in the clay- silt mixture in the alluvial deposits are usually either small or big lentoid bodies with longitudinal part either normal or nearly normal to the Himalayan and Siwalik strike i.e. NW-SE. Sheet like bodies of sand, sand and gravel had been deposited in the central part of the State and are regionally extensive. In southwestern and southern parts of the State, ground water is brackish to saline. The rivers have deposited their coarser material in higher reaches, so the flood plain

deposits developed in southwestern parts were richer in finer sediments. The alluvium is normally divided in two groups viz:

I) Newer Alluvium, ii) Older Alluvium. It is not possible to clearly indicate any distinct /demarcation line of separation between the two units

I) Newer Alluvium (Khaddar)

It occurs in the active flood plains of present day river courses and is generally confined to the neighborhood of river channels. Along the major rivers in plain areas, there exist low flood plain areas which are locally called khaddar or 'bet'. These flood plains are often separated from upland plains by a steep slope of the order of 1m to 2m per km. The Newer alluvium is light colored and poor in calcareous matter. It consists of coarse gravel near the foot hills and ventricular beds of sand and clay along the old river course and silt and clay in the flatter parts of the river plains. It is of Upper Pleistocene to Recent age. The aquifers comprised of medium to coarse sand and gravel. The clays serve as aquitards. The various aquifers are interconnected. However, the deeper horizons show confined to semi-confined conditions. There is wide variation of the hydraulic conductivity and Transmissivity of the aquifers due to rapid changes in their texture and thickness.

ii) Older Alluvium (Bhangar):

It is confined to the abandoned flood plains and bar upland regions. It consists of sandy clay, clay-silt and fine to medium sand. It consists of pale reddish brown colored beds of clay. Kankar is found disseminated more or less throughout the beds of sand and clays. The kankar bands are generally more in the older alluvium. At places extensive and massive beds of kankar also exist. It is of middle to Upper Pleistocene in age. Older alluvium forms good ground water reservoir/aquifer.

3.1.3 Upper Siwaliks

These formations are exposed throughout the hilly tract starting right from northwest of Pathankot through Hoshiarpur, Ropar to Chandigarh. They are composed of soft grey medium to coarse-grained sandstones, yellowish brown and brown clays. The sandstones are poorly lithified, soft and friable. They are brownish grey in colour and contain a large proportion of mica flakes and concretions of clay. They also consist of conglomerates, boulders and pebbles of quartzite and yellowish clays. The conglomerates consist mainly of cobbles and pebbles of quartzites. The pebbles of granite limestone, sandstone and lumps

of claystones are also present. The conglomerate beds do not show clear stratification and occur as wedge shaped or lenticular bands. The formations of Upper Siwaliks are prone to easy weathering and there is considerable collection of sand as talus cones. These formations yield good to moderate supplies of water.

3.1.4 Middle Siwaliks

These are exposed in Dhar and Dunera area of Pathankot Tehsil of Pathankot district, north and northeast of Kiratpur in Ropar district. These are comprised of grey micaceous, medium grained soft sandstones interbedded with red, orange and yellowish (buff colored) clays. The sandstones occasionally contain pebbles of calcareous clay, shale and quartzite. The Middle Siwaliks are poor in yields of ground water due to poor permeability.

3.1.5 Lower Siwaliks

These are exposed in Dhar and Dunera area of Pathankot Tehsil of Pathankot district, constitute massive grey to light grey, micaceous sandstones interbedded with dark red to maroon clays grading upward in to micaceous sandstone with thick beds of red clays. The rocks of Lower Siwaliks have poor yields of ground water. However small springs of low discharge occur on the hill slopes they confine their position at the bedding contacts where the argillaceous bed is underlain by arenaceous bed.

3.2 Basement Configuration

The Punjab Wedge i.e. the Achaean basement rocks either outcropping or occurring under moderate thickness of alluvium in Lahore- Sargodha area in Pakistan separates the Indus basin in the west, from the Punjab depression in the east. The Punjab depression follows a NW-SE ESE and WNW direction in conformity with the trends of the Siwalik Hills. The seismic surveys by the Oil and Natural Gas Commission, (Data et al., 1964) have indicated that the basement rocks as well as the sediments of the alluvium, dip gently towards the Himalayan foothills. The basement, however, becomes deeper as the foothills are approached with a corresponding increase in the thickness of the sediments. The maximum depth of this depression, about 4500 m was at Dasuya in Punjab State. Furthermore, the Punjab Basin which is fairly deep and wide in the northwestern portions becomes narrower to the southwest and the basement topography rises gradually in that

direction. A basement high occurs in the subsurface corresponding to the present water divide between the rivers of the Punjab and the Yamuna belonging to the Ganga system. According to Rao (1973), it has been long assumed that two ridges extending from Delhi, one to the northwest towards Lahore, and the other to north towards Dehradun are concealed under the alluvium of the plains. These isolated outcrops of Achaean rocks seen at Karana hills, and Sargodha extending in WNW direction from Lahore has been taken to indicate that a subsurface ridge extends under alluvium from Delhi in India to Lahore in Pakistan About 5km north of Jagadhari (near Ambala in Haryana State), the basement was encountered at a depth of 2800 m and it remains fairly flat at that level till the foothills (Nath, 1964, Rao, 1973). This basement high, often referred to as Delhi- Lahore- Sargodha Buried Ridge based on the inference that it represents the northwesterly extension of the Aravalli Mountain system, trending NW - SE . As shown by the contours, the northwestern flank of the ridge dips steeply and the depth to the bedrock increased sharply in that direction. The contours also indicate that the slopes to the southwest are less steep and the average depth of the bedrock over the crest of the ridge is about 400-500 m. The basement in Punjab basin is known to slope from south to north, and it is rather irregular and must locally contain hills and valleys. The basement seems to have a shape of asymmetrical basin. Both longitudinal and transverse faults are present in the basement, which forms a monocline with gentle northeasterly dip and no major structural feature were noticed. Based on seismic surveys carried out by O.N.G.C. indicated that the thickness of unconsolidated sediments in the southern part of the State is 154 m and near Jalandhar it is about 3000m and increases towards north. Near Dasuya it is about 4500 m, being the maximum. The basement rocks have been encountered in number of boreholes drilled by CGWB. The basin is shallowest in the southern part, in Bathinda district and the bed rock was encountered at a depth of 333 m below ground level at Kumharwala. At 333 m depth hard clay top of Palana series was encountered and 416 m claystone of Nagaur series was encountered during drilling of borehole down to 422 depth m. At Kheliwala, the bed rock comprised of Delhi quartzite was encountered at a depth of 533 m below ground level and the borehole was drilled down to 545 m. The thickness of unconsolidated material is maximum in the northeastern part.

4.0 GROUND WATER REGIME MONITORING

The Central Ground Water Board, North Western Region, has established 1077 Ground water observation wells in Punjab State and Union Territory of Chandigarh for monitoring water level. As on 31.3.2020 there were 1052 Ground Water Observation Wells in Punjab which include 173 dug wells and 816 piezometers for monitoring shallow aquifers and 63 deep Piezometers for monitoring the behaviour of deeper aquifers in Punjab. There are 25 observation wells in Chandigarh (1 dug wells and 17 Piezometers for monitoring phreatic aquifer) and 7 deep piezometers to monitor behaviour of deeper aquifers.

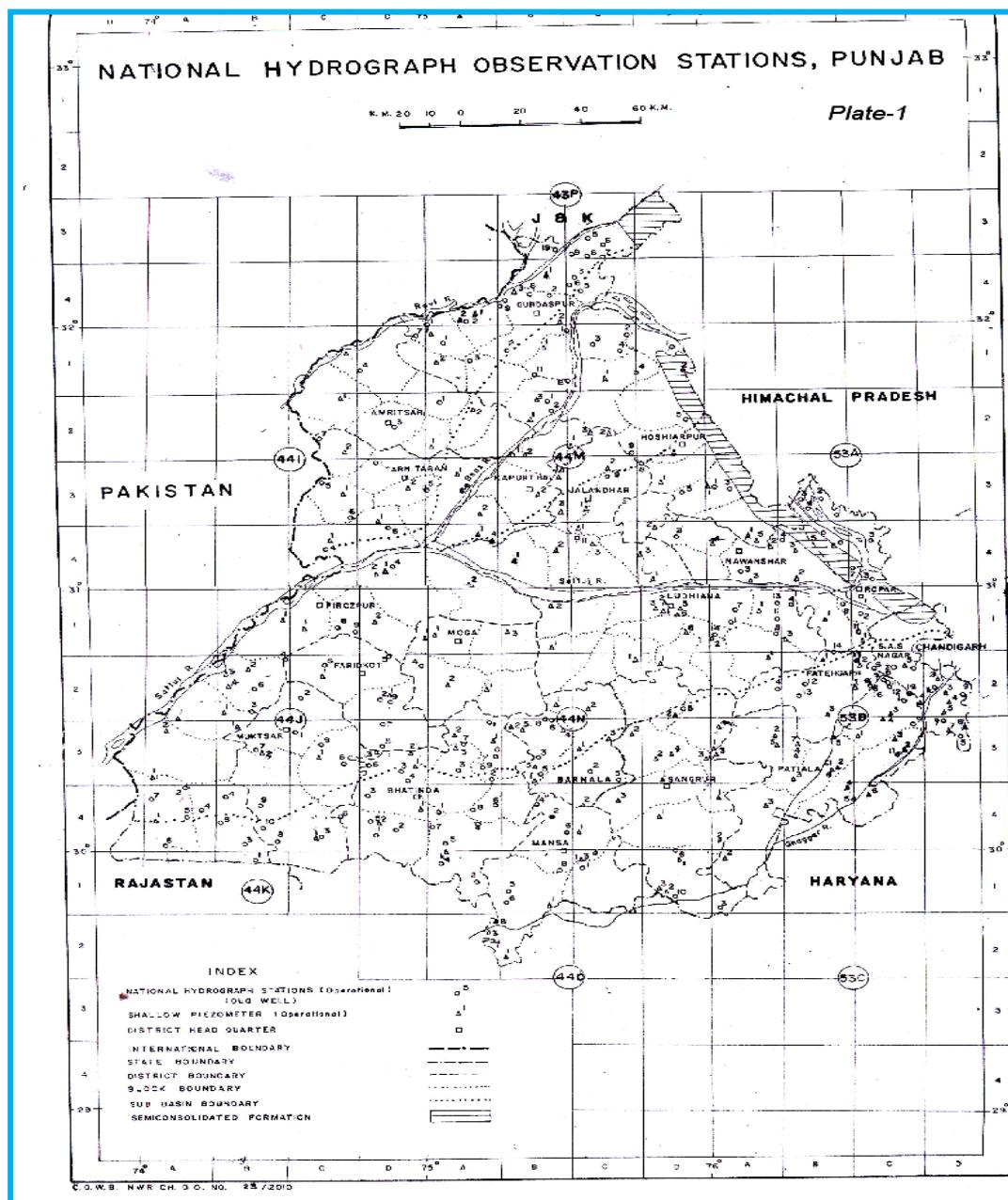
About 80% of the Ground water observation wells fall in the canal command areas of various canal systems, the areas falling out of the major command is part of Pathankot, Hoshiarpur, Nawanshahr, Ropar and SAS Nagar districts, parts of Gurdaspur, Jalandhar and Ludhiana districts. The district wise details of Ground water observation wells are given in **Table 4**, location of these Ground water observation wells is shown in **Plate 1**.

Table- 4.1 District wise ground water observation wells, Punjab State and Chandigarh

S. No.	Districts	No. of GWOW as on 31.3.2019			No. of GWOW established during			Total no. GWOW		
					2019-2020			as on 31.3.2020		
		DW	PZ	Total	DW	PZ	Total	DW	PZ	Total
1	Amritsar	6	49	55	0	0	0	6	49	55
2	Barnala	0	29	29	0	0	0	0	29	29
3	Bathinda	29	55	84	0	0	0	29	55	84
4	Faridkot	8	33	41	0	0	0	8	33	41
5	Fatehgarh	5	36	41	0	0	0	5	36	41
6	Fazilka	9	48	57	0	0	0	9	48	57
7	Ferozpur	8	50	58	0	0	0	8	50	58
8	Gurdaspur	17	55	72	0	0	0	17	55	72
9	Hoshiarpur	14	50	64	0	0	0	14	50	64
10	Jalandhar	3	73	76	0	0	0	3	73	76
11	Kapurthala	1	45	46	0	0	0	1	45	46
12	Ludhiana	9	45	54	0	0	0	9	45	54
13	Mansa	7	29	36	0	0	0	7	29	36
14	Moga	1	37	38	0	0	0	1	37	38
16	Muktsar	10	34	44	0	0	0	10	34	44
18	Pathankot	11	9	20	0	0	0	11	9	20

19	Patiala	4	42	46	0	0	0	4	42	46
20	Rupnagar	10	28	38	0	0	0	10	28	38
21	Sangrur	3	41	44	0	0	0	3	41	44
15	SAS Nagar	11	19	30	0	0	0	11	19	30
17	SBS Nagar	2	24	26	0	0	0	2	24	26
22	Tarntaran	5	48	53	0	0	0	5	48	53
Punjab State Total		173	879	1052	0	0	0	173	879	1052
	Chandigarh	1	24	25	0	0	0	1	24	25
Total Punjab & Chandigarh		174	903	1077	0	0	0	174	903	1077

Fig 4.1: Location of ground water observation wells in Punjab State.



The area represented by single shallow Ground water observation wells being monitored in the state of Punjab and Chandigarh is given in **Table 4.2** and depicted in Plate 4.2.

Table 4.2. Area represented by single shallow ground water observation well.

S. No.	District	Area (Km ²)	No. of Shallow GOWW's As on		Density represented by one GOWW's (area/no. of well)	
			31/3/2019	31/3/2020	31/3/2019	31/3/2020
1.	Amritsar	2647	55	55	48	48
2.	Barnala	1410	29	29	49	49
3.	Bathinda	3385	84	84	40	40
4.	Faridkot	1469	41	41	36	36
5.	Fatehgarh	1180	41	41	29	29
6.	Fazilka	3113	57	57	55	55
7.	Ferozpur	2190	58	58	38	38
8.	Gurdaspur	2635	72	72	37	37
9.	Hoshiarpur	3365	64	64	53	53
10.	Jalandhar	2632	76	76	35	35
11.	Kapurthala	1632	46	46	35	35
12.	Ludhiana	3767	54	54	70	70
13.	Mansa	2171	36	36	60	60
14.	Moga	2216	38	38	58	58
15.	Muktsar	2615	44	44	59	59
16.	Pathankot	929	20	20	46	46
17.	Patiala	3218	46	46	70	70
18.	Rupnagar	1369	38	38	36	36
19.	Sangrur	3610	44	44	82	82
20.	SAS Nagar	1093	30	30	36	36
21.	SBS NAGAR	1267	26	26	49	49
22.	Tarn Taran	2449	53	53	46	46
Punjab State Total		50362	1052	1052	52	48
Chandigarh		114	25	25	5	5

Fig4.2: District Wise Area Represented By Single Shallow Ground Water Observation Well

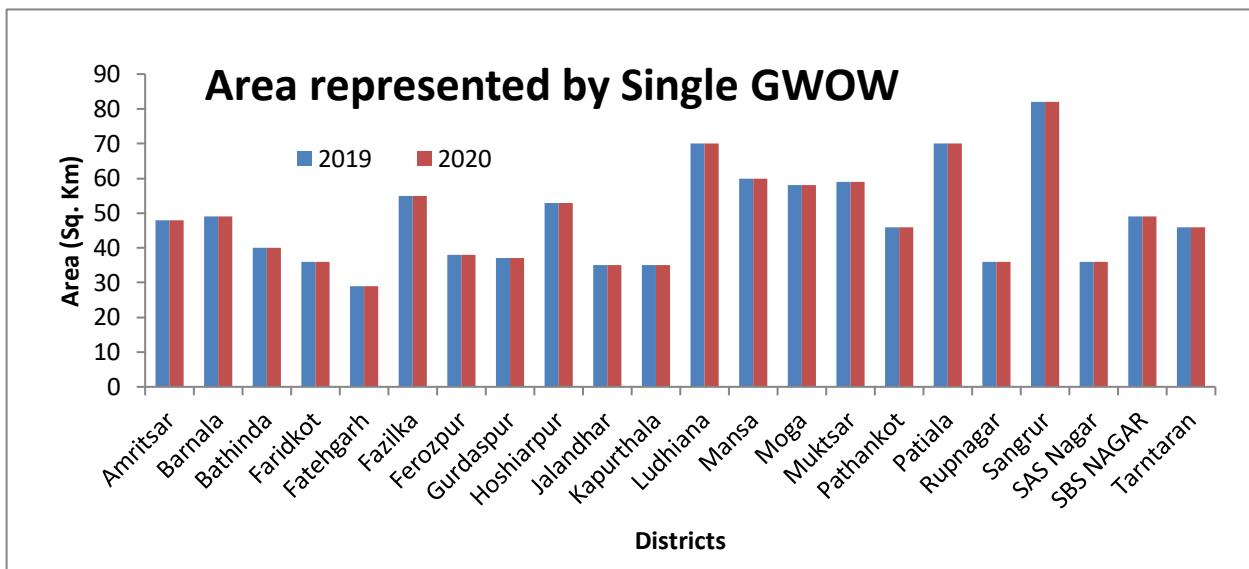
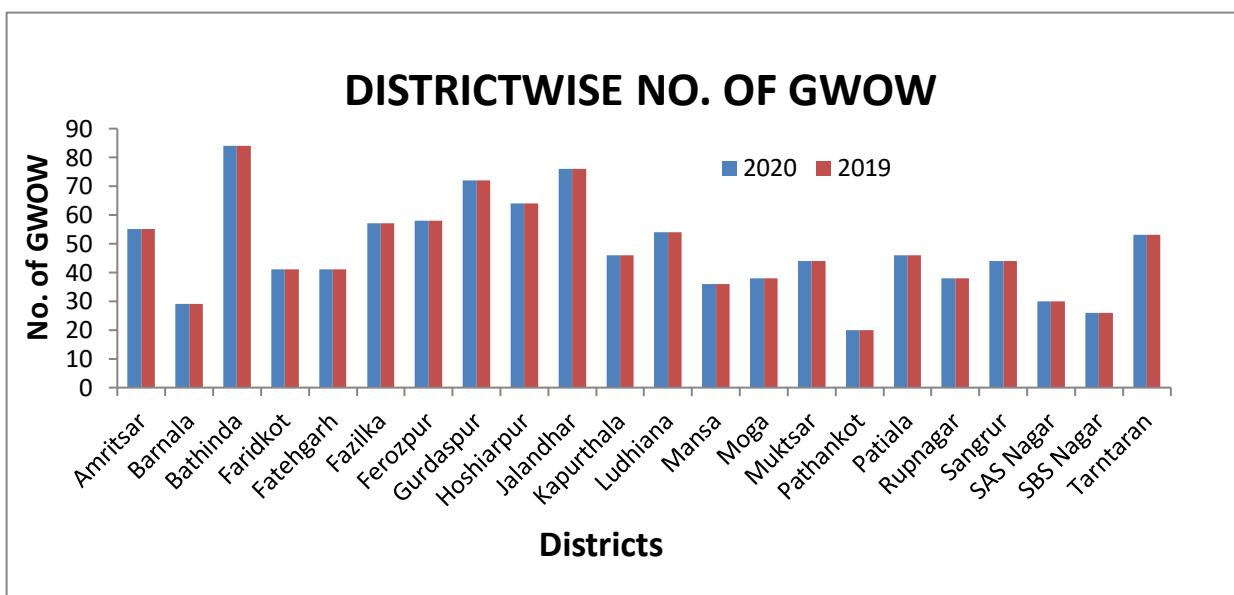


Fig 4.3: District Wise Number Shallow Ground Water Observation Well



4.1 BEHAVIOUR OF WATER LEVEL

In order to assess the quantitative change in ground water resources, water levels were monitored as a routine of four times in a year. The behaviour of water level in June 2019, August 2019, October 2019 and January 2020 is discussed in following paragraphs. The maximum and minimum water levels recorded in different season is given below in Table 3.

Table4.3. The maximum and minimum water levels during all four seasons

Range	June 2019	August 2019	October 2019	January 2020
Minimum	0.70 m bgl Kotla (Muktsar district)	0.70 m bgl Sirsini (SAS Nagar District)	0.53 m bgl Khirkhian wala (Muktsar district)	0.25m bgl Mukerian DW (Hoshiarpur district)
Maximum	50.40 m bgl Kharkhan Pz (SAS Nagar District)	46.35m bgl Rajpura Pz (Patiala District)	80.00m bgl Khilchian PZ (Amritsar District)	49.14m bgl Badliala Singh PZ (Fatehgarh Sahib district)

It is evident from the above table-3 that shallowest water level conditions prevail in southwest parts mainly in Muktsar districts and south west Punjab mainly SAS Nagar district. While deepest water level conditions exist in the Fatehgarh Sahib, SAS Nagar, Patiala and Amritsar district. The water level data of all four seasons is discussed below and given in annexure-I:

4.1.1 JUNE 2019

The behavioral pattern of water level in June 2019 along with depth to water level map (Fig. 4.4) is discussed below and data is presented in Annexure-I (Col. 4).

The depth to water level lies between 0.70 m bgl at Kotla in Muktsar district and 50.40 m bgl at Kharkan in SAS Nagar district. Very shallow water levels of 0-2 m bgl (causing water logging) occur in 2% of wells and cover nearly 1% area of the state in isolated patches in Muktsar, Fazilka, Rupnagar and SAS Nagar districts. Shallow water levels of 2-5 m bgl have been observed in 12% of the wells and 11% of the total area that lies in south western parts of Muktsar, Fazilka, Faridkot, and in northern parts of Gurdaspur and Pathankot districts and few isolated patches in north eastern parts. These are mainly canal command areas and use canal water for their agricultural needs. The water levels between 5-10 m bgl are observed in the northern parts (Pathankot, Gurdaspur, Amritsar, and Hoshiarpur districts), south and south western parts (Fazilka, Ferozpur, Faridkot, Muktsar, Bathinda and Mansa districts), eastern parts of Ludhiana and Ropar district. About 18% of wells and 17% of the area fall in this range. Moderately Deep water levels (10-20 m bgl) are predominant and observed in 28% wells covering about 33% area of the State in central and western parts. Deep water levels (20-40 m bgl) are also observed covering parts of Amritsar, Taran Taran, Jalandhar, Kapurthala, SBS Nagar (Nawashehar), Bathinda, Moga, Ludhiana, Fatehgarh, Patiala, Sangrur, Barnala and SAS Nagar districts and observed in 38% wells covering about 38% area of the State in central and south-eastern part. Very deep water levels (>40 m bgl) are observed in 2% wells as patches in Sangrur, Patiala and SAS Nagar districts covering 1% area of the State. Summarized details of depth to water level in different ranges are given in table below.

Depth to water level range(m bgl)	Wells monitored		Area covered	
	No.	%age	Sq. Km.	%age
0-2	9	2	281	1
2-5	72	12	5429	11
5-10	106	18	8595	17
10-20	163	28	16645	33
20-40	222	38	19027	38
>40	11	2	501	1

**Depth to Water Level Map
Punjab State & Chandigarh (UT)
June 2019**

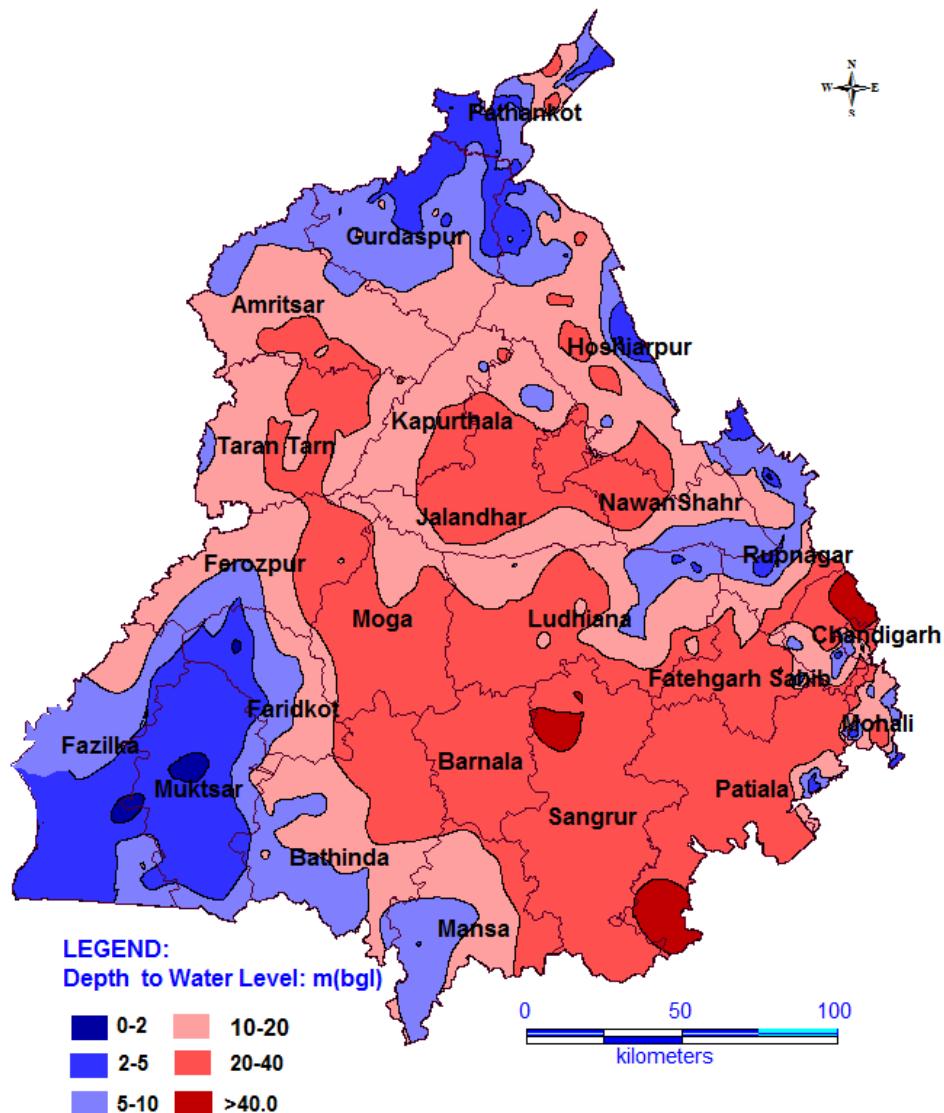


Figure 4.4 Depth to Water level Map Punjab State & Chandigarh (UT) June 2019

4.1.2 August 2019

The behavioral pattern of water level in August 2019 along with depth to water level map (Fig.4.5) is discussed below. The depth to water level lies between 0.70 m bgl at Sirsini DW in SAS Nagar district and 102.71 m bgl at CGWB Pz in Chandigarh Regional Office and 46.35 mbgl at Rajpura Pz in Patiala District.

Very shallow water levels of 0-2 m bgl (causing water logging) occur in more than 4% of wells and cover 1% area of the state in south western parts in Mansa, Muktsar, Faridkot, Fazilka and Pathankot, Gurdaspur, Hoshiarpur and Roopnagar districts. Shallow water levels of 2-5 m bgl have been observed in 19% of the wells and more than 11% of the total area that lies in south western parts of Muktsar, Fazilka, Faridkot districts and as isolated patches in Gurdaspur, Pathankot, Nawashehar, SAS Nagar and Rupnagar districts. The water levels between 5-10 m bgl are observed in the northern parts (Pathankot, Gurdaspur, Amritsar, and Hoshiarpur districts), south and south western parts (Fazilka, Ferozpur, Faridkot, Muktsar, Bathinda and Mansa districts), eastern parts of Ropar and SAS Nagar districts. It is also observed as isolated patches in Ludhiana and Jalandhar districts. About 21% of wells and 17% of the area fall in this range. Deep water levels (10-20 m bgl) are predominant and observed in 26% wells covering about 30% area of the State in central parts. Very deep water levels (20-40 m bgl) are also observed covering parts of Jalandhar, Moga, Ludhiana, Kapurthala, Amritsar, Taran Taran, Ferozpur, Fatehgarh, Patiala, Sangrur, Barnala and Bathinda districts and observed in 26% wells covering about 38% area of the State. Very deep water level (>40m bgl) is observed in 4% wells and 3% area falling in SAS Nagar, Patiala, Sangrur and Barnala districts. Summarized details of depth to water level in different ranges are given in table below.

Depth to water level range (m bgl)	Wells monitored		Area covered	
	No.	%age	Sq. Km.	%age
0-2	11	4	455	1
2-5	43	19	5694	11
5-10	49	21	8561	17
10-20	61	26	15187	30
20-40	59	26	18943	38
>40	8	4	1636	3

**Depth to Water Level Map
Punjab State & Chandigarh (UT)
August 2019**

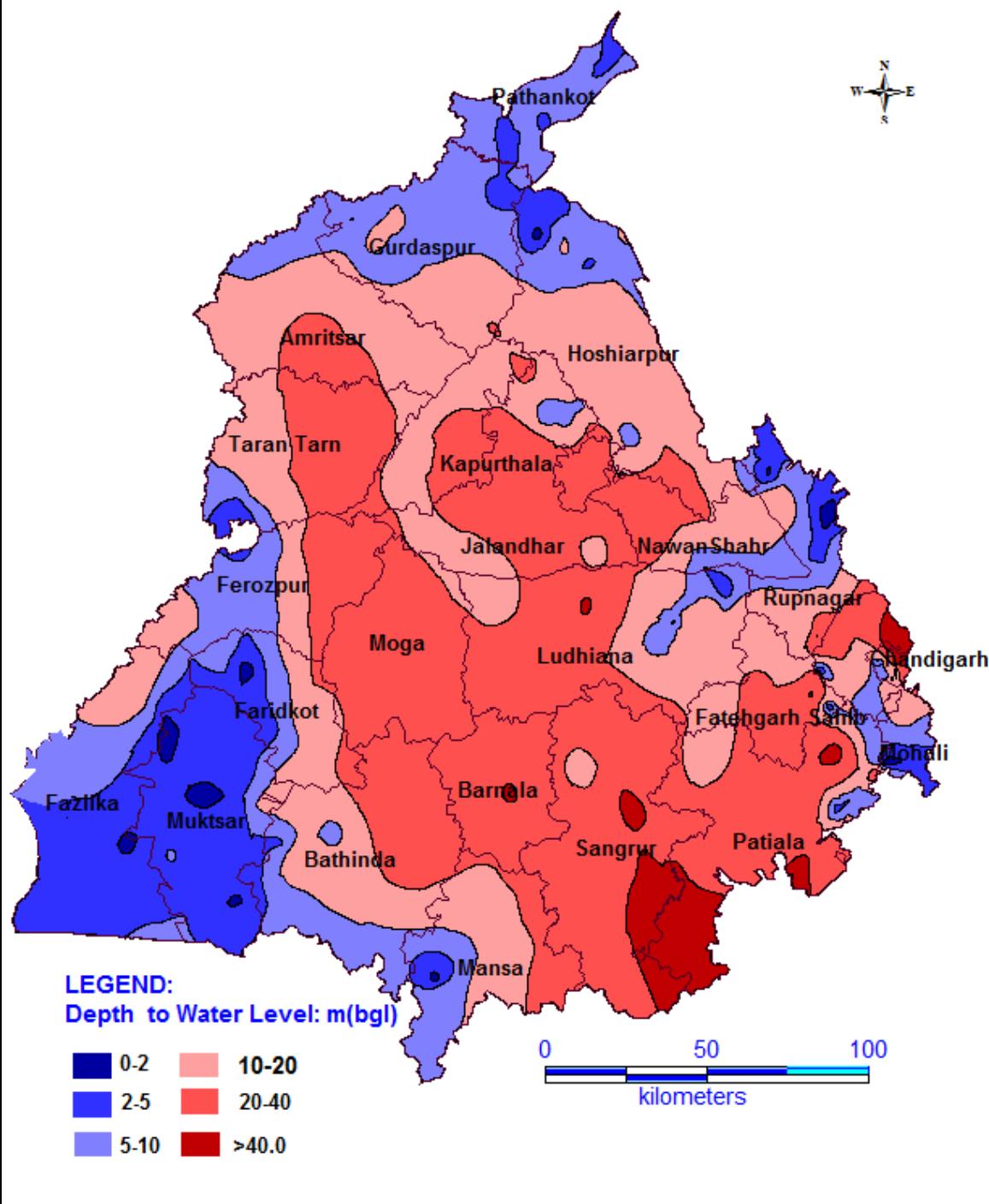


Figure 4.5 Depth to Water level Map Punjab State & Chandigarh (UT) August 2019

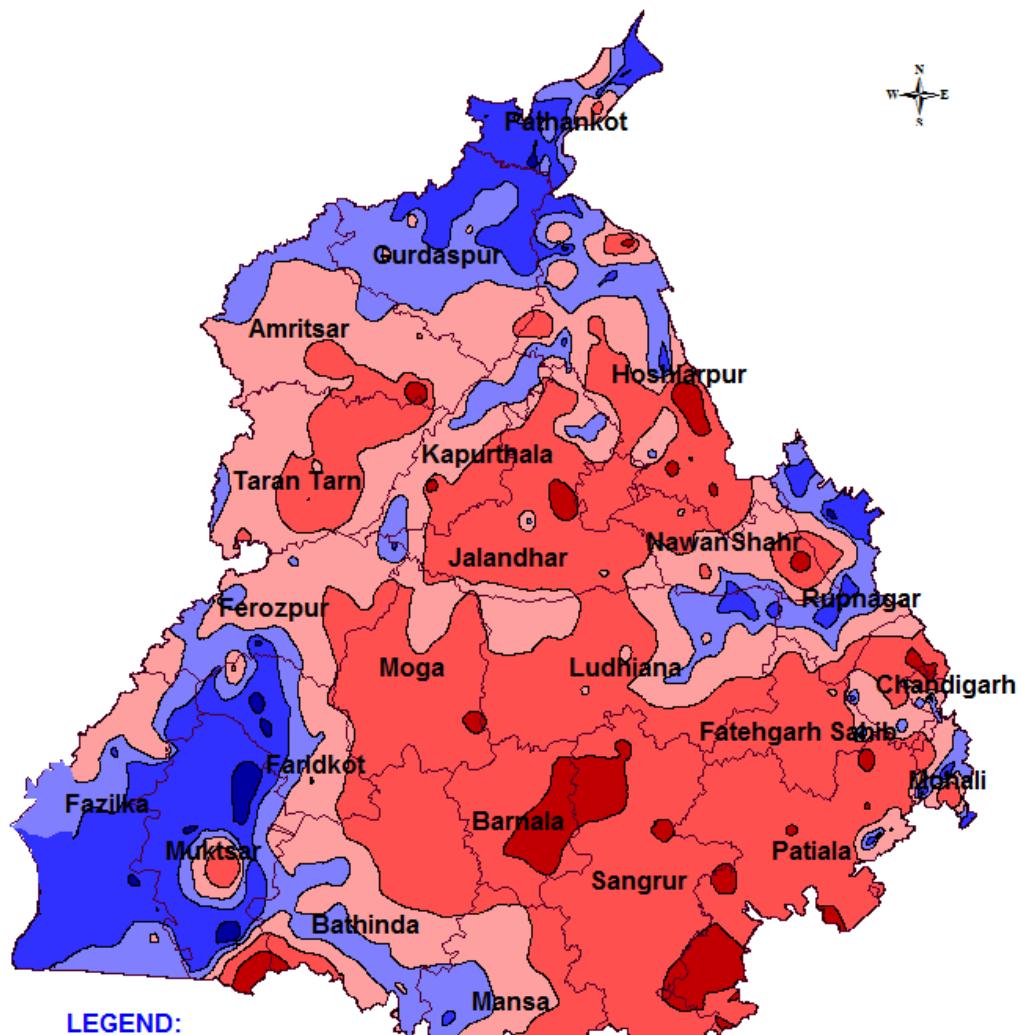
4.1.3 OCTOBER 2019

The behavioral pattern of water level in October 2019 along with depth to water level map (Fig.4.6) is discussed below. The depth to water level lies between 0.53 m bgl at Khirkhian wala in Muktsar district and 80.00 m bgl at Khilchian PZ in Amritsar district.

Very shallow water levels of 0-2 m (causing water logging) occur in around 2% of wells and cover more than 1% area of the state in south western parts in Muktsar and Faridkot districts and as isolated patches in Gurdaspur and Rupnagar district. Shallow water levels of 2-5 m have been observed in 15% of the wells and 11% of the total area that lies in south western parts of Muktsar, Faridkot, and Fazilka and in northern parts of Pathankot and Gurdaspur district; and few isolated patches in north eastern parts. The area in south western parts is mainly canal command and use canal water for their agricultural needs. The water levels between 5-10 m are observed in the northern parts (Pathankot, Gurdaspur, Amritsar, Kapurthala and Hoshiarpur districts), south and south western parts (Fazilka, Ferozpur, Faridkot, Muktsar, Bathinda and Mansa districts), eastern parts of Ropar, Nowashehar, Ludhiana and SAS Nagar districts. About 15% of wells and 15% of the area fall in this range. Deep water levels (10-20 m) are observed in 25% wells covering about 28% area of the State in central and north-western parts. Very deep water levels (20-40 m) are predominant and are observed covering parts of Amritsar, Taran Taran, Jalandhar, Kapurthala, Barnala, Moga, Ludhiana, Fatehgarh Sahib, Patiala, Sangrur, SAS Nagar and Nawanshahr districts and observed in 26% wells covering about 41% area of the State. Very deep water levels (>40 m) are also observed in small patches in Sangrur Barnala, Hoshiarpur, Jalandhar and SAS Nagar Districts in 5% wells covering about 4% area of the State. Summarized details of depth to water level in different ranges are given in table below.

Depth to water level range (m bgl)	Wells monitored		Area covered	
	No.	%age	Sq. Km.	%age
0-2	17	2	252	1
2-5	108	15	5717	11
5-10	113	15	7640	15
10-20	196	26	14146	28
20-40	273	37	20843	41
>40	35	5	1878	4

**Depth to Water Level Map
Punjab State & Chandigarh (UT)
October 2019**



LEGEND:
Depth to Water Level: m(bgl)

0-2

10-20

2-5

20-40

5-10

>40.0

0 50 100
kilometers

Figure 4.6 Depth to Water level Map Punjab State & Chandigarh (UT) October 2019

4.1.4 January 2020

The behavioral pattern of water level in January 2020 along with depth to water level map (Fig.4.7) is discussed below and data is presented in Annexure-I (Col. 7).

The depth to water level lies between 0.25 m bgl at Mukerian DW in Hosharpur district and 49.14 mbgl at Badliala Singh PZ in Fatehgarh Sahib District. Very shallow water levels of 0-2 m (causing water logging) occur in 5% of wells and cover nearly 1% area of the state as patches in Muktsar, Fazilka, Pathankot and Rupnagar districts. Shallow water levels of 2-5 m have been observed in 20% of the wells and 12% of the total area that lies in south western parts of Muktsar, Fazilka, Faridkot, and in northern parts of Gurdaspur & Pathankot districts and few isolated patches in Rupnagar and SAS nagar districts. The water levels between 5-10 m are observed in the northern parts (Pathankot, Gurdaspur, Amritsar, Hoshiarpur districts), south and south western parts (Fazilka, Ferozpur, Faridkot, Muktsar, Bathinda and Mansa districts), eastern parts of Rupnagar, Nawashehar and SAS Nagar districts. About 21% of wells and 17% of the area fall in this range. Moderately Deep water levels (10-20 m) are observed in 26% wells covering about 34% area of the State in parts of Gurdaspur, Amritsar, Tarntaran, Kapurthala, Jalandhar, Hoshiarpur, Nawanshahr, Rupnagar, Fatehgarh Sahib, Ludhiana, Moga, Ferozpur, Bathinda and Mansa Districts. Deep water levels (20-40 m) are observed predominantly in Jalandhar, Kapurthala, Nawanshahr, Fatehgarh Sahib, Moga, Barnala, Ludhiana, Patiala and Sangrur districts and observed in 25% wells covering about 33% area of the State. Very deep water levels (>40 m) are also observed as small patches in Sangrur, Patiala and SAS Nagar districts and observed in 3% wells covering 3% area of the State.

Depth to water level range (m bgl)	Wells monitored		Area covered	
	No.	%age	Sq. Km.	%age
0-2	13	5	606	1
2-5	47	20	6276	12
5-10	49	21	8492	17
10-20	62	26	17268	34
20-40	59	25	16519	33
>40	8	3	1315	3

**Depth to Water Level Map
Punjab State & Chandigarh (UT)
January 2020**

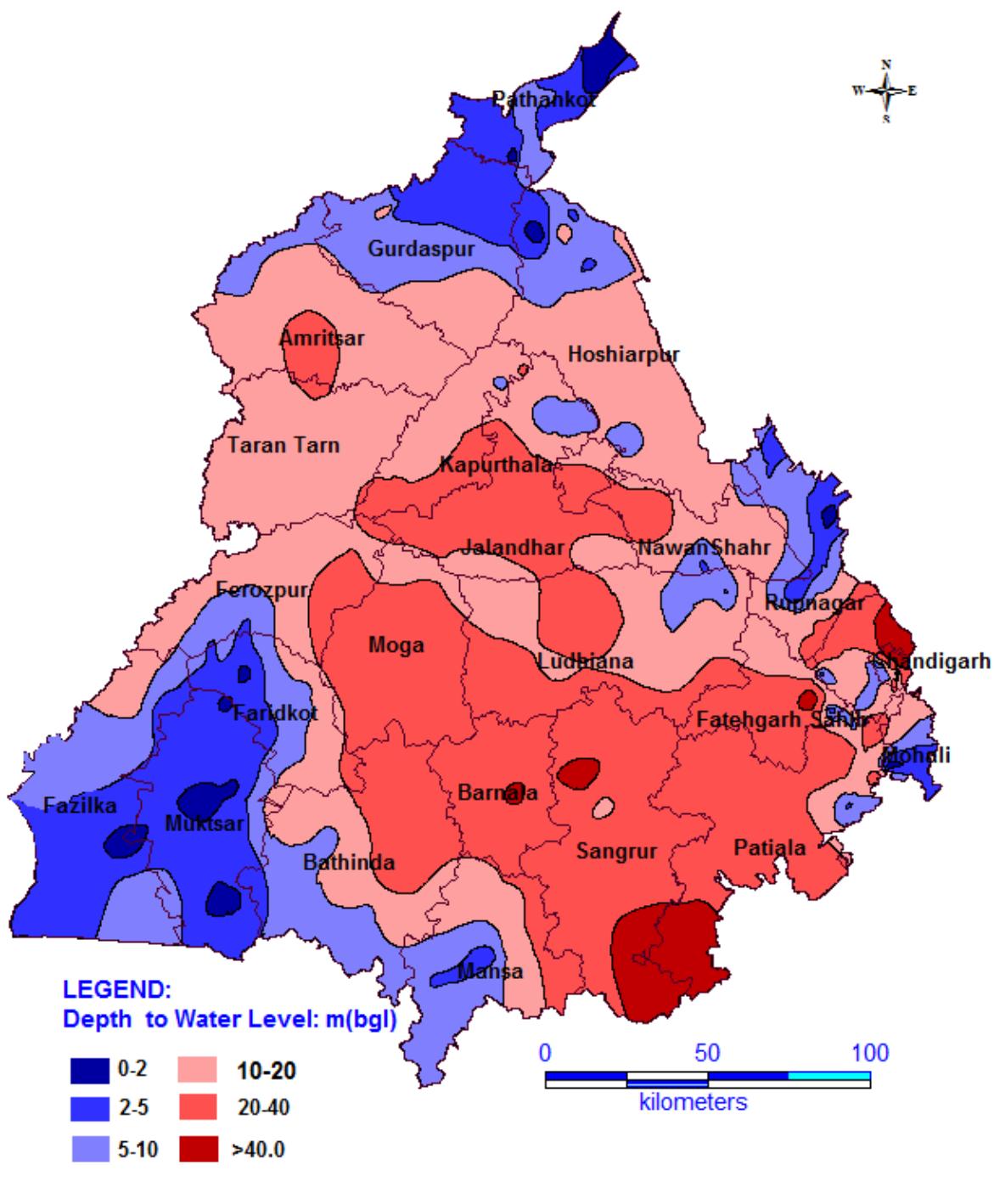


Figure 4.7 Depth to Water level Map Punjab State & Chandigarh (UT) January 2020

4.3 SEASONAL FLUCTUATIONS:

On comparing Water level data of current measurement with previous measurement data is termed as seasonal water level fluctuations. The water level data of all four measurements are compared to previous measurement and seasonal water level fluctuations are determined.

4.3.1 JANUARY 2019 - JUNE 2019

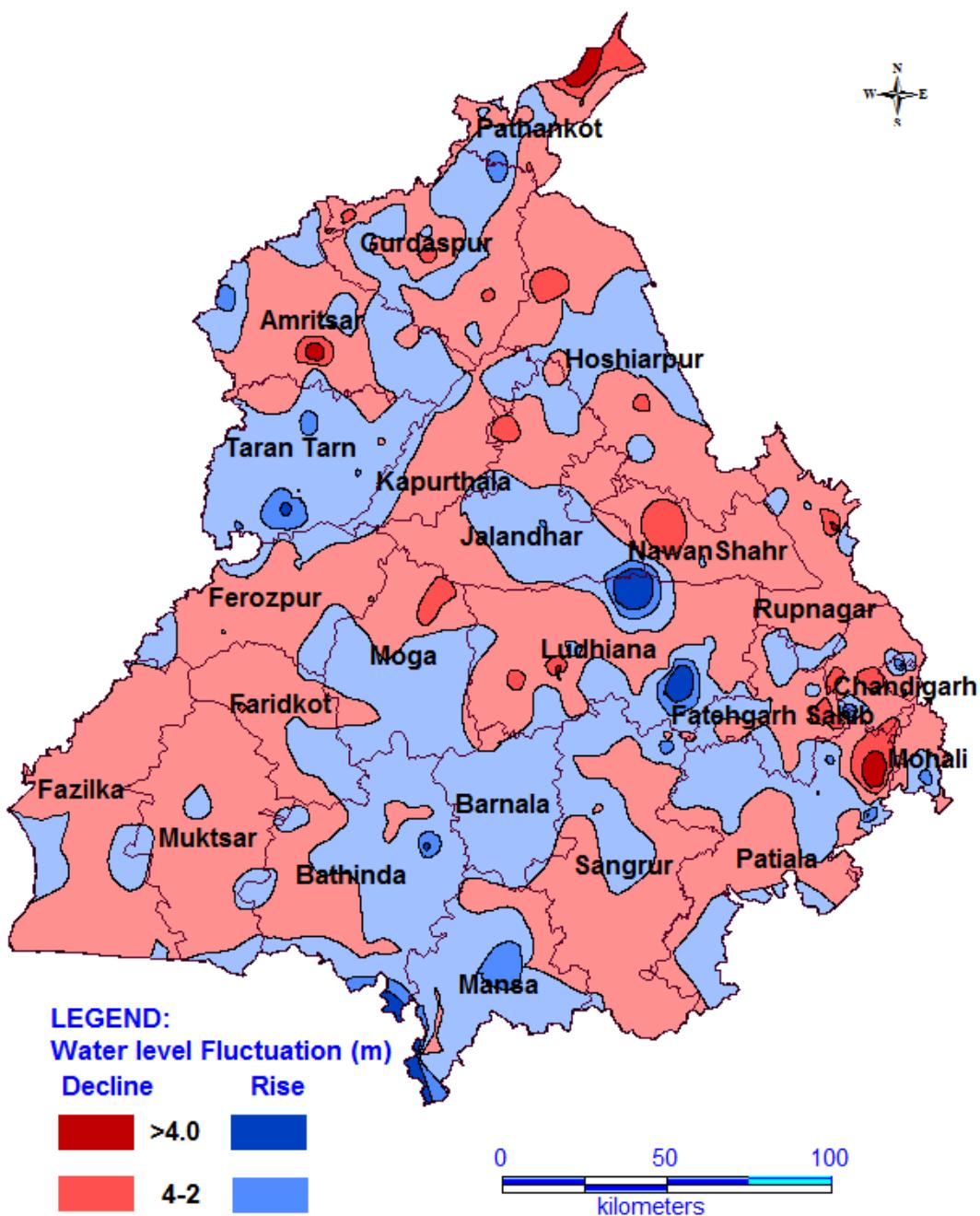
The behavioral pattern of this seasonal fluctuation is discussed along with fluctuation map (Fig. 4.8) below.

The seasonal fluctuation shows that there is a general decline of water levels in 58% of wells monitored and covering 58% area of the State. The decline has been observed in all districts except some isolated patches scattered over the state. Water level decline in the range of 0-2 m is observed in 53% of wells and 56% of area. Water level decline in the range of 2-4 m is observed in 4% of wells and 2% of area. Water level decline of >4m is observed in 1% of wells and less 1% of area as isolated patches in Pathankot, Amritsar and Patiala Districts.

The water level rise has been recorded in 42% of wells monitored and covering 41% area of the State. Water level rise in the range of 0-2 m is observed in 38% of wells and 39% of the area. Water level rise 2-4m is observed in 2% wells and 2% of area during the period. Water level rise of >4m is observed in 2 % wells and less than 1 % area as small patches in Taran Taran, Ludhiana, and Mansa districts.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	265	53	28376	56
	2-4	22	4	1079	2
	>4.0	7	1	275	<1
Rise	0-2	187	38	19589	39
	2-4	10	2	847	2
	>4.0	9	2	310	<1

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
JANUARY 2019 AND JUNE 2019**



**Figure 4.8 Water level Fluctuation Map Punjab State & Chandigarh (UT)
January 2019 and June 2019**

4.3.2 JUNE 2019 - AUGUST 2019

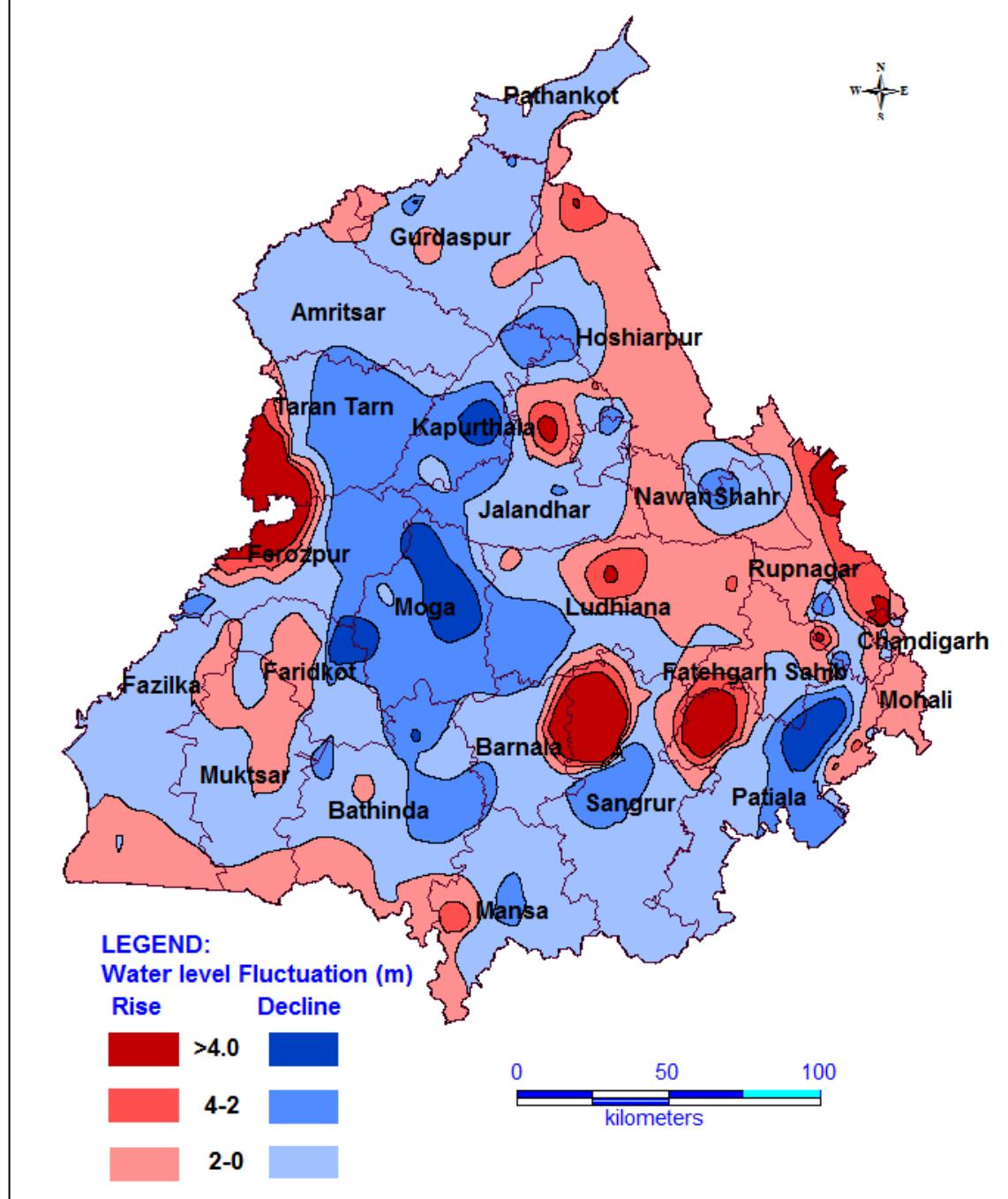
Water level data of August 2019 is compared with water level data of June 2019 to determine seasonal water level fluctuations. The behavioral pattern of this seasonal fluctuation is discussed along with fluctuation map (Fig. 4.9) below.

The seasonal fluctuation shows decline of water levels in 63% of wells monitored and covering 67% area of the State. The decline has been observed in all districts of the state. Water level decline in the range of 0-2 m is observed in 43% of wells and 47% of area. Water level decline of 2-4m is observed in 16% of wells and 17% of area. Water level decline more than 4m is observed in 4% wells and 3% of area as patches in Moga, Kapurthala, Faridkot and Patiala during the period.

The water level rise has been recorded in 37% of wells monitored and covering 33% area of the State. Water level rise in the range of 0-2 m is observed in 29% of wells and 25% of the area in all districts except Moga District. Water level rise in the range of 2-4m is observed in 4% wells and 4% of area in parts of Ludhiana, Nawashehar, Hoshiarpur, Rupnagar, Bathinda, Muktsar, mansa, Fazilka, SAS Nagar, and Fatehgarh Sahib Districts during the period. Water level rise more than 4m is observed in 4% wells and 4% of area as patches in Sangrur, Patiala, Jalandhar and Taran taran, Ferozpur ditricts during the period.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	97	43	23855	47
	2-4	35	16	8774	17
	>4.0	9	4	1277	3
Rise	0-2	66	29	12683	25
	2-4	9	4	1946	4
	>4.0	10	4	1942	4

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
JUNE 2019 AND AUGUST 2019**



**Figure 4.9 Water level Fluctuation Map Punjab State & Chandigarh (UT)
June 2019 and August 2019**

4.3.3 June 2019 - October 2019

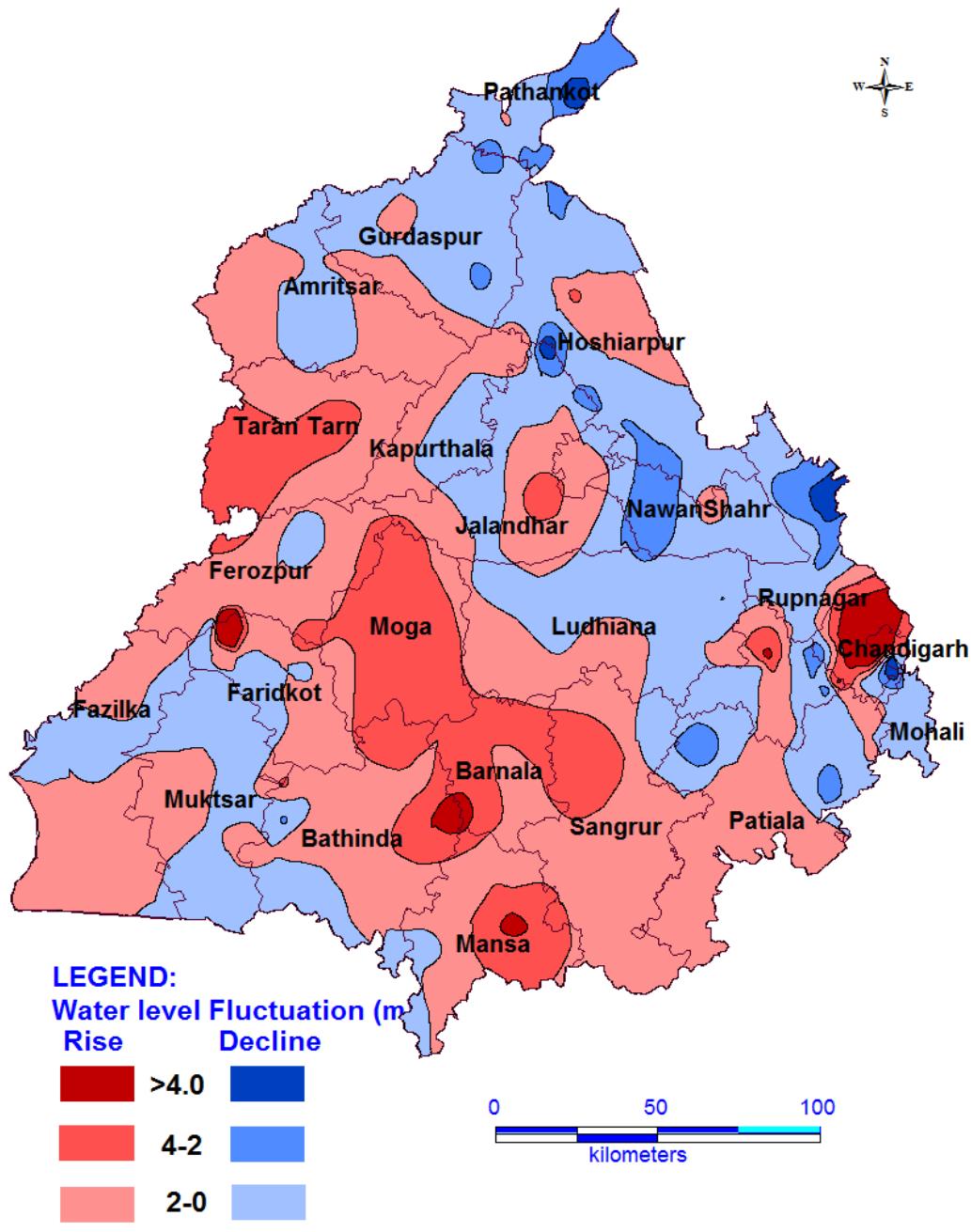
Water level data of October 2019 is compared with Water level data of June 2019 to determine the seasonal water level fluctuation. The behavioral pattern of this seasonal fluctuation is discussed along with fluctuation map (Fig. 4.10) below.

The seasonal fluctuation shows that there is a general decline of water levels in 62% of wells monitored and covering 61% area of the State. The fall has been observed dominantly in southern, southwestern and central part of the state. Water level decline in the range of 0-2 m is observed in 43% of wells and 44% of area. Water level decline in the range of 2-4 m is observed in 14% of wells and 14% of area. Whereas, water level decline of >4m is observed in 5% of wells and 3% of area covering isolated patches in Faridkot, Mansa, SAS Nagar and Barnala districts.

The water level rise has been recorded in 38% of wells monitored and covering 39% area of the State. The rise in water level has been reported in north, NE and south western parts of the state. Water level rise in the range of 0-2 m is observed in 31% of wells and 33% of the area. Water level rise 2-4 m is observed in 5% wells and 4% of area during the period. Whereas, water level rise of >4m is observed in 2% of wells and 2% of area covering isolated patches in Pathankot, Hoshiarpur, Rupnagar and SAS Nagar districts.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	225	43	22195	44
	2-4	72	14	7094	14
	>4.0	26	5	1580	3
Rise	0-2	163	31	16618	33
	2-4	24	5	2186	4
	>4.0	11	2	803	2

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
JUNE 2019 AND OCTOBER 2019**



**Figure 4.10 Water level Fluctuation Map Punjab State & Chandigarh (UT)
June 2019 and October 2019**

4.3.4 June 2019 - January 2020

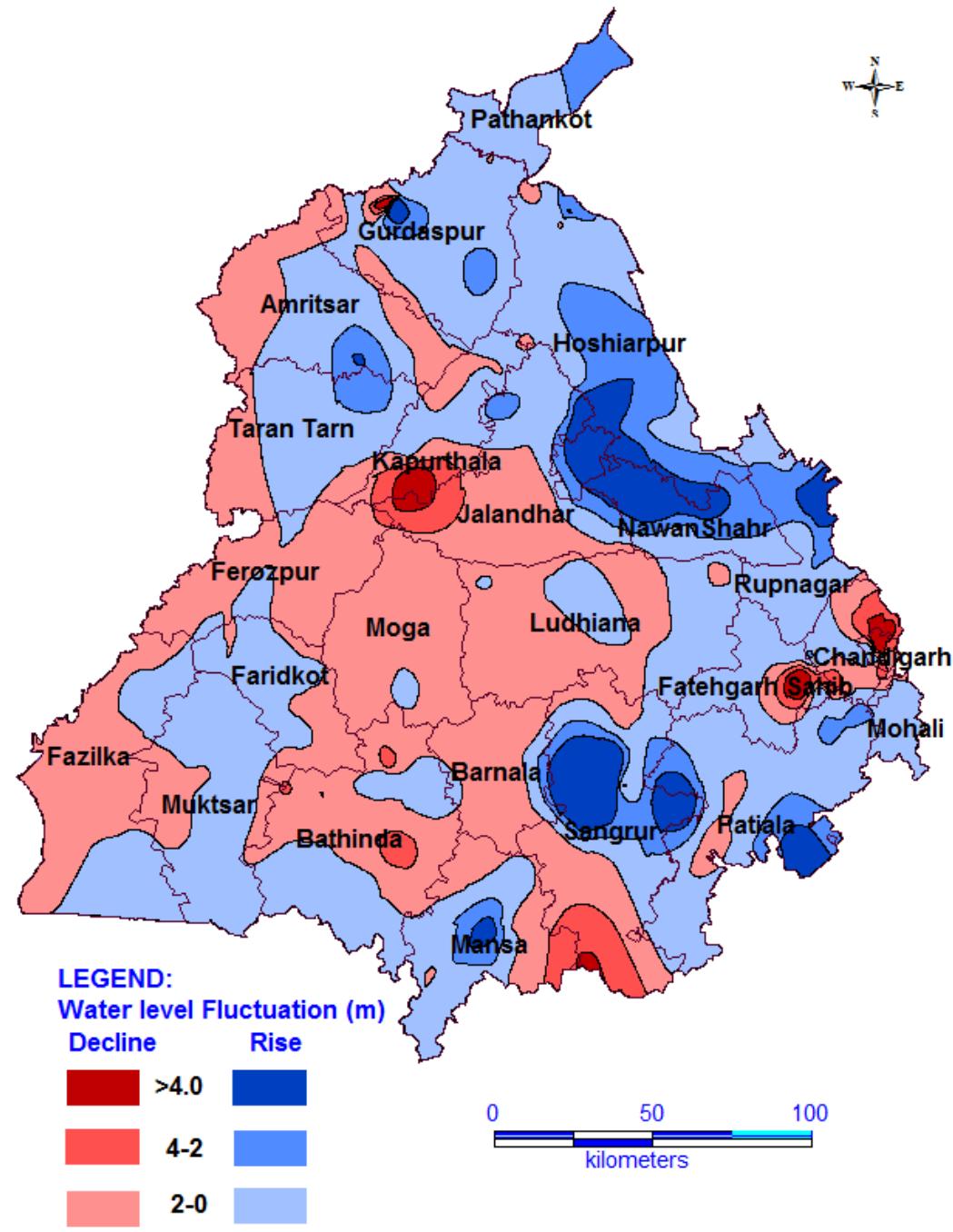
Water level data of January 2020 is compared with Water level data of June 2019 to determine the seasonal water level fluctuation. The behavioral pattern of this seasonal fluctuation is discussed along with fluctuation map (Fig. 4.11) below and the data are presented in Annexure-II (Col.7).

The seasonal fluctuation between June 2019 and January 2020 shows that there is a general decline of water levels in 35% of wells monitored and covering 40% area of the State. The decline has been observed mostly in southern and south eastern districts. Water level decline in the range of 0-2 m is observed in 28% of wells and 36% of area. Water level decline in the range of 2-4 m is observed in 2% of wells and 3% of area. Water level decline of >4m is observed in 5% of wells and 1% of area during the period.

The water level rise has been recorded in 65% of wells monitored and covering 60% area of the State. Water level rise in the range of 0-2 m is observed in 50% of wells and 45% of the area. Water level rise 2-4m is observed in 8% wells and 10% of area, whereas, water level decline of >4m is observed in 7% of wells and 5% of area during the period.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	58	28	18394	36
	2-4	3	2	1385	3
	>4.0	10	5	412	1
Rise	0-2	104	50	22868	45
	2-4	17	8	4862	10
	>4.0	14	7	2555	5

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
JUNE 2019 AND JANUARY 2020**



**Figure 4.11 Water level Fluctuation Map Punjab State & Chandigarh (UT)
June 2019 and January 2020**

4.4. ANNUAL WATER LEVEL FLUCTUATIONS

In order to know the impact of rainfall and ground water withdrawal during last one year, annual water level data for given period in current year is compared with water level data of corresponding period of last year and annual water level fluctuations are determined.

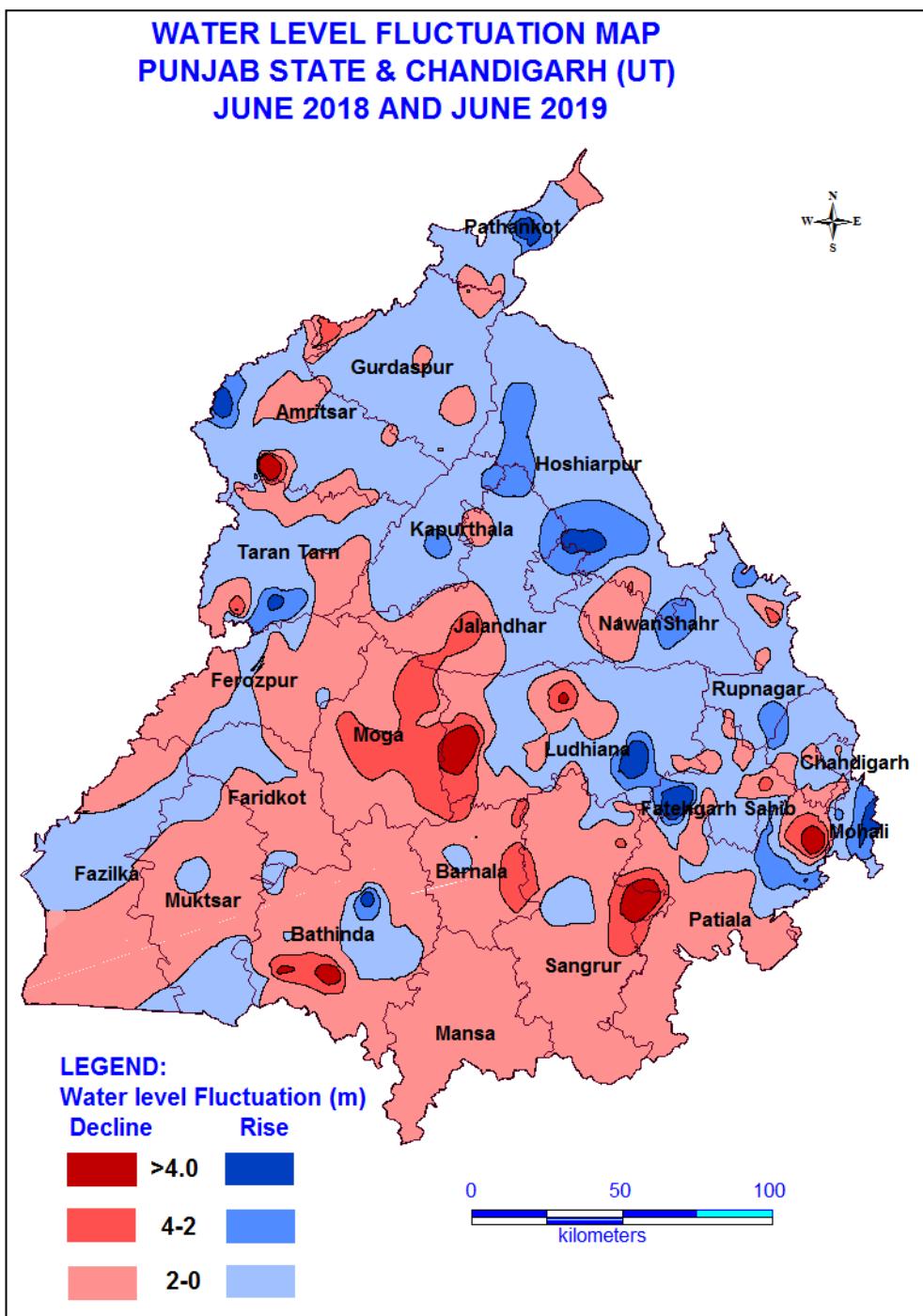
4.4.1 JUNE 2018 - JUNE 2019

The behavioral pattern of annual fluctuation in Premonsoon season is discussed in the following paragraph along with fluctuation map (**Fig. 4.12**).

The annual fluctuation depicts general decline of water levels in 42% of wells monitored and covering 52% area of the State. The decline has been observed in all the districts, but dominantly in south and central Punjab. Water level decline in the range of 0-2 m is observed in 36% of wells and 46% of the area. Water level decline in the range of 2-4 m is observed in 4% of wells and 5% of the area. Whereas, the water level decline of >4m is observed in 2% of wells and 1% of the area during the period, as isolated patches in Moga, Patiala, Kapurthala, SAS nagar and Bathinda district.

The water level rise has been recorded in 58% of wells monitored and covering 48% area of the State. The water levels rise has been observed mostly in northern part of the state covering Pathankot, Amritsar, Gurdaspur, Hoshiarpur, Jalandhar, Nawashehar, Kapurthala, Rupnagar and Taran taran district. The rise is also observed as isolated patches in SAS Nagar, Ferozpur, Fazilka, Muktsar and Bathinda districts of the state. Water level rise in the range of decline 0-2 m is observed in 50% wells and 42% of area. Water level rise 2-4m is observed in 5% wells and 5% of area. The water level rise of >4m is observed in 3% wells and 1% of area.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	184	36	23169	46
	2-4	23	4	2401	5
	>4.0	10	2	479	1
Rise	0-2	251	50	21523	42
	2-4	25	5	2430	5
	>4.0	13	3	474	1



**Figure 4.12 Water level Fluctuation Map Punjab State & Chandigarh (UT)
June 2018 and June 2019**

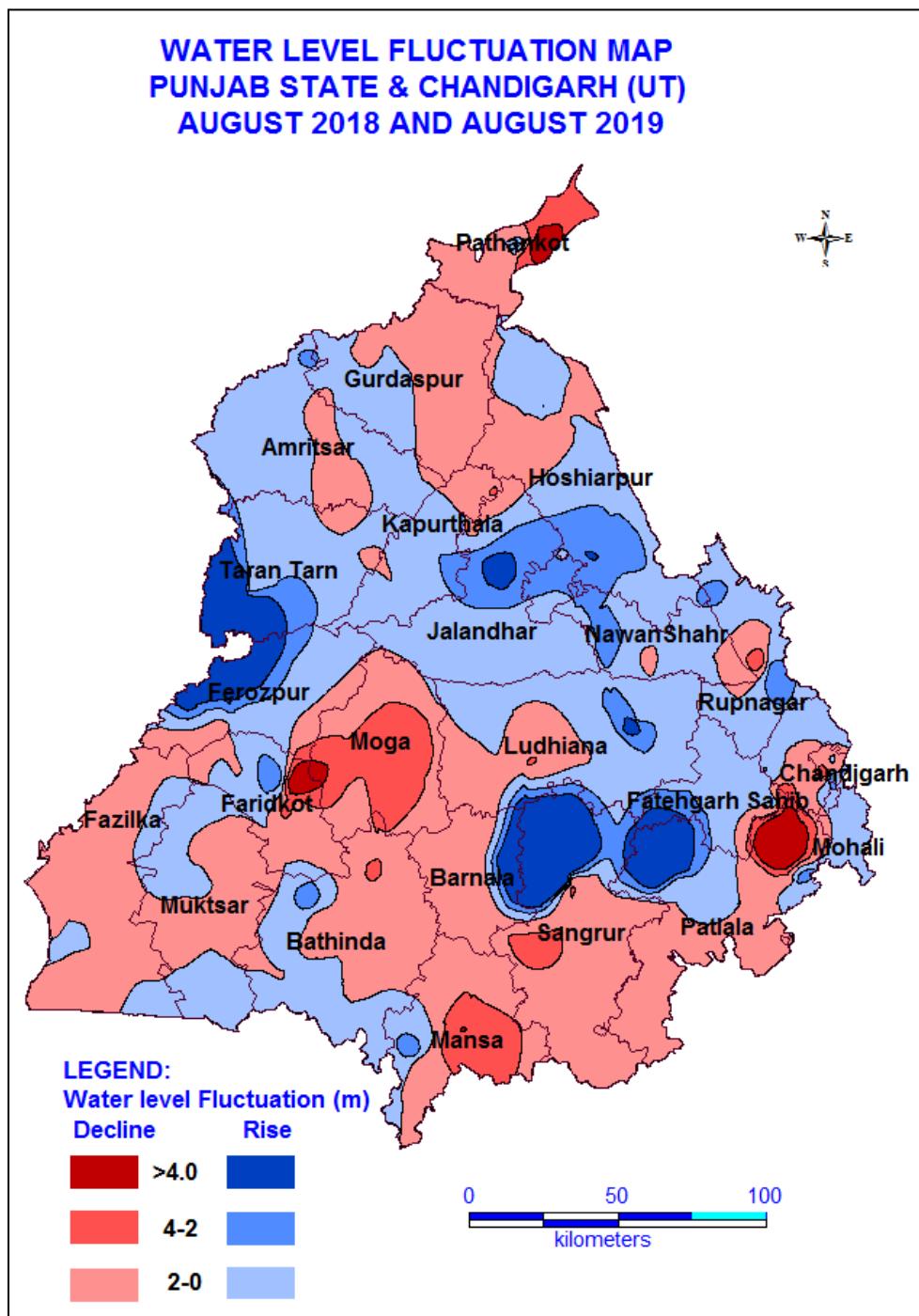
4.4.2 AUGUST 2018 - AUGUST 2019

The behavioral pattern of annual fluctuation in Monsoon season is discussed in the following paragraph along with fluctuation map (**Fig. 4.13**).

The annual fluctuation depicts general decline of water levels in 48% of wells monitored and covering 47% area of the State. The decline has been observed dominantly in northern and southern parts of the Punjab. Water level decline in the range of 0-2 m is observed in 40% of wells and 41% of the area. Water level decline in the range of 2-4 m is observed in less than 7% of wells and 5% of the area, whereas, water level decline >4m is observed in more than 2% of wells and 1% of the area during the period as isolated patches in Faridkot, Fatehgarh Sahib and Pathankot districts.

The water level rise has been recorded in 52% of wells monitored and covering 53% area of the State. The water levels rise has been observed in Gurdaspur, Amritsar, Tarantaran, Ferozpur, Kapurthala, Jalandhar, Nawanshahr, Rupnagar, SAS Nagar, Sangrur, Patiala, Fatehgarh Sahib and Pathankot districts. It is also observed as isolated patches in south-western districts of the state. Water level rise in the range of decline 0-2 m is observed in 39% wells and 40% of area. Water level rise of more than 2-4m is observed in 9% wells and 7% of area, whereas, water level rise >4m is observed in more than 3% of wells and 5% of the area during the period.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	79	40	20662	41
	2-4	13	7	2572	5
	>4.0	4	2	574	1
Rise	0-2	78	39	20396	40
	2-4	18	9	3632	7
	>4.0	6	3	2639	5



**Figure 4.13 Water level Fluctuation Map Punjab State & Chandigarh (UT)
August 2018 and August 2019**

4.4.3. October 2018 - October 2019

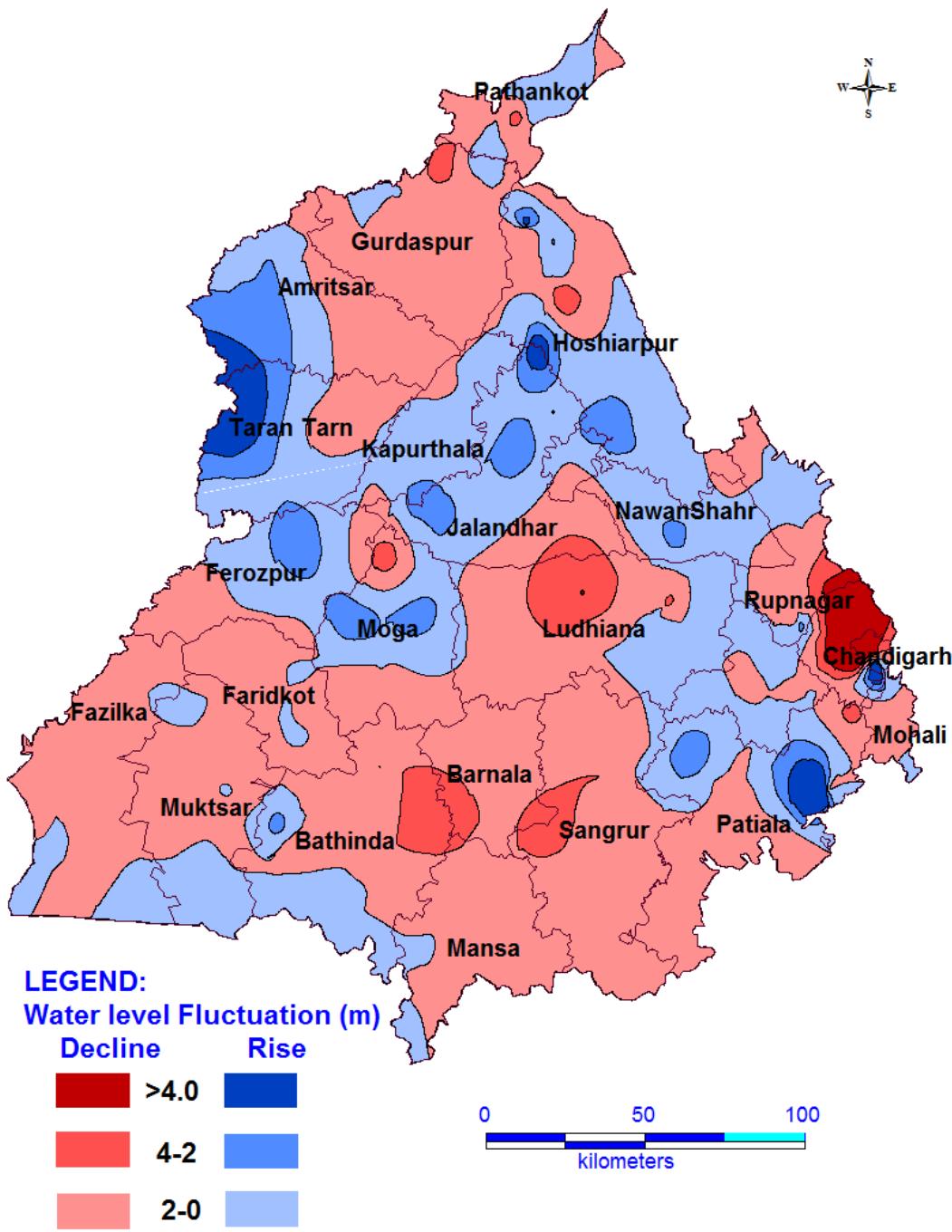
The behavioral pattern of annual fluctuations Post-Monsoon season is discussed in the following paragraph along with fluctuation map (**Fig. 4.14**).

The annual fluctuation depicts general decline of water levels in 61% of wells monitored and covering 56% area of the State. The decline has been observed dominantly in south-central Punjab, covering the parts of Jalandhar, Ludhiana, Ferozpur, Moga, Fatehgarh Sahib, Barnala, Bathinda, Muktsar, Fazilka, Sangrur, Patiala and Mansa districts and also in northern part of the state covering parts of Pathankot, Gurdaspur, Hoshiarpur and Amritsar districts. Water level decline in the range of 0-2 m is observed in 49% of wells and 50% of the area. Water level decline in the range of 2-4 m is observed in 9% of wells and 4% of the area, whereas, water level decline >4m is observed in 3% of wells and 2% of the area during the period.

The water level rise has been recorded in 39% of wells monitored and covering 44% area of the State. The water levels rise has been observed in Amritsar, Tarntaran, Ferozpur, Moga, Jalandhar, Kapurthala, Hoshiarpur, Nawanshahr, Rupnagar, Fatehgarh Sahib and SAS Nagar districts. Water level rise is also observed as patches in Muktsar, Fazilka, Bathinda, Mansa, Gurdaspur and Pathankot districts of the state. Water level rise in the range of rise 0-2 m is observed in 33% wells and 39% of area. Water level rise of more than 2-4m is observed in 4% wells and 4% of area, whereas, water level rise >4m is observed in 2% of wells and 1% of the area during the period.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	316	49	25297	50
	2-4	59	9	2283	4
	>4.0	17	3	977	2
Rise	0-2	211	33	19548	39
	2-4	27	4	1797	4
	>4.0	11	2	574	1

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
OCTOBER 2018 AND OCTOBER 2019**



**Figure 4.14 Water level Fluctuation Map Punjab State & Chandigarh (UT)
October 2018 and October 2019**

4.4.4 January 2019 - January 2020

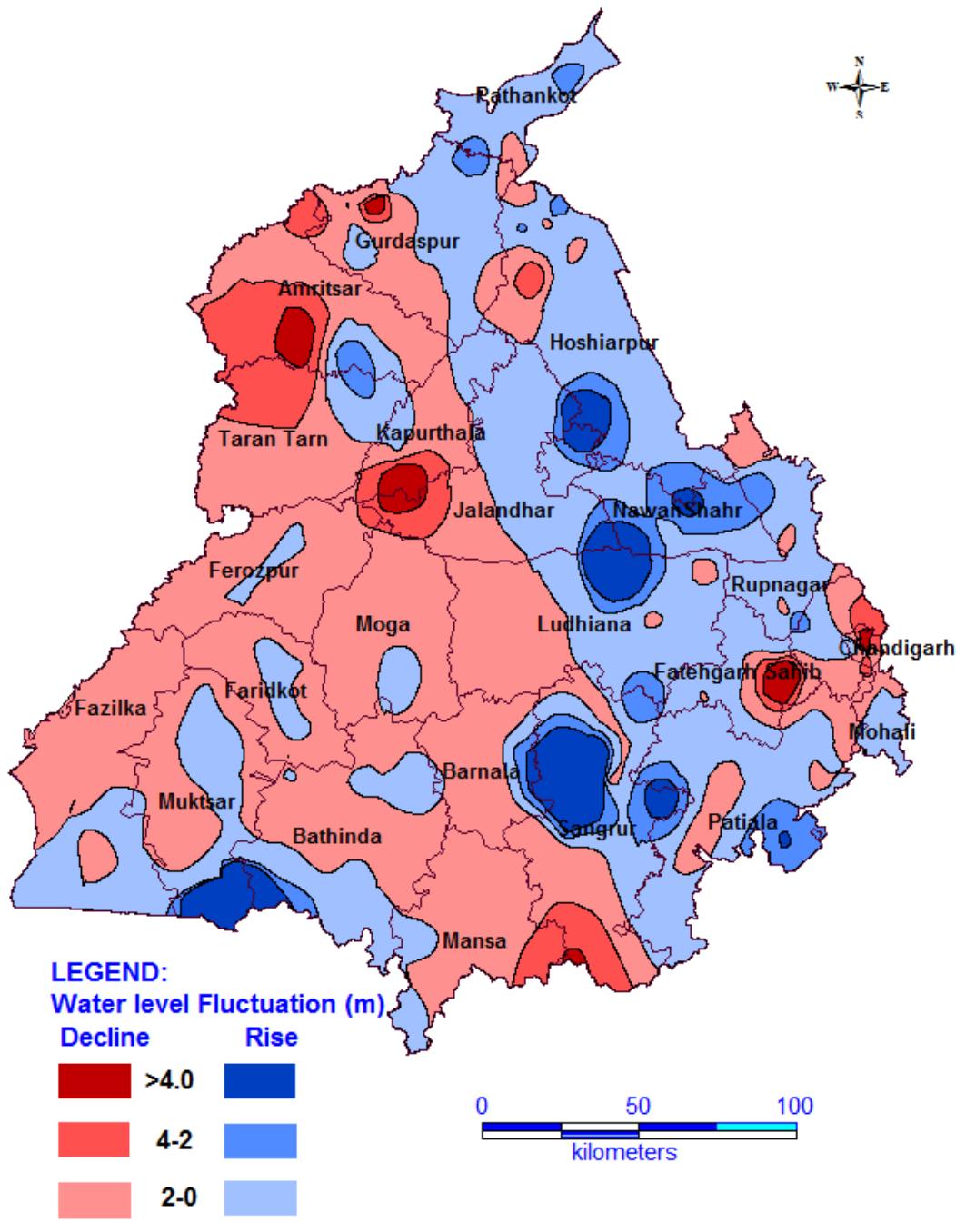
The behavioral pattern of annual fluctuations is discussed in the following paragraph along with fluctuation map (**Fig. 4.15**). Water level fluctuations data are given in the Annexure-III (Col-7).

The annual fluctuation shows that there is a general decline of water levels in 42% of wells monitored and covering 52% area of the State. The decline has been observed dominantly in western and southern western parts of the state. Water level decline in the range of 0-2 m is observed in 35% of wells and 45% of the area. Water level decline in the range of 2-4 m is observed in 3% of wells and 6% of the area. The water level decline of >4m is observed in 4% of wells and 1% of the area as isolated patches in Chandigarh, Amritsar, Kapurthala, Fatehgarh Sahib, Sangru and Gurdaspur Districts during the period.

The water level rise has been recorded in 58% of wells monitored and covering 48% area of the State. The water levels rise has been observed dominantly in northern, north eastern and eastern part of the state. It is also observed as small isolated patches in Ferozpur, Fazilka, Muktsar, Bathinda and Taran Taran districts. Water level rise in the range of 0-2 m is observed in 49% wells and 38% of area. Water level rise 2-4m is observed in 5% wells and 6% of area. The water level rise of >4m is observed in 4% wells covering 4% area as isolated patches in Hoshiarpur, Nawashehar, Ludhiana, Sangrur and Bathinda districts of the state.

water level fluctuation range (m)	Wells monitored		Area covered	
	No.	%age	Sq. Km.	%age
Decline	0-2	72	35	22567
	2-4	7	3	2961
	>4.0	8	4	599
Rise	0-2	101	49	19326
	2-4	11	5	2980
	>4.0	8	4	2043

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
JANUARY 2019 AND JANUARY 2020**



**Figure 4.15 Water level Fluctuation Map Punjab State & Chandigarh (UT)
January 2019 and January 2020**

4.5. DECADAL MEAN WATER LEVEL FLUCTUATION

Changes in water level behaviour since last one decade are determined using decadal mean data. Water level mean of past one decade for each ground water observation well is computed and compared with the respective water level data of the given monitoring to determine the decadal mean water level fluctuation.

4.5.1 Mean of June (2009:2018) & June 2019

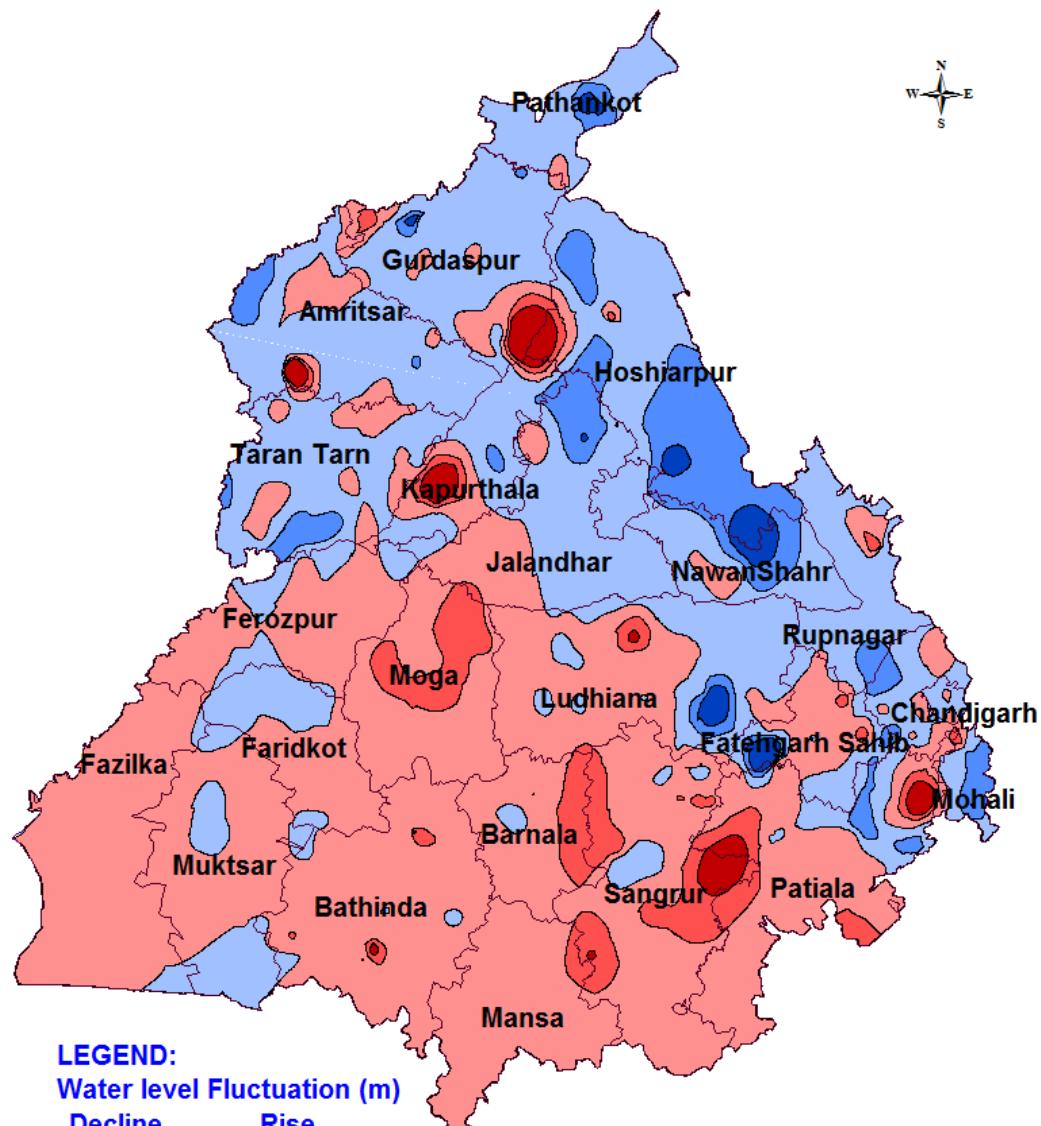
The behavioral pattern of decadal mean fluctuations during of aforesaid period is discussed in the following paragraph along with fluctuation map (**Fig. 4.16**).

The decadal mean fluctuations show that decline in 74% of observation wells monitored covering about 58% area of the state. The decline has been observed in all the districts of the state but predominantly in central and southern parts of the state. The decline of 0-2 m has been observed in about 42% of wells and 51% of area. Water level decline of 2-4 m is observed in 17% of the wells and 5% of the area. Water level decline of >4m is observed in 15% of the wells and 2% of area.

Rise in water level has been observed in 26% of wells and 42% of area predominantly in Pathankot, Gurdaspur, Amritsar, Tarn Taran, Hoshiarpur, Nawanshahr, Ludhiana, Rupnagar, Jalandhar, and SAS Nagar districts; and as isolated patches in Fazilka, Muktsar, Faridkot, Barnala and Sangrur districts. Water level rise in the range of 0-2 m is observed in 23% of wells and 35% of the area. Water level rise of 2-4m is observed in 2% of wells and 6% of the area. Water level rise of >4m is observed in 1% of wells and 1% of the area.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	246	42	25550	51
	2-4	101	17	2641	5
	>4.0	90	15	825	2
Rise	0-2	139	23	17698	35
	2-4	14	2	3204	6
	>4.0	4	1	558	1

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
DECADAL MEAN JUNE (2009:2018) AND JUNE 2019**



**Figure 4.16 Water level Fluctuation Map Punjab State & Chandigarh (UT)
Decadal Mean (2009-18) – June 2019**

4.5.2 Mean of August (2009:2018) & August 2019

The behavioral pattern of decadal mean fluctuations of aforesaid period is discussed in the following paragraph along with fluctuation map (**Fig. 4.17**). Water level fluctuations data are given in the Annexure-IV (Col-5).

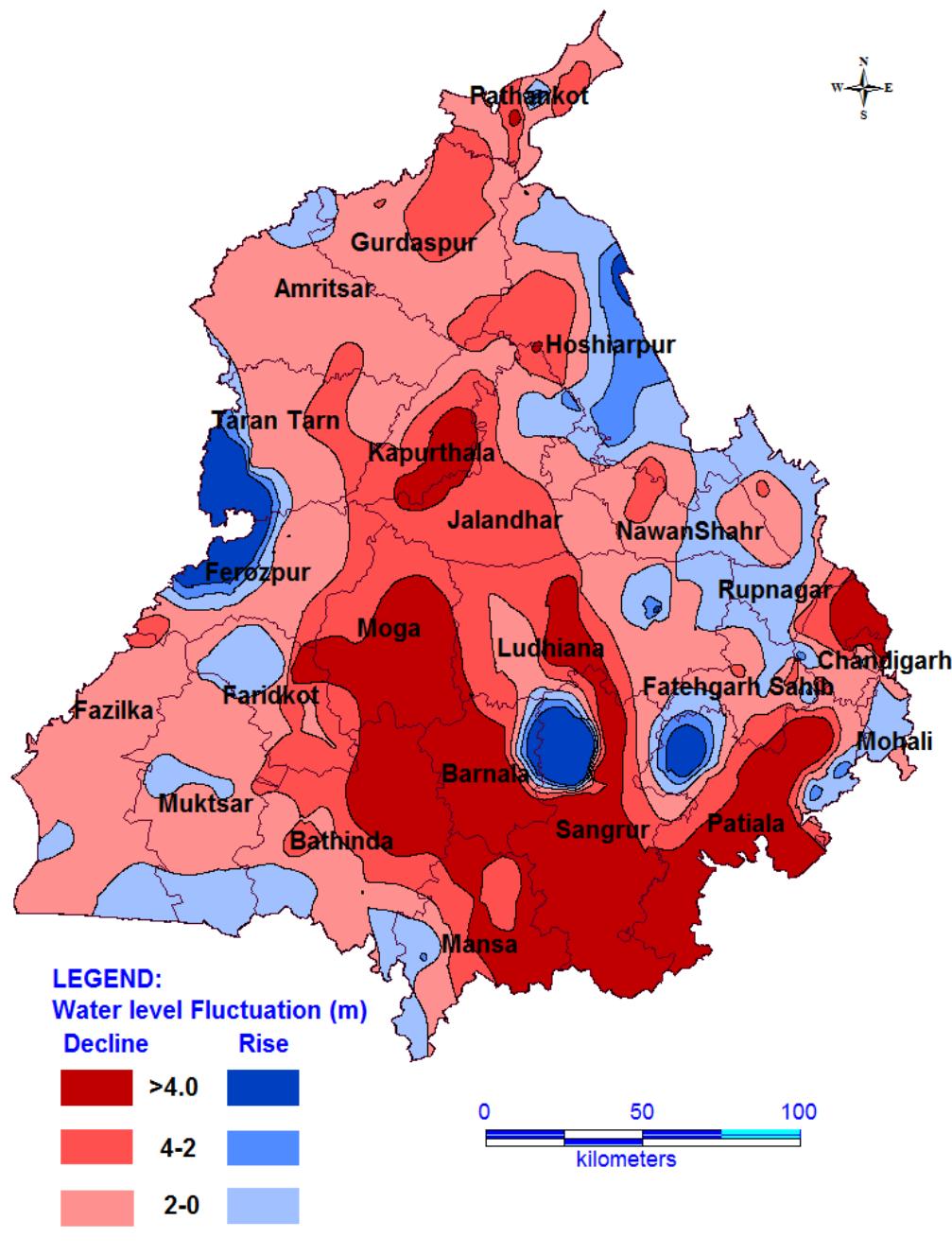
The decadal mean fluctuations show that decline in 73% of observation wells monitored covering about 79% area of the state. The decline in the range of 2-4 and > 4m is observed predominantly in south eastern and central parts of the state. Whereas, decline in the range of 0-2 m is observed in Amritsar, Tarntaran, Gurdaspur, Pathankot, Kapurthala, Jalandhar, Ludhiana, Fatehgarh Sahib, Moga and Mansa districts. The decline of 0-2 m has been observed in about 37% of wells and 38% of area. Water level decline of 2-4 m is observed in 21% of the wells and 21% of the area. Water level decline of >4m is observed in about 15% of the wells and 20% of area.

Rise in water level has also been observed in 27% of wells and 21% of area in Pathankot, Hoshiarpur, SAS Nagar, Roopnagar, Nawashehar, Fazilka, Muktsar, Bathinda, Mansa and Faridkot districts. Water level rise in the range of 0-2 m is observed in 22% of wells and 8% of the area. Water level rise of 2-4 m is observed in 3% of wells and 2% of the area. Water level decline of >4m is observed in 2% of the wells and less than 3% of the area occurring as patches mainly in Sangrur and Ferozpur districts.

Summarized details of seasonal water level fluctuation in different ranges are given in table below.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	89	37	19419	38
	2-4	52	21	10508	21
	>4.0	36	15	10116	20
Rise	0-2	52	22	7841	16
	2-4	7	3	1233	2
	>4.0	6	2	1360	3

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
DECADAL MEAN AUGUST (2009:2018) AND AUGUST 2019**



**Figure 4.17 Water level Fluctuation Map Punjab State & Chandigarh (UT)
Decadal Mean (2009-18) – August 2019**

4.5.3 Decadal Mean October (2009:2018) & October 2019

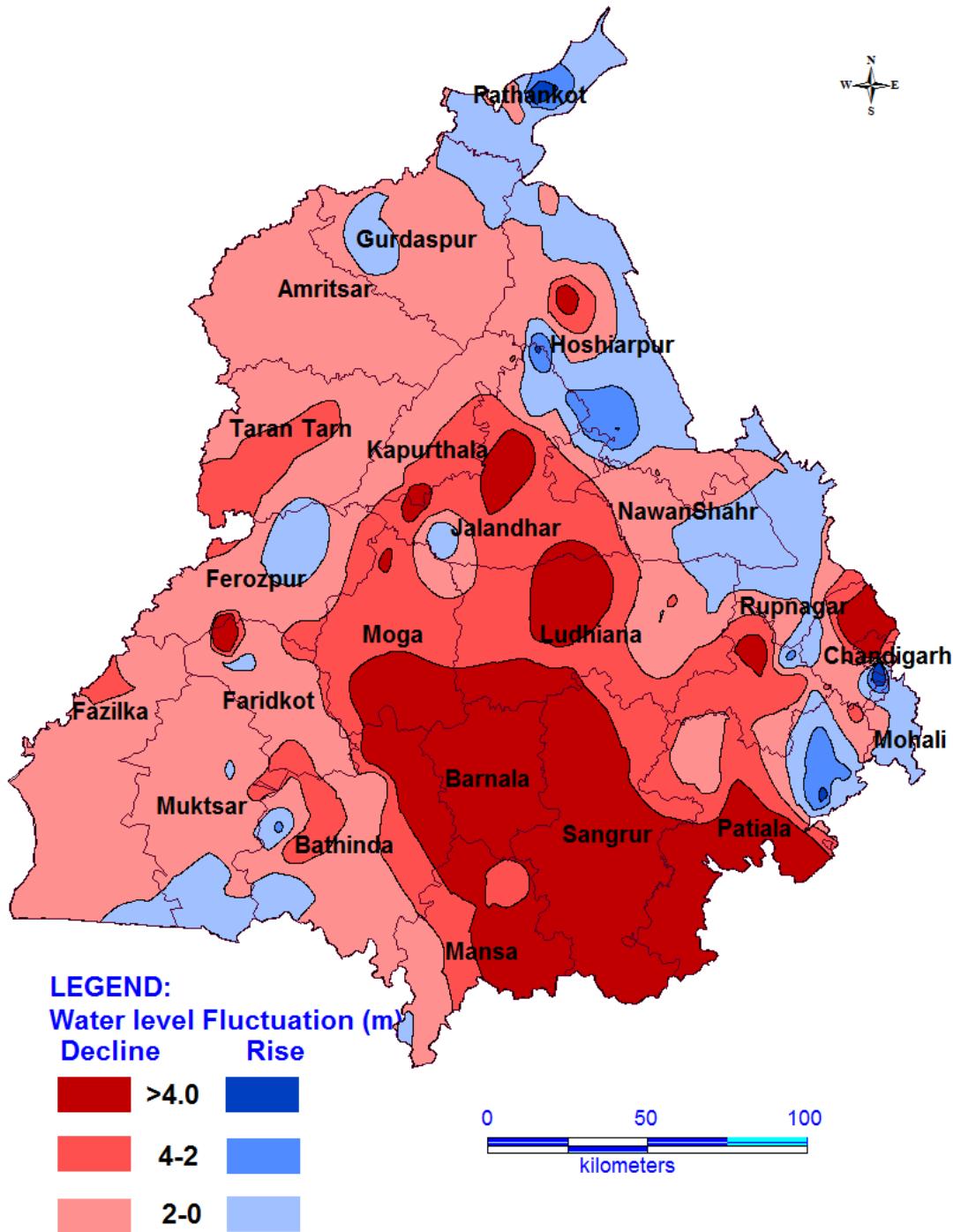
The behavioral pattern of decadal mean fluctuations of aforesaid period is discussed in the following paragraph along with fluctuation map (**Fig. 4.18**).

The decadal mean fluctuation shows decline in 74% of observation wells monitored covering about 80% area of the state. The deeper decline has been observed dominantly in central and southern eastern part of the state. The decline of 0-2 m has been observed in about 398% of wells and 36% of area. Water level decline of 2-4 m is observed in 19% of the wells and 21% of the area. Water level decline of >4m is observed in about 17% of the wells and 22% of area dominantly in southern and southeastern part of the state.

Rise in water level has also been observed in 26% of wells and 20% of area. The rise has been observed in small patches in whole of the state. The districts showing rise in water level are in Pathankot, Hoshiarpur, Gurdaspur, Nawashehar, Roopnagar, Patiala and SAS Nagar districts in north and north eastern parts. Rise in water level is also observed in south western part of the state in Fazilka, Muktsar, Bathinda and Faridkot districts. Water level rise in the range of 0-2 m is observed in 22% of wells and 19% of the area. Water level rise of 2-4 m is observed in 3% of wells and 1% of the area, whereas, water level rise >4m is observed in 1% of wells and less than 1% of the area during the period

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	Sq. Km.	%age
Decline	0-2	269	38	18156	36
	2-4	136	19	10481	21
	>4.0	119	17	11376	22
Rise	0-2	158	22	9626	19
	2-4	18	3	646	1
	>4.0	10	1	190	<1

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
DECadal Mean October (2009:2018) AND OCTOBER 2019**



**Figure 4.18 Water level Fluctuation Map Punjab State & Chandigarh (UT)
Decadal Mean (2009-18) – October 2019**

4.5.4 Decadal Mean of January (2010:2019) & January 2020

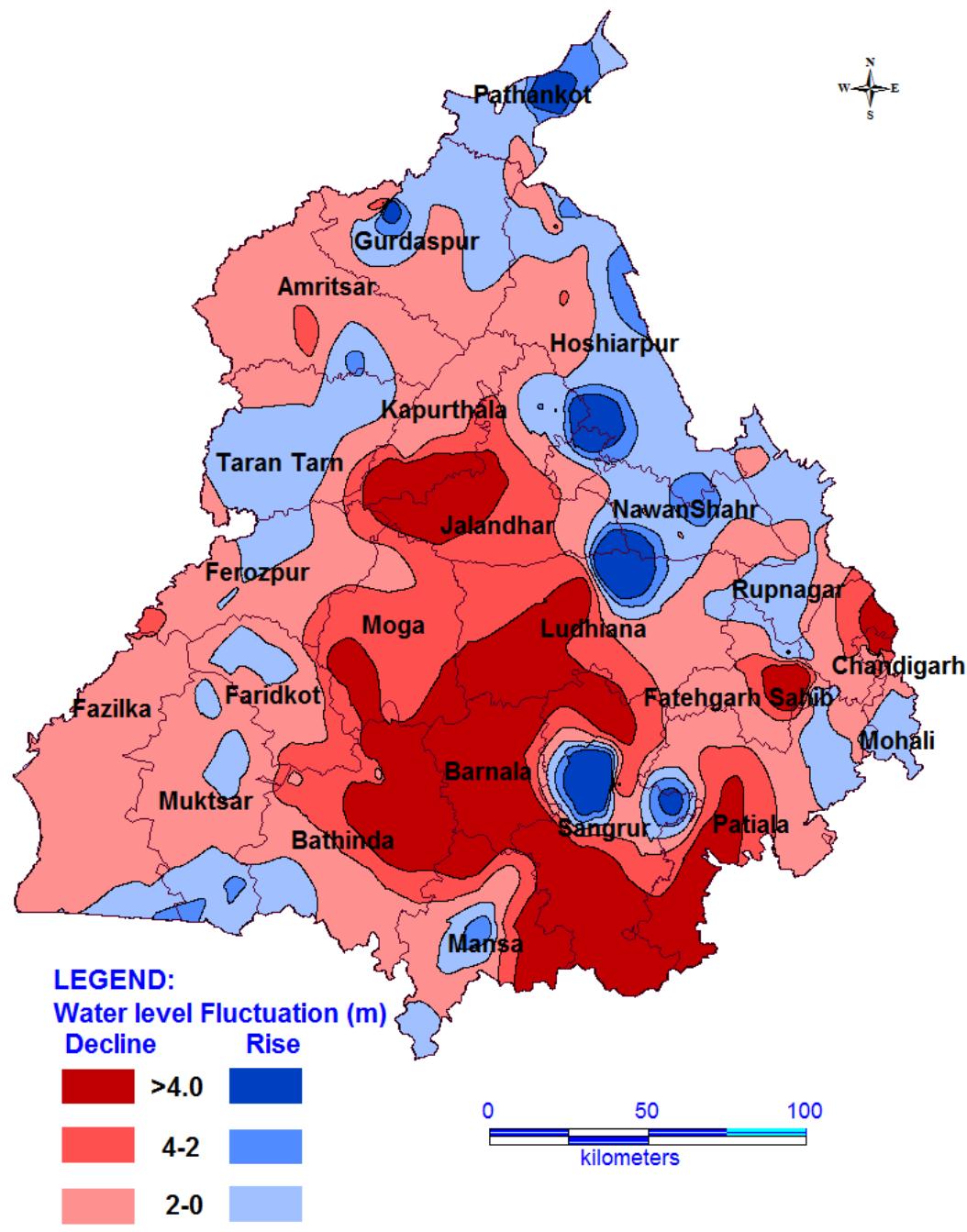
The behavioral pattern of decadal mean fluctuations of aforesaid period is discussed in the following paragraph along with fluctuation map (**Fig. 4.19**). Water level fluctuations data are given in the Annexure-IV (Col-7).

The decadal mean fluctuations show that decline in 63% of observation wells monitored covering about 72% area of the state. The decline has been observed in all districts in the state. The decline of 0-2 m has been observed in about 37% of wells and 40% of area. Water level decline of 2-4 m is observed in 12% of the wells and 15% of the area. Water level decline of >4m is observed in about 14% of the wells and 17% of area. It is observed mainly in Moga, Barnala, Ludhiana, Jalandhar, Kapurthala, Sangrur, Patiala, Mansa, Fatehgarh Sahib, Bathinda and SAS Nagar district.

Rise in water level has also been observed in 37% of wells and 28% of area in Pathankot, Gurdaspur, Amritsar, Taran Taran, Hoshiarpur, Nawanshahr, Ropar and SAS Nagar districts in north and north eastern parts. Rise in water level is also observed as isolated patches in Ferozpur, Fazilka, Muktsar, Bathinda and Faridkot districts. Water level rise in the range of 0-2 m is observed in 27% of wells and 23% of the area. Water level rise of 2-4m is observed in 6% of wells and 3% of the area. Water level rise >4m is observed in 4% of wells and 2% of the area during the period as isolated patches in Pathankot, Hoshiarpur, Ludhiana and Sangrur district.

Water Level Fluctuation Range (m)		Wells Monitored		Area Covered	
		No.	%age	No.	%age
Decline	0-2	86	37	19989	40
	2-4	28	12	7492	15
	>4.0	32	14	8779	17
Rise	0-2	61	27	11482	23
	2-4	13	6	1538	3
	>4.0	8	4	1196	2

**WATER LEVEL FLUCTUATION MAP
PUNJAB STATE & CHANDIGARH (UT)
DECADAL MEAN JANUARY (2010:2019) AND JANUARY 2020**



**Figure 4.19 Water level Fluctuation Map Punjab State & Chandigarh (UT)
Decadal Mean (2010-19) – January 2020**

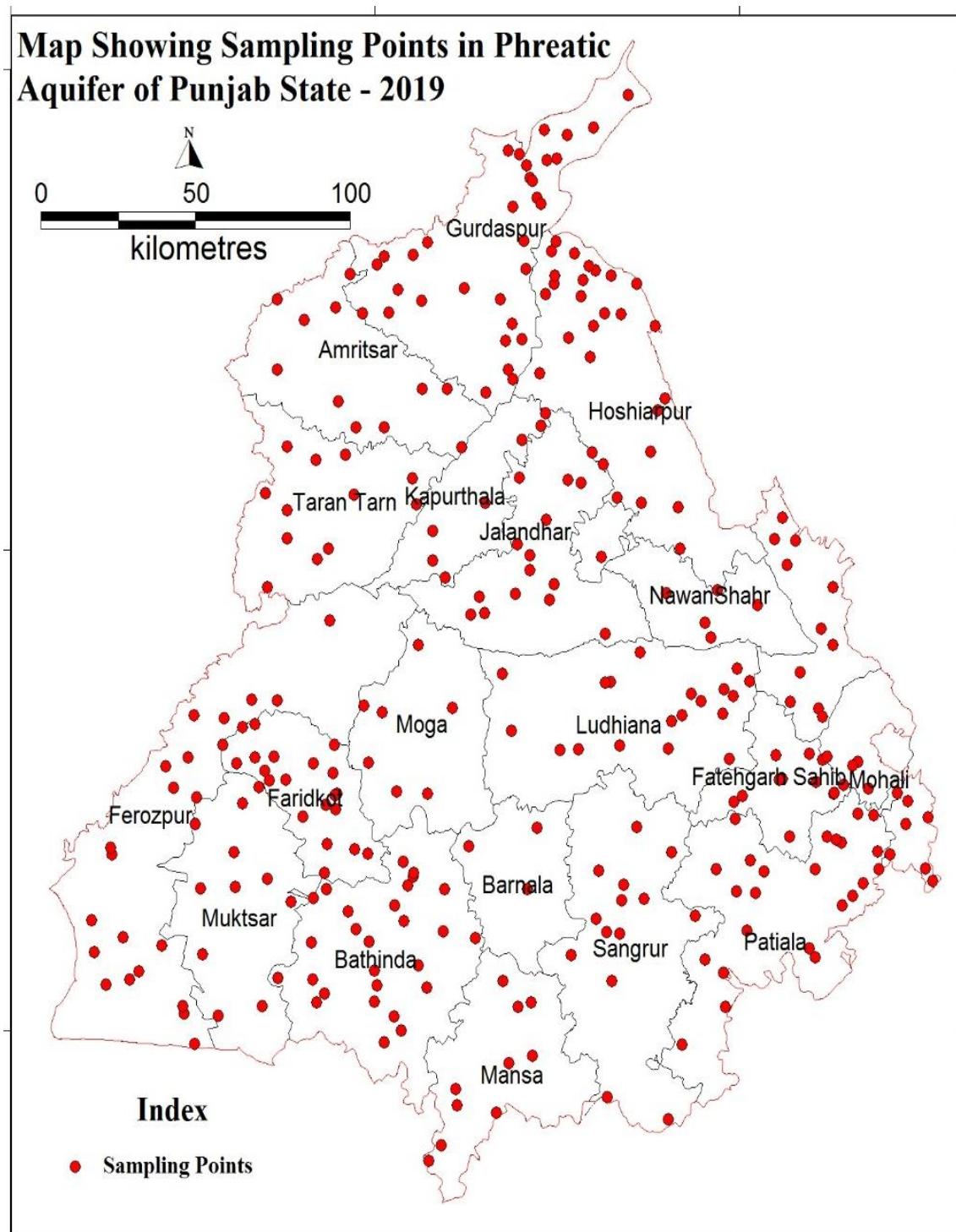
5.0 GROUND WATER QUALITY IN PUNJAB

Evaluation of ground water quality through concentration of its physical, chemical and biological parameters is essential to determine its suitability for the intended use. It helps not only in finding its suitability; it also helps in taking effective remedial measures for its improvement on scientific lines. In most of rural and semi-urban areas of Punjab State, ground water is a major resource for drinking and irrigation uses especially in areas where surface water is inadequate or unavailable. Acknowledging the importance of this aspect of ground water, C.G.W.B., N.W.R., Chandigarh annually monitors the ground water quality through dedicated Ground Water Monitoring Stations consisting of dug wells and/or hand pumps of shallow depth.

5.1 Sampling & Analysis

During May 2019, 302 nos. ground water samples were collected from these structures spread uniformly over 22 districts of Punjab and no specific treatment such as acidification or filtration was given at the time of sampling. The water samples were analyzed for major cations (Ca, Mg, Na, K) and anions (CO₃, HCO₃, Cl, NO₃, SO₄) in addition to pH, EC, F, SiO₂, PO₄ and TH as CaCO₃ in Regional Chemical Laboratory by following 'Standard analytical procedures' as given in APHA 2017. Results of chemical analysis of water samples are placed in Annexure-I

Fig 5.1 Map Showing the Sampling point of Punjab state



5.2 Composition of Water

Chemical analysis shows that the ground water is slightly to moderately alkaline in nature. The pH values range from 7.51 at Bhikhi in Mansa district to 9.10 at Badru khan in Sangrur district. Salinity of ground water is measured in terms of EC. The ground water is found to have low to very high salt content as the EC of well water ranges from 195 $\mu\text{S}/\text{cm}$ at Sarna in district Pathankot to 8320 $\mu\text{S}/\text{cm}$ at Abohar in district Fazilka. Hardness reported in terms of CaCO_3 ranges from 20 to 1490 mg/l. The lowest hardness value is found at Sultanpur Lodi in district Kapurthala and highest at Issarpur in district SAS Nagar. The concentration of calcium ranges between 4 and 360 mg/l. Calcium below detection level has not been found in the State while the highest value is observed at Issarpur in district SAS Nagar. Magnesium concentration ranges between 0 mg/l at Sultanpur Lodhi district Kapurthala and 418 mg/l at Abohar in district Fazilka. In majority of ground water samples, calcium concentration is less than 100 mg/l (98%). Calcium is very low in some districts, though it is very essential element for drinking and irrigation purposes. However, magnesium is less than the desirable limit of 30 mg/l in 46% samples and less than the maximum permissible limit of 100 mg/l for drinking waters (BIS 1991) in 95% samples. In more than half of well waters examined, Ca + Mg are the dominant cations having their concentration almost 50% of the total cation determined.

Sodium is the dominant cation in majority of ground waters of districts Bhathinda, Faridkot, Ferozepur, Mansa, Moga, Muktsar, Patiala, Sangrur, SAS Nagar and Tarantaran. Its concentration varies widely from 6.7 mg/l at Sidhwan Bet district Ludhiana to 1600 mg/l at Abohar in district Fazilka. Sodium concentration is less than 100 mg/l in more than half of well waters under consideration. Potassium is found to be present in low concentration. In majority of the samples analyzed, the potassium content is less than 10 mg/l (69%). It ranges from 0.63 mg/l at Dinanagar district Gurdaspur 620 mg/l at Sarawali district Mukatsar. High concentration of potassium (>100mg/l) is found in 5.96% samples. Its higher concentration indicates contamination of ground water from various point (industry, sewage) as well as non-point sources (agriculture).

Carbonate is found in a few samples and it varies from 0 to 263 mg/l at Kunde Balal in district Mukatsarr . Bicarbonate is the dominant anions and it ranges from 70mg/l Bharampur at Ropar district to 1062 mg/l at Fatta Maluka district Mansa. The Chloride concentration in ground water varies between 7.1 mg/l at Bhadaur, district Barnala and 1432 mg/l at Abohar in district Fazilka. The Sulphate (SO_4) content in ground waters was found to be 0 at several places in the State. The highest value of 2005 mg/l of Sulphate has been observed at Sito Garhi in district Fazilka. In majority of ground water samples (77%), the concentration of sulphate is below 200 mg/l. Nitrate, an indicator of domestic, irrigation and industrial contamination, is found in significant number of samples. Its concentration in groundwater ranges from <0.20 mg/l a several places to 900 mg/l at Bhaliana, Mukatsar district. The fluoride (F) content in ground water of the State is generally less than 1.0 mg/l (84%). It ranges from <0.05 at Several places in the State to 8.00 mg/l at Amisha Khalra. Phosphate concentration varies from <0.10mg/l to 0.15 mg/l while Silica concentration, measured as SiO_2 , ranged between 7.00 to 31 mg/l.

The district-wise concentration range of various chemical components in ground water is depicted in Table 5.1.

Table-5.1 : Range of Chemical Constituents in Groundwater of Punjab State

S. No.	District	No. of Samples	Min/Max	pH	EC* in $\mu\text{S}/\text{cm}$ at 25°C	CO3	HCO3	Cl	SO4	NO3	F	PO4	Ca	Mg	Na	K	SiO2	TH	SAR	RSC in meq/l			
						mg/l																	
1	Amritsar	11	Min	8.34	305	12	159	7.1	10	4	0.13	<0.10	8	2.4	30	2.2	23	60	2.39	2.41			
			Max	8.90	915	72	317	78	80	48	0.57	<0.10	124	54	182	15	28	240	3.43	-3.03			
2	Barnala	3	Min	8.34	305	12	159	7.1	10	4	0.13	<0.10	8	2.4	30	2.2	23	60	2.39	-3.03			
			Max	8.90	915	72	317	78	80	48	0.57	<0.10	124	54	182	15	28	240	3.43	2.41			
3	Bathinda	27	Min	7.90	258	0	85	11	12	1.46	0.08	<0.10	8	7.3	8.5	3.1	21	90	0.30	-22.39			
			Max	8.98	6210	156	818	815	1200	554	3.8	<0.10	100	271	1120	500	28	1271	26.74	12.44			
4	Faridkot	21	Min	8.14	410	0	104	35	70	3.9	0.14	<0.10	4	2.4	37	5	14	50	1.20	-9.45			
			Max	8.95	4590	190	756	588	1045	180	4.6	<0.10	114	117	920	120	28	767	41.30	15.74			
5	Fatehgarh Sahib	11	Min	8.15	470	0	168	21	0	2	0.19	<0.10	4.20	15	28	7	9	126	0.78	-0.75			
			Max	8.77	1940	27	629	99	292	52	0.69	<0.10	42	72	361	26	15	315	10.79	6.97			
6	Fazilka	15	Min	7.82	745	0	74	28	43	1.5	0.32	<0.10	8	5.1	110	2.8	17	74	3.03	-29.57			
			Max	8.95	8320	240	574	1432	2005	253	3.1	<0.10	206	418	1600	180	24	911	35.00	14.38			
7	Firozpur	7	Min	7.97	478	0	118	21	31	2.4	0.14	<0.10	13	13	37	4.3	18	105	1.03	-1.86			
			Max	8.86	1641	102	370	106	305	172	1.21	<0.10	46	51	310	136	26	273	10.04	7.35			

8	Gurdaspur	18	Min	8.35	220	12	98	7.1	8	0.2	0.14	<0.10	8	2.4	10	0.6	21	90	0.42	-0.80
			Max	8.95	1214	132	464	71	95	100	0.86	0.10	40	49	280	150	30	230	13.02	10.25
9	Hoshiarpur	26	Min	7.82	200	0	84	14	0	2	0.18	<0.10	4.2	5	9.5	0.8	7	84	0.33	-9.70
			Max	8.79	1750	14	377	184	407	48	0.67	<0.10	93	95	109	47	18	620	1.93	1.25
10	Jalandhar	15	Min	8.22	315	0	122	7	36	0.65	0.24	<0.10	4.0	12.0	14	1.3	21	100	0.51	-3.03
			Max	8.87	1070	132	378	142	145	138	4.00	<0.10	72	51	190	9.4	28	270	6.77	6.00
11	Kapurthala	8	Min	8.30	302	12	134	7.1	12	23	0.3	<0.10	8	0.0	40	1.2	19	20	1.43	-0.56
			Max	8.76	710	48	256	106	35	68	0.7	0.15	28	39	115	11	28	200	10.71	3.41
12	Ludhiana	9	Min	7.73	270	0	110	7	10	2.5	0.11	<0.10	8	10	6.7	2.4	18	90	0.23	-1.16
			Max	8.88	1220	96	696	64	82	78	1.62	<0.10	48	97	235	73	27	420	6.59	7.39
12	Mansa	10	Min	7.51	268	0	100	21.0	5	3.6	0.4	<0.10	12	2.4	43.0	2.1	16	50	1.14	-1.11
			Max	8.70	5140	204	1062	737	548	71	2	<0.10	60	77	1100	395	31	440	87.44	23.61
14	Moga	7	Min	8.50	465	36	134	14	0	0.4	0.36	<0.10	8	7.3	36	2.5	18	60	1.11	-0.21
			Max	8.92	1368	132	549	92	315	46	1.72	<0.10	20	54	260	9.4	25	240	14.16	9.63
15	Muktsar	10	Min	8.10	760	0	74	78	87	4	0.12	<0.10	12	22	34	9.5	17	179	1.35	-1.20
			Max	8.91	5840	263	816	610	1630	900	3.41	<0.10	72	170	1123	620	26	761	16.48	4.57
16	Nawashaher	6	Min	8.36	420	14	224	14	0	2	0.26	<0.10	8.4	13	38	5	9	84	1.23	-1.48

			Max	8.78	1220	25	363	121	222	48	0.79	<0.10	13	61	119	103	17	273	5.59	4.47
17	Pathankot	14	Min	8.05	195	0	98	7.1	5.0	2	0.08	<0.10	4	9.73	8	0.9	19	90	0.35	-2.59
			Max	8.85	1108	108	317	312	168	60	0.6	<0.10	40	78	135	9.7	28	330	3.23	2.18
18	Patiala	24	Min	7.55	355	0	171	7.1	5	0.35	0.19	<0.10	4.0	2	20	0.7	12	20	0.69	-13.23
			Max	8.88	4060	84	573	666	1022	358	4.12	<0.10	72	156	650	348	29	821	22.87	7.21
19	Roop Nagar	11	Min	7.92	300	0	70	14.0	0	2	0.1	<0.10	8	10	9.5	0.8	8	126	0.37	-5.09
			Max	8.74	900	27	409	78	226	52	0.98	<0.10	67	59	85	40	12	326	2.63	3.21
20	Sangrur	13	Min	7.68	329	0	150	14.0	12.0	5.7	0.15	<0.10	4.0	17.0	19	2.5	13.1	90	0.58	-3.22
			Max	9.10	1715	156	683	130	175	105	1.2	<0.10	48	106	385	69	28	560	17.84	14.01
21	SAS Nagar	14	Min	7.68	450	0	182	21	0	0.4	0.32	<0.10	8	14	30	1.0	8	95	0.93	-14.35
			Max	9.01	6480	14	699	432	880	407	1.52	<0.10	360	163	820	315	25	1490	11.54	8.73
22	Tarantaran	12	Min	8.24	362	0	134	7.1	20	0.28	0.2	<0.10	4	7.3	30	4.2	18.0	50	1.14	-3.17
			Max	9.02	1720	180	720	199	108	120	8	<0.10	48	61	420	15	30	360	25.84	16.80
			Min	7.51	195	0	70	7.1	0	0.2	0.080	<0.10	4.0	0.0	6.7	0.63	7	20	0.23	-29.57
	Grand Total		Max	9.10	8320	263	1062	1432	2005	900	8.00	0.15	360	418	1600	620	31	1490	87.44	23.61

5.3 Distribution of EC

The EC value of ground waters in the State varies from 195 to 8320 $\mu\text{S}/\text{cm}$ at 25°C. Grouping water samples based on EC values, it is found that 47.68 % of them have EC less than 750, 44.37 % have between 750 and 3000 and the remaining 7.95 % of the samples have EC above 3000 $\mu\text{S}/\text{cm}$. The Plate showing aerial distribution of EC with intervals corresponding to limits assigned for desirable, permissible and unsuitable classes of waters indicates that desirable class of waters occur in northern and central area of the State. The ground water occurring in the southern and southwestern parts comprising of Bhatinda, Faridkot, Fazilka, Muktsar and Mansa districts is mostly line and not suitable for drinking uses (**Fig -5.2**).

Electrical Conductivity (Phreatic Aquifer) of Punjab State - 2019

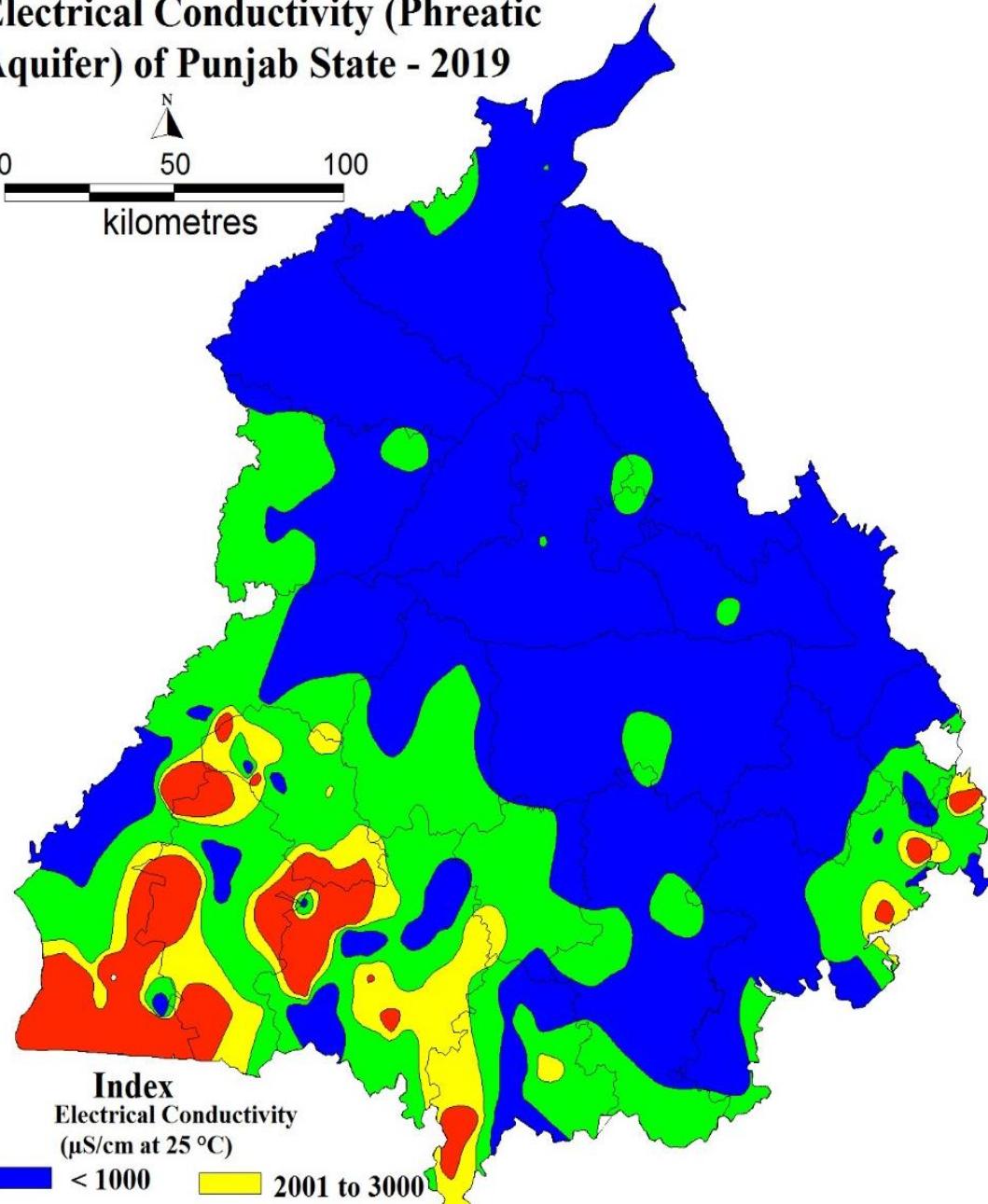
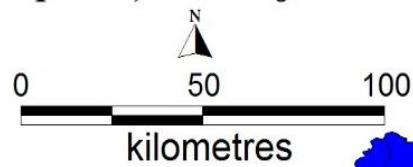


Fig 5.2: District wise distribution of Electrical Conductivity in shallow Ground water of Punjab State.

Table-5.2

E.C. <750 $\mu\text{S}/\text{cm}$	E.C. 751-3000 $\mu\text{S}/\text{cm}$	E.C.>3000 $\mu\text{S}/\text{cm}$
Amritsar	Amritsar	Bhathinda
Bhathinda	Barnala	Faridkot
Fatehgarh Sahib	Bhathinda	Fazilka
Firozepur	Faridkot	Mansa
Gurdaspur	Fatehgarh Sahib	Muktsar
Hoshiarpur	Fazilka	Patiala
Jalandhar	Firozepur	SAS Nagar
Kapurthala	Gurdaspur	
Ludhiana	Hoshiarpur	
Mansa	Jalandhar	
Muktsar	Ludhiana	
Nawanshahr	Mansa	
Pathankot	Moga	
Patiala	Muktsar	
Ropar	Pathankot	
Sangrur	Patiala	
SAS Nagar	Ropar	
Tarantaran	Sangrur	
	SAS Nagar	
	Tarantaran	

5.4 Distribution of Chloride (Cl)

Chloride content of ground water normally follows the distribution pattern of EC and it ranges from 7.1 mg/L to 1432 mg/L in the entire State. Chloride concentration above 400 mg/L gives salty taste to water and based on these aesthetic considerations, BIS has recommended a desirable limit of 250 mg/L for chloride in drinking water. This limit can be extended to 1000 mg/L in case of absence of a source with desirable concentration. Grouping of samples in these categories based on chloride content, it is found that Chloride is less than 250 mg/L in 88.74 % of the samples, between 250 and 1000 mg/L in 10.93 % samples and only 0.33 % of the samples are found to have Chloride above 1000 mg/L. Map showing spatial distribution of Cl contents in ground water (Fig 20) indicates that Cl is below 250 mg/L in most of the districts, it is between 250 and 1000 mg/L in Patiala , SAS Nagar and in southern and southwestern districts of the State. Cl is more than 1000 mg/L in isolated places in Fazilka district. (**Fig 5.3**).

Chloride Concentration (Phreatic Aquifer) of Punjab State - 2019

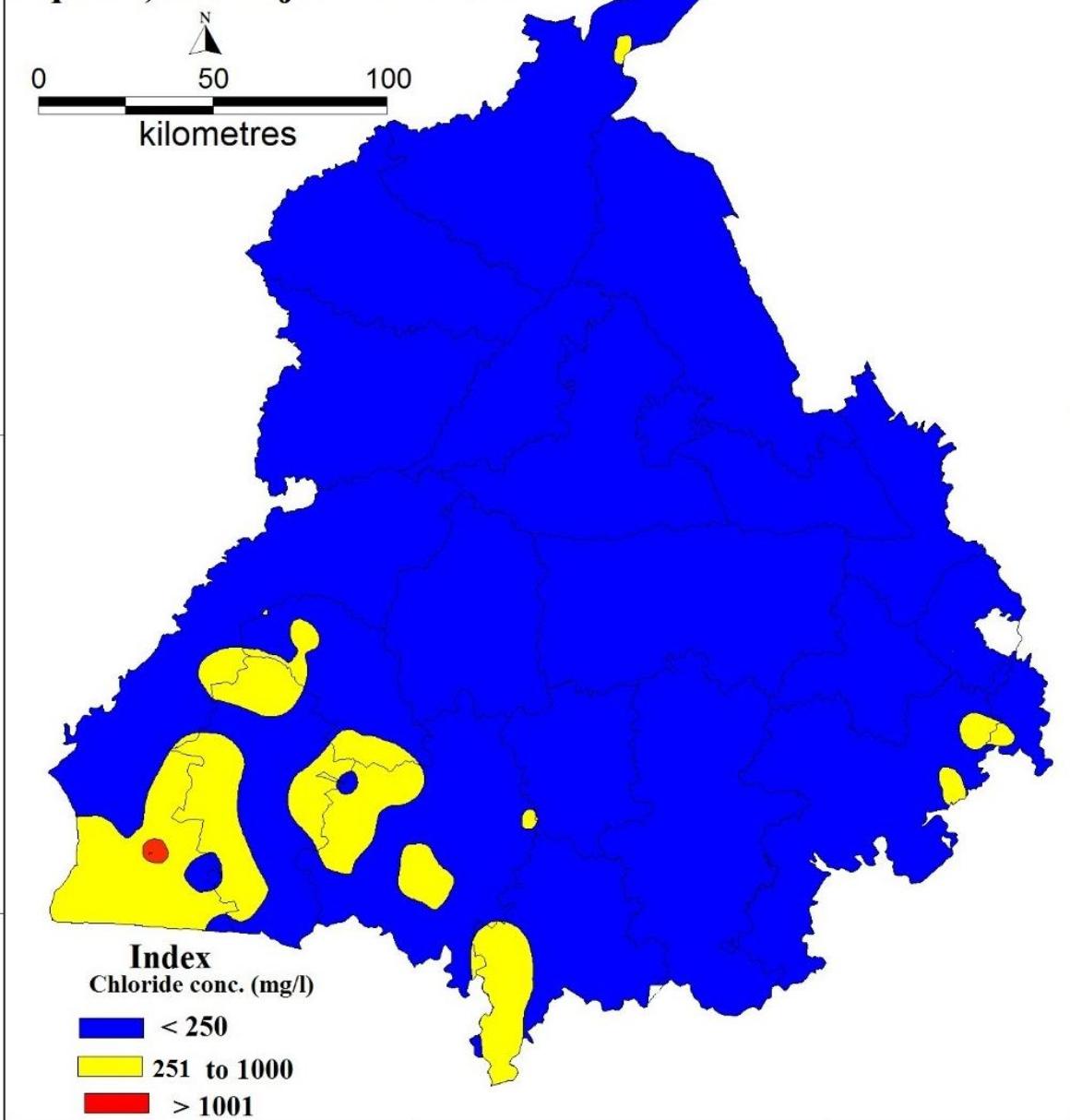


Fig 5.3: Chloride Concentration in ground water of shallow aquifers in Punjab

5.5 Distribution of Nitrate (NO_3)

Occurrence of nitrate in ground water above 5.0 mg/L reflects contamination at some stage of its percolation and circulation. The probable sources of nitrate contamination of ground water are through excessive application of fertilizers, bacterial nitrification of organic nitrogen, and seepage from animal and human wastes and atmospheric inputs. In the State, nitrate in water samples varies from <0.20 to 900 mg/L. BIS permits a maximum concentration of 45 mg/L nitrate in drinking water. Considering this limit, it is found that 76.82 % of the samples, spread over the entire State, have nitrate below 45 and 23.18 % have more than 45 mg/L. Spatial distribution of nitrate indicates that ground water with permissible nitrate content generally occurs in the northern and central parts with a few isolated patches with nitrate above 45mg/L. A considerable area of the southern and southwestern part of the state have nitrate concentration exceeding 45 mg/L (**Fig-5.4**). Furthermore, quite a significant number water samples from, Bhatinda, Faridkot, Fazilka, Ferozepur, , Muktsar and SAS Nagar districts are found to have nitrate above 100 mg/L.

Nitrate Concentration (Phreatic Aquifer) of Punjab State - 2019

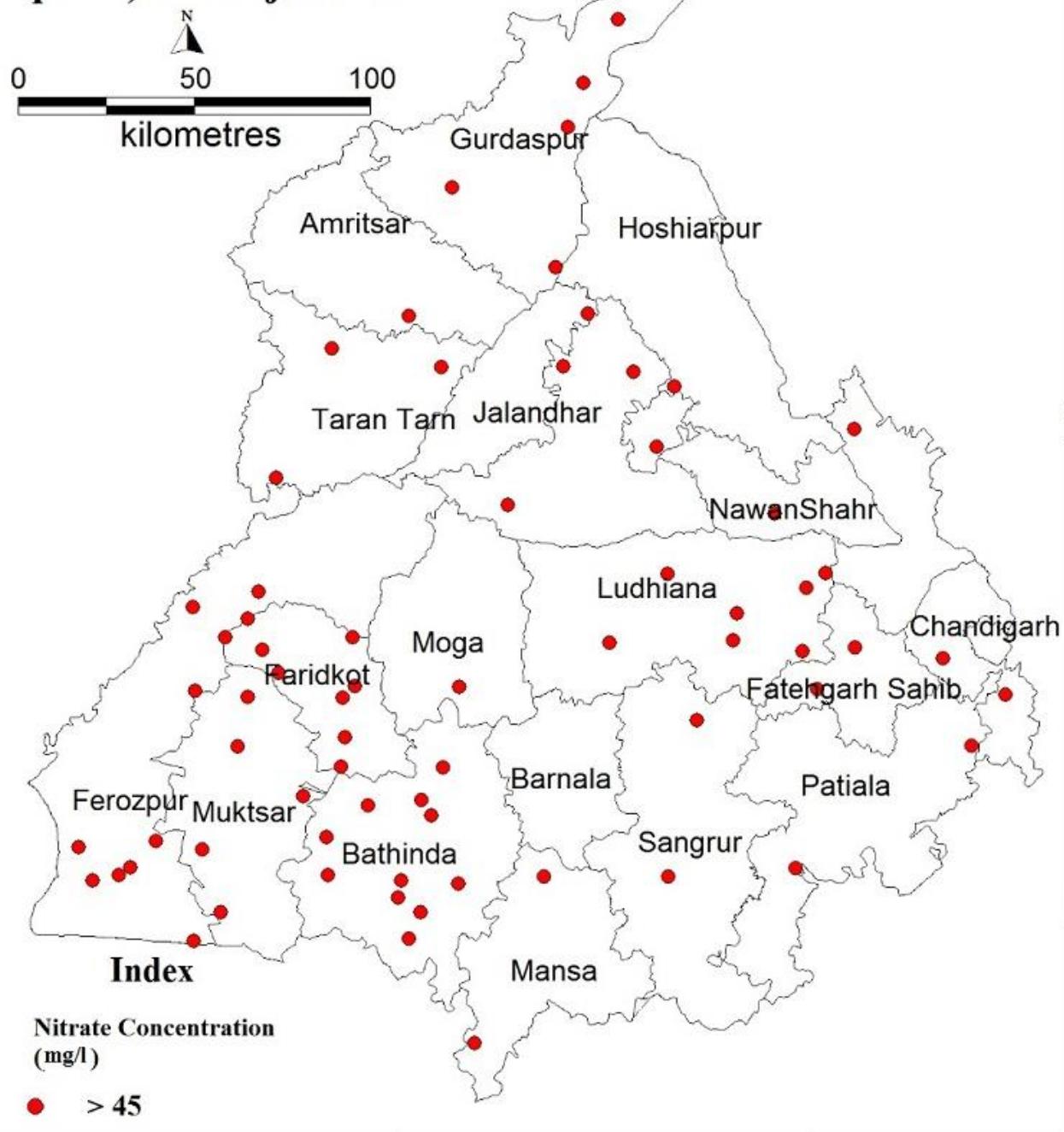


Fig 5.4 District wise distribution of Nitrate in shallow Ground water of Punjab State.

Table-5.3

Nitrate <45mg/l	Nitrate 45-100mg/l	Nitrate >100mg/l
Amritsar	Amritsar	Bhathinda
Barnala	Bhathinda	Faridkot
Bhathinda	Faridkot	Fazilka
Faridkot	Fatehgarh Sahib	Firozepur
Fatehgarh Sahib	Fazilka	Jalandhar
Fazilka	Gurdaspur	Muktsar
Firozepur	Hoshiarpur	SAS Nagar
Gurdaspur	Jalandhar	Tarantaran
Hoshiarpur	Kapurthala	
Jalandhar	Ludhiana	
Kapurthala	Mansa	
Ludhiana	Moga	
Mansa	Muktsar	
Moga	Nawanshahr	
Muktsar	Pathankot	
Nawanshahr	Patiala	
Pathankot	Ropar	
Patiala	Sangrur	
Ropar	SAS Nagar	
Sangrur	Tarantaran	
SAS Nagar		
Tarantaran		

5.6 Distribution of Fluoride (F)

Fluoride in small amounts in drinking water is beneficial while in large amounts it is injurious. The fluoride content in ground water ranges from <0.05 to 8.00 mg/L. BIS recommends that fluoride concentration up to 1.00 mg/L in drinking water is desirable, up to 1.50 mg/L is permitted and above 1.50 mg/L is injurious. Classification of samples based on this recommendation, it is found that 84.44 % samples have fluoride in desirable range, 5.30 % in the permissible and the remaining 10.26 % have fluoride above 1.50 mg/L. Map showing spatial distribution of fluoride contents in ground water (Fig- 5.5) indicates that ground water in most parts of the State has desirable concentration of fluoride. Ground waters with fluoride above 1.50 mg/L are found mainly in Bathinda, Faridkot, Fazilka, Muktsar, Patiala, SAS Nagar and Tarantaran districts of the State. It is worth mentioning that high fluoride waters are encountered in areas where agriculture activities are predominant. It indicates the possibility that fluoride has come from the phosphatic fertilizers, which have fluoride as impurity. **(Fig-5.5)**

Fluoride Concentration (Phreatic Aquifer) of Punjab State - 2019

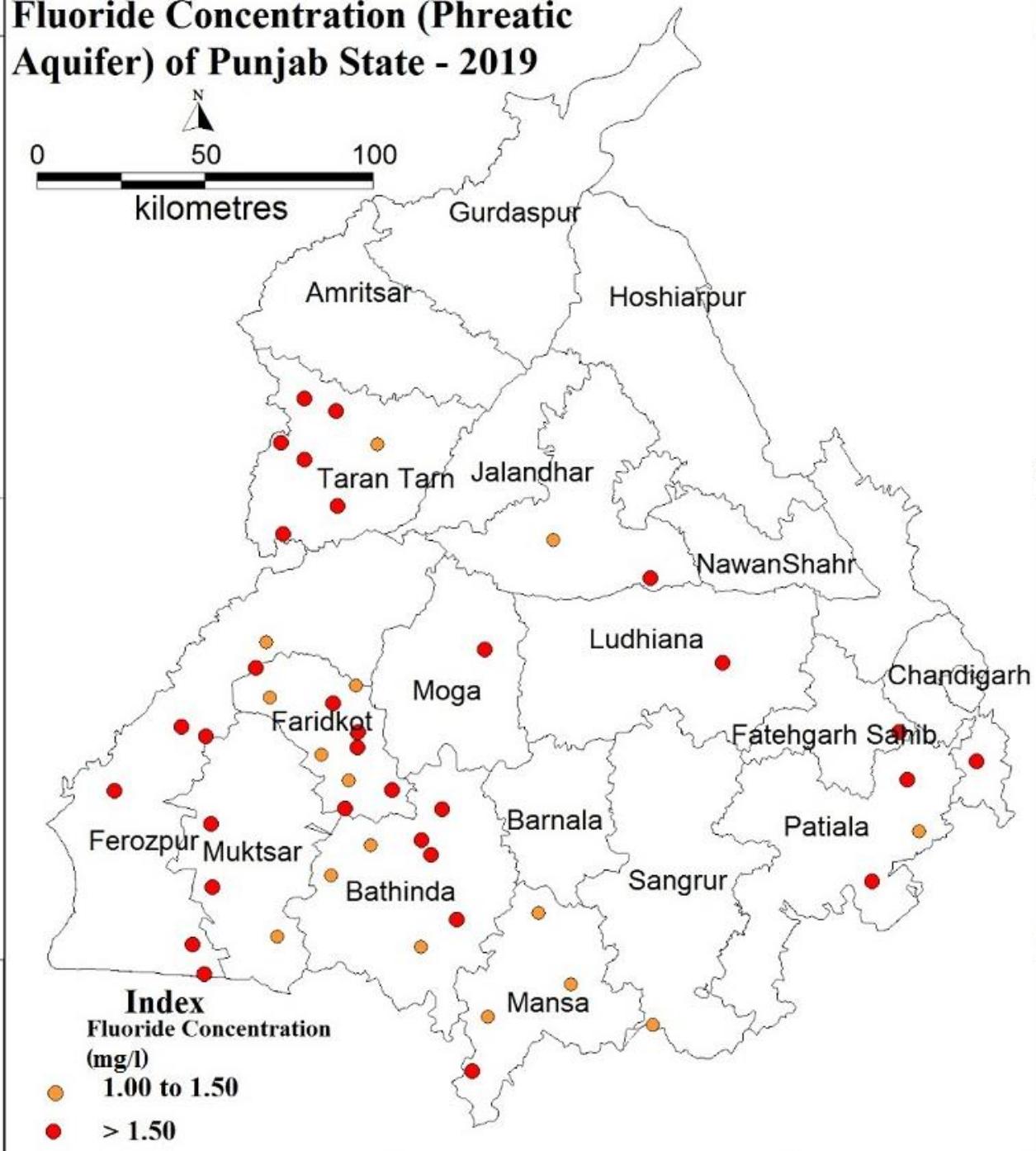


Fig 5.5 District wise distribution of Fluoride in shallow Ground water of Punjab State.

District wise distribution of Fluoride in shallow Ground water of Punjab State.

Table-5.4

Fluoride <1.00mg/l	Fluoride 1.00-1.50mg/l	Fluoride >1.50mg/l
Amritsar		Bhathinda
Barnala	Bhathinda	Faridkot
Bhathinda	Faridkot	Fazilka
Faridkot	Firozepur	Jalandhar
Fatehgarh Sahib	Jalandhar	Ludhiana
Fazilka	Mansa	Mansa
Firozepur	Muktsar	Moga
Gurdaspur	Patiala	Muktsar
Hoshiarpur	Sangrur	Patiala
Jalandhar	Tarantaran	SAS Nagar
Kapurthala		Tarantaran
Ludhiana		
Mansa		
Moga		
Muktsar		
Nawanshahr		
Pathankot		
Patiala		
Ropar		
Sangrur		
SAS Nagar		
Tarantaran		

5.7 Type 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 47.68 % ground waters of the State are fresh, have low salinity and predominance of calcium + magnesium cations and bicarbonate as anion. About 52.32 % ground waters having intermediate salinity and are of mixed type. In these waters, mostly HCO_3^- as anion dominates but no individual cation predominates. 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, 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 $\text{Cl}^- + \text{SO}_4^{2-} + \text{NO}_3^-$ (Mixed anion) are dominant. Nevertheless, a few exceptions have also been found in these simple and well-defined types of ground waters.

5.8 Suitability of Groundwater for Drinking

Salinity, chloride, fluoride and nitrate are the important parameters that are normally considered for evaluating the suitability of ground water for drinking uses. Based on recommendations made for these parameters by BIS, it is found that ground water at quite a few places is not suitable for drinking uses because of either EC/ Cl^- / F^- / NO_3^- or all of them. It is observed that unsuitable quality of ground water occurs in the southern and southwestern regions, while in the northern and central areas ground water is of suitable quality for drinking uses. Table-5 below shows district-wise distribution of ground waters in different classes of suitability based upon EC, Cl, F and NO_3^- contents.

Table-5.5: Distribution of Well Waters of Punjab State in Different Classes of Drinking Water Suitability

S. No.	District	No. of Samples	Electrical Conductivity			Chloride			Nitrate			Fluoride		
			750	751- 3000	3000	<250	251- 1000	>1000	<45	46- 100	>100	<1.00	1.00- 1.50	>1.51
1	Amritsar	11	8	3	0	11	0	0	10	1	0	11	0	0
2	Barnala	3	0	3	0	3	0	0	3	0	0	3	0	0
3	Bathinda	27	5	17	5	18	9	0	16	4	7	20	3	4
4	Faridkot	21	1	17	3	17	4	0	12	5	4	11	4	6
5	Fatehgarh Sahib	11	9	2	0	11	0	0	8	3	0	11	0	0
6	Fazilka	15	1	8	6	8	6	1	8	1	6	10	0	5
7	Firozpur	7	2	5	0	7	0	0	6	0	1	6	1	0
8	Gurdaspur	18	13	5	0	18	0	0	15	3	0	18	0	0
9	Hoshiarpur	26	24	2	0	26	0	0	25	1	0	26	0	0
10	Jalandhar	15	10	5	0	15	0	0	12	2	1	13	1	1
11	Kapurthala	8	8	0	0	8	0	0	6	2	0	8	0	0
12	Ludhiana	19	15	4	0	19	0	0	12	7	0	18	0	1
13	Mansa	10	3	5	2	7	3	0	8	2	0	6	3	1
14	Moga	7	1	6	0	7	0	0	6	1	0	6	0	1
15	Muktsar	10	0	6	4	4	6	0	5	2	3	7	1	2
16	Nawashaher	6	5	1	0	6	0	0	5	1	0	6	0	0
17	Pathankot	14	12	2	0	13	1	0	12	2	0	14	0	0
18	Patiala	24	6	16	2	22	2	0	22	2	0	21	1	2
19	Roop Nagar	11	8	3	0	11	0	0	10	1	0	11	0	0

20	Sangrur	13	5	8	0	13	0	0	11	2	0	12	1	0
21	SAS Nagar	14	4	8	2	12	2	0	11	1	2	12	0	2
22	Tarantaran	12	4	8	0	12	0	0	9	2	1	5	1	6
	Grand Total	302	144	134	24	268	33	1	232	45	25	255	16	31

The bar diagram clearly shows that most of the groundwater occurring in the districts Amritsar, Barnala, Fatehgarh Shahib, Gurdaspur, Hoshiarpur, Jallandhar, Kapurthala, Moga, Nawanshar, Sangrur, and Tarantaran occupy almost 75% length of the bar and has almost all the parameters within desirable limit for drinking purposes, thus can be considered as potable. Ground waters from the districts of Bhatinda, Firozpur, Faridkot, Fazilka , Mansa and Muktsar have bar length less than 50% indicating low potable rating. Fig,-6

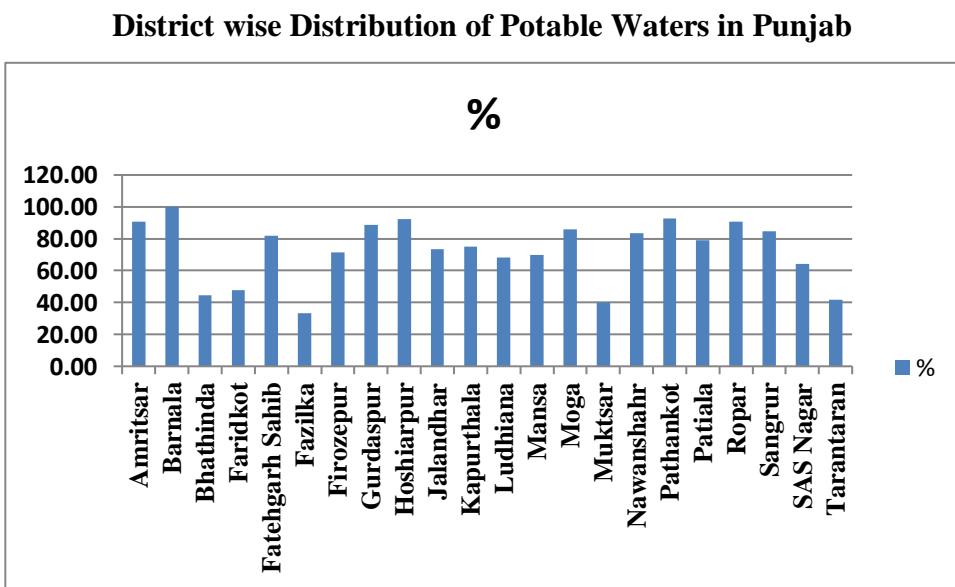


Fig 5.6 District wise distribution of potable waters of Punjab State.

Table.5.6. Percentage wise classification chart for Portable water in Haryana state

Sr.N o.	% wise classification	Name of the districts	Remarks
1.	>80	Amritsar, Barnala, Gurdaspur, Hoshiarpur, Moga, Pathankot, Ropar & Sangrur	It has been classified on the based of Salinity(EC,Cl,NO ₃ & F)
2.	50-80	Fatehgarh Shahib, Firozpur, Jalandhar, Kapurthala, Ludhiana, Mansa, Nawashehar, Patiala, SAS Nagar	
3.	<50	Bhatinda, Faridkot, Fazilka, Muktsar, Tarrantaran	

5.9 Suitability of Groundwater for Irrigation

The suitability of ground water for irrigation is generally assessed considering salinity expressed as EC, sodium in relation to calcium and magnesium in terms of SAR, sodium in relation to carbonate in terms of RSC. EC and SAR range from 195 to 8320 $\mu\text{S}/\text{cm}$ at 25°C and 0.23 to 41.30 respectively. Waters having high values of EC and SAR causes salinity and sodium hazards respectively when used for customary irrigation.

USSL: Plot of USSL diagram based on EC and SAR, it is observed that ground water occurring in the northern and central parts of the State falls under C₂S₁ and C₃S₁ classes of irrigation waters. It indicates that most of these waters are suitable for irrigating semi-salt tolerant crops on all soils. Ground water mostly from the southern and southwestern parts comprising of Bhatinda, Faridkot, Fazilka, Ferozepur, Mansa, Muktsar, Patiala & Patiala districts falls under C₃S₂, C₃S₃, C₃S₄, C₄S₁, C₄S₂, C₄S₃ and C₄S₄ classes of irrigation classification. Such waters when used continuously for irrigation, they are likely to cause salinity hazards and lead to reduction in crop yields. They may also cause sodium hazards and lead to hardening of soils when used for irrigation without the addition of adequate quantity of gypsum.

RSC: Alkali hazards of irrigation ground waters are estimated through the computation of Residual Sodium Carbonate (RSC), also known as Eaton's Index. Waters with RSC value <1.25 meq/L are safe for irrigational uses, RSC between 1.25 and 2.5 are marginal and

waters with RSC value >2.5 meq/L are unsafe. Based on RSC values of ground waters, it is found that 51.66% of the waters are safe, 14.57% marginal and the remaining 33.77 % are unfit for irrigational uses. RSC of ground waters are found to vary from below zero (-29.57) to 16.80 meq/l (Barwala,Tarantaran district). The district wise distribution of ground waters in different categories of suitability for irrigational uses based on USSL and RSC considerations is given in Table-7.

Table No.5.7 : Irrigation Rating of Well Waters of Punjab
(Based on Eaton's index and USSL Classification)

Sl.n o.	District	No. of Samples	IRRIGATION SUITABILITY			
			EATON's INDEX (RSC in meq/L)			USSL Classification
			Safe	Marginal	Unsafe	
			<1.25	1.25-2.50	>2.50	
1	Amritsar	11	3	5	3	C2S1, C3S1
2	Barnala	3	0	0	3	C3S2, C3S1
3	Bhathinda	27	14	3	10	C3S1, C4S2, C4S3, C2S1,C4S1, C4S4
4	Faridkot	21	10	1	10	C4S4, C4S3, C3S1, C3S2, C4S2, C2S1, C3S3
5	Fatehgarh Sahib	11	5	4	2	C2S1, C3S2, C3S1
6	Fazilka	15	8	0	7	C4S2, C4S3, C4S1, C3S1, C2S1, C3S2, C4S4
7	Firozepur	7	3	1	3	C3S1,C3S2, C2S1
8	Gurdaspur	18	11	3	4	C2S1, C1S1, C3S2, C3S1
9	Hoshiarpur	26	26	0	0	C2S1, C3S1, C1S1
10	Jalandhar	15	7	4	4	C2S1,C3S1
11	Kapurthala	8	3	3	2	C2S1, C2S2

12	Ludhiana	19	12	3	4	C2S1, C3S1
13	Mansa	10	3	2	5	C3S1, C2S1, C3S2, C4S4, C4S2
14	Moga	7	1	1	5	C3S2, C2S1, C3S1
15	Muktsar	10	5	1	5	C4S2, C3S1, C4S4, C4S1
16	Nawanshahr	6	4	0	2	C2S1, C3S1
17	Pathankot	14	13	1	0	C2S1, C3S1, C1S1
18	Patiala	24	9	7	8	C3S1, C2S1, C4S1, C4S2, C3S2, C3S3
19	Ropar	11	8	2	1	C3S1, C2S1
20	Sangrur	13	2	1	10	C3S1, C2S1, C3S2
21	SAS Nagar	14	6	2	6	C3S1, C2S1, C3S2, C4S2, C4S1
22	Tarantaran	12	4	0	8	C2S1, C3S1, C3S3, C3S2
	Total	302	156	44	102	

Most of ground waters from Amritsar, Fatehgarh Sahib, Gurdaspur, Hoshiarpur, Jallandhar, Kapurthala Ropar and Patiala are suitable for irrigation for semi-salt tolerant crops on adequately drained soils. The waters from districts of Bhatinda, Faridkot, Ferozepur, Mansa, Muktsar, and Sangrur show wide variability in irrigation rating.

5.10 Suitability of Groundwater 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.

5.11 Temporal Variation

The temporal changes in ground water quality are studied through percent of well water falling in different categories of suitability criteria based on concentration of important parameters such as salinity (EC), chloride, nitrate and fluoride contents. The percent well waters falling in desirable, permissible and unsuitable classes of BIS-1991 standards. During 2019 are compared with percent well waters in same classes during 2015, 2016

2017, 2018 & 2019. Table 8 shows both positive and negative change in percent well waters in different suitability classes based on above parameters and overall variation in % wells from 2015 to 2019.

On perusal of the Table-4, it is evident that there is deterioration in the quality of ground water from 2015 to 2019. It is observed that there is decrease in salinity and % of samples falling with EC below 750 $\mu\text{S}/\text{cm}$ at 25°C has decrease by 2.62 %. Whereas there is increase by 2.07 % samples falling in 750-3000 $\mu\text{S}/\text{cm}$ at 25°C . The % of Samples showing EC more than 3000 $\mu\text{S}/\text{cm}$ at 25°C .varies by +0.55%. Based on Fig.2 it can be clearly delineated that there is improvement of salinity in earlier saline patches in southern part of the State.

In respect to Chloride the % of water samples falling range below 250 mg/l has decrease by 0.66% whereas more increase is 1.73%of samples falling in 250-1000 mg/l. The percentage of samples showing Chloride >1000 mg/l decrease by 1.07%. A slight improvement in water quality is observed with respect to Chloride.,

Nitrate during the five years. in samples has been observed from Table -4 that there is increase in % of samples nitrate range <45mg/l has been increase by 7.42% .whereas there is decrease in samples above 45mg/l . Overall it is included that quality of ground water in respect to nitrate has been considerable improved and has came down with in the permissible limits as set by BIS(45mg/l).

In respect to Fluoride there is increase % of samples falling within 0-1.00mg/l. whereas there is decrease in % of samples fluoride within 1.0 -1.50mg/l. This indicates concentration of Fluoride has started coming down with in permissible limit set by BIS and there is improvement in ground water quality. Whereas % of samples falling Beyond permissible limits (>1.50mg/l) slightly increase 0.76%.it shows that the ground water quality deteriorated in respect to Fluoride.

Table 5.8: Periodic Variation in Suitability Classes of Well Waters of Punjab

Parameter	Class	% of Samples					Periodic Variation 2015-2019
		2015 (n=284)	2016 (n=289)	2017 (n=281)	2018 (n=278)	2019 (n=302)	
Salinity as EC	<750 µS/cm	50.3	43.3	36.7	48.9	47.68	-2.62
	750--3000	42.3	49.1	51.9	42.4	44.37	+2.07
	>3000	7.4	7.6	11.3	8.6	7.95	+0.55
Chloride as Cl	<250 mg/l	89.4	87.5	88.9	88.8	88.74	-0.66
	250 - 1000	9.2	10.4	9.6	9.0	10.93	+1.73
	>1000 mg/l	1.4	2.1	1.8	2.2	0.33	-1.07
Nitrate as NO₃	< 45 mg/l	69.4	77.2	75	82.0	76.82	+7.42
	> 45 mg/l	30.6	22.8	24.9	18.0	23.18	-7.42
Fluoride as F	<1.0 mg/l	82.4	84.4	81.8	88.1	84.43	+2.03
	1.0 - 1.50	8.1	4.8	7.5	4.7	5.30	-2.80
	>1.50 mg/l	9.5	10.7	10.7	7.2	10.26	+0.76

5.12 Conclusion & Recommendations on Groundwater Quality

Conclusion drawn for quality evaluations of ground water and its suitability for various uses is based on macro level studies through monitoring stations sampled during 2019. It can be concluded that in Punjab

- Ground water is generally suitable for drinking uses except at few places in the southern and south western parts where it is not suitable due to high EC or high fluoride or nitrate or combination of all.
- Almost all waters are suitable for irrigation on well-drained soils for growing salt tolerant crops like wheat, mustard, rice, barley and maize etc. However, at few places where EC of ground water goes beyond 5000 $\mu\text{S}/\text{cm}$ and SAR is more than 10, such waters are not suitable for customary irrigation.
- It is recommended that areas identified with unsuitable or marginally suitable water quality should be monitored on micro level to effectively delineate such areas and use suitable management measures.

5.13 GROUND WATER QUALITY IN CHANDIGARH, UT

Quality of shallow ground water of Chandigarh is evaluated through ten samples collected during June-2019. The water samples were analyzed for major cations (Ca, Mg, Na, K) and anions (CO_3 , HCO_3 , Cl, NO_3 , SO_4 , F, PO_4) in addition to pH, EC, SiO_2 and TH as CaCO_3 in the Regional Chemical Laboratory by following 'Standard analytical procedures' as given in APHA 2012.

Composition of Ground Water

The results of chemical analysis of ground water sample (Annexure-5) reveals that it is alkaline in nature with pH from 7.87 to 8.66 and moderately mineralized with EC ranging from 235 to 735 $\mu\text{S}/\text{cm}$ at 25°C . Among anions, carbonate ion is found to vary between 0 and 14 mg/l whereas bicarbonate concentration ranges from 98 to 279 mg/l. The chloride values range from 14 to 71 mg/l, while the sulphate values vary from 2 to 51 mg/l. Nitrate concentrations are found to range between <0.20 to be 85 mg/l. The Fluoride content is low and maximum concentration is 0.44 mg/l which is below the desirable limit of 1.0 mg/l. The cations such as calcium and magnesium are present in low concentration and their highest values are 34 mg/l and 36 mg/l, respectively. The sodium concentration varies between 4 to 91 mg/l. The maximum potassium concentration reported is 5 mg/l. Total hardness of water sample expressed as CaCO_3 is found to range between 84 and 210 mg/l.

- The perusal of Tri-linear Plot of percentages of major ions represented on Piper Diagram (Plate 3), indicates that different types of water is found in the area, varying from Ca-Mg-HCO₃ and mixed type with no particular ion being dominant.

Fig 5.7

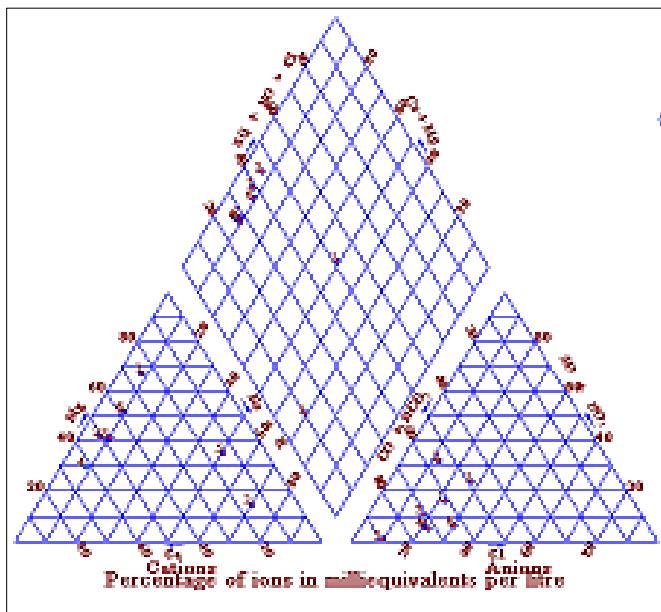
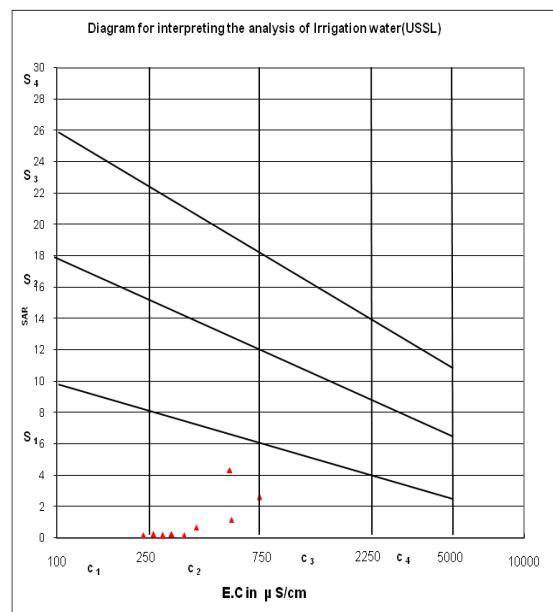


Fig 5.8



The ground water is suitable for domestic use as all parameters are within the permissible limits of drinking water quality standards prescribed by BIS-2012. The suitability of groundwater for irrigational uses is determined by considering the values of salinity (EC), sodium adsorption ratio (SAR) and residual sodium carbonate (RSC). Based on highest reported values for EC (735 $\mu\text{S}/\text{cm}$), SAR (4.33) and RSC (3.37), it can be concluded that groundwater of Chandigarh is suitable for irrigation except one location. The USSL classification of irrigation waters (Plate 4) indicates that it falls in C2S1 class and can be used for customary irrigation.

Temporal Variation

On comparison with chemical data of GWMS 2015, it is observed that there has been an improvement in water quality in terms of salinity with maximum EC decreasing from 950

$\mu\text{S}/\text{cm}$ to 735 $\mu\text{S}/\text{cm}$. There has been no significant change in Chloride, Nitrate and Fluoride concentration during this period. There has been a considerable improvement in water quality

Conclusion & Recommendation

Conclusion drawn for quality evaluations of ground water and its suitability for various uses is based on macro level studies through monitoring stations sampled during 2019. It can be concluded that in Chandigarh ground water is generally suitable for drinking and groundwater is suitable for irrigation purposes except one place.

Annexure-1
Depth to Water Levels in m bgl

S. No	State	District	Location	2019	2019	2019	2020
				June (mbgl)	August (mbgl)	October (mbgl)	January (mbgl)
1	Chandigarh	Chandigarh	BURAIL	3.39	2.42	2.87	2.68
2	Chandigarh	Chandigarh	Csio-combined	23.24	22.49	23.27	21.51
3	Chandigarh	Chandigarh	CSIO-S	23.24	22.16	22.45	22.38
4	Chandigarh	Chandigarh	NEW INDUST AREA	20.24	20.89	22.84	24.54
5	Chandigarh	Chandigarh	Sec-27, Ar Well	41.21	41.89	43.26	41.91
6	Chandigarh	Chandigarh	Sec-27, Cgwb Building			41.87	98.58
7	Chandigarh	Chandigarh	SECT 10C	53.82	53.24	53.64	59.14
8	Chandigarh	Chandigarh	SECT 10C (D)	33.16	32.63	31.34	34.35
9	Chandigarh	Chandigarh	SECT 10C (S)	19.17	18.32	19.4	47.58
10	Chandigarh	Chandigarh	SECT 31D (D)	18.97	20.42	18.97	18.60
11	Chandigarh	Chandigarh	SECT 31D (S)	11.86	11.96	11.64	12.48
12	Chandigarh	Chandigarh	SECT 37D (S)	4.83	4.46	17.14	4.06
13	Chandigarh	Chandigarh	SECT 39D (S)	11.05	9.22	7.84	7.35
14	Chandigarh	Chandigarh	SECT 44D (S)	4.13	3.17	3.35	3.57
15	Chandigarh	Chandigarh	Sector-46 (shallow)	7.48	6.70	7.39	7.28
16	Punjab	AMRITSAR	Ajnala	12.40		12.90	12.40
17	Punjab	AMRITSAR	Amritsar	26.90		25.45	26.40
18	Punjab	AMRITSAR	Amritsar1	25.41	25.49	26.50	
19	Punjab	AMRITSAR	Bajwa-Pz	7.10			
20	Punjab	AMRITSAR	Bal Kalan-Pz	17.10		17.80	
21	Punjab	AMRITSAR	Beas07	13.82	14.45	14.52	14.88
22	Punjab	AMRITSAR	Bhattaywad-Pz	14.70		15.20	
23	Punjab	AMRITSAR	Bholewal-Pz	13.80		21.20	
24	Punjab	AMRITSAR	Boparai Khurd-Pz	16.50		18.00	
25	Punjab	AMRITSAR	Chak Dogra-Pz	9.80		10.20	
26	Punjab	AMRITSAR	Chogawan1			11.73	11.35
27	Punjab	AMRITSAR	ChogWan- Pz	11.69	13.30		
28	Punjab	AMRITSAR	Dhulika-Pz	17.60		17.80	
29	Punjab	AMRITSAR	Dohan-Pz	19.30		20.10	
30	Punjab	AMRITSAR	Gago Mahal- Pz	5.79	7.30	6.53	6.55
31	Punjab	AMRITSAR	Gill wali-Pz	20.30		19.70	

32	Punjab	AMRITSAR	Jandiala Guru-Pz	20.73	22.43	20.81	16.45
33	Punjab	AMRITSAR	Jethuwal-Pz	15.50		15.70	
34	Punjab	AMRITSAR	Kandowali-Pz	15.40		13.50	
35	Punjab	AMRITSAR	Karyl-Pz	10.20		9.60	
36	Punjab	AMRITSAR	Khilchian-Pz			80.00	
37	Punjab	AMRITSAR	Mahima-Pz	19.80		19.70	
38	Punjab	AMRITSAR	Majitha- Pz	13.10		10.50	
39	Punjab	AMRITSAR	Makhan Windi-Pz	17.30			
40	Punjab	AMRITSAR	Mehleykey-Pz	7.00		6.60	
41	Punjab	AMRITSAR	Mehta			14.25	14.56
42	Punjab	AMRITSAR	Mehta-Pz	13.90		14.70	
43	Punjab	AMRITSAR	Miran Chak-Pz	17.10		17.70	
44	Punjab	AMRITSAR	Nangal Sahaul-Pz	5.30		5.50	
45	Punjab	AMRITSAR	Nawan Tanal- Pz	11.85	12.68	12.86	12.31
46	Punjab	AMRITSAR	Ramdas-DW	8.10	6.48	6.22	9.05
47	Punjab	AMRITSAR	Rampura-Pz	28.46			
48	Punjab	AMRITSAR	Rayya-Pz	15.80		16.70	
49	Punjab	AMRITSAR	Rupowal Brahmana-Pz	13.90		14.20	
50	Punjab	AMRITSAR	Sarangra-Pz	12.30			
51	Punjab	AMRITSAR	Sathiala-Pz			17.50	
52	Punjab	AMRITSAR	Shabura-Pz	13.20		16.00	
53	Punjab	AMRITSAR	Sham Nagar-Pz	8.60		7.90	
54	Punjab	AMRITSAR	Talwandi Dogra- Pz	20.10		20.10	
55	Punjab	AMRITSAR	Tarsika-Pz	14.80		16.30	
56	Punjab	AMRITSAR	Ugar Aulakh-Pz	15.40		15.70	
57	Punjab	AMRITSAR	Vadala Kalan-Pz	16.20		18.00	
58	Punjab	AMRITSAR	Vadala Viran-Pz	7.70			
59	Punjab	AMRITSAR	Verka-Pz	20.10			
60	Punjab	AMRITSAR	Wandala Bittewad-Pz	16.60		17.40	
61	Punjab	BARNALA	Amla Singh Wala- PZ	39.20		42.67	
62	Punjab	BARNALA	Barnala (s)	39.62	40.74	41.22	40.71
63	Punjab	BARNALA	Bhadaur-Pz	30.28	31.74	32.29	31.78
64	Punjab	BARNALA	Daula-Pz	36.91			
65	Punjab	BARNALA	Dhanaula-Pz	30.82		40.56	
66	Punjab	BARNALA	Diwana-Pz			32.60	
67	Punjab	BARNALA	Kurar-Pz	39.65		42.75	
68	Punjab	BARNALA	Lohgarh-Pz	31.50		35.68	

69	Punjab	BARNALA	Mahal Kalan-Pz	34.88	36.53	37.22	36.63
70	Punjab	BARNALA	Pakho Ke-Pz	27.02		34.60	
71	Punjab	BARNALA	Patti Dwarka-Pz	33.44			
72	Punjab	BARNALA	Raisar-Pz	33.52			
73	Punjab	BARNALA	Shekha	37.03		41.60	
74	Punjab	BARNALA	Sherpur			46.75	
75	Punjab	BATHINDA	Ablu	12.53	15.27	14.97	14.87
76	Punjab	BATHINDA	Aleke Jalal-Pz	27.70		31.42	
77	Punjab	BATHINDA	Badiala-Pz	30.23	32.95	35.50	
78	Punjab	BATHINDA	Bagher Mohabat Singh-Pz	9.76		10.76	
79	Punjab	BATHINDA	Bahman Kaur Singh-Pz	10.24		10.24	
80	Punjab	BATHINDA	Balianwali-Pz	24.92		27.87	
81	Punjab	BATHINDA	Balluanal		5.00	6.91	
82	Punjab	BATHINDA	Balluanal-Pz	6.85		4.55	
83	Punjab	BATHINDA	Bandi-Pz	6.93			
84	Punjab	BATHINDA	Bhagibandar	9.20	10.63	9.48	8.28
85	Punjab	BATHINDA	Bhagta Bhaike-Pz			27.00	
86	Punjab	BATHINDA	Bugran-Pz	30.50		33.46	
87	Punjab	BATHINDA	Burj Gill-Pz	27.76		31.12	
88	Punjab	BATHINDA	Deratapp	7.68	7.07	8.37	8.26
89	Punjab	BATHINDA	Dhapali1	29.01	28.75	29.92	28.85
90	Punjab	BATHINDA	Dhapali-Pz	26.58	28.25	28.67	22.73
91	Punjab	BATHINDA	Dialpur Mirza	28.11	30.20	31.46	28.66
92	Punjab	BATHINDA	Dialpura Bhlaike	28.50	32.76	32.00	31.06
93	Punjab	BATHINDA	Dialpura- Mirza	27.75		30.10	
94	Punjab	BATHINDA	Dulle Wala-Pz	32.68		36.16	
95	Punjab	BATHINDA	Ganga-Pz	16.20		17.07	16.23
96	Punjab	BATHINDA	Ghudda-Pz			10.44	
97	Punjab	BATHINDA	Gill Patti-DW	10.56		11.29	
98	Punjab	BATHINDA	Gobind Pura-Pz	15.55			
99	Punjab	BATHINDA	Gulabgarh 2 (s)	14.18	14.86	14.30	14.37
100	Punjab	BATHINDA	Guru Sar-Pz	9.79	9.95	9.90	9.37
101	Punjab	BATHINDA	Harraipur-Pz	18.68		21.60	
102	Punjab	BATHINDA	Jajjal	8.90	9.00	9.00	8.60
103	Punjab	BATHINDA	Jajjal_DW	8.40		9.15	
104	Punjab	BATHINDA	Jassi Bhagwali	8.20	7.42	7.05	6.77
105	Punjab	BATHINDA	Jhanduke	22.84			25.67
106	Punjab	BATHINDA	Jhanduke-Pz	23.50	26.95	26.06	

107	Punjab	BATHINDA	Kahan Singh Wala-DW			22.00	
108	Punjab	BATHINDA	Kalla Bandar	11.28			
109	Punjab	BATHINDA	Kalyan Sukha	25.50	29.69	28.50	27.62
110	Punjab	BATHINDA	Kalyan Sukha-M	27.04	29.57	28.15	26.37
111	Punjab	BATHINDA	Koir Singh Wala-Pz	25.54		29.17	
112	Punjab	BATHINDA	Kot Bhaktu-Pz	6.18		6.49	
113	Punjab	BATHINDA	Kot Guru	6.68		6.69	
114	Punjab	BATHINDA	Kot Shamir	14.81	15.08	15.36	
115	Punjab	BATHINDA	Kothaguru-Pz		28.30	28.79	27.85
116	Punjab	BATHINDA	Lalliana-Pz	8.23		8.50	
117	Punjab	BATHINDA	Lehra Dhulkot-Pz	24.30		26.92	
118	Punjab	BATHINDA	Maihma Bhagwan-PZ	11.98		12.75	
119	Punjab	BATHINDA	Maisar Khana			17.53	
120	Punjab	BATHINDA	Maisar Khana-Pz	16.42	17.97	18.09	
121	Punjab	BATHINDA	Maluka-Pz	23.62		26.11	
122	Punjab	BATHINDA	Mandi Kalan-Pz	26.53		28.57	
123	Punjab	BATHINDA	Maur Kalan-Pz	13.36			
124	Punjab	BATHINDA	Mehraj-Pz	23.42		25.80	
125	Punjab	BATHINDA	Mehta-Pz			7.94	
126	Punjab	BATHINDA	Multania-Pz	7.57		7.75	
127	Punjab	BATHINDA	Nahinwala	13.13	13.44	13.44	13.11
128	Punjab	BATHINDA	Nathana-Pz	22.23		25.53	
129	Punjab	BATHINDA	Nathena-Pz			7.00	
130	Punjab	BATHINDA	Phulla	21.62			22.96
131	Punjab	BATHINDA	Phulla1		23.67	24.98	
132	Punjab	BATHINDA	Puhla-Pz	22.98			
133	Punjab	BATHINDA	Raike Kalan	2.48	4.03	3.62	2.76
134	Punjab	BATHINDA	Rajgarh Kubey-Pz	10.82		12.02	
135	Punjab	BATHINDA	Rampura	26.30			
136	Punjab	BATHINDA	Rampura-Pz	28.46			
137	Punjab	BATHINDA	Rayya-Pz	29.70		32.74	
138	Punjab	BATHINDA	Salabatpur-Pz	32.03		33.80	
139	Punjab	BATHINDA	Seema-DW	18.83			
140	Punjab	BATHINDA	Sidhana	24.79			
141	Punjab	BATHINDA	Sooch-Pz	21.42		24.47	
142	Punjab	BATHINDA	Teona-Pz	5.54		5.38	
143	Punjab	BATHINDA	Tungwali-Pz	16.81		19.44	
144	Punjab	FARIDKOT	Baja Khana	19.72	21.38	21.53	20.53

145	Punjab	FARIDKOT	Bead Sikhanwala-Pz	9.86	11.26	9.89	9.95
146	Punjab	FARIDKOT	Behabal Kalan-Pz			17.50	
147	Punjab	FARIDKOT	Chahd Baja	16.91		19.60	17.95
148	Punjab	FARIDKOT	Chak Kalan-Pz			2.89	
149	Punjab	FARIDKOT	Deviwala-S	7.90	10.46	8.56	8.22
150	Punjab	FARIDKOT	Dhaipai-Pz			10.67	
151	Punjab	FARIDKOT	Dhilwan Kalan	10.32			
152	Punjab	FARIDKOT	Dhudi-Pz			14.74	
153	Punjab	FARIDKOT	Dipsinghwala	5.24	4.88		
154	Punjab	FARIDKOT	Faridkot-Pz			4.65	
155	Punjab	FARIDKOT	Fatehgarh-Pz			21.45	
156	Punjab	FARIDKOT	Ghuiana-Pz			4.50	
157	Punjab	FARIDKOT	Jand Sahib-Pz	4.54	4.65	4.48	3.90
158	Punjab	FARIDKOT	Karirwali	12.58	14.61	13.45	12.90
159	Punjab	FARIDKOT	Killi-Pz	4.99		4.64	4.67
160	Punjab	FARIDKOT	Koharwala- DW			9.00	
161	Punjab	FARIDKOT	Kot Kapura	8.66	10.94	9.13	8.92
162	Punjab	FARIDKOT	Matta	9.60	10.37	9.82	9.27
163	Punjab	FARIDKOT	Mehmuana	1.40	0.97	1.30	1.20
164	Punjab	FARIDKOT	Mumra-Pz	5.85	7.08	21.53	5.95
165	Punjab	FARIDKOT	Nangal-Pz	9.40	19.48	8.80	8.27
166	Punjab	FARIDKOT	Pahluwala-Pz			5.45	
167	Punjab	FARIDKOT	Ratti Rori-Pz			1.64	
168	Punjab	FARIDKOT	Rorian Kapura-Pz			12.36	
169	Punjab	FARIDKOT	Sadiq-Pz	4.79	5.04	5.02	4.80
170	Punjab	FARIDKOT	Sher Singh Wala-Pz	3.18	3.29	3.26	2.95
171	Punjab	FARIDKOT	Sukhwala-Pz	3.41	2.16	2.70	2.85
172	Punjab	FARIDKOT	Tehna-Pz	9.36	8.90	9.40	8.05
173	Punjab	FARIDKOT	Wara Dwarka-Pz	4.54	4.23	4.05	4.27
174	Punjab	FATEHGARH SAHIB	Alamgarh	2.34			
175	Punjab	FATEHGARH SAHIB	Alipur Sodhian-Pz	20.25		20.45	
176	Punjab	FATEHGARH SAHIB	Amloh1	26.05			
177	Punjab	FATEHGARH SAHIB	Badalialasingh	41.28	40.88	39.31	49.14

178	Punjab	FATEHGARH SAHIB	Bagga Kalan	27.25		27.55	
179	Punjab	FATEHGARH SAHIB	Balpur			24.55	
180	Punjab	FATEHGARH SAHIB	Bassi Pathana	19.95		24.48	19.85
181	Punjab	FATEHGARH SAHIB	Bhaddal Tuha-Pz	26.18			25.90
182	Punjab	FATEHGARH SAHIB	Bhagiana	4.87	2.70	2.67	2.92
183	Punjab	FATEHGARH SAHIB	Bhateri			32.60	32.52
184	Punjab	FATEHGARH SAHIB	Bhateri1	32.55	33.60		
185	Punjab	FATEHGARH SAHIB	Burj	19.25		20.55	
186	Punjab	FATEHGARH SAHIB	Chandiala-Pz	17.85		19.30	
187	Punjab	FATEHGARH SAHIB	Charnarthalkalan			21.00	
188	Punjab	FATEHGARH SAHIB	Chuni Khurd-PZ	17.40		15.60	
189	Punjab	FATEHGARH SAHIB	Chunni Kalan	14.90	14.40	12.96	12.98
190	Punjab	FATEHGARH SAHIB	Fatehgarh Sahib	20.80		22.65	
191	Punjab	FATEHGARH SAHIB	Fatehgarh Sahib-Pz	21.85	21.80	21.50	21.17
192	Punjab	FATEHGARH SAHIB	Inayatpur-PZ-S	21.00	21.50		
193	Punjab	FATEHGARH SAHIB	Jai Singh Wala	20.95		20.40	
194	Punjab	FATEHGARH SAHIB	Jhambela	24.55		25.15	
195	Punjab	FATEHGARH SAHIB	Kalewal	18.75			
196	Punjab	FATEHGARH SAHIB	Khamanon-pz	20.20		20.80	
197	Punjab	FATEHGARH SAHIB	Kharey_PZ	21.10			

198	Punjab	FATEHGARH SAHIB	Khera-Pz	26.40		28.20	
199	Punjab	FATEHGARH SAHIB	Ladpur	22.05			
200	Punjab	FATEHGARH SAHIB	Lohar Majra	22.15		23.35	
201	Punjab	FATEHGARH SAHIB	Mianpur-Pz	20.50		22.00	
202	Punjab	FATEHGARH SAHIB	Nalini-Pz	22.09	23.77	22.64	21.68
203	Punjab	FATEHGARH SAHIB	Nandpur Kalaur-Pz	32.20		33.20	
204	Punjab	FATEHGARH SAHIB	Pawala	9.78	13.74	13.97	14.22
205	Punjab	FATEHGARH SAHIB	Sado Majra	20.45		21.55	
206	Punjab	FATEHGARH SAHIB	Salempur	31.00			
207	Punjab	FATEHGARH SAHIB	Shahpur	25.15		25.75	
208	Punjab	FATEHGARH SAHIB	Sirhind-Pz	23.60		22.70	
209	Punjab	FATEHGARH SAHIB	Tahalpur	25.10		26.40	
210	Punjab	FATEHGARH SAHIB	Talwara	22.00		23.00	
211	Punjab	FATEHGARH SAHIB	Timber Pur-Pz	22.00		21.40	
212	Punjab	FAZILKA	Abohar	3.45	3.31	3.55	3.31
	Punjab	FAZILKA	Alamgarh	2.34			
213	Punjab	FAZILKA	Asifwala-Pz			6.37	
214	Punjab	FAZILKA	Bannawala	2.27	3.20	3.15	2.90
215	Punjab	FAZILKA	Bazirdpura	7.27	7.20	7.20	6.87
216	Punjab	FAZILKA	Chak Khene Wala-Pz			7.33	
217	Punjab	FAZILKA	Chak Pune Wala-Pz			18.42	
218	Punjab	FAZILKA	Danewal Satkosi	4.19	3.48	4.45	4.48
219	Punjab	FAZILKA	Danger Khera-Pz			3.10	
220	Punjab	FAZILKA	Dipulana-Pz	7.48	7.83	7.09	
221	Punjab	FAZILKA	Fattu Wala-Pz			21.00	

222	Punjab	FAZILKA	Ghananga Kalan-Pz			4.50	
223	Punjab	FAZILKA	Giddran Wali-Pz			3.78	
224	Punjab	FAZILKA	Godiwala-Pz			4.24	
225	Punjab	FAZILKA	Guru Harsahai-Pz			6.32	
226	Punjab	FAZILKA	Hamed Saidoke-Pz			15.05	
227	Punjab	FAZILKA	Himmatpura-Pz			6.28	
228	Punjab	FAZILKA	Jaimal Singhwala Pz		11.46		
229	Punjab	FAZILKA	Jand Wala Johian-Pz			3.59	
230	Punjab	FAZILKA	Jandwala Watan-Pz			3.39	
231	Punjab	FAZILKA	Kaler Khera-Pz			4.41	
232	Punjab	FAZILKA	Khore Ki Uttar-Pz			17.22	
233	Punjab	FAZILKA	Khuiansarwar	2.02			2.07
234	Punjab	FAZILKA	Khuiansarwar- Pz		2.03	2.21	
235	Punjab	FAZILKA	Kundall	1.26	1.68	1.86	1.27
236	Punjab	FAZILKA	Ladhuwala		1.10	2.33	
237	Punjab	FAZILKA	Mahuana-Pz			4.82	
238	Punjab	FAZILKA	Malukpur-Pz			1.97	
239	Punjab	FAZILKA	Markhiwa Bhamni-Pz			7.21	
240	Punjab	FAZILKA	Muradwala Dal-Pz			3.02	
241	Punjab	FAZILKA	Nihalkhera	4.21		4.32	
242	Punjab	FAZILKA	Pancha Wali-Pz			10.15	
243	Punjab	FAZILKA	Pattiwalla-Pz			3.12	
244	Punjab	FAZILKA	Ramsara-Pz			3.70	
245	Punjab	FAZILKA	Sham Singhwala-Pz			5.17	
246	Punjab	FAZILKA	Shatriwala-Pz			4.19	
247	Punjab	FAZILKA	Sherewala-Pz			8.10	
248	Punjab	FAZILKA	Singhpura-Pz			2.48	
249	Punjab	FAZILKA	Sitoganno	2.35	2.13		
250	Punjab	FAZILKA	Sohangarh Ratte	2.73	2.13	2.03	2.18
251	Punjab	FAZILKA	Swah Wala- Pz	11.00	11.83	11.43	10.87
252	Punjab	FIROZPUR	Bara Mansur Wala-Pz	28.46		28.75	
253	Punjab	FIROZPUR	Chak Kandhe Shah-Pz			14.02	
254	Punjab	FIROZPUR	Chamb-Pz	19.43		18.12	
255	Punjab	FIROZPUR	Dulchi Ke-Pz			8.00	
256	Punjab	FIROZPUR	Gogiani-Pz	20.26		18.80	

257	Punjab	FIROZPUR	Jaimal wala-Pz	10.65		10.83	9.80
258	Punjab	FIROZPUR	Jang-Pz			8.45	
259	Punjab	FIROZPUR	Lauhke Kalan- Pz	18.12	21.33	17.35	18.14
260	Punjab	FIROZPUR	Lohere Khurd-Pz	20.67		19.97	
261	Punjab	FIROZPUR	Machi Bugra/ Gujran-Pz			17.62	
262	Punjab	FIROZPUR	Mallanwala Khas- Pz	12.80		14.00	
263	Punjab	FIROZPUR	Malluwala-Pz	24.86		23.96	
264	Punjab	FIROZPUR	Malsian-Pz	12.14	14.55		12.93
265	Punjab	FIROZPUR	Mana Singh Wala- Pz			4.92	
266	Punjab	FIROZPUR	Mohkam Khan Wala-Pz			16.70	
267	Punjab	FIROZPUR	Mohre Wala-Pz	6.89	8.04	7.25	6.95
268	Punjab	FIROZPUR	Mudki-Pz			14.65	
269	Punjab	FIROZPUR	Piyarana	5.05	5.40	5.30	4.80
270	Punjab	FIROZPUR	Rala Hazi- Pz			6.95	
271	Punjab	FIROZPUR	Rukne Wala-Pz	10.50		9.28	
272	Punjab	FIROZPUR	Sadhusha Wala-Pz			14.11	
273	Punjab	FIROZPUR	Sultan Khan Wala Urf-Pz			13.50	
274	Punjab	FIROZPUR	Talwandi Jalle Khan-pz	30.15		29.32	
275	Punjab	FIROZPUR	Tibbi Kalan-Pz			10.70	
276	Punjab	FIROZPUR	Tibbi Taiwan Laluwalla-Pz			4.44	
277	Punjab	FIROZPUR	Wage Wala-Pz	11.50		12.80	
278	Punjab	GURDASPUR	Bariyar	9.70		10.00	
279	Punjab	GURDASPUR	Batala-Pz	8.50			
280	Punjab	GURDASPUR	Bhagowal	8.50	7.64	8.55	
281	Punjab	GURDASPUR	Bham		16.50		
282	Punjab	GURDASPUR	Bilasbal-Pz	16.10		16.10	
283	Punjab	GURDASPUR	Chahal Kalan-Pz	9.20		8.90	
284	Punjab	GURDASPUR	Chahgill-Pz	8.85		9.05	
285	Punjab	GURDASPUR	Chone-Pz	12.35		12.00	
286	Punjab	GURDASPUR	Dakoha-Pz	15.62	17.46	15.96	14.98
287	Punjab	GURDASPUR	Dera Baba Nanak	7.00	6.96	6.57	6.62
288	Punjab	GURDASPUR	Dhandoi-Pz			12.30	
289	Punjab	GURDASPUR	Dhianpur	10.72	11.57	10.50	9.93
290	Punjab	GURDASPUR	Dinanagar	7.10	5.61	3.43	3.53
291	Punjab	GURDASPUR	Dostpur-Pz	4.70		4.80	

292	Punjab	GURDASPUR	Gajikort-Pz			4.50	
293	Punjab	GURDASPUR	Galri	4.57	5.77	4.13	3.29
294	Punjab	GURDASPUR	Ghania Ki bangar-Pz	7.05	8.80		7.45
295	Punjab	GURDASPUR	Ghumani Khurd-Pz	6.35		6.60	
296	Punjab	GURDASPUR	Gurdaspur-Pz	9.00		9.15	
297	Punjab	GURDASPUR	Harchowal-Pz-S	12.75	14.91	12.96	12.87
298	Punjab	GURDASPUR	Hargobindpur	19.60	20.61	19.27	
299	Punjab	GURDASPUR	Hassanpur Kalan-Pz	9.75		9.65	
300	Punjab	GURDASPUR	Jhabkra	2.45		2.85	
301	Punjab	GURDASPUR	Jhandalbana-Pz	2.30		2.25	
302	Punjab	GURDASPUR	Kala Afgana-Pz	8.90		8.90	
303	Punjab	GURDASPUR	Kalanaur-DW	11.86	13.31	12.60	12.44
304	Punjab	GURDASPUR	Kalanaur-Pz	4.40	8.75	3.78	12.44
305	Punjab	GURDASPUR	Kalerkalan-Pz	3.05			
306	Punjab	GURDASPUR	Kaure-Pz	14.50		15.30	
307	Punjab	GURDASPUR	Khan Fatta-Pz	5.55		9.55	
308	Punjab	GURDASPUR	Khanmalik-Pz	9.25		9.60	
309	Punjab	GURDASPUR	Khatgarh-Pz	3.70		3.90	
310	Punjab	GURDASPUR	Lakankala-Pz	4.60		4.65	
311	Punjab	GURDASPUR	Langurwal-Pz	8.45		8.95	
312	Punjab	GURDASPUR	Madipur Fatehgarhchuria	11.01	11.68	11.12	10.27
313	Punjab	GURDASPUR	Malikpur-Pz	8.25		8.65	
314	Punjab	GURDASPUR	Maman-Pz	7.15		7.40	
315	Punjab	GURDASPUR	Masana-Pz	3.30		2.90	
316	Punjab	GURDASPUR	Massit-Pz	2.00		2.05	
317	Punjab	GURDASPUR	Mirza Jaan-Pz	9.90			
318	Punjab	GURDASPUR	Mullowali 1(vs)	4.30	4.83		
319	Punjab	GURDASPUR	Mullowali 2(m)		4.86		
320	Punjab	GURDASPUR	Nangal-Pz	3.00		3.00	
321	Punjab	GURDASPUR	Naushera			2.80	
322	Punjab	GURDASPUR	Nishayara	7.07	8.40	6.15	5.60
323	Punjab	GURDASPUR	Pandoritalab	2.69	3.91	2.45	2.17
324	Punjab	GURDASPUR	Parcha-Pz	6.25		6.00	
325	Punjab	GURDASPUR	Patti Atwal-Pz	12.45		12.50	
326	Punjab	GURDASPUR	Quadian 07	9.50			
327	Punjab	GURDASPUR	Raipur	2.60		2.90	
328	Punjab	GURDASPUR	Saidowal Kalan-DW	4.30	5.87	3.66	2.50

329	Punjab	GURDASPUR	Saleh Chak-S	4.15	4.78	3.94	3.33
330	Punjab	GURDASPUR	Salehchak(vs)	3.87	5.31		
331	Punjab	GURDASPUR	Sathial-Pz	12.15			
332	Punjab	GURDASPUR	Shahpur Jattan-Pz	5.20			
333	Punjab	GURDASPUR	Shahpur-Pz	5.25		5.20	
334	Punjab	GURDASPUR	Shezada Kalan-Pz	8.90		7.20	
335	Punjab	GURDASPUR	Sohal	11.00		10.90	
336	Punjab	GURDASPUR	Tikriwala-Pz	9.50		9.60	
337	Punjab	HOSHIARPUR	Aallo Batti-Pz	1.95		0.90	
338	Punjab	HOSHIARPUR	Adowal Garhi-Pz			18.05	
339	Punjab	HOSHIARPUR	Argowal-Pz	24.10			
340	Punjab	HOSHIARPUR	Badla-Pz			16.40	
341	Punjab	HOSHIARPUR	Bagpur-Pz			11.40	
342	Punjab	HOSHIARPUR	Baichan-Pz			22.30	
343	Punjab	HOSHIARPUR	Bajwara			25.00	
344	Punjab	HOSHIARPUR	Bajwara-Pz			17.20	
345	Punjab	HOSHIARPUR	Barota-PZ	3.00		2.90	
346	Punjab	HOSHIARPUR	Bersa	16.20		15.50	
347	Punjab	HOSHIARPUR	Bhalowal Gujran-Pz			37.60	
348	Punjab	HOSHIARPUR	Bhamnaur		9.09		10.18
349	Punjab	HOSHIARPUR	Bhangala-ChhotDW	5.88	4.70		
350	Punjab	HOSHIARPUR	Bhanowal-Pz	16.20		18.90	
351	Punjab	HOSHIARPUR	Bhatolian-Pz	27.30		26.10	
352	Punjab	HOSHIARPUR	Bhunga-Pz	17.80			
353	Punjab	HOSHIARPUR	Bisu Chak			18.60	
354	Punjab	HOSHIARPUR	Boring-PZ	15.00		12.10	
355	Punjab	HOSHIARPUR	Budhi Pind-Pz			17.50	
356	Punjab	HOSHIARPUR	Chak Sheru-DW	3.73	2.93	2.80	4.40
357	Punjab	HOSHIARPUR	Chohal	1.75		2.61	
358	Punjab	HOSHIARPUR	Dadan-Pz			39.30	
359	Punjab	HOSHIARPUR	DAGAN-DW	13.60	9.78	11.72	13.87
360	Punjab	HOSHIARPUR	Dallewal-Pz	18.90		17.50	
361	Punjab	HOSHIARPUR	Dasuya2 (s)	8.30	8.98	8.23	7.70
362	Punjab	HOSHIARPUR	Dharampur1	2.80		3.10	
363	Punjab	HOSHIARPUR	Durimiwal	6.40	5.26	4.92	5.22
364	Punjab	HOSHIARPUR	Fattowal-Pz			31.20	
365	Punjab	HOSHIARPUR	Garh Di Wala-Pz	16.19	16.35	18.58	13.29
366	Punjab	HOSHIARPUR	Garhshankar (s)	27.78	25.91	24.65	

367	Punjab	HOSHIARPUR	Grahaya-Pz			20.30	
368	Punjab	HOSHIARPUR	Haler Rampur-DW	4.52	4.44	3.67	4.32
369	Punjab	HOSHIARPUR	Hazipur	9.19			8.00
370	Punjab	HOSHIARPUR	Heer Beh-PZ	23.30		10.90	
371	Punjab	HOSHIARPUR	Jahidpur-PZ			8.10	
372	Punjab	HOSHIARPUR	Jalalpur-Pz			4.90	
373	Punjab	HOSHIARPUR	Jattpur-Pz			14.30	
374	Punjab	HOSHIARPUR	Kharkan-Pz			62.00	
375	Punjab	HOSHIARPUR	Khera-Pz			47.20	
376	Punjab	HOSHIARPUR	Mahil Baltohian-Pz			35.20	
377	Punjab	HOSHIARPUR	Mahilpur-Pz	20.29	19.55	18.97	18.78
378	Punjab	HOSHIARPUR	Mianipur-Pz			30.50	
379	Punjab	HOSHIARPUR	Mukerian Dw		1.18	3.11	0.25
380	Punjab	HOSHIARPUR	Naharpur-Pz	3.35		2.90	
381	Punjab	HOSHIARPUR	Namoli-PZ			50.00	
382	Punjab	HOSHIARPUR	Nangal Bihala-DW	11.18	10.85	9.45	9.30
383	Punjab	HOSHIARPUR	Nangal Thathal-Pz	20.50			
384	Punjab	HOSHIARPUR	Pan Khuh-DW	7.58	3.32	4.70	6.10
385	Punjab	HOSHIARPUR	Pandori Mehal-Pz			29.70	
386	Punjab	HOSHIARPUR	Pandori Rai			7.80	
387	Punjab	HOSHIARPUR	Parshote-Pz			22.20	
388	Punjab	HOSHIARPUR	Phuglana- Pz	23.95	27.20	22.37	10.44
389	Punjab	HOSHIARPUR	Rampur Colony (HSP) pz-medium	22.48			18.44
390	Punjab	HOSHIARPUR	Samraj Tanda-DW	5.30	4.42		3.94
391	Punjab	HOSHIARPUR	Satnoh-PZ.			41.70	
392	Punjab	HOSHIARPUR	Sham Chaurasi	13.08	13.33	12.32	12.16
393	Punjab	HOSHIARPUR	Sibo Chak- DW	8.55	5.65	7.28	7.65
394	Punjab	HOSHIARPUR	Simibli- OW	17.50		18.16	13.15
395	Punjab	HOSHIARPUR	Simibli-Pz	17.05	20.20	18.16	11.50
396	Punjab	HOSHIARPUR	Talwara1	11.53	10.27	10.63	10.77
397	Punjab	HOSHIARPUR	Tanda			3.60	
398	Punjab	HOSHIARPUR	Thakarwala	8.01	6.92	5.90	5.01
399	Punjab	JALANDHAR	Adampur 3(s)	6.98	7.76	7.28	6.83
400	Punjab	JALANDHAR	Akalpur-Pz			19.60	
401	Punjab	JALANDHAR	Allawalpur	6.80	5.35	5.40	5.44
402	Punjab	JALANDHAR	Beas Pind			11.50	
403	Punjab	JALANDHAR	Bilga-Pz			25.50	
404	Punjab	JALANDHAR	Billi Chahrami-Pz			38.70	

405	Punjab	JALANDHAR	Chania-Pz			36.20	
406	Punjab	JALANDHAR	Dhanda-Pz			36.60	
407	Punjab	JALANDHAR	Dhirowal-Pz			10.60	
408	Punjab	JALANDHAR	Fateh Jalal-Pz			33.50	
409	Punjab	JALANDHAR	Gehlan-pz			19.80	
410	Punjab	JALANDHAR	Gillian-Pz			36.80	
411	Punjab	JALANDHAR	Gohiran				35.59
412	Punjab	JALANDHAR	Hardo Pharwal-Pz			50.00	
413	Punjab	JALANDHAR	Hardo Sheikh-Pz			35.30	
414	Punjab	JALANDHAR	Idda-Pz			39.60	
415	Punjab	JALANDHAR	Jalandhar-Pz(VS)	38.01	32.75	38.73	
416	Punjab	JALANDHAR	Jalbhe	10.86	8.17	7.54	7.83
417	Punjab	JALANDHAR	Jandiala-Pz	30.17	32.26	33.08	31.97
418	Punjab	JALANDHAR	Jandu Singha-Pz			32.90	
419	Punjab	JALANDHAR	Janian-Pz			27.60	
420	Punjab	JALANDHAR	Kakar Kalan-Pz			22.20	
421	Punjab	JALANDHAR	Kala-Pz			25.60	
422	Punjab	JALANDHAR	Kalyanpur-Pz			36.50	
423	Punjab	JALANDHAR	Kang Sahib Rai-Pz			34.40	
424	Punjab	JALANDHAR	Kartarpur 2(s)	22.05	21.44	20.18	19.36
425	Punjab	JALANDHAR	Kharal Kalan Pz-S	14.27	17.70	8.76	13.99
426	Punjab	JALANDHAR	Kot Wadal Khan-Pz			27.80	
427	Punjab	JALANDHAR	Kurla-Pz			24.40	
428	Punjab	JALANDHAR	Lallian kalan Pz-S	36.55			37.30
429	Punjab	JALANDHAR	Mahmuwal-Pz			35.60	
430	Punjab	JALANDHAR	Mehsampur-Pz			24.50	
431	Punjab	JALANDHAR	Nakodar 2(m)			35.44	
432	Punjab	JALANDHAR	Nakodar 2(m)	35.84			
433	Punjab	JALANDHAR	Nangal Shaman			33.80	
434	Punjab	JALANDHAR	Nasirpur-Pz			8.40	
435	Punjab	JALANDHAR	Nussi-Pz			32.80	
436	Punjab	JALANDHAR	Pathial-Pz			16.10	
437	Punjab	JALANDHAR	Pharwala-Pz			29.40	
438	Punjab	JALANDHAR	Phillaur 2(s)	16.54	17.51		17.00
439	Punjab	JALANDHAR	Rahimpur-Pz			30.10	
440	Punjab	JALANDHAR	Rurka Kalan- Pz			30.70	
441	Punjab	JALANDHAR	Samarahi-Pz			23.80	
442	Punjab	JALANDHAR	Shahkot(s)			25.84	
443	Punjab	JALANDHAR	Shahkot-Pz-Pb			20.70	

444	Punjab	JALANDHAR	Skarar Pur-Pz			28.80	
445	Punjab	JALANDHAR	Sultanpur-Pz			19.50	
446	Punjab	JALANDHAR	Talwani Madho-Pz			36.90	
447	Punjab	JALANDHAR	Talwan-Pz			22.10	
448	Punjab	JALANDHAR	Thanda-Pz			29.35	
449	Punjab	JALANDHAR	Udhopur			7.65	
450	Punjab	KAPURTHALA	Amanipur-Pz			70.00	
451	Punjab	KAPURTHALA	Bauril Harnampur-Pz			17.40	
452	Punjab	KAPURTHALA	Begowal-Pz			7.00	
453	Punjab	KAPURTHALA	Bhanoki-Pz			28.60	
454	Punjab	KAPURTHALA	Bhatnura Khurd-S	14.32	18.17	14.96	14.62
455	Punjab	KAPURTHALA	Bhawanipur-Pz	8.49		11.60	
456	Punjab	KAPURTHALA	Bholath M	8.40	10.72		8.54
457	Punjab	KAPURTHALA	Bholath S		10.62	8.75	8.49
458	Punjab	KAPURTHALA	Chakoke-Pz			7.00	
459	Punjab	KAPURTHALA	Dalla			27.00	
460	Punjab	KAPURTHALA	Dhilwan			7.90	
461	Punjab	KAPURTHALA	Hamira-Pz			12.90	
462	Punjab	KAPURTHALA	Hazipur-Pz			8.00	
463	Punjab	KAPURTHALA	Hussainpura-S Pz	23.57	27.10	24.64	22.42
464	Punjab	KAPURTHALA	Hussainpura-VS Pz			24.73	22.37
465	Punjab	KAPURTHALA	Kapurthala2 (s)	21.22	26.90		20.30
466	Punjab	KAPURTHALA	Karnail Ganju-Pz			8.60	
467	Punjab	KAPURTHALA	Kishanpur			26.70	
468	Punjab	KAPURTHALA	Maheru-Pz			25.00	
469	Punjab	KAPURTHALA	Miani Bola-Pz			10.80	
470	Punjab	KAPURTHALA	Mithra-Pz			16.20	
471	Punjab	KAPURTHALA	Nathu Chahal-Pz			35.80	
472	Punjab	KAPURTHALA	Nurpur Janoa-Pz			9.70	
473	Punjab	KAPURTHALA	Phagwara(shallow)	26.75	28.16	28.20	
474	Punjab	KAPURTHALA	Phagwara2 (s)			30.00	26.88
475	Punjab	KAPURTHALA	Rawalpindi-Pz			23.50	
476	Punjab	KAPURTHALA	Sangatpur-Pz			23.20	
477	Punjab	KAPURTHALA	Shalapur Dona-Pz			33.30	
478	Punjab	KAPURTHALA	Sultanpur2 (s)	17.78	19.44	18.11	24.01
479	Punjab	KAPURTHALA	Talwandi Chaudary -Pz	10.60	13.39	10.69	9.92
480	Punjab	KAPURTHALA	Thikriwali-Pz			10.20	

481	Punjab	LUDHIANA	Alamgir-Pz	21.15		21.95	
482	Punjab	LUDHIANA	Aliwal-Pz	9.75		10.15	
483	Punjab	LUDHIANA	Begowal	10.03	9.78	9.52	10.12
484	Punjab	LUDHIANA	Bhagwanpur-Pz	14.95		15.20	
485	Punjab	LUDHIANA	Bhaholpur-DW	13.20	11.70	12.05	12.28
486	Punjab	LUDHIANA	Bharthala Randhawa-Pz	25.06		24.90	
487	Punjab	LUDHIANA	Bhikhi Khatron-Pz	15.43		15.53	
488	Punjab	LUDHIANA	Bilaspur-Pz	10.10		9.65	
489	Punjab	LUDHIANA	Chaminala-Pz	23.90		25.10	
490	Punjab	LUDHIANA	Chankolian Khurd-Pz	8.70		8.45	
491	Punjab	LUDHIANA	Chattar Singh Park-Idh		43.31		
492	Punjab	LUDHIANA	Chaunta-Pz	6.10		5.00	
493	Punjab	LUDHIANA	Chhapar-Pz	24.80		26.50	
494	Punjab	LUDHIANA	Dinnamder-Pz			23.50	
495	Punjab	LUDHIANA	Dodpur-Pz	21.25		21.15	
496	Punjab	LUDHIANA	Doraha-Pz	7.28	6.99		
497	Punjab	LUDHIANA	Galibkalan-Pz	26.25		20.00	
498	Punjab	LUDHIANA	Gohaur-Pz	24.25		24.85	
499	Punjab	LUDHIANA	Gopalpur 2(s)	18.89	20.15	19.88	18.93
500	Punjab	LUDHIANA	Hallawara-Pz-S	26.98	30.67		
501	Punjab	LUDHIANA	Hambowal-Pz	6.05		5.35	
502	Punjab	LUDHIANA	Harnampur	21.28		20.23	
503	Punjab	LUDHIANA	Hedon-Pz	18.50		17.90	
504	Punjab	LUDHIANA	Ikloha-Pz	23.92	24.34	24.15	23.25
505	Punjab	LUDHIANA	Jagraon 2(s)	24.08			
506	Punjab	LUDHIANA	Kalsian	30.60		33.15	
507	Punjab	LUDHIANA	Katanikalan-Pz	9.60		8.95	
508	Punjab	LUDHIANA	Khandur	23.04		25.19	
509	Punjab	LUDHIANA	Kishangarh-Pz	21.40		21.20	
510	Punjab	LUDHIANA	Kishanpur-Pz	27.50		29.85	
511	Punjab	LUDHIANA	Lalan1		4.50	9.26	9.32
512	Punjab	LUDHIANA	Lil- II Pz	18.64	20.48	18.47	16.12
513	Punjab	LUDHIANA	Lil-Pz III	15.29			20.53
514	Punjab	LUDHIANA	Lodhiwal-Pz	12.75		12.85	
515	Punjab	LUDHIANA	Lohara-Pz	31.55		32.25	
516	Punjab	LUDHIANA	Maksudra-Pz	10.61	10.71		
517	Punjab	LUDHIANA	Manak Majra-Pz	23.00		23.60	
518	Punjab	LUDHIANA	Mangat-Pz	11.50		11.55	

519	Punjab	LUDHIANA	Mangat-Pz-S	10.03			11.50
520	Punjab	LUDHIANA	Manoke-Pz			34.10	
521	Punjab	LUDHIANA	Mehma Singh Wala-Pz	22.65		24.50	
522	Punjab	LUDHIANA	Mushkabad	13.12	10.58	11.05	11.10
523	Punjab	LUDHIANA	Nelokalan			5.40	
524	Punjab	LUDHIANA	Nurpur-Pz	30.00		33.50	
525	Punjab	LUDHIANA	P.A.U.Ludhiana 2(s)	34.56	29.53	33.70	33.17
526	Punjab	LUDHIANA	Pabbian-Pz	19.70		21.90	
527	Punjab	LUDHIANA	Pandori-Pz	22.10		24.10	
528	Punjab	LUDHIANA	Payal-Pz	10.00		17.75	
529	Punjab	LUDHIANA	Punjeta		10.01	12.40	
530	Punjab	LUDHIANA	Ragba-Pz	21.20		22.70	
531	Punjab	LUDHIANA	Raikot-Pz	30.70		33.50	
532	Punjab	LUDHIANA	Rajona Khurd	27.88		32.28	
533	Punjab	LUDHIANA	Rashin	28.38		30.48	
534	Punjab	LUDHIANA	Rattewal-Pz	24.85		28.10	
535	Punjab	LUDHIANA	Roomi-Pz			32.45	
536	Punjab	LUDHIANA	Roshiana-Pz			24.45	
537	Punjab	LUDHIANA	Sajaywal-Pz	27.00		30.75	
538	Punjab	LUDHIANA	Samrala 2(s)	14.79	14.52	13.97	13.61
539	Punjab	LUDHIANA	Sanewal-Pz	17.45		17.45	
540	Punjab	LUDHIANA	Sangatpura-Pz	19.10		18.35	
541	Punjab	LUDHIANA	Sherian	3.79	2.48	3.13	4.74
542	Punjab	LUDHIANA	Sherpur Bhet	10.52		4.50	
543	Punjab	LUDHIANA	Sidhwan Bet-Pz	10.52	10.30	10.14	10.45
544	Punjab	LUDHIANA	Talwandi Kalan-Pz	4.80		22.50	
545	Punjab	LUDHIANA	Udonwal-Pz	8.70		3.95	
546	Punjab	LUDHIANA	Upplan			8.20	
547	Punjab	MANSA	Aklia-Pz			25.77	
548	Punjab	MANSA	Alampur Mandran-Pz			12.57	
549	Punjab	MANSA	Alisher Khurd-Pz			16.10	
550	Punjab	MANSA	Bahadur Pur-Pz			20.10	
551	Punjab	MANSA	Bareh-Pz			12.13	
552	Punjab	MANSA	Behniwala-Pz			7.58	
553	Punjab	MANSA	Bhamme Kalan-Pz			7.70	
554	Punjab	MANSA	Bhikhi 1 (s)	18.70	19.50	20.12	17.55
555	Punjab	MANSA	Budhlada	12.69		17.21	

556	Punjab	MANSA	Budhlada-Pz	16.40	17.08		16.95
557	Punjab	MANSA	Burj Bhalaikе	4.82	1.32	4.46	4.45
558	Punjab	MANSA	Burj Rathi-Pz			16.56	
559	Punjab	MANSA	Fattamaluka	6.49	6.41	6.71	6.76
560	Punjab	MANSA	Gharangne-Pz			8.64	
561	Punjab	MANSA	Hero Kalan-Pz			31.00	
562	Punjab	MANSA	Hirke-Pz			24.05	
563	Punjab	MANSA	Khiala Kalan-Pz			12.23	
564	Punjab	MANSA	Jhanda Khurd Pz	12.50			
565	Punjab	MANSA	Khokhar Kalan-Pz	14.24		10.45	
566	Punjab	MANSA	Kot Dhamru	8.83	12.15		3.30
567	Punjab	MANSA	Kusla-Pz			5.00	
568	Punjab	MANSA	Lakhialwal-Pz			22.20	
569	Punjab	MANSA	Makha-[PZ			7.62	
570	Punjab	MANSA	Phaphare Bhaike-Pz			19.84	
571	Punjab	MANSA	Raipur-Pz	7.67	7.35	7.55	7.22
572	Punjab	MANSA	Ralla	14.03	15.26	15.28	15.05
573	Punjab	MANSA	Sangha-Pz			67.26	
574	Punjab	MANSA	Tibbi Hari Singh-PZ			20.73	
575	Punjab	MOGA	Baje Ke-Pz	17.05	21.82	20.31	17.19
576	Punjab	MOGA	Bilaspur-PZ			35.76	
577	Punjab	MOGA	Budh Singh Wala-Pz	24.67	27.27	27.12	25.75
578	Punjab	MOGA	Chand Nawan-PZ			32.14	
579	Punjab	MOGA	Chogawan-Pz	33.48	38.87	36.63	34.85
580	Punjab	MOGA	Dagru- Pz	34.08	35.87	36.47	35.75
581	Punjab	MOGA	Damru Khurd				23.33
582	Punjab	MOGA	Daulatpur Niwan-Pz			31.94	
583	Punjab	MOGA	Dhudi Ke-PZ	32.20		35.14	
584	Punjab	MOGA	Dinna-PZ			33.00	
585	Punjab	MOGA	Himatpura-Pz			33.19	
586	Punjab	MOGA	Indergarh-Pz			26.00	
587	Punjab	MOGA	Jhandewala-Pz	35.70		37.75	
588	Punjab	MOGA	Kamalke-Pz	15.90		17.00	
589	Punjab	MOGA	Khokri Kalan-Pz	28.90		31.60	
590	Punjab	MOGA	Khosa Randhir-Pz	29.75		29.28	
591	Punjab	MOGA	Mandar-Pz	13.20		13.87	
592	Punjab	MOGA	Mangewala-Pz	23.60		25.57	

593	Punjab	MOGA	Meemana-PZ			42.54	
594	Punjab	MOGA	Mehron-PZ	36.00		37.95	
595	Punjab	MOGA	Nathu Wala-Pz			24.80	
596	Punjab	MOGA	Nihalsinghwala-Pz	34.38	37.75	36.90	33.75
597	Punjab	MOGA	Raonke Kalan-Pz			31.82	
598	Punjab	MOGA	Samad Bhai-Pz			25.00	
599	Punjab	MOGA	Samalsar-Pz			21.23	
600	Punjab	MOGA	Thathe Bhai-Pz			25.44	
601	Punjab	MOGA	Tota Singh Wala-Pz	11.00		11.64	
602	Punjab	MUKTSAR	Abulkharana-Pz			3.00	
603	Punjab	MUKTSAR	Balocha Khera(rasoolpur)	0.70	1.15	2.05	0.85
604	Punjab	MUKTSAR	Bhaliana	10.53	11.13	10.91	
605	Punjab	MUKTSAR	Bhiti Wala-Pz			4.00	
606	Punjab	MUKTSAR	Chaktam Kot-Pz			1.73	
607	Punjab	MUKTSAR	Dahak-S				1.45
608	Punjab	MUKTSAR	Dhalkot-Pz			8.49	
609	Punjab	MUKTSAR	Doda	3.43	2.72	1.52	1.72
610	Punjab	MUKTSAR	Doda-Pz	4.20	2.33	2.37	2.49
611	Punjab	MUKTSAR	Gaga-Pz			39.30	
612	Punjab	MUKTSAR	Husnar-Pz			2.06	
613	Punjab	MUKTSAR	Kabar Wala	3.92	5.21	4.26	4.13
614	Punjab	MUKTSAR	Kattianwali-Pz			3.00	
615	Punjab	MUKTSAR	Khirkian Wala-Pz			0.53	
616	Punjab	MUKTSAR	Khunde Halal-Pz	2.16	2.38	2.35	2.35
617	Punjab	MUKTSAR	Killian Wali-Pz			60.00	
618	Punjab	MUKTSAR	Kollian Wali-pz			2.75	
619	Punjab	MUKTSAR	Labanianwali	2.84	3.30	2.50	2.55
620	Punjab	MUKTSAR	Lambi		1.10	2.15	1.11
621	Punjab	MUKTSAR	Lambi-Pz	2.33	2.33	0.59	0.67
622	Punjab	MUKTSAR	Muktsar	4.78	4.70	4.63	4.26
623	Punjab	MUKTSAR	Phulu Khera-Pz			2.80	
624	Punjab	MUKTSAR	Ratta Khera Chota-Pz			2.18	
625	Punjab	MUKTSAR	Rupana-Pz			4.25	
626	Punjab	MUKTSAR	Sheikh-Pz			2.42	
627	Punjab	PATHANKOT	Bamyal	4.83	5.67	4.59	3.90
628	Punjab	PATHANKOT	Bhoa	3.69	4.19	3.85	3.64
629	Punjab	PATHANKOT	Dhar Khurd	2.70			
630	Punjab	PATHANKOT	Gharotakalan	9.37	9.67	6.88	8.35

631	Punjab	PATHANKOT	Ghoh			4.98	5.63
632	Punjab	PATHANKOT	Ghoh DW	7.30	7.55		
633	Punjab	PATHANKOT	Jainpur-PZ	2.70		2.60	
634	Punjab	PATHANKOT	Jandwala	26.10		24.20	
635	Punjab	PATHANKOT	Jhakolahri		3.51	1.90	2.06
636	Punjab	PATHANKOT	Khanikhui	1.84	2.53	1.31	1.24
637	Punjab	PATHANKOT	Khogaki Chaka-PZ	2.40		2.30	
638	Punjab	PATHANKOT	Kiari- DW	4.15	4.57	1.64	0.95
639	Punjab	PATHANKOT	Kirian Khurd-PZ	5.70		5.60	
640	Punjab	PATHANKOT	Kui-DW	4.55	4.97	2.11	1.87
641	Punjab	PATHANKOT	Kuther-PZ	21.00		18.30	
642	Punjab	PATHANKOT	Malikpur	7.30			
643	Punjab	PATHANKOT	Matti-PZ	24.60		17.60	
644	Punjab	PATHANKOT	Mirthal	3.65		2.20	
645	Punjab	PATHANKOT	Narot Jaimalsingh-Pz	5.10		5.15	
646	Punjab	PATHANKOT	Nawan Pind	5.76	6.27	5.46	5.44
647	Punjab	PATHANKOT	Parmota-DW	8.00	8.57	2.57	
648	Punjab	PATHANKOT	Pathankot1	4.10	4.28	3.62	3.61
649	Punjab	PATHANKOT	Philora-PZ	2.60		1.85	
650	Punjab	PATHANKOT	Phulpia	4.90			
651	Punjab	PATHANKOT	Rakawal-PZ			4.10	
652	Punjab	PATHANKOT	Rani Pur-PZ	8.30		5.40	
653	Punjab	PATHANKOT	Sarna	9.30	9.55	8.09	9.08
654	Punjab	PATHANKOT	Sujanpur-PZ	3.80		2.90	
655	Punjab	PATIALA	Bassma Pipla	7.50	5.90		
656	Punjab	PATIALA	Bhankhar-Pz	31.70		36.15	
657	Punjab	PATIALA	Bhojo majri 07pz	26.00	14.50	23.07	
658	Punjab	PATIALA	Bhora-Pz	24.90			
659	Punjab	PATIALA	Birkauli	27.06	35.08		
660	Punjab	PATIALA	Bhunerheri-Pz	35.15			
661	Punjab	PATIALA	Challeta-PZ	24.35		35.00	
662	Punjab	PATIALA	Chehal			25.28	24.66
663	Punjab	PATIALA	Devigarh	34.45			
664	Punjab	PATIALA	Devigarh 1Pz	36.51	40.51	37.52	36.41
665	Punjab	PATIALA	Devigarh IIPz	36.10		38.02	26.60
666	Punjab	PATIALA	Devigarh-III Pz	36.44		38.28	
667	Punjab	PATIALA	Dhaneta-PZ	35.70			
668	Punjab	PATIALA	Duggal Kalan			42.00	

669	Punjab	PATIALA	Gharam-PZ	38.20		41.10	
670	Punjab	PATIALA	Gulwatti-PZ	33.05		34.30	
671	Punjab	PATIALA	Haluka		10.27		8.57
672	Punjab	PATIALA	Handesaran-s				14.08
673	Punjab	PATIALA	Hari Majra	5.33	2.77	1.96	
674	Punjab	PATIALA	Harion Kalan-Pz			50.00	
675	Punjab	PATIALA	Jainagar-PZ	26.95		29.65	
676	Punjab	PATIALA	Jogewal-PZ			37.50	
677	Punjab	PATIALA	Kalyan 07pz	26.96	27.93	28.33	27.30
678	Punjab	PATIALA	Kami Kalan	12.46	9.48	11.88	11.80
679	Punjab	PATIALA	Kami Khurd-PZ	16.40		20.35	
680	Punjab	PATIALA	Kauli state			30.00	
681	Punjab	PATIALA	Kheri Pandte-PZ	24.55		32.35	
682	Punjab	PATIALA	Kulburcha-Pz	39.40		41.80	
683	Punjab	PATIALA	Kutha Kheri-Pz	36.65		40.90	
684	Punjab	PATIALA	Lacharu Kalan	4.71	4.69	3.96	4.26
685	Punjab	PATIALA	Lachkani-Pz	24.03	25.47	24.76	23.75
686	Punjab	PATIALA	Mehmood Pur-PZ	29.60		32.50	
687	Punjab	PATIALA	Mongowal-PZ	26.75		28.20	
688	Punjab	PATIALA	Nanhera-Pz	33.15		25.60	
689	Punjab	PATIALA	Nariana				10.91
690	Punjab	PATIALA	Passiana-PZ	24.55		24.60	
691	Punjab	PATIALA	Patran-Pz	43.43	44.25	44.80	42.40
692	Punjab	PATIALA	Rajgarh	26.15	27.27	26.51	25.81
693	Punjab	PATIALA	Rajpura Pz M	36.75		42.90	
694	Punjab	PATIALA	Rajpura-PzSt	39.96	46.35	38.57	37.73
695	Punjab	PATIALA	Rakhra-Pz	27.40			
696	Punjab	PATIALA	Ramgarh	34.10		35.08	31.68
697	Punjab	PATIALA	Randhawa-Pz	38.05			
698	Punjab	PATIALA	Rasoolpur Jaura-PZ	29.35		30.80	
699	Punjab	PATIALA	Saghraur-PZ			44.60	
700	Punjab	PATIALA	Samana-Pz	37.74	38.59	39.15	38.85
701	Punjab	PATIALA	Samaspur-Pz	26.55		27.50	
702	Punjab	PATIALA	Sanaur			37.50	
703	Punjab	PATIALA	Sangatpura-Pz	29.55	31.03	30.49	29.47
704	Punjab	PATIALA	Sauja-PZ	31.50		31.95	
705	Punjab	PATIALA	Surala Kalan-PZ	2.60			
706	Punjab	PATIALA	Thua	33.26			
707	Punjab	RUPNAGAR	Ahmedpur	7.54	5.51	4.91	5.20

708	Punjab	RUPNAGAR	Amrali-PZ	17.65		18.90	
709	Punjab	RUPNAGAR	Attari-PZ	5.25		4.80	
710	Punjab	RUPNAGAR	Bains			16.10	
711	Punjab	RUPNAGAR	Bera Chauta	3.22		2.56	2.72
712	Punjab	RUPNAGAR	Bhalan		1.58	3.77	4.85
713	Punjab	RUPNAGAR	Bhatto-PZ	4.60		3.80	
714	Punjab	RUPNAGAR	Braham Pur	4.45	2.87	3.80	3.93
715	Punjab	RUPNAGAR	Chakdera	4.90	4.29	3.82	4.83
716	Punjab	RUPNAGAR	Chatamli- Pz	36.45	40.47	36.82	35.45
717	Punjab	RUPNAGAR	Dhair	9.04	7.12	7.54	7.72
718	Punjab	RUPNAGAR	Dumewal	12.48	13.30	10.18	8.64
719	Punjab	RUPNAGAR	Hardinamoh	7.07	1.14	2.04	1.40
720	Punjab	RUPNAGAR	Kakrali	19.16	18.22	17.48	17.86
721	Punjab	RUPNAGAR	Klwan-PZ	9.50		9.30	
722	Punjab	RUPNAGAR	Kotla	1.10		0.70	
723	Punjab	RUPNAGAR	Morinda-PZ	23.65		24.50	
724	Punjab	RUPNAGAR	Rajgiri-PZ	20.20		19.70	
725	Punjab	RUPNAGAR	Rurki Heeran-Pz	19.71			18.05
726	Punjab	SANGRUR	Bagarian-Pz	34.02		32.45	31.65
727	Punjab	SANGRUR	Bakshiwala-PZ	36.60		38.05	
728	Punjab	SANGRUR	Banbhaura-PZ	29.60		32.40	
729	Punjab	SANGRUR	Benra-PZ-S	36.22	38.05		38.60
730	Punjab	SANGRUR	Bhojowali-Pz	38.46	41.10	39.92	38.60
731	Punjab	SANGRUR	Bhunerheri-PZ			41.85	
732	Punjab	SANGRUR	Bugra 1	32.70	36.37		24.10
733	Punjab	SANGRUR	Chatha Nanhera-PZ	30.05		31.60	
734	Punjab	SANGRUR	Chural Kalan M	31.41	32.60	32.83	35.81
735	Punjab	SANGRUR	Dharamgarh-Pz	33.90		35.60	
736	Punjab	SANGRUR	Ghanauri Kalan			43.18	42.67
737	Punjab	SANGRUR	Ghanauri Kalan-Pz	41.36	13.50	42.65	
738	Punjab	SANGRUR	Haryao-DW	23.95		25.10	
739	Punjab	SANGRUR	Hassanpur-Pz	33.10			
740	Punjab	SANGRUR	Kala Jhar-Pz			36.75	
741	Punjab	SANGRUR	Khanouri Kalan-PZ			40.10	
742	Punjab	SANGRUR	Khanpur Fakiran-PZ	34.85		36.10	
743	Punjab	SANGRUR	Kheri Naran-PZ	35.40		37.35	
744	Punjab	SANGRUR	Khurni-PZ	35.85		38.90	
745	Punjab	SANGRUR	Kila Hakima	30.45		34.10	

746	Punjab	SANGRUR	Kuler Khurd-Pz	36.90		39.10	
747	Punjab	SANGRUR	Kokahar-PZ	27.40			
748	Punjab	SANGRUR	Ladda-Pz	35.95	38.65	39.18	
749	Punjab	SANGRUR	Lehal Kalan-Pz	32.50		34.10	
750	Punjab	SANGRUR	Lehragaga-PZ			25.70	
751	Punjab	SANGRUR	Longowal-Pz	32.13	34.14	33.97	32.85
752	Punjab	SANGRUR	Majji-PZ	36.83	36.48	37.05	29.75
753	Punjab	SANGRUR	Malerkotla			35.50	
754	Punjab	SANGRUR	Malerkotla-DW	39.04	38.83		39.33
755	Punjab	SANGRUR	Manvi			27.60	
756	Punjab	SANGRUR	Minsa-Pz	35.90			
757	Punjab	SANGRUR	Manvi-Pz	24.15	24.18		24.02
758	Punjab	SANGRUR	Panjaraian- Pz	41.15		43.10	
759	Punjab	SANGRUR	Rajo Majra-PZ	33.40		36.30	
760	Punjab	SANGRUR	Rampur Channa- Pz	30.15		31.00	
761	Punjab	SANGRUR	Rurgarh-PZ	44.10		46.05	
762	Punjab	SANGRUR	Rurki Kalan-Pz	25.00		25.30	
763	Punjab	SANGRUR	Sekhpur Khurd-PZ	38.05		39.80	
764	Punjab	SANGRUR	Sekhwas-PZ	28.60		31.05	
765	Punjab	SANGRUR	Sikandarpur-PZ	40.95		42.95	
766	Punjab	SANGRUR	Sunam-Pz	37.32		38.26	38.15
767	Punjab	SAS NAGAR	Antala	3.99	2.74	2.74	2.78
768	Punjab	SAS NAGAR	Ballopur			0.90	
769	Punjab	SAS NAGAR	Balongi-PZ	43.70		40.10	
770	Punjab	SAS NAGAR	Barauli-PZ	31.90		37.80	
771	Punjab	SAS NAGAR	Chandiala-Pz	22.65		28.30	
772	Punjab	SAS NAGAR	Dera Bassi 07pz	13.52	12.92	12.62	12.01
773	Punjab	SAS NAGAR	Dheri	5.90	5.80	5.10	6.12
774	Punjab	SAS NAGAR	Dusarna			9.30	
775	Punjab	SAS NAGAR	Gharoon	13.40		11.05	
776	Punjab	SAS NAGAR	Issapur- DW	5.70			
777	Punjab	SAS NAGAR	Ghoga	5.83	1.01	2.56	3.68
778	Punjab	SAS NAGAR	Gholu majra 07pz	11.37			
779	Punjab	SAS NAGAR	Joli	7.00	6.30	5.56	5.80
780	Punjab	SAS NAGAR	Kurrha-Pz	22.50		22.90	
781	Punjab	SAS NAGAR	Landran Pz			15.97	14.65
782	Punjab	SAS NAGAR	Landran-Pz	15.80	16.70		
783	Punjab	SAS NAGAR	Malkpur-Pz	8.60		12.10	
784	Punjab	SAS NAGAR	Manoli-PZ	19.00		19.60	

785	Punjab	SAS NAGAR	Palheri-PZ	27.10		29.40	
786	Punjab	SAS NAGAR	Pedol-PZ	50.40		51.60	
787	Punjab	SAS NAGAR	Raipur Kalan	16.50		16.60	
788	Punjab	SAS NAGAR	Singhpura-Pz	32.50			
789	Punjab	SAS NAGAR	Sirsini	1.82	0.70	1.03	0.88
790	Punjab	SAS NAGAR	Sohana-PZ	3.50			
791	Punjab	SAS NAGAR	Siswan			20.00	
792	Punjab	SBS NAGAR	Alowal-Pz			6.40	
793	Punjab	SBS NAGAR	Aur-PZ			11.20	
794	Punjab	SBS NAGAR	Badhwan-Pz			19.40	
795	Punjab	SBS NAGAR	Baharam-Pz			22.30	
796	Punjab	SBS NAGAR	Bahara-Pz			16.40	
797	Punjab	SBS NAGAR	Bahlora Kallan- Pz	5.45	5.23	4.25	4.43
798	Punjab	SBS NAGAR	Bahua-Pz			25.80	
799	Punjab	SBS NAGAR	Balachore				18.08
800	Punjab	SBS NAGAR	Balaipur-PZ			23.20	
801	Punjab	SBS NAGAR	Bhadi-PZ			23.10	
802	Punjab	SBS NAGAR	Dhan Wala-PZ			48.70	
803	Punjab	SBS NAGAR	Dugri Garol-PZ			6.40	
804	Punjab	SBS NAGAR	Hakimpur-Pz			19.40	
805	Punjab	SBS NAGAR	Jethu Majra-PZ			17.10	
806	Punjab	SBS NAGAR	Kariam-Pz			16.70	
807	Punjab	SBS NAGAR	Langoya-PZ			16.80	
808	Punjab	SBS NAGAR	Mahalpur-PZ			14.20	
809	Punjab	SBS NAGAR	Mauhra-Pz	40.43	34.51	32.87	30.39
810	Punjab	SBS NAGAR	Padmaiwal-PZ			19.70	
811	Punjab	SBS NAGAR	Rahon	10.40	10.49	9.57	9.45
812	Punjab	SBS NAGAR	Raipur Dhaba-Pz	17.15	19.40	17.29	16.41
813	Punjab	TARAN TARAN	Aima Khurd-Pz	15.50		15.80	
814	Punjab	TARAN TARAN	Aminshah Khalra			11.42	
815	Punjab	TARAN TARAN	Attari-Pz	15.20		16.40	
816	Punjab	TARAN TARAN	Bahla-Pz	21.90			
817	Punjab	TARAN TARAN	Bakipur-Pz	21.90		21.90	
818	Punjab	TARAN TARAN	Bath-Pz	22.50		21.50	

819	Punjab	TARAN TARAN	Bhagala-Pz	15.30		15.40	
820	Punjab	TARAN TARAN	Bhagwanpur-Pz	16.80		18.00	
821	Punjab	TARAN TARAN	Bhalaipur-Pz	20.70		20.90	
822	Punjab	TARAN TARAN	Bhankar Kalan-Pz	17.60		16.70	
823	Punjab	TARAN TARAN	Bhikiwind- Pz	16.40	17.33		17.37
824	Punjab	TARAN TARAN	Bhura-Pz	16.80		16.60	
825	Punjab	TARAN TARAN	Bhure-Pz	20.60		20.00	
826	Punjab	TARAN TARAN	Bhusse-Pz	16.90		16.50	
827	Punjab	TARAN TARAN	Brahmpur-Pz	19.70		19.60	
828	Punjab	TARAN TARAN	Chakkare Khan-Pz	20.90		20.80	
829	Punjab	TARAN TARAN	Chola Sahib			20.23	
830	Punjab	TARAN TARAN	Chola Sahib-Pz	17.78	20.52		19.42
831	Punjab	TARAN TARAN	Choudhary Wala- Pz	19.90		19.40	
832	Punjab	TARAN TARAN	Chuselawad-Pz	22.50		23.50	
833	Punjab	TARAN TARAN	Ekalgoda-Pz	24.30		24.70	
834	Punjab	TARAN TARAN	Fatehabad- PZ	21.20		19.40	
835	Punjab	TARAN TARAN	Gandi Wind-Pz	13.82			12.3
836	Punjab	TARAN TARAN	Goindwal			20.00	19.90
837	Punjab	TARAN TARAN	Goindwal 07	18.50	21.06	20.00	19.90
838	Punjab	TARAN TARAN	Jalalabad-PZ	15.60			

839	Punjab	TARAN TARAN	Jandoke-Pz	20.80		20.50	
840	Punjab	TARAN TARAN	Kairon-PZ	18.80		19.90	
841	Punjab	TARAN TARAN	Kalsia Kalan			18.90	
842	Punjab	TARAN TARAN	Kalsia Kalan	16.95			13.83
843	Punjab	TARAN TARAN	Kalsia Kalan07	18.50	18.71		
844	Punjab	TARAN TARAN	Khadur Sahib-Pz	18.50	20.65	20.39	19.48
845	Punjab	TARAN TARAN	Kirtowal-Pz	21.80			
846	Punjab	TARAN TARAN	Khalra-Pz	11.20		15.30	
847	Punjab	TARAN TARAN	Kotbudda-Pz	16.40		11.50	
848	Punjab	TARAN TARAN	Kotli Sur Singh-Pz	19.80		16.00	
849	Punjab	TARAN TARAN	Mahendipur-Pz	19.90		19.50	
850	Punjab	TARAN TARAN	Marhona-Pz	10.90		20.20	
851	Punjab	TARAN TARAN	Mari Kamboke-Pz	21.10		13.00	
852	Punjab	TARAN TARAN	Nandpur-Pz			35.80	
853	Punjab	TARAN TARAN	Patti			26.00	
854	Punjab	TARAN TARAN	Pindan-Pz	17.50		17.80	
855	Punjab	TARAN TARAN	Rajoke-Pz	7.00		6.50	
856	Punjab	TARAN TARAN	Ratoke-Pz	19.65	25.11	23.25	19.7
857	Punjab	TARAN TARAN	Sabran-Pz	22.20		23.80	
858	Punjab	TARAN TARAN	Sahab Pura- Pz	19.68	22.99	22.35	22.28

859	Punjab	TARAN TARAN	Sheron-Pz	21.90		20.70	
860	Punjab	TARAN TARAN	Sugga-Pz	20.10		20.10	
861	Punjab	TARAN TARAN	Valtoha			16.40	
862	Punjab	TARAN TARAN	Varing-Pz	22.60			

Annexure-2

Seasonal Fluctuations in Depth to Water Levels in m

S. No	State	District	Location	2019 January	2019 June	2020 June	2021 June
				2019 June	2019 August	2019 October	2020 January
				(mbgl)	(mbgl)	(mbgl)	(mbgl)
1	Chandigarh	Chandigarh	BURAIL	-0.37	0.97	0.52	0.71
2	Chandigarh	Chandigarh	Csio-combined	-0.61	0.75	-0.04	1.73
3	Chandigarh	Chandigarh	CSIO-S	-1.04	1.08	0.79	0.86
4	Chandigarh	Chandigarh	NEW INDUST AREA	0.38	-0.65	-2.60	-4.30
5	Chandigarh	Chandigarh	Sec-27, Ar Well	0.48	-0.68	-2.05	-0.70
6	Chandigarh	Chandigarh	SECT 10C	-0.68	0.58	0.18	-5.32
7	Chandigarh	Chandigarh	SECT 10C (D)	-0.98	0.53	1.82	-1.19
8	Chandigarh	Chandigarh	SECT 10C (S)	0.50	0.85	-0.23	-28.41
9	Chandigarh	Chandigarh	SECT 31D (D)	-0.15	-1.45	0.00	0.37
10	Chandigarh	Chandigarh	SECT 31D (S)	-1.90	-0.10	0.22	-0.62
11	Chandigarh	Chandigarh	SECT 37D (S)	-0.15	0.37	-12.32	0.77
12	Chandigarh	Chandigarh	SECT 39D (S)		1.83	3.21	3.70
13	Chandigarh	Chandigarh	SECT 44D (S)	-0.68	0.96	0.78	0.56
14	Chandigarh	Chandigarh	Sector-46 (shallow)	-0.48	0.78	0.09	0.20
15	Punjab	AMRITSAR	Ajnala	-0.40		-0.50	
16	Punjab	AMRITSAR	Amritsar	-6.00		1.45	0.50
17	Punjab	AMRITSAR	Amritsar1	-0.28	-0.08	-1.09	
18	Punjab	AMRITSAR	Bal Kalan-Pz	0.10		-0.70	
19	Punjab	AMRITSAR	Beas07	0.48	-0.63	-0.70	-1.06
20	Punjab	AMRITSAR	Bhattaywad-Pz	-0.50		-0.50	
21	Punjab	AMRITSAR	Bholewal-Pz			-7.40	
22	Punjab	AMRITSAR	Boparai Khurd-Pz	-0.50		-1.50	
23	Punjab	AMRITSAR	Chak Dogra-Pz	-0.40		-0.40	
24	Punjab	AMRITSAR	ChogWan- Pz	-0.43	-1.61		
25	Punjab	AMRITSAR	Dhulika-Pz	0.70		-0.20	
26	Punjab	AMRITSAR	Dohan-Pz	0.60		-0.80	
27	Punjab	AMRITSAR	Gago Mahal- Pz	-0.21	-1.51	-0.74	-0.76
28	Punjab	AMRITSAR	Gill wali-Pz	0.60		0.60	
29	Punjab	AMRITSAR	Jandiala Guru-Pz	-0.70	-1.70	-0.08	4.28
30	Punjab	AMRITSAR	Jethuwal-Pz	0.20		-0.20	
31	Punjab	AMRITSAR	Kadowali-Pz	-1.20		1.90	

32	Punjab	AMRITSAR	Karyl-Pz	-0.70		0.60	
33	Punjab	AMRITSAR	Mahima-Pz	-0.50		0.10	
34	Punjab	AMRITSAR	Majitha- Pz	0.70		2.60	
35	Punjab	AMRITSAR	Mehleykey-Pz	2.40		0.40	
36	Punjab	AMRITSAR	Mehta-Pz	0.25		-0.80	
37	Punjab	AMRITSAR	Miran Chak-Pz	0.10		-0.60	
38	Punjab	AMRITSAR	Nangal Sahaul-Pz	1.00		-0.20	
39	Punjab	AMRITSAR	Nawan Tanal- Pz	-0.77	-0.83	-1.01	-0.46
40	Punjab	AMRITSAR	Ramdas-DW	-2.17	1.62	1.88	-0.95
41	Punjab	AMRITSAR	Rayya-Pz			-0.90	
42	Punjab	AMRITSAR	Rupowal Brahmana-Pz	1.30		-0.30	
43	Punjab	AMRITSAR	Shabura-Pz	0.10		-2.80	
44	Punjab	AMRITSAR	Sham Nagar-Pz	-0.10		0.70	
45	Punjab	AMRITSAR	Talwandi Dogra- Pz	-0.10		0.00	
46	Punjab	AMRITSAR	Tarsika-Pz	1.10		-1.50	
47	Punjab	AMRITSAR	Ugar Aulakh-Pz	-0.40		-0.30	
48	Punjab	AMRITSAR	Vadala Kalan-Pz			-1.80	
49	Punjab	AMRITSAR	Wandala Bittewad-Pz	-0.30		-0.80	
50	Punjab	AMRITSAR	Makhan Windi-Pz	-0.20			
51	Punjab	BARNALA	Amla Singh Wala- PZ	1.68		-3.47	
52	Punjab	BARNALA	Barnala (s)	0.03	-1.12	-1.60	-1.09
53	Punjab	BARNALA	Bhadaur-Pz	0.17	-1.46	-2.01	-1.50
54	Punjab	BARNALA	Dhanaula-Pz	1.42		-9.74	
55	Punjab	BARNALA	Kurar-Pz	0.68		-3.10	
56	Punjab	BARNALA	Lohgarh-Pz	0.58		-4.18	
57	Punjab	BARNALA	Mahal Kalan-Pz	0.65	-1.65	-2.34	-1.75
58	Punjab	BARNALA	Pakho Ke-Pz	0.49		-7.58	
59	Punjab	BARNALA	Shekha	1.57		-4.57	
60	Punjab	BATHINDA	Ablu	1.39	-2.74	-2.44	-2.34
61	Punjab	BATHINDA	Aleke Jalal-Pz			-3.72	
62	Punjab	BATHINDA	Badiala-Pz	0.17	-2.72	-5.27	
63	Punjab	BATHINDA	Bagher Mohabat Singh-Pz			-1.00	
64	Punjab	BATHINDA	Bahman Kaur Singh-Pz			0.00	
65	Punjab	BATHINDA	Balianwali-Pz	0.89		-2.95	
66	Punjab	BATHINDA	Balluana-Pz	0.10		2.30	
67	Punjab	BATHINDA	Bhagibandar	0.37	-1.43	-0.28	0.92
68	Punjab	BATHINDA	Bugran-Pz	0.92		-2.96	

69	Punjab	BATHINDA	Burj Gill-Pz	0.39		-3.36	
70	Punjab	BATHINDA	Deratapp	0.50	0.61	-0.69	-0.58
71	Punjab	BATHINDA	Dhapali1	-2.29	0.26	-0.91	0.16
72	Punjab	BATHINDA	Dhapali-Pz	1.37	-1.67	-2.09	3.85
73	Punjab	BATHINDA	Dialpur Mirza	-0.66	-2.09	-3.35	-0.55
74	Punjab	BATHINDA	Dialpura Bhlaike	0.61	-4.26	-3.50	-2.56
75	Punjab	BATHINDA	Dialpura- Mirza			-2.35	
76	Punjab	BATHINDA	Dulle Wala-Pz	0.28		-3.48	
77	Punjab	BATHINDA	Ganga-Pz	0.75		-0.87	-0.03
78	Punjab	BATHINDA	Gill Patti-DW			-0.73	
79	Punjab	BATHINDA	Gulabgarh 2 (s)	-0.28	-0.68	-0.12	-0.19
80	Punjab	BATHINDA	Guru Sar-Pz	-0.12	-0.16	-0.11	0.42
81	Punjab	BATHINDA	Harraipur-Pz	-0.30		-2.92	
82	Punjab	BATHINDA	Jajjal	-0.20	-0.10	-0.10	0.30
83	Punjab	BATHINDA	Jajjal_DW			-0.75	
84	Punjab	BATHINDA	Jassi Bhagwali	-0.63	0.78	1.15	1.43
85	Punjab	BATHINDA	Jhanduke	1.63			-2.83
86	Punjab	BATHINDA	Jhanduke-Pz	-0.15	-3.45	-2.56	
87	Punjab	BATHINDA	Kalla Bandar	-0.43			
88	Punjab	BATHINDA	Kalyan Sukha	1.25	-4.19	-3.00	-2.12
89	Punjab	BATHINDA	Kalyan Sukha-M	-0.39	-2.53	-1.11	0.67
90	Punjab	BATHINDA	Koir Singh Wala-Pz			-3.63	
91	Punjab	BATHINDA	Kot Bhaktu-Pz			-0.31	
92	Punjab	BATHINDA	Kot Guru			-0.01	
93	Punjab	BATHINDA	Kot Shamir	-0.15	-0.27	-0.55	
94	Punjab	BATHINDA	Lalliana-Pz			-0.27	
95	Punjab	BATHINDA	Lehra Dhulkot-Pz	0.37		-2.62	
96	Punjab	BATHINDA	Maihma Bhagwan-PZ	-0.36		-0.77	
97	Punjab	BATHINDA	Maisar Khana-Pz		-1.55	-1.67	
98	Punjab	BATHINDA	Maluka-Pz			-2.49	
99	Punjab	BATHINDA	Mandi Kalan-Pz	0.76		-2.04	
100	Punjab	BATHINDA	Mehraj-Pz	0.33		-2.38	
101	Punjab	BATHINDA	Multania-Pz	-0.18		-0.18	
102	Punjab	BATHINDA	Nahinwala	-0.81	-0.31	-0.31	0.02
103	Punjab	BATHINDA	Nathana-Pz	0.82		-3.30	
104	Punjab	BATHINDA	Phulla				-1.34
105	Punjab	BATHINDA	Phulla1	-0.17			
106	Punjab	BATHINDA	Raike Kalan	0.43	-1.55	-1.14	-0.28

107	Punjab	BATHINDA	Rajgarh Kubey-Pz			-1.20	
108	Punjab	BATHINDA	Rampura	4.51			
109	Punjab	BATHINDA	Rayya-Pz	1.06		-3.04	
110	Punjab	BATHINDA	Salabatpur-Pz			-1.77	
111	Punjab	BATHINDA	Sooch-Pz	0.39		-3.05	
112	Punjab	BATHINDA	Teona-Pz			0.16	
113	Punjab	BATHINDA	Tungwali-Pz	0.21		-2.63	
114	Punjab	FARIDKOT	Baja Khana	0.72	-1.66	-1.81	-0.81
115	Punjab	FARIDKOT	Bead Sikhanwala-Pz	-0.65	-1.40	-0.03	-0.09
116	Punjab	FARIDKOT	Chahd Baja	0.15		-2.69	-1.04
117	Punjab	FARIDKOT	Deviwala-S	-0.37	-2.56	-0.66	-0.32
118	Punjab	FARIDKOT	Dhilwan Kalan	0.73			
119	Punjab	FARIDKOT	Dipsinghwala	-0.76	0.36		
120	Punjab	FARIDKOT	Jand Sahib-Pz	-1.42	-0.11	0.06	0.64
121	Punjab	FARIDKOT	Karirwali	-1.73	-2.03	-0.87	-0.32
122	Punjab	FARIDKOT	Killi-Pz	-1.62		0.35	0.32
123	Punjab	FARIDKOT	Kot Kapura	0.66	-2.28	-0.47	-0.26
124	Punjab	FARIDKOT	Matta	0.26	-0.77	-0.22	0.33
125	Punjab	FARIDKOT	Mehmuana	-0.60	0.43	0.10	0.20
126	Punjab	FARIDKOT	Mumra-Pz	-0.66	-1.23	-15.68	-0.10
127	Punjab	FARIDKOT	Nangal-Pz	-0.83	-10.08	0.60	1.13
128	Punjab	FARIDKOT	Sadiq-Pz	-0.25	-0.25	-0.23	-0.01
129	Punjab	FARIDKOT	Sher Singh Wala-Pz	-0.31	-0.11	-0.08	0.23
130	Punjab	FARIDKOT	Sukhwala-Pz	-2.21	1.25	0.71	0.56
131	Punjab	FARIDKOT	Tehna-Pz	-0.56	0.46	-0.04	1.31
132	Punjab	FARIDKOT	Wara Dwarka-Pz	-0.43	0.31	0.49	0.27
133	Punjab	FATEHGARH SAHIB	Alipur Sodhian-Pz	-0.05		-0.20	
134	Punjab	FATEHGARH SAHIB	Badalialasingh	-3.12	0.40	1.97	-7.86
135	Punjab	FATEHGARH SAHIB	Bagga Kalan	0.30		-0.30	
136	Punjab	FATEHGARH SAHIB	Bassi Pathana	-0.01		-4.53	0.10
137	Punjab	FATEHGARH SAHIB	Bhaddal Tuha-Pz	-0.32			0.28
138	Punjab	FATEHGARH SAHIB	Bhaghrana	-2.79	2.17	2.20	1.95

139	Punjab	FATEHGARH SAHIB	Bhateri	0.40				
140	Punjab	FATEHGARH SAHIB	Bhateri1		-1.05			
141	Punjab	FATEHGARH SAHIB	Burj	0.45		-1.30		
142	Punjab	FATEHGARH SAHIB	Chandiala-Pz	0.55		-1.45		
143	Punjab	FATEHGARH SAHIB	Chuni Khurd-PZ			1.80		
144	Punjab	FATEHGARH SAHIB	Chunni Kalan	-0.86	0.50	1.94	1.92	
145	Punjab	FATEHGARH SAHIB	Fatehgarh Sahib			-1.85		
146	Punjab	FATEHGARH SAHIB	Fatehgarh Sahib-Pz	0.02	0.05	0.35	0.68	
147	Punjab	FATEHGARH SAHIB	Inayatpur-PZ-S	-0.72	-0.50			
148	Punjab	FATEHGARH SAHIB	Jai Singh Wala	-0.40		0.55		
149	Punjab	FATEHGARH SAHIB	Jhambelia			-0.60		
150	Punjab	FATEHGARH SAHIB	Khamanon-pz	0.10		-0.60		
151	Punjab	FATEHGARH SAHIB	Khera-Pz	0.60		-1.80		
152	Punjab	FATEHGARH SAHIB	Lohar Majra	-0.60		-1.20		
153	Punjab	FATEHGARH SAHIB	Mianpur-Pz	0.75		-1.50		
154	Punjab	FATEHGARH SAHIB	Nalini-Pz	-0.26	-1.68	-0.55	0.41	
155	Punjab	FATEHGARH SAHIB	Nandpur Kalaur-Pz	1.20		-1.00		
156	Punjab	FATEHGARH SAHIB	Pawala	4.22	-3.96	-4.19	-4.44	
157	Punjab	FATEHGARH SAHIB	Sado Majra			-1.10		
158	Punjab	FATEHGARH SAHIB	Shahpur	0.40		-0.60		

159	Punjab	FATEHGARH SAHIB	Sirhind-Pz	-0.10		0.90	
160	Punjab	FATEHGARH SAHIB	Tahalpur	0.65		-1.30	
161	Punjab	FATEHGARH SAHIB	Talwara	0.30		-1.00	
162	Punjab	FATEHGARH SAHIB	Timber Pur-Pz	-0.60		0.60	
163	Punjab	FAZILKA	Abohar		0.14	-0.10	0.14
164	Punjab	FAZILKA	Alamgarh	-0.62			
165	Punjab	FAZILKA	Asifwala-Pz	0.16			
166	Punjab	FAZILKA	Bannawala	0.03	-0.93	-0.88	-0.63
167	Punjab	FAZILKA	Bazirdpura		0.07	0.07	0.40
168	Punjab	FAZILKA	Chak Pune Wala-Pz	0.79			
169	Punjab	FAZILKA	Danewal Satkosi		0.71	-0.26	-0.29
170	Punjab	FAZILKA	Danger Khera-Pz	-0.48			
171	Punjab	FAZILKA	Dipulana-Pz		-0.35	0.39	
172	Punjab	FAZILKA	Jaimal Singhwala Pz	-0.57			
173	Punjab	FAZILKA	Khuiansarwar				-0.05
174	Punjab	FAZILKA	Khuiansarwar- Pz	-0.57			
175	Punjab	FAZILKA	Kundall	0.87	-0.42	-0.60	-0.01
176	Punjab	FAZILKA	Nihalkhera	-1.17		-0.11	
177	Punjab	FAZILKA	Sitoganno	-0.02	0.22		
178	Punjab	FAZILKA	Sohangarh Ratte	-1.32	0.60	0.70	0.55
179	Punjab	FAZILKA	Swah Wala- Pz	-1.78	-0.83	-0.43	0.13
180	Punjab	FIROZPUR	Bara Mansur Wala-Pz	0.44		-0.29	
181	Punjab	FIROZPUR	Chamb-Pz	-0.83		1.31	
182	Punjab	FIROZPUR	Gogiani-Pz	-0.74		1.46	
183	Punjab	FIROZPUR	Jaimal wala-Pz	-0.28		-0.18	0.85
184	Punjab	FIROZPUR	Lauhke Kalan- Pz	0.15	-3.21	0.77	-0.02
185	Punjab	FIROZPUR	Lohere Khurd-Pz	-1.17		0.70	
186	Punjab	FIROZPUR	Mallanwala Khas-Pz	0.20		-1.20	
187	Punjab	FIROZPUR	Malluwala-Pz	-0.86		0.90	
188	Punjab	FIROZPUR	Malsian-Pz	0.65	-2.41		-0.79
189	Punjab	FIROZPUR	Mohre Wala-Pz	0.04	-1.15	-0.36	-0.06
190	Punjab	FIROZPUR	Piyarana	-0.23	-0.35	-0.25	0.25
191	Punjab	FIROZPUR	Rukne Wala-Pz	-1.38		1.22	
192	Punjab	FIROZPUR	Talwandi Jalle	-2.09		0.83	

			Khan-pz				
193	Punjab	FIROZPUR	Wage Wala-Pz	-1.50		-1.30	
194	Punjab	GURDASPUR	Bariyar	0.30		-0.30	
195	Punjab	GURDASPUR	Bhagowal	-1.30	0.86	-0.05	
196	Punjab	GURDASPUR	Bilasbal-Pz	-0.40		0.00	
197	Punjab	GURDASPUR	Chahal Kalan-Pz	-0.30		0.30	
198	Punjab	GURDASPUR	Chahgill-Pz			-0.20	
199	Punjab	GURDASPUR	Chone-Pz	-0.40		0.35	
200	Punjab	GURDASPUR	Dakoha-Pz	-0.60	-1.84	-0.34	0.64
201	Punjab	GURDASPUR	Dera Baba Nanak	-0.32	0.04	0.43	0.38
202	Punjab	GURDASPUR	Dhianpur	-0.30	-0.85	0.22	0.79
203	Punjab	GURDASPUR	Dinanagar	0.20	1.49	3.67	3.57
204	Punjab	GURDASPUR	Dostpur-Pz	-0.10		-0.10	
205	Punjab	GURDASPUR	Galri	0.08	-1.20	0.44	1.28
206	Punjab	GURDASPUR	Ghania Ki bangar-Pz	0.69	-1.75		-0.40
207	Punjab	GURDASPUR	Ghumani Khurd-Pz	-3.05		-0.25	
208	Punjab	GURDASPUR	Gurdaspur-Pz	0.40		-0.15	
209	Punjab	GURDASPUR	Harchowal-Pz-S	0.32	-2.16	-0.21	-0.12
210	Punjab	GURDASPUR	Hargobindpur		-1.01	0.33	
211	Punjab	GURDASPUR	Hassanpur Kalan-Pz	0.00		0.10	
212	Punjab	GURDASPUR	Jhabkra	0.35		-0.40	
	Punjab	GURDASPUR	Jhandalbana-Pz	-0.20		0.05	
213	Punjab	GURDASPUR	Kala Afgana-Pz	0.10			
214	Punjab	GURDASPUR	Kalanaur-DW		-1.45	-0.74	-0.58
215	Punjab	GURDASPUR	Kalanaur-Pz	0.97	-4.35	0.62	-8.04
216	Punjab	GURDASPUR	Kaure-Pz	1.20		-0.80	
217	Punjab	GURDASPUR	Khan Fatta-Pz	0.05		-4.00	
218	Punjab	GURDASPUR	Khanmalik-Pz	0.20		-0.35	
219	Punjab	GURDASPUR	Khatgarh-Pz	0.40		-0.20	
220	Punjab	GURDASPUR	Lakankala-Pz	-0.60		-0.05	
221	Punjab	GURDASPUR	Langurwal-Pz	-0.25		-0.50	
222	Punjab	GURDASPUR	Madipur Fatehgarhchuria	-1.21	-0.67	-0.11	0.74
223	Punjab	GURDASPUR	Malikpur-Pz	0.65		-0.40	
224	Punjab	GURDASPUR	Maman-Pz	-0.15		-0.25	
225	Punjab	GURDASPUR	Masana-Pz	0.30		0.40	
226	Punjab	GURDASPUR	Massit-Pz	0.30		-0.05	
227	Punjab	GURDASPUR	Mullowali 1(vs)		-0.53		
228	Punjab	GURDASPUR	Nangal-Pz	0.00		0.00	

229	Punjab	GURDASPUR	Nishayara	-1.25	-1.33	0.92	1.47
230	Punjab	GURDASPUR	Pandoritalab	-0.26	-1.22	0.24	0.52
231	Punjab	GURDASPUR	Parcha-Pz	-0.45		0.25	
232	Punjab	GURDASPUR	Patti Atwal-Pz	0.15		-0.05	
233	Punjab	GURDASPUR	Raipur	0.40		-0.30	
234	Punjab	GURDASPUR	Saidowal Kalan-DW	-0.80	-1.57	0.64	1.80
235	Punjab	GURDASPUR	Saleh Chak-S	-0.58	-0.63	0.21	0.82
236	Punjab	GURDASPUR	Salehchak(vs)	0.12	-1.44		
237	Punjab	GURDASPUR	Sathial-Pz	0.05			
238	Punjab	GURDASPUR	Shahpur Jattan-Pz	1.20			
239	Punjab	GURDASPUR	Shahpur-Pz	0.00		0.05	
240	Punjab	GURDASPUR	Shezada Kalan-Pz	-2.55		1.70	
241	Punjab	GURDASPUR	Sohal			0.10	
242	Punjab	GURDASPUR	Tikriwala-Pz	0.00		-0.10	
243	Punjab	HOSHIARPUR	Aallo Batti-Pz	-0.25		1.05	
244	Punjab	HOSHIARPUR	Argowal-Pz	0.70			
245	Punjab	HOSHIARPUR	Barota-PZ	0.00		0.10	
246	Punjab	HOSHIARPUR	Bersa	0.30		0.70	
247	Punjab	HOSHIARPUR	Bhangala-Chhota-DW	-0.97	1.18		
248	Punjab	HOSHIARPUR	Bhanowal-Pz	0.30		-2.70	
249	Punjab	HOSHIARPUR	Bhatolian-Pz	0.30		1.20	
250	Punjab	HOSHIARPUR	Boring-PZ	-1.10		2.90	
251	Punjab	HOSHIARPUR	Chak Sheru-DW	-0.76	0.80	0.93	-0.67
252	Punjab	HOSHIARPUR	Chohal	2.00		-0.86	
253	Punjab	HOSHIARPUR	DAGAN-DW	-0.30	3.82	1.88	-0.27
254	Punjab	HOSHIARPUR	Dallewal-Pz	0.30		1.40	
255	Punjab	HOSHIARPUR	Dasuya2 (s)	-4.00	-0.68	0.07	0.60
256	Punjab	HOSHIARPUR	Dharampur1			-0.30	
257	Punjab	HOSHIARPUR	Durimiwal	-0.20	1.14	1.48	1.18
258	Punjab	HOSHIARPUR	Garh Di Wala-Pz	-1.60	-0.16	-2.39	2.90
259	Punjab	HOSHIARPUR	Garhshankar (s)	-0.83	1.87	3.13	
260	Punjab	HOSHIARPUR	Haler Rampur-DW	-0.49	0.08	0.85	0.20
261	Punjab	HOSHIARPUR	Hazipur	-0.79			1.19
262	Punjab	HOSHIARPUR	Heer Beh-PZ	-0.10		12.40	
263	Punjab	HOSHIARPUR	Mahilpur-Pz	-0.67	0.74	1.32	1.51
264	Punjab	HOSHIARPUR	Naharpur-Pz	-0.05		0.45	
265	Punjab	HOSHIARPUR	Nangal Bihala-DW	-0.09	0.33	1.73	1.88
266	Punjab	HOSHIARPUR	Nangal Thathal-Pz	0.40			

267	Punjab	HOSHIARPUR	Pan Khuh-DW	-1.18	4.26	2.88	1.48
268	Punjab	HOSHIARPUR	Phuglana- Pz	-1.96	-3.25	1.58	13.51
269	Punjab	HOSHIARPUR	Rampur Colony (HSP) pz-medium	-2.39			4.04
270	Punjab	HOSHIARPUR	Samraj Tanda-DW	-0.95	0.88		1.36
271	Punjab	HOSHIARPUR	Sham Chaurasi	0.28	-0.25	0.76	0.92
272	Punjab	HOSHIARPUR	Sibo Chak- DW	-0.83	2.90	1.27	0.90
273	Punjab	HOSHIARPUR	Simbli- OW			-0.66	4.35
274	Punjab	HOSHIARPUR	Simbli-Pz	-0.65	-3.15	-1.11	5.55
275	Punjab	HOSHIARPUR	Talwara1	-0.53	1.26	0.90	0.76
276	Punjab	HOSHIARPUR	Tanda	0.91			
277	Punjab	HOSHIARPUR	Thakarwala		1.09	2.11	3.00
278	Punjab	JALANDHAR	Adampur 3(s)	0.34	-0.78	-0.30	0.15
279	Punjab	JALANDHAR	Allawalpur	0.32	1.45	1.40	1.36
280	Punjab	JALANDHAR	Jalandhar-Pz(VS)	-1.74	5.26	-0.72	
281	Punjab	JALANDHAR	Jalbhe	-0.56	2.69	3.32	3.03
282	Punjab	JALANDHAR	Jandiala-Pz	2.08	-2.09	-2.91	-1.80
283	Punjab	JALANDHAR	Kartarpur 2(s)	-2.59	0.61	1.87	2.69
284	Punjab	JALANDHAR	Kharal Kalan Pz-S	-0.25	-3.43	5.51	0.28
285	Punjab	JALANDHAR	Lallian kalan Pz-S	0.91			-0.75
286	Punjab	JALANDHAR	Nakodar 2(m)	0.85			
287	Punjab	JALANDHAR	Phillaur 2(s)	0.91	-0.97		-0.46
288	Punjab	KAPURTHALA	Bhatnura Khurd-S	0.49	-3.85	-0.64	-0.30
289	Punjab	KAPURTHALA	Bhawanipur-Pz			-3.11	
290	Punjab	KAPURTHALA	Bholath M	1.50	-2.32		-0.14
291	Punjab	KAPURTHALA	Hussainpura-S Pz	0.11	-3.53	-1.07	1.15
292	Punjab	KAPURTHALA	Kapurthala2 (s)	-1.28	-5.68		0.92
293	Punjab	KAPURTHALA	Phagwara(shallow)		-1.41	-1.45	
294	Punjab	KAPURTHALA	Sultanpur2 (s)	-0.44	-1.66	-0.33	-6.23
295	Punjab	KAPURTHALA	Talwandi Chaudary -Pz	-0.46	-2.79	-0.09	0.68
296	Punjab	LUDHIANA	Alamgir-Pz	-0.35		-0.80	
297	Punjab	LUDHIANA	Aliwal-Pz	-0.40		-0.40	
298	Punjab	LUDHIANA	Begowal	-0.20	0.25	0.51	-0.09
299	Punjab	LUDHIANA	Bhagwanpur-Pz	0.10		-0.25	
300	Punjab	LUDHIANA	Bhahlolpur-DW	-0.29	1.50	1.15	0.92
301	Punjab	LUDHIANA	Bharthala Randhawa-Pz	-0.26		0.16	
302	Punjab	LUDHIANA	Bhikhi Khatron-Pz	-0.10		-0.10	
303	Punjab	LUDHIANA	Bilaspur-Pz	-0.35		0.45	
304	Punjab	LUDHIANA	Chaminala-Pz	-0.20		-1.20	

305	Punjab	LUDHIANA	Chankoian Khurd-Pz	-0.40		0.25	
306	Punjab	LUDHIANA	Chaunta-Pz	-0.40		1.10	
307	Punjab	LUDHIANA	Chhapar-Pz	0.05		-1.70	
308	Punjab	LUDHIANA	Dodpur-Pz			0.10	
309	Punjab	LUDHIANA	Doraha-Pz	-0.09	0.29		
310	Punjab	LUDHIANA	Galibkalan-Pz	0.61		6.25	
311	Punjab	LUDHIANA	Gohaur-Pz	-0.80		-0.60	
312	Punjab	LUDHIANA	Gopalpur 2(s)	0.34	-1.26	-0.99	-0.04
313	Punjab	LUDHIANA	Hallawara-Pz-S	-0.16	-3.69		
314	Punjab	LUDHIANA	Hambowal-Pz	-0.15		0.70	
315	Punjab	LUDHIANA	Harnampur	-1.45		1.05	
316	Punjab	LUDHIANA	Hedon-Pz	-0.30		0.60	
317	Punjab	LUDHIANA	Ikloha-Pz		-0.42	-0.23	0.67
318	Punjab	LUDHIANA	Jagraon 2(s)	-1.04			
319	Punjab	LUDHIANA	Kalsian	0.45		-2.55	
320	Punjab	LUDHIANA	Katanikalan-Pz	-0.60		0.65	
321	Punjab	LUDHIANA	Khandur	0.55		-2.15	
322	Punjab	LUDHIANA	Kishangarh-Pz	-0.30		0.20	
323	Punjab	LUDHIANA	Kishanpur-Pz	0.40		-2.35	
324	Punjab	LUDHIANA	Lil- II Pz		-1.84	0.17	2.52
325	Punjab	LUDHIANA	Lil-Pz III				-5.24
326	Punjab	LUDHIANA	Lodhiwal-Pz	-1.25		-0.10	
327	Punjab	LUDHIANA	Lohara-Pz	-0.15		-0.70	
328	Punjab	LUDHIANA	Maksudra-Pz	-0.26	-0.10		
329	Punjab	LUDHIANA	Manak Majra-Pz	0.20		-0.60	
330	Punjab	LUDHIANA	Mangat-Pz	-0.15		-0.05	
331	Punjab	LUDHIANA	Mangat-Pz-S	16.79			-1.47
332	Punjab	LUDHIANA	Mehma Singh Wala-Pz	0.45		-1.85	
333	Punjab	LUDHIANA	Mushkabad	-0.89	2.54	2.07	2.02
334	Punjab	LUDHIANA	Nurpur-Pz	0.60		-3.50	
335	Punjab	LUDHIANA	P.A.U.Ludhiana 2(s)	-1.19	4.59	5.03	1.39
336	Punjab	LUDHIANA	Pabbian-Pz	-0.10		-2.20	
337	Punjab	LUDHIANA	Pandori-Pz	-0.05		-2.00	
338	Punjab	LUDHIANA	Payal-Pz	7.95		-7.75	
339	Punjab	LUDHIANA	Ragba-Pz	-0.10		-1.50	
340	Punjab	LUDHIANA	Raikot-Pz	-0.30		-2.80	
341	Punjab	LUDHIANA	Rajona Khurd	-1.40		-4.40	
342	Punjab	LUDHIANA	Rashin	-0.10		-2.10	

343	Punjab	LUDHIANA	Rattewal-Pz	-4.80		-3.25	
344	Punjab	LUDHIANA	Sajaywal-Pz	-2.60		-3.75	
345	Punjab	LUDHIANA	Samrala 2(s)	-0.47	0.27	0.82	1.18
346	Punjab	LUDHIANA	Sanewal-Pz	-0.55			
347	Punjab	LUDHIANA	Sangatpura-Pz	-0.70		0.75	
348	Punjab	LUDHIANA	Sherian	-0.10	1.31	0.66	-0.95
349	Punjab	LUDHIANA	Sherpur Bhet			6.02	
350	Punjab	LUDHIANA	Sidhwan Bet-Pz	-0.64	0.22	0.38	0.07
351	Punjab	LUDHIANA	Talwandi Kalan-Pz	-0.07			
352	Punjab	LUDHIANA	Udonwal-Pz	-0.20		4.75	
353	Punjab	LUDHIANA	Upplan	-0.35			
354	Punjab	MANSA	Bhikhi 1 (s)		-0.80	-1.42	1.15
355	Punjab	MANSA	Budhlada	4.02		-4.52	
356	Punjab	MANSA	Budhlada-Pz	-0.18	-0.68		-0.55
357	Punjab	MANSA	Burj Bhalaike	-0.03	3.50	0.36	0.37
358	Punjab	MANSA	Fattamaluka	-0.18	0.08	-0.22	-0.27
359	Punjab	MANSA	Jhanda Khurd Pz	14.50			
360	Punjab	MANSA	Khokhar Kalan-Pz			3.79	
361	Punjab	MANSA	Kot Dhamru		-3.32		5.53
362	Punjab	MANSA	Raipur-Pz	-0.18	0.32	0.12	0.45
363	Punjab	MANSA	Ralla	-0.34	-1.23	-1.25	-1.02
364	Punjab	MOGA	Baje Ke-Pz	-0.65	-4.77	-3.26	-0.14
365	Punjab	MOGA	Budh Singh Wala-Pz	-0.05	-2.60	-2.45	-1.08
366	Punjab	MOGA	Chogawan-Pz	0.71	-5.39	-3.15	-1.37
367	Punjab	MOGA	Dagru- Pz	0.90	-1.79	-2.39	-1.67
368	Punjab	MOGA	Dhudi Ke-PZ			-2.94	
369	Punjab	MOGA	Jhandewala-Pz			-2.05	
370	Punjab	MOGA	Kamalke-Pz			-1.10	
371	Punjab	MOGA	Khokri Kalan-Pz			-2.70	
372	Punjab	MOGA	Khosa Randhir-Pz	-1.50		0.47	
373	Punjab	MOGA	Mandar-Pz	-2.65		-0.67	
374	Punjab	MOGA	Mangewala-Pz	1.29		-1.97	
375	Punjab	MOGA	Mehron-PZ			-1.95	
376	Punjab	MOGA	Nihalsinghwala-Pz	0.37	-3.37	-2.52	0.63
377	Punjab	MOGA	Tota Singh Wala-Pz	-0.35		-0.64	
378	Punjab	MUKTSAR	Balocha Khera(rasoolpur)	0.30	-0.45	-1.35	-0.15
379	Punjab	MUKTSAR	Bhaliana	-0.85	-0.60	-0.38	
380	Punjab	MUKTSAR	Doda	-1.35	0.71	1.91	1.71

381	Punjab	MUKTSAR	Doda-Pz	-1.30	1.87	1.83	1.71
382	Punjab	MUKTSAR	Kabar Wala	-0.95	-1.29	-0.34	-0.21
383	Punjab	MUKTSAR	Kattianwali-Pz	0.64			
384	Punjab	MUKTSAR	Khunde Halal-Pz	-0.19	-0.22	-0.19	-0.19
385	Punjab	MUKTSAR	Labanianwali	-0.07	-0.46	0.34	0.29
386	Punjab	MUKTSAR	Lambi	20.60			
387	Punjab	MUKTSAR	Lambi-Pz	-0.31		1.74	1.66
388	Punjab	MUKTSAR	Muktsar	-0.05	0.08	0.15	0.52
389	Punjab	PATHANKOT	Bamyal	-0.44	-0.84	0.24	0.93
390	Punjab	PATHANKOT	Bhoa	0.32	-0.50	-0.16	0.05
391	Punjab	PATHANKOT	Gharotakalan	-2.22	-0.30	2.49	1.02
392	Punjab	PATHANKOT	Ghoh DW	-7.30	-0.25		
393	Punjab	PATHANKOT	Jainpur-PZ			0.10	
394	Punjab	PATHANKOT	Jandwala	-2.10		1.90	
395	Punjab	PATHANKOT	Khanikhui	-0.53	-0.69	0.53	0.60
396	Punjab	PATHANKOT	Khogaki Chaka-PZ	-0.70		0.10	
397	Punjab	PATHANKOT	Kiari- DW	-0.90	-0.42	2.51	3.20
398	Punjab	PATHANKOT	Kirian Khurd-PZ	-0.70		0.10	
399	Punjab	PATHANKOT	Kui-DW	-2.15	-0.42	2.44	2.68
400	Punjab	PATHANKOT	Kuther-PZ	-1.00		2.70	
401	Punjab	PATHANKOT	Matti-PZ	-7.00		7.00	
402	Punjab	PATHANKOT	Mirthal			1.45	
403	Punjab	PATHANKOT	Narot Jaimalsingh-Pz	-0.75		-0.05	
404	Punjab	PATHANKOT	Nawan Pind	0.84	-0.51	0.30	0.32
405	Punjab	PATHANKOT	Parmota-DW	-2.08	-0.57	5.43	
406	Punjab	PATHANKOT	Pathankot1	0.44	-0.18	0.48	0.49
407	Punjab	PATHANKOT	Philora-PZ	-0.40		0.75	
408	Punjab	PATHANKOT	Rani Pur-PZ	-1.00		2.90	
409	Punjab	PATHANKOT	Sarna	0.13	-0.25	1.21	0.22
410	Punjab	PATHANKOT	Sujanpur-PZ	0.20		0.90	
411	Punjab	PATIALA	Bassma Pipla	-2.16	1.60		
412	Punjab	PATIALA	Bhankhar-Pz	1.20		-4.45	
413	Punjab	PATIALA	Bhojo majri 07pz	0.36	11.50	2.93	
414	Punjab	PATIALA	Birkauli	2.06	-8.02		
415	Punjab	PATIALA	Challetta-PZ	0.15		-10.65	
416	Punjab	PATIALA	Devigarh 1Pz	-0.75	-4.00	-1.01	0.10
417	Punjab	PATIALA	Devigarh IIPz	-0.50		-1.92	9.50
418	Punjab	PATIALA	Devigarh-III Pz	-0.46		-1.84	

419	Punjab	PATIALA	Dhaneta-PZ	0.10			
420	Punjab	PATIALA	Gharam-PZ	0.40		-2.90	
421	Punjab	PATIALA	Gulwatti-PZ	0.80		-1.25	
422	Punjab	PATIALA	Hari Majra		2.56	3.37	
423	Punjab	PATIALA	Jainagar-PZ	0.15		-2.70	
424	Punjab	PATIALA	Kalyan 07pz	-0.88	-0.97	-1.37	-0.34
425	Punjab	PATIALA	Kami Kalan	-0.22	2.98	0.58	0.66
426	Punjab	PATIALA	Kami Khurd-PZ	4.35		-3.95	
427	Punjab	PATIALA	Kheri Pandte-PZ	0.10		-7.80	
428	Punjab	PATIALA	Kulburcha-Pz	-0.20		-2.40	
429	Punjab	PATIALA	Kutha Kheri-Pz	2.00		-4.25	
430	Punjab	PATIALA	Lacharu Kalan	-1.02	0.02	0.75	0.45
431	Punjab	PATIALA	Lachkani-Pz	-0.11	-1.44	-0.73	0.28
432	Punjab	PATIALA	Mehmood Pur-PZ	0.80		-2.90	
433	Punjab	PATIALA	Mongowal-PZ	0.45		-1.45	
434	Punjab	PATIALA	Nanhera-Pz	-7.95		7.55	
435	Punjab	PATIALA	Passiana-PZ	-1.20		-0.05	
436	Punjab	PATIALA	Patran-Pz	0.02	-0.82	-1.37	1.03
437	Punjab	PATIALA	Rajgarh	-1.07	-1.12	-0.36	0.34
438	Punjab	PATIALA	Rajpura Pz M			-6.15	
439	Punjab	PATIALA	Rajpura-PzSt	-1.58	-6.39	1.39	2.23
440	Punjab	PATIALA	Ramgarh			-0.98	2.42
441	Punjab	PATIALA	Rasoolpur Jaura-PZ	0.05		-1.45	
442	Punjab	PATIALA	Samana-Pz	-0.11	-0.85	-1.41	-1.11
443	Punjab	PATIALA	Samaspur-Pz	0.45		-0.95	
444	Punjab	PATIALA	Sangatpura-Pz	0.20	-1.48	-0.94	0.08
445	Punjab	PATIALA	Sauja-PZ	0.20		-0.45	
446	Punjab	PATIALA	Surala Kalan-PZ	-0.90			
447	Punjab	PATIALA	Thua	2.70			
448	Punjab	RUPNAGAR	Ahmedpur	-0.90	2.03	2.63	2.34
449	Punjab	RUPNAGAR	Amrali-PZ	0.10		-1.25	
450	Punjab	RUPNAGAR	Attari-PZ	0.55		0.45	
451	Punjab	RUPNAGAR	Bera Chauta	-0.32		0.66	0.50
452	Punjab	RUPNAGAR	Bhatto-PZ	-0.70		0.80	
453	Punjab	RUPNAGAR	Braham Pur	-1.05	1.58	0.65	0.52
454	Punjab	RUPNAGAR	Chakdera	-0.71	0.61	1.08	0.07
455	Punjab	RUPNAGAR	Chatamli- Pz	1.55	-4.02	-0.37	1.00
456	Punjab	RUPNAGAR	Dhair	-1.32	1.92	1.50	1.32
457	Punjab	RUPNAGAR	Dumewal	-0.75	-0.82	2.30	3.84

458	Punjab	RUPNAGAR	Hardinamoh	-4.86	5.93	5.03	5.67
459	Punjab	RUPNAGAR	Kakrali	-1.67	0.94	1.68	1.30
460	Punjab	RUPNAGAR	Klwan-PZ	0.40		0.20	
461	Punjab	RUPNAGAR	Kotla	0.20		0.40	
462	Punjab	RUPNAGAR	Morinda-PZ	1.15		-0.85	
463	Punjab	RUPNAGAR	Rajgiri-PZ	-0.10		0.50	
464	Punjab	RUPNAGAR	Rurki Heeran-Pz	-0.70			1.66
465	Punjab	SANGRUR	Bagarian-Pz	-1.97		1.57	2.37
466	Punjab	SANGRUR	Bakshiwala-PZ	-0.35		-1.45	
467	Punjab	SANGRUR	Banbhaura-PZ	-1.00		-2.80	
468	Punjab	SANGRUR	Benra-PZ-S	0.65	-1.83		-2.38
469	Punjab	SANGRUR	Bhojowali-Pz	-0.41	-2.64	-1.46	-0.14
470	Punjab	SANGRUR	Bugra 1		-3.67		8.60
471	Punjab	SANGRUR	Chatha Nanhera-PZ	-0.25		-1.55	
472	Punjab	SANGRUR	Chural Kalan M	0.05	-1.19	-1.42	-4.40
473	Punjab	SANGRUR	Dharamgarh-Pz	-1.35		-1.70	
474	Punjab	SANGRUR	Ghanauri Kalan-Pz	0.56	27.86	-1.29	
475	Punjab	SANGRUR	Haryao-DW	-0.35		-1.15	
476	Punjab	SANGRUR	Khanouri Kalan-PZ	-0.65			
477	Punjab	SANGRUR	Khanpur Fakiran-PZ			-1.25	
478	Punjab	SANGRUR	Kheri Naran-PZ	-0.10		-1.95	
479	Punjab	SANGRUR	Khurni-PZ	1.25		-3.05	
480	Punjab	SANGRUR	Kila Hakima	-1.05		-3.65	
481	Punjab	SANGRUR	Kuler Khurd-Pz	0.20		-2.20	
482	Punjab	SANGRUR	Kokahar-PZ	-0.15			
483	Punjab	SANGRUR	Ladda-Pz	0.30	-2.70	-3.23	
484	Punjab	SANGRUR	Lehal Kalan-Pz	-0.50		-1.60	
485	Punjab	SANGRUR	Longowal-Pz	-0.92	-2.01	-1.84	-0.72
486	Punjab	SANGRUR	Majji-PZ	-1.13	0.35	-0.22	7.08
487	Punjab	SANGRUR	Malerkotla-DW	-0.56	0.21		-0.29
488	Punjab	SANGRUR	Manvi-Pz	3.37	-0.03		0.13
489	Punjab	SANGRUR	Panjgaraian- Pz	0.05		-1.95	
490	Punjab	SANGRUR	Rajo Majra-PZ	-0.10		-2.90	
491	Punjab	SANGRUR	Rampur Channa-Pz	-0.15		-0.85	
492	Punjab	SANGRUR	Rurgarh-PZ	-0.35		-1.95	
493	Punjab	SANGRUR	Rurki Kalan-Pz	-0.10		-0.30	
494	Punjab	SANGRUR	Sekhpur Khurd-PZ	0.45		-1.75	
495	Punjab	SANGRUR	Sekhwas-PZ	-0.45		-2.45	

496	Punjab	SANGRUR	Sikandarpur-PZ	0.30		-2.00	
497	Punjab	SANGRUR	Sunam-Pz	-0.13		-0.94	-0.83
498	Punjab	SAS NAGAR	Antala	-0.80	1.25	1.25	1.21
499	Punjab	SAS NAGAR	Balongi-PZ	-3.60		3.60	
500	Punjab	SAS NAGAR	Barauli-PZ	2.75		-5.90	
501	Punjab	SAS NAGAR	Chandiala-Pz	-0.75		-5.65	
502	Punjab	SAS NAGAR	Dera Bassi 07pz	-1.25	0.60	0.90	1.51
503	Punjab	SAS NAGAR	Dheri	-0.80	0.10	0.80	-0.22
504	Punjab	SAS NAGAR	Dusarna	-1.90			
505	Punjab	SAS NAGAR	Gharoon	-2.53		2.35	
506	Punjab	SAS NAGAR	Ghoga		4.82	3.27	2.15
507	Punjab	SAS NAGAR	Joli	-0.92	0.70	1.44	1.20
508	Punjab	SAS NAGAR	Kurrha-Pz	-2.48		-0.40	
509	Punjab	SAS NAGAR	Landran-Pz		-0.90		
510	Punjab	SAS NAGAR	Malkpur-Pz			-3.50	
511	Punjab	SAS NAGAR	Manoli-PZ	-0.20		-0.60	
512	Punjab	SAS NAGAR	Palheri-PZ	-0.20		-2.30	
513	Punjab	SAS NAGAR	Pedol-PZ	-0.60		-1.20	
514	Punjab	SAS NAGAR	Raipur Kalan	-0.70		-0.10	
515	Punjab	SAS NAGAR	Singhpura-Pz	-1.45			
516	Punjab	SAS NAGAR	Sirsini	-0.80	1.12	0.79	0.94
517	Punjab	SBS NAGAR	Bahlora Kallan- Pz	0.05	0.22	1.20	1.02
518	Punjab	SBS NAGAR	Mauhra-Pz	-7.06	5.92	7.56	10.04
519	Punjab	SBS NAGAR	Rahon	0.07	-0.09	0.83	0.95
520	Punjab	SBS NAGAR	Raipur Dhaba-Pz	-0.14	-2.25	-0.14	0.74
521	Punjab	TARAN TARAN	Aima Khurd-Pz	-1.60		-0.30	
522	Punjab	TARAN TARAN	Attari-Pz	-0.50		-1.20	
523	Punjab	TARAN TARAN	Bakipur-Pz	2.60			
524	Punjab	TARAN TARAN	Bath-Pz	0.20		1.00	
525	Punjab	TARAN TARAN	Bhagala-Pz			-0.10	
526	Punjab	TARAN TARAN	Bhagwanpur-Pz	0.60		-1.20	
527	Punjab	TARAN TARAN	Bhalaipur-Pz	0.20		-0.20	

528	Punjab	TARAN TARAN	Bhankar Kalan-Pz	-0.60		0.90	
529	Punjab	TARAN TARAN	Bhikiwind- Pz	0.74	-0.93		-0.97
530	Punjab	TARAN TARAN	Bhura-Pz			0.20	
531	Punjab	TARAN TARAN	Bhure-Pz	1.30		0.60	
532	Punjab	TARAN TARAN	Bhusse-Pz	-0.30		0.40	
533	Punjab	TARAN TARAN	Brahmpur-Pz	2.10		0.10	
534	Punjab	TARAN TARAN	Chakkare Khan-Pz	-0.20		0.10	
535	Punjab	TARAN TARAN	Chola Sahib-Pz	1.16	-2.74		
536	Punjab	TARAN TARAN	Choudhary Wala- Pz			0.50	
537	Punjab	TARAN TARAN	Chuselawad-Pz	1.60		-1.00	
538	Punjab	TARAN TARAN	Ekalgoda-Pz	-1.00		-0.40	
539	Punjab	TARAN TARAN	Fatehabad- PZ	-0.10		1.80	
540	Punjab	TARAN TARAN	Gandi Wind-Pz	-0.39			1.52
541	Punjab	TARAN TARAN	Goindwal 07	1.52	-2.56	-1.50	-1.40
542	Punjab	TARAN TARAN	Jandoke-Pz	1.70		0.30	
543	Punjab	TARAN TARAN	Kairon-PZ	-0.20		-1.10	
544	Punjab	TARAN TARAN	Kalsia Kalan				3.12
545	Punjab	TARAN TARAN	Kalsia Kalan07	0.53	-0.21		
546	Punjab	TARAN TARAN	Khadur Sahib-Pz	0.76	-2.15	-1.89	-0.98
547	Punjab	TARAN TARAN	Khalra-Pz	0.70		-4.10	

548	Punjab	TARAN TARAN	Kotbudda-Pz	1.50		4.90	
549	Punjab	TARAN TARAN	Kotli Sur Singh-Pz	0.50		3.80	
550	Punjab	TARAN TARAN	Mahendipur-Pz	-19.80		0.40	
551	Punjab	TARAN TARAN	Marhona-Pz	0.80		-9.30	
552	Punjab	TARAN TARAN	Mari Kamboke-Pz	0.40		8.10	
553	Punjab	TARAN TARAN	Pindan-Pz	0.30		-0.30	
554	Punjab	TARAN TARAN	Rajoke-Pz	0.60		0.50	
555	Punjab	TARAN TARAN	Ratoke-Pz	2.10	-5.46	-3.60	-0.05
556	Punjab	TARAN TARAN	Sabran-Pz	4.60		-1.60	
557	Punjab	TARAN TARAN	Sahab Pura- Pz	1.31	-3.31	-2.67	-2.6
558	Punjab	TARAN TARAN	Sheron-Pz	0.40		1.20	
559	Punjab	TARAN TARAN	Sugga-Pz	0.40			

Annexure-3: Annual Fluctuations in Depth to Water Levels

S. No	State	District	Location	2018 June	2018 August	2018 October	2019 January
				2019 June	2019 August	2019 October	2020 January
				(mbgl)	(mbgl)	(mbgl)	(mbgl)
1	Chandigarh	Chandigarh	BURAIL	0.9	0.27	-0.13	0.34
2	Chandigarh	Chandigarh	Csio-combined			-1.51	1.12
3	Chandigarh	Chandigarh	CSIO-S	-0.95	-0.02	0.41	
4	Chandigarh	Chandigarh	NEW INDUST AREA		3.61	-0.85	-3.92
5	Chandigarh	Chandigarh	Sec-27, Ar Well	1.17	-0.06	-0.66	-4.12
6	Chandigarh	Chandigarh	SECT 10C			-3.52	-6
7	Chandigarh	Chandigarh	SECT 10C (D)	-0.65	0.35	0.97	-2.17
8	Chandigarh	Chandigarh	SECT 10C (S)			6.24	-2.91
9	Chandigarh	Chandigarh	SECT 31D (D)	-0.15	-1.49	-0.47	0.22
10	Chandigarh	Chandigarh	SECT 31D (S)	1.21	0.02	0.33	-2.52
11	Chandigarh	Chandigarh	SECT 37D (S)	1.18	-1.47	-12.80	0.62
12	Chandigarh	Chandigarh	SECT 44D (S)		-0.31	-0.02	-0.12
13	Chandigarh	Chandigarh	Sector 52- PZ				-0.28
14	Chandigarh	Chandigarh	Sector-46 (shallow)	0.63	-3.68	-0.43	
15	Punjab	Amritsar	Ajnala	0.02		2.1	-0.4
16	Punjab	Amritsar	Amritsar				-5.5
17	Punjab	Amritsar	Amritsar1	0.33	0.3	-0.31	
18	Punjab	Amritsar	Bajwa-Pz	0			
19	Punjab	Amritsar	Bal Kalan-Pz	0.8		0.3	
20	Punjab	Amritsar	Beas07	1.1	0.47	-0.17	-0.58
21	Punjab	Amritsar	Bhattaywad-Pz	0		-0.7	
22	Punjab	Amritsar	Bholewal-Pz	-0.7		-7.6	
23	Punjab	Amritsar	Boparai Khurd-Pz	1		-0.9	
24	Punjab	Amritsar	Chak Dogra-Pz	1.2		1.6	

25	Punjab	Amritsar	ChogWan- Pz		1.43		
26	Punjab	Amritsar	Dhulika-Pz	0.4		0.5	
27	Punjab	Amritsar	Dohan-Pz	0.3		-0.6	
28	Punjab	Amritsar	Gago Mahal- Pz		0.02	0.07	-0.97
29	Punjab	Amritsar	Gill wali-Pz	1.6		1.5	
30	Punjab	Amritsar	Jandiala Guru-Pz	-0.48	-1.45	-0.31	3.58
31	Punjab	Amritsar	Jethuwal-Pz	0.7		0.4	
32	Punjab	Amritsar	Kandowali-Pz	-0.9		0.7	
33	Punjab	Amritsar	Karylal-Pz	0.3		0.3	
34	Punjab	Amritsar	Khilchian-Pz				
35	Punjab	Amritsar	Mahima-Pz	0.1		0.3	
36	Punjab	Amritsar	Majitha- Pz			3.2	
37	Punjab	Amritsar	Majitha-Pz				
38	Punjab	Amritsar	Makhan Windi-Pz	0			
39	Punjab	Amritsar	Mehleykey-Pz	5.2		5.5	
40	Punjab	Amritsar	Mehta			-0.05	
41	Punjab	Amritsar	Mehta-Pz	0.52		-0.2	
42	Punjab	Amritsar	Miran Chak-Pz	0.1		-0.8	
43	Punjab	Amritsar	Nangal Sahaul-Pz	1.6		0.9	
44	Punjab	Amritsar	Nawan Tanal- Pz	0.66	0.72	-0.88	-1.23
45	Punjab	Amritsar	Ramdas-DW	-2.03	2.31	-0.34	-3.12
46	Punjab	Amritsar	Rampura-Pz	-16.16			
47	Punjab	Amritsar	Rayya-Pz	1.5		0.3	
48	Punjab	Amritsar	Rupowal Brahmana-Pz	1.2		0.9	
49	Punjab	Amritsar	Sarangra-Pz	1.1			
50	Punjab	Amritsar	Sathiala-Pz			-0.9	
51	Punjab	Amritsar	Shabura-Pz	1.2		-2.4	
52	Punjab	Amritsar	Sham Nagar-Pz	0.6		0.9	
53	Punjab	Amritsar	Talwandi Dogra- Pz	1.1		0.6	
54	Punjab	Amritsar	Tarsika-Pz	1.7		-0.2	
55	Punjab	Amritsar	Ugar Aulakh-Pz	-0.2		-1	
56	Punjab	Amritsar	Vadala Kalan-Pz	0.4		-1.5	

57	Punjab	Amritsar	Vadala Viran-Pz	0.55		-9.9	
58	Punjab	Amritsar	Verka-Pz	0.9			
59	Punjab	Amritsar	Wandala Bittewad-Pz	0.8			
60	Punjab	Barnala	Amla Singh Wala- PZ	-1.48			
61	Punjab	Barnala	Barnala (s)	-0.91	-0.73	-1.24	-1.06
62	Punjab	Barnala	Bhadaur-Pz	-1.29	-0.96	-1.29	-1.33
63	Punjab	Barnala	Daula-Pz	-1.82			
64	Punjab	Barnala	Dhanaula-Pz			-8.23	
65	Punjab	Barnala	Kurar-Pz	-2.25		-1.25	
66	Punjab	Barnala	Lohgarh-Pz	-2.6			
67	Punjab	Barnala	Mahal Kalan-Pz	-0.77	-0.68	-1.09	-1.1
68	Punjab	Barnala	Nangal-Pz				
69	Punjab	Barnala	Pakho Ke-Pz	1.88		-7.45	
70	Punjab	Barnala	Patti Dwarka-Pz	-1.71			
71	Punjab	Barnala	Raisar-Pz	-2.03			
72	Punjab	Barnala	Ramgarh-Pz				
73	Punjab	Barnala	Shekha	-3.42		-2.91	
74	Punjab	Bathinda	Ablu	1.81	-0.1	0.2	-0.95
75	Punjab	Bathinda	Aleke Jalal-Pz	-0.39		-1.78	
76	Punjab	Bathinda	Badiala-Pz	-0.72	-1.1	-3.55	
77	Punjab	Bathinda	Bagher Mohabat Singh-Pz			-0.2	
78	Punjab	Bathinda	Bahman Kaur Singh-Pz			0.01	
79	Punjab	Bathinda	Balianwali-Pz	0.49		-1.48	
80	Punjab	Bathinda	Balluanal		0.47	-1.58	
81	Punjab	Bathinda	Balluana-Pz	-0.22		2.74	
82	Punjab	Bathinda	Bandi-Pz	0.06			
83	Punjab	Bathinda	Bhagibandar	-0.07	-1	0.25	1.29
84	Punjab	Bathinda	Bugran-Pz	-0.66		-1.18	
85	Punjab	Bathinda	Burj Gill-Pz	-0.8		-2.51	
86	Punjab	Bathinda	Deratapp	-0.99	-0.63	-0.36	-0.08
87	Punjab	Bathinda	Dhapali1	-2.06	0.46	-3.67	-2.13
88	Punjab	Bathinda	Dhapali-Pz	0.37	-0.7	-0.9	5.22
89	Punjab	Bathinda	Dialpur Mirza			-3.56	-1.21

90	Punjab	Bathinda	Dialpura Bhlaike	-0.82	-2.7	-3.45	-1.95
91	Punjab	Bathinda	Dialpura- Mirza	-1.25		-0.59	
92	Punjab	Bathinda	Dulle Wala-Pz	-0.7		-2.18	
93	Punjab	Bathinda	Ganga-Pz	-0.55		-0.32	0.72
94	Punjab	Bathinda	Ghudda-Pz			-0.35	
95	Punjab	Bathinda	Gill Patti-DW			-0.6	
96	Punjab	Bathinda	Gobind Pura-Pz	-0.84			
97	Punjab	Bathinda	Gulabgarh 2 (s)	-0.05	-0.16	-0.17	-0.47
98	Punjab	Bathinda	Guru Sar-Pz	-0.32	0.18	-0.12	0.3
99	Punjab	Bathinda	Harraipur-Pz	-0.94		-1.36	
100	Punjab	Bathinda	Jajjal	-0.35	0.98	1.3	0.1
101	Punjab	Bathinda	Jajjal_DW				
102	Punjab	Bathinda	Jassi Bhagwali	-4.45	-0.03	0.15	0.8
103	Punjab	Bathinda	Jhanduke	0.43			-1.2
104	Punjab	Bathinda	Jhanduke-Pz	-0.23		-2.02	
105	Punjab	Bathinda	Kalla Bandar	-5.43			
106	Punjab	Bathinda	Kalyan Sukha-M	-1.47		-0.75	0.23
107	Punjab	Bathinda	Koir Singh Wala-Pz	-1.01		-2.46	
108	Punjab	Bathinda	Kot Bhaktu-Pz			-0.03	
109	Punjab	Bathinda	Kot Guru			-0.1	
110	Punjab	Bathinda	Kot Shamir	-0.37	0.31	-0.01	
111	Punjab	Bathinda	Kothaguru-Pz		-1.35	-1.44	-1.05
112	Punjab	Bathinda	Lalliana-Pz			-0.79	
113	Punjab	Bathinda	Lehra Dhulkot-Pz	-0.18		-2.83	
114	Punjab	Bathinda	Maihma Bhagwan-PZ	-0.64		-0.74	
115	Punjab	Bathinda	Maisar Khana			0.2	
116	Punjab	Bathinda	Maisar Khana-Pz	0.17		-0.76	
117	Punjab	Bathinda	Maluka-Pz	-1.08		-1.74	
118	Punjab	Bathinda	Mandi Kalan-Pz	0.02		-1.89	
119	Punjab	Bathinda	Mehrraj-Pz	-0.44		-1.6	

120	Punjab	Bathinda	Mehta-Pz			-0.53	
121	Punjab	Bathinda	Multania-Pz	-0.87		-0.17	
122	Punjab	Bathinda	Nahinwala	-0.65	3.56	-1	-0.79
123	Punjab	Bathinda	Nathana-Pz	-0.26		-0.61	
124	Punjab	Bathinda	Phulla1	5.58	-0.72	-2.56	
125	Punjab	Bathinda	Puhla-Pz				
126	Punjab	Bathinda	Raike Kalan	0.21	-0.43	-0.56	0.15
127	Punjab	Bathinda	Rajgarh Kubey-Pz			-0.39	
128	Punjab	Bathinda	Rampura-Pz	-0.59		-2.93	
129	Punjab	Bathinda	Rayya-Pz	-1.13		-0.59	
130	Punjab	Bathinda	Salabatpur-Pz	-0.6			
131	Punjab	Bathinda	Sooch-Pz	0.28		-1.73	
132	Punjab	Bathinda	Teona-Pz			-0.12	
133	Punjab	F. Sahib	Alipur Sodhian-Pz	-1.05		0.05	
134	Punjab	F. Sahib	Badalialasingh	-3.2	1.01	-0.27	-10.98
135	Punjab	F. Sahib	Bagga Kalan	0.2		0.30	
136	Punjab	F. Sahib	Bassi Pathana	0.27			0.09
137	Punjab	F. Sahib	Bhaddal Tuha-Pz	15.11			-0.04
138	Punjab	F. Sahib	Bhagrana		1.2	0.08	-0.84
139	Punjab	F. Sahib	Bhateri1	0.48	1.63		
140	Punjab	F. Sahib	Burj	0.45		-0.50	
141	Punjab	F. Sahib	Chandiala-Pz	0.2		-0.50	
142	Punjab	F. Sahib	Chuni Khurd-PZ			1.40	
143	Punjab	F. Sahib	Chunni Kalan	0.59	0.63	1.94	1.06
144	Punjab	F. Sahib	Fatehgarh Sahib				
145	Punjab	F. Sahib	Fatehgarh Sahib-Pz	0.06	0.66	-0.42	0.7
146	Punjab	F. Sahib	Inayatpur-PZ-S		0.83		
147	Punjab	F. Sahib	Jai Singh Wala	-0.9		-0.55	
148	Punjab	F. Sahib	Jhambela	-0.5		-0.45	
149	Punjab	F. Sahib	Kalewal	-0.5			
150	Punjab	F. Sahib	Khamanon-pz	0.2		-0.75	
151	Punjab	F. Sahib	Kharey_PZ	-0.05			

152	Punjab	F. Sahib	Khera-Pz	0.6		-1.00	
153	Punjab	F. Sahib	Ladpur	-0.45			
154	Punjab	F. Sahib	Lohar Majra	-0.65		-1.55	
155	Punjab	F. Sahib	Mianpur-Pz	1		-0.20	
156	Punjab	F. Sahib	Nalini-Pz	0.64	0.18	0.51	0.15
157	Punjab	F. Sahib	Nandpur Kalaur-Pz	1.4		0.60	
158	Punjab	F. Sahib	Pawala		-3.98	-0.25	-0.22
159	Punjab	F. Sahib	Sado Majra	-0.05		-0.90	
160	Punjab	F. Sahib	Salempur	2.2			
161	Punjab	F. Sahib	Shahpur	0.15		0.00	
162	Punjab	F. Sahib	Sirhind-Pz	1.7		1.00	
163	Punjab	F. Sahib	Tahalpur	1.1		-0.20	
164	Punjab	F. Sahib	Talwara	1.1		-0.55	
165	Punjab	F. Sahib	Timber Pur-Pz	-0.1		0.00	
166	Punjab	Faridkot	Baja Khana	-0.19	-1.04	-0.38	-0.09
167	Punjab	Faridkot	Bead Sikhanwala-Pz	-0.56	-1.27	-0.86	-0.74
168	Punjab	Faridkot	Chahd Baja	-0.71		-1.25	-0.89
169	Punjab	Faridkot	Deviwala-S	-1.1	-1.76	-2.12	-0.69
170	Punjab	Faridkot	Dhudi-Pz			-0.94	
171	Punjab	Faridkot	Faridkot-Pz			-0.10	
172	Punjab	Faridkot	Ghuiana-Pz			-0.20	
173	Punjab	Faridkot	Jand Sahib-Pz	1.18	-0.05		-0.78
174	Punjab	Faridkot	Karirwali	0.41	0.04	-1.93	-2.05
175	Punjab	Faridkot	Killi-Pz	0.36			-1.3
176	Punjab	Faridkot	Kot Kapura	-0.8	-2.53	0.12	0.4
177	Punjab	Faridkot	Matta	-1.08	-0.27	0.56	0.59
178	Punjab	Faridkot	Mehmuana	0.13	-0.1	-0.75	-0.4
179	Punjab	Faridkot	Mumra-Pz	0.52	-0.22		-0.76
180	Punjab	Faridkot	Nangal-Pz	0.06	-8.18	1.10	0.3
181	Punjab	Faridkot	Pahluwala-Pz			-0.75	
182	Punjab	Faridkot	Ratti Rori-Pz			0.01	
183	Punjab	Faridkot	Rorian Kapura-Pz			-0.56	
184	Punjab	Faridkot	Sadiq-Pz	0.47	0.18	-0.57	-0.26
185	Punjab	Faridkot	Sher Singh Wala-Pz	0.3	0.17	-0.51	-0.08
186	Punjab	Faridkot	Sukhwala-Pz	-0.53	0.21	-1.20	-1.65
187	Punjab	Faridkot	Tehna-Pz	0.24	4	-0.60	0.75

188	Punjab	Faridkot	Wara Dwarka-Pz	-0.37	0.06	-0.34	-0.16
189	Punjab	Faridkot	Behabal Kalan-Pz			0.01	
190	Punjab	Faridkot	Chak Kalan-Pz			-1.19	
191	Punjab	Faridkot	Fatehgarh-Pz			-2.45	
192	Punjab	Fazilka	Abohar	-0.44	-0.12	-0.63	-0.33
193	Punjab	Fazilka	Asifwala-Pz			0.44	
194	Punjab	Fazilka	Bannawala	0.11	-0.27	0.02	-0.47
195	Punjab	Fazilka	Bazirdpura	0.23	0.37	0.23	0.43
196	Punjab	Fazilka	Chak Khere Wala-Pz			0.71	
197	Punjab	Fazilka	Danewal Satkosi	-0.52	0.59	0.84	0.5
198	Punjab	Fazilka	Danger Khera-Pz			0.11	
199	Punjab	Fazilka	Dipulana-Pz		-0.22	-0.29	
200	Punjab	Fazilka	Fattu Wala-Pz			0.50	
201	Punjab	Fazilka	Giddran Wali-Pz			-1.34	
202	Punjab	Fazilka	Godiwala-Pz			0.48	
203	Punjab	Fazilka	Hamed Saidoke-Pz			0.40	
204	Punjab	Fazilka	Himmatpura-Pz			0.72	
205	Punjab	Fazilka	Jand Wala Johian-Pz			2.43	
206	Punjab	Fazilka	Kaler Khera-Pz			0.34	
207	Punjab	Fazilka	Khuiansarwar- Pz	-0.56	-0.38	-0.12	
208	Punjab	Fazilka	Kundall	-0.1	-0.48	-0.45	0.86
209	Punjab	Fazilka	Ladhuwala			-1.38	
210	Punjab	Fazilka	Malukpur-Pz			0.04	
211	Punjab	Fazilka	Muradwala Dal-Pz			0.18	
212	Punjab	Fazilka	Nihalkhera			-1.06	
213	Punjab	Fazilka	Pancha Wali-Pz			0.13	
214	Punjab	Fazilka	Pattiwalla-Pz			-0.22	
215	Punjab	Fazilka	Ramsara-Pz			0.95	
216	Punjab	Fazilka	Sham Singhwala-Pz			-0.23	

217	Punjab	Fazilka	Shatriwala-Pz			0.16	
218	Punjab	Fazilka	Sherewala-Pz			0.82	
219	Punjab	Fazilka	Sitoganno	-0.17	0.05		
220	Punjab	Fazilka	Sohangarh Ratte	0.06	0.57	0.25	-0.77
221	Punjab	Fazilka	Swah Wala- Pz		-0.31	-0.44	-1.65
222	Punjab	Fazilka	Chak Pune Wala- Pz			1.70	
223	Punjab	Fazilka	Markhiwa Bhamni-Pz			0.79	
224	Punjab	Fazilka	Singhpura-Pz			1.49	
225	Punjab	Firozpur	Bara Mansur Wala-Pz	0.3		0.42	
226	Punjab	Firozpur	Chak Kandhe Shah-Pz				1.17
227	Punjab	Firozpur	Chamb-Pz	-0.53		0.93	
228	Punjab	Firozpur	Dulchi Ke-Pz			1.44	
229	Punjab	Firozpur	Gogiani-Pz	-1.31		1.38	
230	Punjab	Firozpur	Jaimal wala-Pz	-0.95		0.45	0.57
231	Punjab	Firozpur	Jang-Pz			0.72	
232	Punjab	Firozpur	Katoran-Pz			10.76	
233	Punjab	Firozpur	Lauhke Kalan- Pz	0.23	2.07	2.93	0.13
234	Punjab	Firozpur	Lohere Khurd-Pz	-0.48			0.54
235	Punjab	Firozpur	Machi Bugra/ Gujran-Pz				-3.22
236	Punjab	Firozpur	Mallanwala Khas- Pz	-0.35			-0.72
237	Punjab	Firozpur	Malluwala-Pz	-1.36			0.46
238	Punjab	Firozpur	Malsian-Pz		-0.55	13.37	-0.14
239	Punjab	Firozpur	Mana Singh Wala- Pz				0.83
240	Punjab	Firozpur	Mohkam Khan Wala-Pz				-2.25
241	Punjab	Firozpur	Mohre Wala-Pz	0.16	-0.29	-0.20	-0.02
242	Punjab	Firozpur	Mudki-Pz				-2.27
243	Punjab	Firozpur	Piyarana	0.35	0.5	0.00	0.02

244	Punjab	Firozpur	Rala Hazi- Pz			0.74	
245	Punjab	Firozpur	Rukne Wala-Pz	-1.1		-0.08	
246	Punjab	Firozpur	Sadhusha Wala-Pz			-0.02	
247	Punjab	Firozpur	Sultan Khan Wala Urf-Pz			-1.46	
248	Punjab	Firozpur	Talwandi Jalle Khan-pz	-1.18		0.06	
249	Punjab	Firozpur	Tibbi Kalan-Pz			1.51	
250	Punjab	Firozpur	Tibbi Taiwan Laluwalla-Pz			0.48	
251	Punjab	Firozpur	Wage Wala-Pz	-1.1		-2.44	
252	Punjab	Gurdaspur	Bariyar	1		-0.35	
253	Punjab	Gurdaspur	Batala-Pz	0.1			
254	Punjab	Gurdaspur	Bhagowal	-0.09	0.86	-1.90	
255	Punjab	Gurdaspur	Bilasbal-Pz	1		0.00	
256	Punjab	Gurdaspur	Chahal Kalan-Pz	0.1		-0.60	
257	Punjab	Gurdaspur	Chahgill-Pz	1.15		0.50	
258	Punjab	Gurdaspur	Chone-Pz	0.05		-0.05	
259	Punjab	Gurdaspur	Dakoha-Pz	-0.08	-0.51	-0.58	0.04
260	Punjab	Gurdaspur	Dera Baba Nanak	-0.13	0.33	-0.01	0.06
261	Punjab	Gurdaspur	Dhianpur	0.7		-0.03	0.49
262	Punjab	Gurdaspur	Dinanagar	-2.14	-1.76	1.25	3.77
263	Punjab	Gurdaspur	Dostpur-Pz	0.8		-0.20	
264	Punjab	Gurdaspur	Gajikort-Pz			-0.40	
265	Punjab	Gurdaspur	Galri	1.35	-1.23	-2.72	1.36
266	Punjab	Gurdaspur	Ghania Ki bangar-Pz	1.41	0.73		0.29
267	Punjab	Gurdaspur	Ghumani Khurd-Pz	1.15		-0.20	
268	Punjab	Gurdaspur	Gurdaspur-Pz	0.9		0.50	
269	Punjab	Gurdaspur	Harchowal-Pz-S	-1.3	-0.81	-0.17	0.2
270	Punjab	Gurdaspur	Hargobindpur1			-19.27	
271	Punjab	Gurdaspur	Hassanpur Kalan-Pz	0.55		0.00	
272	Punjab	Gurdaspur	Jhabkra	1.55		-0.85	

273	Punjab	Gurdaspur	Jhandalbana-Pz	0.7		-0.25	
274	Punjab	Gurdaspur	Kala Afgana-Pz	0.4		0.25	
275	Punjab	Gurdaspur	Kalanaur-DW	0.55		-0.41	
276	Punjab	Gurdaspur	Kalanaur-Pz	0.98	-1.44	0.76	-7.07
277	Punjab	Gurdaspur	Kalerkalan-Pz				
278	Punjab	Gurdaspur	Kaure-Pz	1.8		1.00	
279	Punjab	Gurdaspur	Khan Fatta-Pz	0.75		-4.05	
280	Punjab	Gurdaspur	Khanmalik-Pz	1.85		-0.25	
281	Punjab	Gurdaspur	Khatgarh-Pz	0.9		-0.10	
282	Punjab	Gurdaspur	Lakankala-Pz	0.6		-0.55	
283	Punjab	Gurdaspur	Langurwal-Pz	0.85		-0.95	
284	Punjab	Gurdaspur	Madipur Fatehgarhchuria	-0.53	-0.37	-1.28	-0.47
285	Punjab	Gurdaspur	Malikpur-Pz	1.25		1.10	
286	Punjab	Gurdaspur	Maman-Pz	1.25		-0.20	
287	Punjab	Gurdaspur	Masana-Pz	1.3		0.00	
288	Punjab	Gurdaspur	Massit-Pz	0.9		-0.05	
289	Punjab	Gurdaspur	Mullowali 1(vs)	0.28	0.38		
290	Punjab	Gurdaspur	Mullowali 2(m)				
291	Punjab	Gurdaspur	Nangal-Pz	0.6		-0.30	
292	Punjab	Gurdaspur	Nishayara	-1.37		-0.24	0.22
293	Punjab	Gurdaspur	Pandoritalab	0.03	-1.52	-0.07	0.26
294	Punjab	Gurdaspur	Parcha-Pz	0.85		-0.50	
295	Punjab	Gurdaspur	Patti Atwal-Pz	0.65		0.30	
296	Punjab	Gurdaspur	Quadian 07			-0.35	
297	Punjab	Gurdaspur	Raipur	1.9			
298	Punjab	Gurdaspur	Saidowal Kalan- DW	0.42	-1.93	-0.29	1
299	Punjab	Gurdaspur	Saleh Chak-S	0.35	0.2	0.23	0.24
300	Punjab	Gurdaspur	Salehchak(vs)	0.4	-0.24		
301	Punjab	Gurdaspur	Sathial-Pz	0.99			
302	Punjab	Gurdaspur	Shahpur Jattan-Pz	1.05			

303	Punjab	Gurdaspur	Shahpur-Pz	0.75		0.00	
304	Punjab	Gurdaspur	Shezada Kalan-Pz	-3.65		-1.05	
305	Punjab	Gurdaspur	Sohal			0.10	
306	Punjab	Gurdaspur	Tikriwala-Pz	0.7		-0.20	
307	Punjab	Hoshiarpur	Aallo Batti-Pz			-0.05	
308	Punjab	Hoshiarpur	Adowal Garhi-Pz			4.95	
309	Punjab	Hoshiarpur	Argowal-Pz				
310	Punjab	Hoshiarpur	Badla-Pz			7.70	
311	Punjab	Hoshiarpur	Bajwara-Pz			0.80	
312	Punjab	Hoshiarpur	Barota-PZ				
313	Punjab	Hoshiarpur	Bersa			1.00	
314	Punjab	Hoshiarpur	Bhalowal Gujran-Pz			1.10	
315	Punjab	Hoshiarpur	Bhangala-ChhotDW		-0.02		
316	Punjab	Hoshiarpur	Bhanowal-Pz			-2.10	
317	Punjab	Hoshiarpur	Bhatolian-Pz			1.50	
318	Punjab	Hoshiarpur	Bhunga-Pz				
319	Punjab	Hoshiarpur	Boring-PZ			-1.20	
320	Punjab	Hoshiarpur	Chak Sheru-DW		0.67	0.00	-1.43
321	Punjab	Hoshiarpur	Chohal	0.25		1.01	
322	Punjab	Hoshiarpur	Dadan-Pz			0.25	
323	Punjab	Hoshiarpur	DAGAN-DW		1.4	1.18	-0.57
324	Punjab	Hoshiarpur	Dallewal-Pz		2.02	1.90	
325	Punjab	Hoshiarpur	Dasuya2 (s)	3.19		-0.13	-3.4
326	Punjab	Hoshiarpur	Dharampur1			-1.00	
327	Punjab	Hoshiarpur	Durimiwal	0.88		0.92	0.98
328	Punjab	Hoshiarpur	Fattowal-Pz			-3.00	
329	Punjab	Hoshiarpur	Garh Di Wala-Pz	0.83	-1.56	-3.35	1.3
330	Punjab	Hoshiarpur	Garhshankar (s)	-2.15	0.81	1.75	
331	Punjab	Hoshiarpur	Grahaya-Pz			5.20	
332	Punjab	Hoshiarpur	Haler Rampur-DW			-0.22	-0.29
333	Punjab	Hoshiarpur	Hazipur	0.63			0.4
334	Punjab	Hoshiarpur	Heer Beh-PZ			12.60	
335	Punjab	Hoshiarpur	Ittian-Pz				
336	Punjab	Hoshiarpur	Jahidpur-PZ			-1.75	

337	Punjab	Hoshiarpur	Jattpur-Pz			0.45	
338	Punjab	Hoshiarpur	Khera-Pz			-1.90	
339	Punjab	Hoshiarpur	Mahil Baltohian-Pz			0.75	
340	Punjab	Hoshiarpur	Mahilpur-Pz	2.78	2.7	0.85	0.84
341	Punjab	Hoshiarpur	Mukerian Dw		1.95	-2.01	2.32
342	Punjab	Hoshiarpur	Naharpur-Pz			-1.10	
343	Punjab	Hoshiarpur	Nangal Bihala-DW	1.33	1.69	2.13	1.79
344	Punjab	Hoshiarpur	Nangal Thathal-Pz				
345	Punjab	Hoshiarpur	Pan Khuh-DW		0.18	-0.30	0.3
346	Punjab	Hoshiarpur	Pandori Mehal-Pz			-3.60	
347	Punjab	Hoshiarpur	Parshote-Pz			1.70	
348	Punjab	Hoshiarpur	Phuglana- Pz	4.5	1.86	2.64	11.55
349	Punjab	Hoshiarpur	Rampur Colony (HSP) pz-medium				1.65
350	Punjab	Hoshiarpur	Samraj Tanda-DW		0.28		0.41
351	Punjab	Hoshiarpur	Satnoh-PZ.			0.50	
352	Punjab	Hoshiarpur	Sham Chaurasi	1.16	1.4	1.27	1.2
353	Punjab	Hoshiarpur	Sibo Chak- DW		1.02	-0.26	3.4
354	Punjab	Hoshiarpur	Simbli- OW	3.27		0.39	
355	Punjab	Hoshiarpur	Simbli-Pz	2.61	0.76	1.42	4.9
356	Punjab	Hoshiarpur	Talwara1	0.66	-0.62	-0.44	0.23
357	Punjab	Hoshiarpur	Thakarwala	4.6	4.25	2.97	3.91
358	Punjab	Hoshiarpur	Bagpur-Pz			-1.45	
359	Punjab	Hoshiarpur	Baichan-Pz			-2.30	
360	Punjab	Hoshiarpur	Budhi Pind-Pz			-0.10	
361	Punjab	Hoshiarpur	Jalalpur-Pz			0.58	
362	Punjab	Hoshiarpur	Mianipur-Pz			-26.45	
363	Punjab	Hoshiarpur	Namoli-PZ			-34.35	
364	Punjab	Hoshiarpur	Tanda			-1.35	
365	Punjab	Jalandhar	Adampur 3(s)	1.73		-0.05	0.49
366	Punjab	Jalandhar	Akalpur-Pz			-0.90	
367	Punjab	Jalandhar	Allawalpur		2.56	1.54	1.68

368	Punjab	Jalandhar	Bhogpur-Pz				
369	Punjab	Jalandhar	Bilga-Pz			-2.70	
370	Punjab	Jalandhar	Billi Chahrami-Pz			-1.60	
371	Punjab	Jalandhar	Chania-Pz			-9.70	
372	Punjab	Jalandhar	Dhanda-Pz			-2.00	
373	Punjab	Jalandhar	Fateh Jalal-Pz			-5.40	
374	Punjab	Jalandhar	Gehlan-pz			-1.00	
375	Punjab	Jalandhar	Gillian-Pz			0.00	
376	Punjab	Jalandhar	Gohiran				0.41
377	Punjab	Jalandhar	Hardo Sheikh-Pz			-1.00	
378	Punjab	Jalandhar	Jalandhar-Pz(VS)	1.22	5.61	3.27	
379	Punjab	Jalandhar	Jalbhe	2.06	3.46	1.24	2.47
380	Punjab	Jalandhar	Jandiala-Pz	0.97	1.15	0.33	0.28
381	Punjab	Jalandhar	Jandu Singha-Pz			-0.60	
382	Punjab	Jalandhar	Janian-Pz			8.00	
383	Punjab	Jalandhar	Kakar Kalan-Pz			-0.10	
384	Punjab	Jalandhar	Kala-Pz			-3.00	
385	Punjab	Jalandhar	Kalyanpur-Pz			-1.00	
386	Punjab	Jalandhar	Kang Sahib Rai-Pz			-0.90	
387	Punjab	Jalandhar	Kartarpur 2(s)	-1.28	-0.26	0.28	0.1
388	Punjab	Jalandhar	Kharal Kalan Pz-S	2.99	-0.5		0.03
389	Punjab	Jalandhar	Kot Wadal Khan-Pz			6.42	
390	Punjab	Jalandhar	Kurla-Pz			-2.70	
391	Punjab	Jalandhar	Lallian kalan Pz-S	0.04			0.16
392	Punjab	Jalandhar	Mahmuwal-Pz			-1.30	
393	Punjab	Jalandhar	Mehsampur-Pz			0.30	
394	Punjab	Jalandhar	Nakodar 2(m)	-2.64		1.30	
395	Punjab	Jalandhar	Nangal Shaman			-0.80	
396	Punjab	Jalandhar	Nasirpur-Pz			3.60	
397	Punjab	Jalandhar	Nussi-Pz			-1.50	

398	Punjab	Jalandhar	Pathial-Pz			0.10	
399	Punjab	Jalandhar	Pharwala-Pz			-4.00	
400	Punjab	Jalandhar	Phillaur 2(s)	1.24	0.69		0.45
401	Punjab	Jalandhar	Rahimpur-Pz			-2.90	
402	Punjab	Jalandhar	Rurka Kalan- Pz			-3.80	
403	Punjab	Jalandhar	Samarahi-Pz			-3.70	
404	Punjab	Jalandhar	Shahkot(s)			2.16	
405	Punjab	Jalandhar	Shahkot-Pz-Pb			-2.50	
406	Punjab	Jalandhar	Skarar Pur-Pz			-3.00	
407	Punjab	Jalandhar	Sultanpur-Pz			-1.40	
408	Punjab	Jalandhar	Talwan-Pz			0.30	
409	Punjab	Jalandhar	Thanda-Pz			-1.75	
410	Punjab	Jalandhar	Udhopur				
411	Punjab	Jalandhar	Dhirowal-Pz			-2.00	
412	Punjab	Jalandhar	Talwani Madho-Pz			-3.83	
413	Punjab	Kapurthala	Bauril Harnampur-Pz			-1.26	
414	Punjab	Kapurthala	Begowal-Pz			-0.20	
415	Punjab	Kapurthala	Bhanoki-Pz			-1.50	
416	Punjab	Kapurthala	Bhatnura Khurd-S	2.14	-1.08	0.08	0.19
417	Punjab	Kapurthala	Bhawanipur-Pz			0.70	
418	Punjab	Kapurthala	Bholath M	1.75	0.56		1.45
419	Punjab	Kapurthala	Bholath S	1.82	-0.95	1.07	0.52
420	Punjab	Kapurthala	Chakoke-Pz			0.59	
421	Punjab	Kapurthala	Hamira-Pz			3.00	
422	Punjab	Kapurthala	Hazipur-Pz			0.04	
423	Punjab	Kapurthala	Hussainpura-S Pz	2.89		1.38	1.26
424	Punjab	Kapurthala	Hussainpura-VS Pz		-2.42	1.38	1.26
425	Punjab	Kapurthala	Kapurthala2 (s)	2.58	2.01		-0.36
426	Punjab	Kapurthala	Karnail Ganju-Pz			0.41	
427	Punjab	Kapurthala	Kishanpur			2.05	
428	Punjab	Kapurthala	Maheru-Pz			-1.00	
429	Punjab	Kapurthala	Miani Bola-Pz			-0.56	

430	Punjab	Kapurthala	Nadala				
431	Punjab	Kapurthala	Nangal Lubhana-Pz				
432	Punjab	Kapurthala	Nathu Chahal-Pz			-1.21	
433	Punjab	Kapurthala	Nurpur Janao-Pz			0.08	
434	Punjab	Kapurthala	Phagwara(shallow)	1.03		-0.55	
435	Punjab	Kapurthala	Phagwara2 (s)			-0.29	0.73
436	Punjab	Kapurthala	Rawalpindi-Pz			1.85	
437	Punjab	Kapurthala	Sangatpur-Pz			3.30	
438	Punjab	Kapurthala	Sultanpur2 (s)	0.74	0.68	0.12	-6.67
439	Punjab	Kapurthala	Talwandi Chaudary -Pz	0.5	-0.04		0.22
440	Punjab	Kapurthala	Thikriwali-Pz			-1.05	
441	Punjab	Kapurthala	Hamira-Pz			-0.36	
442	Punjab	Kapurthala	Mithra-Pz			1.80	
443	Punjab	Kapurthala	Shalapur Dona-Pz			-1.80	
444	Punjab	Ludhiana	Alamgir-Pz	0.15		-1.14	
445	Punjab	Ludhiana	Aliwal-Pz	0.27		-0.25	
446	Punjab	Ludhiana	Begowal	0.99		0.44	-0.29
447	Punjab	Ludhiana	Bhagwanpur-Pz	0.55		0.20	
448	Punjab	Ludhiana	Bhahlolpur-DW	0.18	1.68	0.37	0.63
449	Punjab	Ludhiana	Bharthala Randhawa-Pz	-0.31		0.60	
450	Punjab	Ludhiana	Bhikhi Khatron-Pz	0.4		0.00	
451	Punjab	Ludhiana	Bilaspur-Pz	0.35		0.00	
452	Punjab	Ludhiana	Chaminala-Pz	-0.1		0.00	
453	Punjab	Ludhiana	Chankian Khurd-Pz	0.85		0.85	
454	Punjab	Ludhiana	Chaunta-Pz	0.45		1.00	
455	Punjab	Ludhiana	Chhapar-Pz	0.4		0.00	
456	Punjab	Ludhiana	Dinnamder-Pz			0.23	
457	Punjab	Ludhiana	Dodpur-Pz	0.05		0.65	

458	Punjab	Ludhiana	Doraha-Pz	0.37	1.06		
459	Punjab	Ludhiana	Galibkalan-Pz	-1.2		7.35	
460	Punjab	Ludhiana	Gohaur-Pz	-0.4		-1.20	
461	Punjab	Ludhiana	Gopalpur 2(s)	0.04		-0.04	0.3
462	Punjab	Ludhiana	Hallawara-Pz-S	0.76	-0.02		
463	Punjab	Ludhiana	Hambowal-Pz	0.5		0.45	
464	Punjab	Ludhiana	Harnampur	-1		0.00	
465	Punjab	Ludhiana	Hedon-Pz	0.25		0.95	
466	Punjab	Ludhiana	Ikloha-Pz	-0.24	0.91	0.23	0.67
467	Punjab	Ludhiana	Jagraon 2(s)	-7.54			-0.84
468	Punjab	Ludhiana	Kalsian	-0.2		-1.40	
469	Punjab	Ludhiana	Katanikalan-Pz	0.1		0.25	
470	Punjab	Ludhiana	Khandur	0.3		-1.25	
471	Punjab	Ludhiana	Kishangarh-Pz	0.3		0.50	
472	Punjab	Ludhiana	Kishanpur-Pz	0.35		-0.55	
473	Punjab	Ludhiana	Lalan1		6.83	0.38	0.69
474	Punjab	Ludhiana	Lil- II Pz	-3.64	-2.2	-1.63	
475	Punjab	Ludhiana	Lil-Pz III	2.41			
476	Punjab	Ludhiana	Lodhiwal-Pz	-1.25		-2.10	
477	Punjab	Ludhiana	Lohara-Pz	-0.3		-0.55	
478	Punjab	Ludhiana	Machhiwara-Pz				
479	Punjab	Ludhiana	Maksudra-Pz				
480	Punjab	Ludhiana	Manak Majra-Pz	-0.05		0.15	
481	Punjab	Ludhiana	Mangat-Pz	1.1		0.80	
482	Punjab	Ludhiana	Mangat-Pz-S	1.11			15.32
483	Punjab	Ludhiana	Mehduda				
484	Punjab	Ludhiana	Mehma Singh Wala-Pz	0.25		-0.90	
485	Punjab	Ludhiana	Mushkabad	0.38		1.18	1.13
486	Punjab	Ludhiana	Nurpur-Pz	-0.1		-1.90	
487	Punjab	Ludhiana	P.A.U.Ludhiana 2(s)	-4.69		0.12	0.2
488	Punjab	Ludhiana	Pabbian-Pz	-0.6		-2.05	
489	Punjab	Ludhiana	Pandori-Pz	0.4		-1.80	

490	Punjab	Ludhiana	Payal-Pz	8.55		0.60	
491	Punjab	Ludhiana	Punjeta		0.74	-2.52	
492	Punjab	Ludhiana	Ragba-Pz	0.7		-0.80	
493	Punjab	Ludhiana	Raikot-Pz	0.26		-1.90	
494	Punjab	Ludhiana	Rajona Khurd	0.8		-2.50	
495	Punjab	Ludhiana	Rashiana-Pz			-5.93	
496	Punjab	Ludhiana	Rashin	0.35		1.38	
497	Punjab	Ludhiana	Rattewal-Pz	-0.05		-6.09	
498	Punjab	Ludhiana	Roomi-Pz				
499	Punjab	Ludhiana	Sajaywal-Pz	0.95		-3.75	
500	Punjab	Ludhiana	Samrala 2(s)	0.16	0.82	0.62	0.71
501	Punjab	Ludhiana	Sanewal-Pz	0.05		-0.35	
502	Punjab	Ludhiana	Sangatpura-Pz	0.75		0.65	
503	Punjab	Ludhiana	Sherian	0.45	1.99	0.59	-1.05
504	Punjab	Ludhiana	Sherpur-Pz			0.45	
505	Punjab	Ludhiana	Sidhwan Bet-Pz	-0.72	0.85	-0.71	-0.57
506	Punjab	Ludhiana	Talwandi Kalan-Pz	0.65		-2.00	
507	Punjab	Ludhiana	Udonwal-Pz	0.45		0.55	
508	Punjab	Ludhiana	Upplan	0.6		0.35	
509	Punjab	Ludhiana	Utlan				
510	Punjab	Mansa	Aklia-Pz			-1.21	
511	Punjab	Mansa	Alampur Mandran-Pz			-1.48	
512	Punjab	Mansa	Alisher Khurd-Pz			-0.49	
513	Punjab	Mansa	Bahadur Pur-Pz			-1.20	
514	Punjab	Mansa	Bareh-Pz			-1.11	
515	Punjab	Mansa	Behniwala-Pz				
516	Punjab	Mansa	Bhamme Kalan-Pz			-0.74	
517	Punjab	Mansa	Bhikhi 1 (s)	-0.68	-0.98	-0.36	
518	Punjab	Mansa	Bhikhi 2 (s)				
519	Punjab	Mansa	Budhlada				
520	Punjab	Mansa	Budhlada-Pz	-0.61			-0.73
521	Punjab	Mansa	Burj Bhalaike	-0.23	2.9	0.24	0.34
522	Punjab	Mansa	Burj Rathi-Pz			-0.90	
523	Punjab	Mansa	Fattamaluka	-0.48	-0.18	-0.80	-0.45

524	Punjab	Mansa	Gharangne-Pz			-0.83	
525	Punjab	Mansa	Hero Kalan-Pz			-2.19	
526	Punjab	Mansa	Hirke-Pz			-1.48	
527	Punjab	Mansa	Jhanda Khurd Pz				
528	Punjab	Mansa	Khiala Kalan-Pz			-0.81	
529	Punjab	Mansa	Khokhar Kalan-Pz			-1.21	
530	Punjab	Mansa	Kot Dhamru	-1.2	-4.1		
531	Punjab	Mansa	Kotra	-0.23			
532	Punjab	Mansa	Kusla-Pz			-0.04	
533	Punjab	Mansa	Lakhiwal-Pz			-1.47	
534	Punjab	Mansa	Makha-[PZ]			-0.40	
535	Punjab	Mansa	Phaphare Bhaike-Pz			-1.47	
536	Punjab	Mansa	Raipur-Pz	-0.16	0.06	0.20	0.27
537	Punjab	Mansa	Ralla	-0.53	-0.92	-1.18	-1.36
538	Punjab	Mansa	Tibbi Hari Singh-PZ			-1.02	
539	Punjab	Moga	Baje Ke-Pz	-0.95	-0.82	-2.84	-0.79
540	Punjab	Moga	Bilaspur-PZ				
541	Punjab	Moga	Budh Singh Wala-Pz	-1.43	-1.52	-1.37	-1.13
542	Punjab	Moga	Chand Nawan-PZ				
543	Punjab	Moga	Chogawan-Pz	-2.6	-3.12	2.75	-0.66
544	Punjab	Moga	Dagru- Pz	-2.86	-1.92	2.96	-0.77
545	Punjab	Moga	Damru Khurd				-1.63
546	Punjab	Moga	Daulatpur Niwan-Pz				
547	Punjab	Moga	Dhudi Ke-PZ	-2.67			
548	Punjab	Moga	Dinna-PZ				
549	Punjab	Moga	Himatpura-Pz				
550	Punjab	Moga	Indergarh-Pz			-4.60	
551	Punjab	Moga	Jhandewala-Pz	-4.01			
552	Punjab	Moga	Kamalke-Pz	-2.3		-3.00	
553	Punjab	Moga	Khokri Kalan-Pz	-1.25			

554	Punjab	Moga	Khosa Randhir-Pz	-1.15		-4.66	
555	Punjab	Moga	Mandar-Pz	-2.9		-2.62	
556	Punjab	Moga	Mangewala-Pz	-0.65			
557	Punjab	Moga	Meemana-PZ				
558	Punjab	Moga	Mehron-PZ	-2.2			
559	Punjab	Moga	Nathu Wala-Pz			-1.50	
560	Punjab	Moga	Nihalsinghwala-Pz	-0.73	-2.65	-1.33	1
561	Punjab	Moga	Raonke Kalan-Pz				
562	Punjab	Moga	Samad Bhai-Pz			-1.65	
563	Punjab	Moga	Samalsar-Pz			1.02	
564	Punjab	Moga	Thathe Bhai-Pz				
565	Punjab	Moga	Tota Singh Wala-Pz	-0.5		-0.44	
566	Punjab	Muktsar	Abulkharana-Pz			-0.58	0.15
567	Punjab	Muktsar	Balocha Khera(rasoolpur)	0.35	0.25	-0.60	
568	Punjab	Muktsar	Bhaliana	-0.88	-0.84	-0.81	
569	Punjab	Muktsar	Bhiti Wala-Pz			-0.37	
570	Punjab	Muktsar	Chakmaan-Pz				
571	Punjab	Muktsar	Chaktam Kot-Pz			0.67	
572	Punjab	Muktsar	Dhalkot-Pz			-0.74	
573	Punjab	Muktsar	Doda	-0.77	-1.39	-0.64	0.36
574	Punjab	Muktsar	Doda-Pz	-0.75	-0.2	0.12	0.41
575	Punjab	Muktsar	Giddarbaha-Pz				
576	Punjab	Muktsar	Husnar-Pz			0.54	
577	Punjab	Muktsar	Jandwala-Pz				
578	Punjab	Muktsar	Kabar Wala	-0.37	-0.61		-1.16
579	Punjab	Muktsar	Kattianwali-Pz			-0.42	
580	Punjab	Muktsar	Khirkian Wala-Pz			-0.80	
581	Punjab	Muktsar	Khunde Halal-Pz	-0.07	0.23	-0.30	-0.38

582	Punjab	Muktsar	Kollian Wali-pz				
583	Punjab	Muktsar	Kuttianwali				
584	Punjab	Muktsar	Labanianwali	0.3	0.13	0.02	0.22
585	Punjab	Muktsar	Lambi		0.95		19.49
586	Punjab	Muktsar	Lambi-Pz	0.22		1.53	1.35
587	Punjab	Muktsar	Muktsar	-0.18	-0.2	-0.18	0.47
588	Punjab	Muktsar	Phulu Khera-Pz			-0.40	
589	Punjab	Muktsar	Ratta Khera Chota-Pz			0.12	
590	Punjab	Muktsar	Sehna khera-Pz				
591	Punjab	Muktsar	Sheikh-Pz				
592	Punjab	Muktsar	Sohiwal-Pz			1.45	
593	Punjab	Pathankot	Bamyal	0.27		-0.90	0.49
594	Punjab	Pathankot	Bhoa	0.96	-1.3	0.04	0.37
595	Punjab	Pathankot	Dhar Khurd			2.40	
596	Punjab	Pathankot	Gharotakalan	-0.93		-0.30	-1.2
597	Punjab	Pathankot	Ghoh DW	6.2	2.57		
598	Punjab	Pathankot	Jainpur-PZ	0.7		-0.80	
599	Punjab	Pathankot	Jandwala	2		-2.20	
600	Punjab	Pathankot	Jhakolahri		-0.7	-0.29	0.31
601	Punjab	Pathankot	Khanikhui	0.09		0.17	0.07
602	Punjab	Pathankot	Khogaki Chaka- PZ	0.5		-0.95	
603	Punjab	Pathankot	Kiari- DW	1.62	-3.59	0.03	2.3
604	Punjab	Pathankot	Kirian Khurd-PZ	1.5		-1.60	
605	Punjab	Pathankot	Kui-DW	-0.46	-2.82	-0.01	0.53
606	Punjab	Pathankot	Kuther-PZ	5.4		3.10	
607	Punjab	Pathankot	Malikpur				
608	Punjab	Pathankot	Matti-PZ	0.2		-5.10	
609	Punjab	Pathankot	Mirthal	0.4		-0.20	
610	Punjab	Pathankot	Mirthal-DW				
611	Punjab	Pathankot	Narot Jaimalsingh- Pz	0.9		-1.05	
612	Punjab	Pathankot	Nawan Pind	0.57	-1.69	0.17	1.16
613	Punjab	Pathankot	Parmota-DW	1.83	-7.07	0.23	
614	Punjab	Pathankot	Pathankot1	0.25	-1.71	0.13	0.93
615	Punjab	Pathankot	Philora-PZ	0.1		-0.15	
616	Punjab	Pathankot	Phulpiara				

617	Punjab	Pathankot	Rakawal-PZ			-1.10	
618	Punjab	Pathankot	Rani Pur-PZ	5.4		0.60	
619	Punjab	Pathankot	Sarna	1.13		-3.19	0.35
620	Punjab	Pathankot	Sujanpur-PZ	0.55		-0.55	
621	Punjab	Patiala	Bassma Pipla				
622	Punjab	Patiala	Bhankhar-Pz	1.05		3.53	
623	Punjab	Patiala	Bhojo majri 07pz		12.85		
624	Punjab	Patiala	Bhora-Pz	-0.35			
625	Punjab	Patiala	Bhunerheri-Pz	-0.4			
626	Punjab	Patiala	Birkauli	2.82	-0.88	-9.80	
627	Punjab	Patiala	Challetta-PZ	0.9			
628	Punjab	Patiala	Devigarh			0.01	
629	Punjab	Patiala	Devigarh 1Pz	-1.19	-0.55	-3.19	-0.65
630	Punjab	Patiala	Devigarh IIPz			-0.48	9
631	Punjab	Patiala	Devigarh-III Pz				
632	Punjab	Patiala	Dhaneta-PZ	-0.25		-3.00	
633	Punjab	Patiala	Gharam-PZ	-1.9		0.00	
634	Punjab	Patiala	Gulwatti-PZ	-0.25			
635	Punjab	Patiala	Hari Majra			9.83	
636	Punjab	Patiala	Jainagar-PZ	2.15		-1.20	
637	Punjab	Patiala	Kakrala-Pz			-0.63	
638	Punjab	Patiala	Kalyan 07pz	-0.09	1.04	0.09	-1.22
639	Punjab	Patiala	Kami Kalan	0.72	3.27	2.70	0.44
640	Punjab	Patiala	Kami Khurd-PZ	4.35		-2.30	
641	Punjab	Patiala	Kheri Pandte-PZ	3.6		-1.45	
642	Punjab	Patiala	Kulburcha-Pz	-0.7		-1.35	
643	Punjab	Patiala	Kutha Kheri-Pz	2.1		-0.94	
644	Punjab	Patiala	Lacharu Kalan	2.4	0.22	-0.34	-0.57
645	Punjab	Patiala	Lachkani-Pz	0.37	1.58	-1.80	0.17
646	Punjab	Patiala	Mehmood Pur-PZ	-0.95			
647	Punjab	Patiala	Mongowal-PZ	0.15		-0.60	
648	Punjab	Patiala	Nanhera-Pz	-6.95		0.20	

649	Punjab	Patiala	Passiana-PZ	-0.8			
650	Punjab	Patiala	Patran-Pz	-1.25	-1.5	-0.35	1.05
651	Punjab	Patiala	Rajgarh			-1.49	-0.73
652	Punjab	Patiala	Rajpura Pz M			-0.15	
653	Punjab	Patiala	Rajpura-PzSt	-2.39	-15.05	1.29	0.65
654	Punjab	Patiala	Rakhra-Pz	0.3			
655	Punjab	Patiala	Ramgarh			-2.55	
656	Punjab	Patiala	Randhawa-Pz	-0.85			
657	Punjab	Patiala	Rasoolpur Jaura-PZ	0.3		-0.40	
658	Punjab	Patiala	Samana-Pz	-0.92	-0.84	-1.08	-1.22
659	Punjab	Patiala	Samaspur-Pz	-0.5		0.30	
660	Punjab	Patiala	Sangatpura-Pz	0.38	0.2	0.06	0.28
661	Punjab	Patiala	Sauja-PZ	-0.15		0.40	
662	Punjab	Patiala	Surala Kalan-PZ	0.3			
663	Punjab	Patiala	Thua	2.15			
664	Punjab	Rupnagar	Ahmedpur	1.6	3.37	0.89	1.44
665	Punjab	Rupnagar	Amrali-PZ	-0.1		-0.35	
666	Punjab	Rupnagar	Attari-PZ	1.65		0.80	
667	Punjab	Rupnagar	Badali-Pz			0.50	
668	Punjab	Rupnagar	Bains		2.78		
669	Punjab	Rupnagar	Bera Chauta	0.22		-0.59	0.18
670	Punjab	Rupnagar	Bhalan			-1.19	-0.88
671	Punjab	Rupnagar	Bhatto-PZ	1.2		-0.90	
672	Punjab	Rupnagar	Braham Pur	0.92	0.46	-0.59	-0.53
673	Punjab	Rupnagar	Chakdera	-0.85	-2.89	-0.19	-0.64
674	Punjab	Rupnagar	Chatamli- Pz	3.2	0.68	2.45	2.55
675	Punjab	Rupnagar	Dhair	3.76	1	2.00	0
676	Punjab	Rupnagar	Dumewal			0.30	3.09
677	Punjab	Rupnagar	Hardinamoh	-3.92	0.06	0.40	0.81
678	Punjab	Rupnagar	Kakrali			-0.82	-0.37
679	Punjab	Rupnagar	Klwan-PZ	1.1		0.30	
680	Punjab	Rupnagar	Kotla	-0.45			
681	Punjab	Rupnagar	Morinda-PZ	0.85		0.70	
682	Punjab	Rupnagar	Rajgiri-PZ	1.9		1.00	
683	Punjab	Rupnagar	Rurki Heeran-Pz	1.24			0.96
684	Punjab	Rupnagar	Salempur				

685	Punjab	Rupnagar	Singh Bhagwant Pur				
686	Punjab	Sangrur	Bagarian-Pz	-2.56		-0.14	0.4
687	Punjab	Sangrur	Bakshiwala-PZ	-0.5		-1.50	
688	Punjab	Sangrur	Banbhaura-PZ	-1.6			
689	Punjab	Sangrur	Benra-PZ-S	1.82	-2.2		23.94
690	Punjab	Sangrur	Bhogiwal- Pz		-0.7	-0.50	-0.55
691	Punjab	Sangrur	Bhojowali-Pz	-0.36			
692	Punjab	Sangrur	Bhunerheri-PZ			-0.70	
693	Punjab	Sangrur	Bopla-PZ				
694	Punjab	Sangrur	Bugra 1	1.52			
695	Punjab	Sangrur	Chatha Nanhera-PZ	-0.8		-1.55	
696	Punjab	Sangrur	Chural Kalan M	-1.84	-1.29	-1.59	-4.35
697	Punjab	Sangrur	Dharamgarh-Pz	-0.7		-0.80	
698	Punjab	Sangrur	Ghanauri Kalan-Pz	-0.56	28.68	-0.47	
699	Punjab	Sangrur	Haryao-DW			-1.15	
700	Punjab	Sangrur	Hassanpur-Pz	-0.65			
701	Punjab	Sangrur	Kala Jhar-Pz			-0.85	
702	Punjab	Sangrur	Khanpur Fakiran-PZ	-2.4		-2.50	
703	Punjab	Sangrur	Kheri Naran-PZ	-0.35		-1.10	
704	Punjab	Sangrur	Khurni-PZ	0.3		-1.55	
705	Punjab	Sangrur	Kila Hakima	-2.1		-3.30	
706	Punjab	Sangrur	Kokahar-PZ	-0.5			
707	Punjab	Sangrur	Kuler Khurd-Pz	-0.85		-1.80	
708	Punjab	Sangrur	Ladda-Pz	-1.02	-1.67	-2.01	
709	Punjab	Sangrur	Lehal Kalan-Pz	-1.1		-1.30	
710	Punjab	Sangrur	Longowal-Pz	-1.82	-2.34	-2.80	-1.64
711	Punjab	Sangrur	Majji-PZ	-7.44	-0.88	-1.43	5.95
712	Punjab	Sangrur	Malerkotla				
713	Punjab	Sangrur	Malerkotla-DW	0.22		3.15	-0.85
714	Punjab	Sangrur	Manvi-Pz	1.11	1.83		3.5
715	Punjab	Sangrur	Minsa-Pz	-0.35			

716	Punjab	Sangrur	Panjgaraian- Pz	-0.75		-1.14	
717	Punjab	Sangrur	Rajo Majra-PZ	-1.1		-2.30	
718	Punjab	Sangrur	Rampur Channa- Pz	-0.85		0.20	
719	Punjab	Sangrur	Rurgarh-PZ	-0.8		-1.34	
720	Punjab	Sangrur	Rurki Kalan-Pz	-0.2		0.73	
721	Punjab	Sangrur	Sekhpur Khurd-PZ	-0.1		-0.70	
722	Punjab	Sangrur	Sekhwas-PZ	-0.95		-1.75	
723	Punjab	Sangrur	Sikandarpur-PZ	-0.8		-1.00	
724	Punjab	Sangrur	Sunam-Pz	-0.66		-1.00	-0.96
725	Punjab	SAS Nagar	Antala	0.67	1.2	0.10	0.41
726	Punjab	SAS Nagar	Balongi-PZ	-1.15		1.25	
727	Punjab	SAS Nagar	Barauli-PZ	4.05		-1.05	
728	Punjab	SAS Nagar	Chandiala-Pz	2.6		-4.75	
729	Punjab	SAS Nagar	Dera Bassi 07pz	2.43	0.27	-0.27	0.26
730	Punjab	SAS Nagar	Dheri	0.16	-0.2	-0.31	-1.02
731	Punjab	SAS Nagar	Gharoon	3.1		0.15	
732	Punjab	SAS Nagar	Ghoga	0.49	2.12	-0.63	-0.38
733	Punjab	SAS Nagar	Gholu majra 07pz	1.46			
734	Punjab	SAS Nagar	Issapur- DW	1.03			
735	Punjab	SAS Nagar	Joli	4.77	0.94	-0.13	0.28
736	Punjab	SAS Nagar	Kurrha-Pz	-0.6		-1.40	
737	Punjab	SAS Nagar	Landran-Pz	0.79	-1.21		
738	Punjab	SAS Nagar	Malkpur-Pz	-1.9			
739	Punjab	SAS Nagar	Manoli-PZ	-0.15		-0.10	
740	Punjab	SAS Nagar	Mirpur-Pz				
741	Punjab	SAS Nagar	Palheri-PZ	0.55		-1.75	
742	Punjab	SAS Nagar	Pedol-PZ	0.3		-0.60	
743	Punjab	SAS Nagar	Raipur Kalan	1.4		-0.60	
744	Punjab	SAS Nagar	Singhpura-Pz	-0.2			
745	Punjab	SAS Nagar	Sirsini	0.5	0	-0.17	0.14
746	Punjab	SAS Nagar	Sohana-PZ				
747	Punjab	SAS Nagar	Sundran-Pz				
748	Punjab	SBS Nagar	Alowal-Pz			0.05	
749	Punjab	SBS Nagar	Aur-PZ			1.40	
750	Punjab	SBS Nagar	Badhwan-Pz			-0.60	

751	Punjab	SBS Nagar	Baharam-Pz			-0.30	
752	Punjab	SBS Nagar	Bahara-Pz			1.45	
753	Punjab	SBS Nagar	Bahlora Kallan- Pz	1.38		1.02	0.97
754	Punjab	SBS Nagar	Bahua-Pz			-0.50	
755	Punjab	SBS Nagar	Balaipur-PZ			0.00	
756	Punjab	SBS Nagar	Banga-Pz				
757	Punjab	SBS Nagar	Bhadi-PZ			1.90	
758	Punjab	SBS Nagar	Dhan Wala-PZ			-0.70	
759	Punjab	SBS Nagar	Dugri Garol-PZ			0.20	
760	Punjab	SBS Nagar	Hakimpur-Pz			-0.70	
761	Punjab	SBS Nagar	Jethu Majra-PZ			1.70	
762	Punjab	SBS Nagar	Kariam-Pz			0.10	
763	Punjab	SBS Nagar	Langoya-PZ			1.70	
764	Punjab	SBS Nagar	Mahalpur-PZ			0.70	
765	Punjab	SBS Nagar	Mauhra-Pz	-5.3	2.29	1.24	2.98
766	Punjab	SBS Nagar	Padmaiwal-PZ			0.20	
767	Punjab	SBS Nagar	Rahon		-0.52	3.43	1.02
768	Punjab	SBS Nagar	Raipur Dhaba-Pz	1.23		0.23	0.6
769	Punjab	SBS Nagar	Ramgarh-Pz				
770	Punjab	SBS Nagar	Saroya-Pz				
771	Punjab	T. Taran	Aima Khurd-Pz	-0.2		-0.70	
772	Punjab	T. Taran	Aminshah Khalra			6.58	
773	Punjab	T. Taran	Attari-Pz	0		-1.00	
774	Punjab	T. Taran	Bahla-Pz	-0.6			
775	Punjab	T. Taran	Bakipur-Pz	-0.1		0.00	
776	Punjab	T. Taran	Bath-Pz	-0.4		1.50	
777	Punjab	T. Taran	Bhagala-Pz	-4.2		0.10	
778	Punjab	T. Taran	Bhagwanpur-Pz	0.9		-0.50	
779	Punjab	T. Taran	Bhalaipur-Pz	0.5			
780	Punjab	T. Taran	Bhankar Kalan-Pz	2.3		1.10	
781	Punjab	T. Taran	Bhikiwind- Pz	0.76	1.16		-0.2
782	Punjab	T. Taran	Bhura-Pz	-0.9		-0.30	
783	Punjab	T. Taran	Bhure-Pz	1.4		2.30	
784	Punjab	T. Taran	Bhusse-Pz	-0.2		-1.00	

785	Punjab	T. Taran	Brahmpur-Pz	-0.5		2.50	
786	Punjab	T. Taran	Chabal 07				
787	Punjab	T. Taran	Chakkare Khan-Pz	-0.4		0.30	
788	Punjab	T. Taran	Chola Sahib-Pz	1.51	2.93		-0.5
789	Punjab	T. Taran	Choudhary Wala-Pz				
790	Punjab	T. Taran	Chuselawad-Pz	0		0.60	
791	Punjab	T. Taran	Dholan-Pz			0.00	
792	Punjab	T. Taran	Ekalgoda-Pz	-0.3		-0.80	
793	Punjab	T. Taran	Fatehabad- PZ	-0.2		2.10	
794	Punjab	T. Taran	Gandi Wind-Pz	-0.37			1.1
795	Punjab	T. Taran	Goindwal 07		-0.32		0.1
796	Punjab	T. Taran	Jalalabad-PZ				
797	Punjab	T. Taran	Jandoke-Pz	1		2.30	
798	Punjab	T. Taran	Kairon-PZ	0.1		-1.00	
799	Punjab	T. Taran	Kalsia Kalan07	0.28	0.24		0.7
800	Punjab	T. Taran	Khadur Sahib-Pz	1.52	0.4	-0.30	
801	Punjab	T. Taran	Khalra-Pz	1.3		-0.70	
802	Punjab	T. Taran	Kirtowal-Pz	2.7			
803	Punjab	T. Taran	Kotbudda-Pz	3.6		1.30	
804	Punjab	T. Taran	Kotli Sur Singh-Pz	0.4		1.30	
805	Punjab	T. Taran	Mahendipur-Pz	-1.3			
806	Punjab	T. Taran	Marhona-Pz	-1.7		1.10	
807	Punjab	T. Taran	Mari Kamboke-Pz	1.3		-1.80	
808	Punjab	T. Taran	Mohawa				
809	Punjab	T. Taran	Nandpur-Pz	-0.8		-12.70	
810	Punjab	T. Taran	Pindan-Pz	0.1		0.50	
811	Punjab	T. Taran	Rajoke-Pz	1.1		1.40	
812	Punjab	T. Taran	Ratoke-Pz	0.99	22.84	0.50	2.1
813	Punjab	T. Taran	Sabran-Pz	4.9		2.70	
814	Punjab	T. Taran	Sahab Pura- Pz	1.65	0.45	-0.67	-1.3
815	Punjab	T. Taran	Sheron-Pz	0.7		2.00	
816	Punjab	T. Taran	Sugga-Pz	0.8		0.70	
817	Punjab	T. Taran	Varing-Pz	0.3			

Annexure-4: Decadal Fluctuations in Depth to Water Levels

S. No.	State	District	Location	Decadal June Fluctuation	Decadal August Fluctuation	Decadal October Fluctuation	Decadal January Fluctuation
				(mbgl)	(mbgl)	(mbgl)	(mbgl)
1	Chandigarh	Chandigarh	BURAIL	0.89	-0.30	0.12	-0.09
2	Chandigarh	Chandigarh	Csio-combined	2.07	1.68	-0.16	-0.17
3	Chandigarh	Chandigarh	CSIO-S	2.86	0.94	-0.05	
4	Chandigarh	Chandigarh	NEW INDUST AREA	-2.47	0.26	-9.30	3.05
5	Chandigarh	Chandigarh	Sec-27, Ar Well	2.26	3.00		7.11
6	Chandigarh	Chandigarh	SECT 10C	6.18	3.90		
7	Chandigarh	Chandigarh	SECT 10C (D)	4.53	3.30	8.83	10.44
8	Chandigarh	Chandigarh	SECT 10C (S)	4.36	1.15	0.61	28.67
9	Chandigarh	Chandigarh	SECT 31D (D)	0.11	1.17	0.13	0.53
10	Chandigarh	Chandigarh	SECT 31D (S)	0.81	0.40	0.59	1.61
11	Chandigarh	Chandigarh	SECT 37D (S)	-0.53	4.78	0.29	0.12
12	Chandigarh	Chandigarh	SECT 44D (S)	0.02	0.47	0.58	0.66
13	Chandigarh	Chandigarh	Sector-46 (shallow)	0.24	-0.33	0.66	0.40
14	Chandigarh	Chandigarh	Sec-27, Cgwb Building		20.09	-1.51	22.86
15	Chandigarh	Chandigarh	SECT 39D (S)			2.71	2.68
16	Punjab	Amritsar	Ajnala	0.81		0.59	1.02
17	Punjab	Amritsar	Amritsar1	0.71	0.84	2.17	-0.20
18	Punjab	Amritsar	Bajwa-Pz	0.00			
19	Punjab	Amritsar	Bal Kalan-Pz	-0.88		-0.18	
20	Punjab	Amritsar	Beas07	-0.55	0.38	0.60	1.06
21	Punjab	Amritsar	Bhattaywad-Pz	1.06		3.62	
22	Punjab	Amritsar	Bholewal-Pz	0.70		7.90	
23	Punjab	Amritsar	Boparai Khurd-Pz	0.73		1.52	
24	Punjab	Amritsar	Chak Dogra-Pz	-0.62		-1.08	
25	Punjab	Amritsar	ChogWan- Pz	1.38	0.36		
26	Punjab	Amritsar	Dhulika-Pz	0.66		0.92	
27	Punjab	Amritsar	Dohan-Pz	0.40		1.32	
28	Punjab	Amritsar	Gago Mahal- Pz	-0.40	0.48	0.66	0.51
29	Punjab	Amritsar	Gill wali-Pz	-0.46		-0.84	
30	Punjab	Amritsar	Jandiala Guru-Pz	1.59	2.50	1.40	-2.42
31	Punjab	Amritsar	Jethuwal-Pz	-0.28		-0.24	
32	Punjab	Amritsar	Kandowali-Pz	1.60		-0.30	
33	Punjab	Amritsar	Karyl-Pz	0.68		0.28	
34	Punjab	Amritsar	Mahima-Pz	1.45		-2.53	
35	Punjab	Amritsar	Majitha- Pz	0.73		-2.53	
36	Punjab	Amritsar	Makhan Windi-Pz	-1.24			
37	Punjab	Amritsar	Mehleykey-Pz	-1.55		-2.82	
38	Punjab	Amritsar	Mehta-Pz	-0.44	0.28	0.02	1.99
39	Punjab	Amritsar	Miran Chak-Pz	-0.10		0.28	
40	Punjab	Amritsar	Nangal Sahaul-Pz	-0.76		-0.28	
41	Punjab	Amritsar	Nawan Tanal- Pz	0.49	0.53	1.65	1.75
42	Punjab	Amritsar	Ramdas-DW	0.82	-1.49	0.98	1.59
43	Punjab	Amritsar	Rampura-Pz	15.26			

44	Punjab	Amritsar	Rayya-Pz	-1.50		-0.25	
45	Punjab	Amritsar	Rupowal Brahmana-Pz	0.09		-0.02	
46	Punjab	Amritsar	Sarangra-Pz	-1.10			
47	Punjab	Amritsar	Shabura-Pz	1.30		3.94	
48	Punjab	Amritsar	Sham Nagar-Pz	0.04		-0.24	
49	Punjab	Amritsar	Talwandi Dogra-Pz	1.32		0.24	
50	Punjab	Amritsar	Tarsika-Pz	-1.92		-0.20	
51	Punjab	Amritsar	Ugar Aulakh-Pz	0.66		1.30	
52	Punjab	Amritsar	Vadala Kalan-Pz	0.50		2.40	
53	Punjab	Amritsar	Vadala Viran-Pz	-0.55			
54	Punjab	Amritsar	Verka-Pz	-0.90			
55	Punjab	Amritsar	Wandala Bittewad-Pz	0.50		1.44	
94	Punjab	Barnala	Amla Singh Wala-PZ	2.19		4.82	
95	Punjab	Barnala	Barnala (s)	7.10	7.06	7.02	7.46
96	Punjab	Barnala	Bhadaur-Pz	5.66	4.44	5.09	6.78
97	Punjab	Barnala	Daula-Pz	6.35			
98	Punjab	Barnala	Dhanaula-Pz	9.02		14.60	
99	Punjab	Barnala	Kurar-Pz	6.66		7.38	
100	Punjab	Barnala	Lohgarh-Pz	4.78		7.91	
101	Punjab	Barnala	Mahal Kalan-Pz	5.76	3.88	5.45	6.67
102	Punjab	Barnala	Pakho Ke-Pz	-0.91			
103	Punjab	Barnala	Patti Dwarka-Pz	7.90			
104	Punjab	Barnala	Raisar-Pz	7.25			
105	Punjab	Barnala	Shekha	4.86			
118	Punjab	Bathinda	Ablu	0.02	2.22	2.03	2.62
119	Punjab	Bathinda	Aleke Jalal-Pz	3.11		3.97	
120	Punjab	Bathinda	Badiala-Pz	4.00	4.04	7.07	
121	Punjab	Bathinda	Bagher Mohabat Singh-Pz	1.17		1.42	
122	Punjab	Bathinda	Bahman Kaur Singh-Pz	0.78		0.54	
123	Punjab	Bathinda	Balianwali-Pz	2.69		2.55	
124	Punjab	Bathinda	Balluana-Pz	-0.88	0.20	-2.52	
125	Punjab	Bathinda	Bandi-Pz	0.07			
126	Punjab	Bathinda	Bhagibandar	0.56	2.03	0.92	0.27
127	Punjab	Bathinda	Bugran-Pz	3.84		3.64	
128	Punjab	Bathinda	Burj Gill-Pz	4.01		5.12	
129	Punjab	Bathinda	Deratapp	2.00	1.52	2.62	2.83
130	Punjab	Bathinda	Dhapali1	9.94	8.49	9.65	11.16
131	Punjab	Bathinda	Dhapali-Pz	5.31	4.23	5.34	0.91
132	Punjab	Bathinda	Dialpur Mirza	6.74	7.65	8.35	7.37
133	Punjab	Bathinda	Dialpura Bhlaike	5.91	8.54	7.51	8.51
134	Punjab	Bathinda	Dialpura- Mirza	1.25		0.59	
135	Punjab	Bathinda	Dulle Wala-Pz	3.77		4.82	
136	Punjab	Bathinda	Ganga-Pz	1.78		1.27	1.86
137	Punjab	Bathinda	Gill Patti-DW	2.65		2.88	
138	Punjab	Bathinda	Gobind Pura-Pz	0.84			
139	Punjab	Bathinda	Gulabgarh 2 (s)	2.00	1.74	1.43	2.54
140	Punjab	Bathinda	Guru Sar-Pz	0.69	0.01	0.48	0.49
141	Punjab	Bathinda	Harraipur-Pz	1.80		3.46	

142	Punjab	Bathinda	Jajjal	0.87	0.93	0.75	0.84
143	Punjab	Bathinda	Jajjal_DW	1.30		1.18	
144	Punjab	Bathinda	Jassi Bhagwali	0.24	-0.99	-0.92	-1.04
145	Punjab	Bathinda	Jhanduke	2.57			5.94
146	Punjab	Bathinda	Jhanduke-Pz	2.38	4.62	2.53	
147	Punjab	Bathinda	Kalla Bandar	4.79			
148	Punjab	Bathinda	Kalyan Sukha-M	1.47		0.75	0.68
149	Punjab	Bathinda	Koir Singh Wala-Pz	2.83		4.47	
150	Punjab	Bathinda	Kot Bhaktu-Pz	0.82		0.47	
151	Punjab	Bathinda	Kot Guru	0.34		0.40	
152	Punjab	Bathinda	Kot Shamir	0.82	0.03	1.27	
153	Punjab	Bathinda	Kothaguru-Pz		4.92	5.21	5.69
154	Punjab	Bathinda	Lalliana-Pz	1.73		1.33	
155	Punjab	Bathinda	Lehra Dhulkot-Pz	3.02		1.33	
156	Punjab	Bathinda	Maihma Bhagwan-PZ	1.03		1.10	
157	Punjab	Bathinda	Maisar Khana-Pz	2.11	3.19	3.47	
158	Punjab	Bathinda	Maluka-Pz	3.20		4.00	
159	Punjab	Bathinda	Mandi Kalan-Pz	2.62		2.52	
160	Punjab	Bathinda	Mehraj-Pz	3.36		4.27	
161	Punjab	Bathinda	Multania-Pz	0.84		0.39	
162	Punjab	Bathinda	Nahinwala	2.78	2.80	2.84	3.52
163	Punjab	Bathinda	Nathana-Pz	3.35		2.86	
164	Punjab	Bathinda	Phulla1	5.32	7.00	8.11	8.71
165	Punjab	Bathinda	Puhla-Pz	5.19			
166	Punjab	Bathinda	Raike Kalan	0.02	0.50	0.97	0.46
167	Punjab	Bathinda	Rajgarh Kubey-Pz	2.19		2.62	
168	Punjab	Bathinda	Rampura	6.59			
169	Punjab	Bathinda	Rampura-Pz	0.59			
170	Punjab	Bathinda	Rayya-Pz	4.66		5.52	
171	Punjab	Bathinda	Salabatpur-Pz	3.15		2.41	
172	Punjab	Bathinda	Seema-DW	3.15			
173	Punjab	Bathinda	Sidhana	3.97			
174	Punjab	Bathinda	Sooch-Pz	2.02		3.11	
175	Punjab	Bathinda	Teona-Pz	0.13		0.44	
176	Punjab	Bathinda	Tungwali-Pz	1.66		3.26	
233	Punjab	Faridkot	Baja Khana	5.14	1.98	0.45	2.80
234	Punjab	Faridkot	Bead Sikhawala- Pz	0.62	1.63	0.78	0.89
235	Punjab	Faridkot	Chahd Baja	1.46		2.97	2.32
236	Punjab	Faridkot	Deviwala-S	1.10	1.76	2.12	
237	Punjab	Faridkot	Dhilwan Kalan	2.22			
238	Punjab	Faridkot	Dipsinghwala	0.99	1.21		
239	Punjab	Faridkot	Jand Sahib-Pz	-0.39	-0.20	0.19	-0.38
240	Punjab	Faridkot	Karirwali	2.71	3.90	3.54	3.24
241	Punjab	Faridkot	Killi-Pz	-0.25		0.19	0.29
242	Punjab	Faridkot	Kot Kapura	1.35	3.39	1.55	1.99
243	Punjab	Faridkot	Matta	2.17	2.04	2.01	2.05
244	Punjab	Faridkot	Mehmuana	-0.91	-0.81	-0.43	-0.69
245	Punjab	Faridkot	Mumra-Pz	-0.36	0.17	15.18	-0.10

246	Punjab	Faridkot	Nangal-Pz	0.47	7.72	11.42	0.35
247	Punjab	Faridkot	Sadiq-Pz	-0.40	-0.33	0.04	-0.46
248	Punjab	Faridkot	Sher Singh Wala- Pz	-0.19	-0.34	0.11	-0.33
249	Punjab	Faridkot	Sukhwala-Pz	0.48	-0.48	0.46	0.31
250	Punjab	Faridkot	Tehna-Pz	0.00	-1.39	0.41	-1.05
251	Punjab	Faridkot	Wara Dwarka-Pz	0.53	0.49	0.49	0.76
252	Punjab	F. Sahib	Alipur Sodhian-Pz	2.52		1.73	
253	Punjab	F. Sahib	Amloh1	3.65			
254	Punjab	F. Sahib	Badalialasingh	7.52	2.63	3.89	14.48
255	Punjab	F. Sahib	Bagga Kalan	4.48		4.66	
256	Punjab	F. Sahib	Bassi Pathana	2.49		6.26	2.82
257	Punjab	F. Sahib	Bhaddal Tuha-Pz	-15.11			
258	Punjab	F. Sahib	Bhagranा	-0.80	-2.59	-1.21	-1.82
259	Punjab	F. Sahib	Bhateri1	2.24	2.29		
260	Punjab	F. Sahib	Burj	2.21		3.19	
261	Punjab	F. Sahib	Chandiala-Pz	-0.45		0.25	
262	Punjab	F. Sahib	Chuni Khurd-PZ	1.55		-1.65	
263	Punjab	F. Sahib	Chunni Kalan	-1.35	-1.21	-2.48	-2.57
264	Punjab	F. Sahib	Fatehgarh Sahib	1.59		3.85	
265	Punjab	F. Sahib	Fatehgarh Sahib-Pz	2.80	2.30	2.00	2.55
266	Punjab	F. Sahib	Inayatpur-PZ-S		-0.83		
267	Punjab	F. Sahib	Jai Singh Wala	4.86		3.74	
268	Punjab	F. Sahib	Jhamberla	3.81		3.91	
269	Punjab	F. Sahib	Kalewal	1.38			
270	Punjab	F. Sahib	Khamanon-pz	0.25		0.77	
271	Punjab	F. Sahib	Kharey_PZ	0.05			
272	Punjab	F. Sahib	Khera-Pz	-0.20		1.00	
273	Punjab	F. Sahib	Ladpur	2.13			
274	Punjab	F. Sahib	Lohar Majra	2.55		3.23	
275	Punjab	F. Sahib	Mianpur-Pz	0.51		1.28	
276	Punjab	F. Sahib	Nalini-Pz	1.97	2.99	1.22	1.11
277	Punjab	F. Sahib	Nandpur Kalaur-Pz	1.84		1.71	
278	Punjab	F. Sahib	Pawala	-2.06	2.87	2.17	1.86
279	Punjab	F. Sahib	Sado Majra	3.08		3.68	
280	Punjab	F. Sahib	Salempur	0.33			
281	Punjab	F. Sahib	Shahpur	2.83		3.03	
282	Punjab	F. Sahib	Sirhind-Pz	1.76		0.66	
283	Punjab	F. Sahib	Tahalpur	3.43		4.13	
284	Punjab	F. Sahib	Talwara	2.46		2.98	
285	Punjab	F. Sahib	Timber Pur-Pz	-1.48		-1.69	
318	Punjab	Fazilka	Abohar	1.30	1.05	1.34	1.39
319	Punjab	Fazilka	Alamgarh	0.73			
320	Punjab	Fazilka	Bannawala	0.07	0.88	0.60	0.81
321	Punjab	Fazilka	Bazirdpura	-1.54	-1.92	-1.47	-2.49
322	Punjab	Fazilka	Danewal Satkosi	0.22	-1.08	0.04	0.11
323	Punjab	Fazilka	Dipulana-Pz	1.56	1.55	1.64	
324	Punjab	Fazilka	Jaimal Singhwala Pz		2.11		
325	Punjab	Fazilka	Khuiansarwar- Pz	0.63	0.90	1.04	

326	Punjab	Fazilka	Kundal1	0.45	0.79	1.01	0.60
327	Punjab	Fazilka	Ladhuwala		0.69		
328	Punjab	Fazilka	Nihalkhera	1.68		1.68	
329	Punjab	Fazilka	Sitoganno	-1.46	-1.15		
330	Punjab	Fazilka	Sohangarh Ratte	0.39		0.32	0.57
331	Punjab	Fazilka	Swah Wala- Pz	1.71		2.00	1.70
341	Punjab	Firozpur	Bara Mansur Wala-Pz	2.02		0.71	
342	Punjab	Firozpur	Chamb-Pz	2.16		-0.38	
343	Punjab	Firozpur	Gogiani-Pz	2.79		0.26	
344	Punjab	Firozpur	Jaimal wala-Pz	1.45		0.80	0.46
345	Punjab	Firozpur	Lauhke Kalan- Pz	1.14	0.02	-1.73	-0.34
346	Punjab	Firozpur	Lohere Khurd-Pz	1.67		-0.21	
347	Punjab	Firozpur	Mallanwala Khas-Pz	0.93		-1.47	
348	Punjab	Firozpur	Malluwala-Pz	3.37		0.95	
349	Punjab	Firozpur	Malsian-Pz	1.63	2.35		
350	Punjab	Firozpur	Mohre Wala-Pz	-0.04	-0.16	0.17	2.44
351	Punjab	Firozpur	Piyarana	0.23	0.38	0.85	-0.07
352	Punjab	Firozpur	Rukne Wala-Pz	2.27		0.43	0.47
353	Punjab	Firozpur	Talwandi Jalle Khan-pz	3.29		0.40	
354	Punjab	Firozpur	Wage Wala-Pz	1.75		2.47	
367	Punjab	Gurdaspur	Bariyar	-0.40		0.43	
368	Punjab	Gurdaspur	Batala-Pz	-0.10			
369	Punjab	Gurdaspur	Bhagowal	1.20	0.82	1.80	
370	Punjab	Gurdaspur	Bham		2.41		
371	Punjab	Gurdaspur	Bilasbal-Pz	-0.66		-0.50	
372	Punjab	Gurdaspur	Chahal Kalan-Pz	0.89		0.71	
373	Punjab	Gurdaspur	Chahgill-Pz	-0.25		0.02	
374	Punjab	Gurdaspur	Chone-Pz	1.90		1.60	
375	Punjab	Gurdaspur	Dakoha-Pz	1.67	2.27	1.92	1.57
376	Punjab	Gurdaspur	Dera Baba Nanak	0.52	0.76	0.21	0.37
377	Punjab	Gurdaspur	Dhianpur	-1.09	0.69	-2.05	-1.57
378	Punjab	Gurdaspur	Dinanagar	2.07	2.74	-0.42	-1.03
379	Punjab	Gurdaspur	Dostpur-Pz	-0.16			
380	Punjab	Gurdaspur	Galri	-0.74	2.15	-0.09	-1.12
381	Punjab	Gurdaspur	Ghania Ki bangar- Pz	-0.81	0.24		-0.07
382	Punjab	Gurdaspur	Ghumani Khurd-Pz	-0.56		0.07	
383	Punjab	Gurdaspur	Gurdaspur-Pz	0.43		0.17	
384	Punjab	Gurdaspur	Harchowal-Pz-S	1.30	0.81	0.17	
385	Punjab	Gurdaspur	Hargobindpur1	8.28	2.54	1.68	
386	Punjab	Gurdaspur	Hassanpur Kalan-Pz	0.01		-0.03	
387	Punjab	Gurdaspur	Jhabkra	-1.72		-0.15	
388	Punjab	Gurdaspur	Jhandalbana-Pz	-0.85		-0.59	
389	Punjab	Gurdaspur	Kala Afgana-Pz	0.23		0.20	
390	Punjab	Gurdaspur	Kalanaur-DW	0.05	1.79	1.65	-7.21
391	Punjab	Gurdaspur	Kalanaur-Pz	-0.82	2.25	-1.28	3.79
392	Punjab	Gurdaspur	Kalerkalan-Pz	-0.28			
393	Punjab	Gurdaspur	Kaure-Pz	-0.16		0.04	
394	Punjab	Gurdaspur	Khan Fatta-Pz	-0.65		3.86	

395	Punjab	Gurdaspur	Khanmalik-Pz	-0.78		-0.05	
396	Punjab	Gurdaspur	Khatgarh-Pz	-0.53		0.04	
397	Punjab	Gurdaspur	Lakankala-Pz	0.44		0.60	
398	Punjab	Gurdaspur	Langurwal-Pz	0.25		0.98	
399	Punjab	Gurdaspur	Madipur Fatehgarhchuria	1.46	1.20	1.47	1.03
400	Punjab	Gurdaspur	Malikpur-Pz	-0.62		-0.00	
401	Punjab	Gurdaspur	Maman-Pz	0.06		0.58	
402	Punjab	Gurdaspur	Masana-Pz	-1.17		-1.07	
403	Punjab	Gurdaspur	Massit-Pz	-0.63		-0.28	
404	Punjab	Gurdaspur	Mirza Jaan-Pz	1.20			
405	Punjab	Gurdaspur	Mullowali 1(vs)	0.33	0.45		
406	Punjab	Gurdaspur	Mullowali 2(m)				
407	Punjab	Gurdaspur	Nangal-Pz	-0.62	0.67	-0.39	
408	Punjab	Gurdaspur	Nishayara	1.76	3.14	1.33	0.98
409	Punjab	Gurdaspur	Pandoritalab	-0.29	1.74	-0.29	-0.48
410	Punjab	Gurdaspur	Parcha-Pz	-0.23		-0.19	
411	Punjab	Gurdaspur	Patti Atwal-Pz	0.62		0.54	
412	Punjab	Gurdaspur	Quadian 07	1.45			
413	Punjab	Gurdaspur	Raipur	-1.58		-0.33	
414	Punjab	Gurdaspur	Saidowal Kalan-DW	-0.36	1.99	-0.20	-1.34
415	Punjab	Gurdaspur	Saleh Chak-S	0.66	1.42	0.64	0.13
416	Punjab	Gurdaspur	Salehchak(vs)	0.20	1.91	0.64	
417	Punjab	Gurdaspur	Sathial-Pz	-0.48			
418	Punjab	Gurdaspur	Shahpur Jattan-Pz	-0.22			
419	Punjab	Gurdaspur	Shahpur-Pz	0.44		0.56	
420	Punjab	Gurdaspur	Shezada Kalan-Pz	3.57		1.73	
421	Punjab	Gurdaspur	Sohal	-0.80		-0.20	
422	Punjab	Gurdaspur	Tikriwala-Pz	0.88		1.06	
448	Punjab	Hoshiarpur	Aallo Batti-Pz	-1.75			
449	Punjab	Hoshiarpur	Adowal Garhi-Pz			-0.75	
450	Punjab	Hoshiarpur	Argowal-Pz	3.20			
451	Punjab	Hoshiarpur	Barota-PZ	-1.90			
452	Punjab	Hoshiarpur	Bersa	0.10			
453	Punjab	Hoshiarpur	Bhamnaur		-4.95		-3.52
454	Punjab	Hoshiarpur	Bhangala-Chhota-DW	-0.26	0.98		
455	Punjab	Hoshiarpur	Bhanowal-Pz	3.12			
456	Punjab	Hoshiarpur	Bhatolian-Pz	6.67			
457	Punjab	Hoshiarpur	Boring-PZ	1.00			
458	Punjab	Hoshiarpur	Chak Sheru-DW	-0.12	-0.07	-0.39	1.06
459	Punjab	Hoshiarpur	Chohal	-1.96		-0.70	
460	Punjab	Hoshiarpur	DAGAN-DW	1.03	-0.07	-0.15	3.10
461	Punjab	Hoshiarpur	Dallewal-Pz	3.47		-0.85	
462	Punjab	Hoshiarpur	Dasuya2 (s)	0.52	2.45	0.83	0.48
463	Punjab	Hoshiarpur	Dharampur1	0.71		0.23	
464	Punjab	Hoshiarpur	Durimiwal	1.63	1.23	0.69	1.04
465	Punjab	Hoshiarpur	Garh Di Wala-Pz	2.58	3.67	5.67	2.76
466	Punjab	Hoshiarpur	Garhshankar (s)	5.40	3.19	2.07	
467	Punjab	Hoshiarpur	Haler Rampur-DW	0.45	0.09	-0.43	0.40

468	Punjab	Hoshiarpur	Hazipur	0.08			-0.73
469	Punjab	Hoshiarpur	Heer Beh-PZ	-0.80			
470	Punjab	Hoshiarpur	Mahilpur-Pz	-0.08	-0.85	-0.79	-0.34
471	Punjab	Hoshiarpur	Mukerian Dw		-0.66	1.20	-1.90
472	Punjab	Hoshiarpur	Naharpur-Pz	-0.32			
473	Punjab	Hoshiarpur	Nangal Bihala- DW	-0.23	-0.64	-1.46	-1.31
474	Punjab	Hoshiarpur	Nangal Thathal-Pz	2.77			
475	Punjab	Hoshiarpur	Pan Khuh-DW	0.02	-0.09	0.39	0.82
476	Punjab	Hoshiarpur	Phuglana- Pz	-3.29	-0.70	-2.97	-12.68
477	Punjab	Hoshiarpur	Rampur Colony (HSP) pz-medium	2.57			-0.40
478	Punjab	Hoshiarpur	Samraj Tanda-DW	-0.23	-0.09		-0.01
479	Punjab	Hoshiarpur	Sham Chaurasi	0.92	2.23	-0.03	0.02
480	Punjab	Hoshiarpur	Sibo Chak- DW	0.00	-1.37	-0.27	-3.55
481	Punjab	Hoshiarpur	Simbli- OW	0.22		0.03	-3.00
482	Punjab	Hoshiarpur	Simbli-Pz	-0.20	-0.14	-0.70	-4.84
483	Punjab	Hoshiarpur	Talwara1	-0.49	-0.53	-0.62	-0.71
484	Punjab	Hoshiarpur	Thakarwala	-3.02	-3.81	-4.07	-4.79
517	Punjab	Jalandhar	Adampur 3(s)	-0.76	-0.22	0.17	0.22
518	Punjab	Jalandhar	Allawalpur	-0.28	-1.26	-1.37	-1.86
519	Punjab	Jalandhar	Gohiran				5.67
520	Punjab	Jalandhar	Jalandhar-Pz(VS)	5.05	0.15	4.90	
521	Punjab	Jalandhar	Jalbhe	-0.95	-3.43	-2.97	-3.23
522	Punjab	Jalandhar	Jandiala-Pz	2.00	3.34	3.43	3.53
523	Punjab	Jalandhar	Kartarpur 2(s)	4.47	2.96	2.55	2.99
524	Punjab	Jalandhar	Kharal Kalan Pz-S	0.72	4.16	-4.40	1.12
525	Punjab	Jalandhar	Lallian kalan Pz-S	4.76			5.29
526	Punjab	Jalandhar	Nakodar 2(m)	6.07		4.04	
527	Punjab	Jalandhar	Phillaur 2(s)	0.50	1.46		0.96
528	Punjab	Jalandhar	Shahkot(s)			-1.33	
536	Punjab	Kapurthala	Bhatnura Khurd- S	0.24	1.89	1.50	1.64
537	Punjab	Kapurthala	Bholath M	0.30	1.75		0.62
538	Punjab	Kapurthala	Bholath S	-0.12	1.93	0.55	1.33
539	Punjab	Kapurthala	Dalla			5.87	
540	Punjab	Kapurthala	Hussainpura-S Pz	-0.14	1.62	1.97	1.50
541	Punjab	Kapurthala	Hussainpura-VS Pz			2.35	3.44
542	Punjab	Kapurthala	Kapurthala2 (s)	1.03	5.39		1.85
543	Punjab	Kapurthala	Phagwara(shallow)	1.90	0.84	2.53	2.59
544	Punjab	Kapurthala	Sultapur2 (s)	4.16	4.14	1.78	9.83
545	Punjab	Kapurthala	Talwandi Chaudary -Pz	0.84	2.03	0.91	0.53
553	Punjab	Ludhiana	Alamgir-Pz	1.59		1.87	
554	Punjab	Ludhiana	Aliwal-Pz	1.29		0.93	
555	Punjab	Ludhiana	Begowal	0.47	0.02	-0.01	0.76
556	Punjab	Ludhiana	Bhagwanpur-Pz	0.02		-0.28	
557	Punjab	Ludhiana	Bhahlolpur-DW	0.46	-0.87	0.01	0.02
558	Punjab	Ludhiana	Bharthala Randhawa- Pz	2.06			
559	Punjab	Ludhiana	Bhikhi Khatron-Pz	1.44			
560	Punjab	Ludhiana	Bilaspur-Pz	0.63			

561	Punjab	Ludhiana	Chaminala-Pz	2.28			
562	Punjab	Ludhiana	Chankian Khurd-Pz	0.17			
563	Punjab	Ludhiana	Chaunta-Pz	-0.21			
564	Punjab	Ludhiana	Chhapar-Pz	1.63			
565	Punjab	Ludhiana	Chattar Singh Park-Idh		5.33		
566	Punjab	Ludhiana	Dodpur-Pz	1.50		0.68	
567	Punjab	Ludhiana	Doraha-Pz	0.44	-0.06		
568	Punjab	Ludhiana	Galibkalan-Pz	3.72		-5.39	
569	Punjab	Ludhiana	Gohaur-Pz	1.96			
570	Punjab	Ludhiana	Gopalpur 2(s)	3.23	4.43	3.41	3.25
571	Punjab	Ludhiana	Hallawara-Pz-S	-0.76	0.02		
572	Punjab	Ludhiana	Hambowal-Pz	-0.08		-1.17	
573	Punjab	Ludhiana	Harnampur	3.06		1.25	
574	Punjab	Ludhiana	Hedon-Pz	0.28		-0.99	
575	Punjab	Ludhiana	Ikloha-Pz	2.71	2.08	2.64	2.24
576	Punjab	Ludhiana	Jagraon 2(s)	6.04			
577	Punjab	Ludhiana	Kalsian	5.48		7.00	
578	Punjab	Ludhiana	Katanikalan-Pz	0.12		-0.23	
579	Punjab	Ludhiana	Khandur	3.01		4.23	
580	Punjab	Ludhiana	Kishangarh-Pz	1.32		0.35	
581	Punjab	Ludhiana	Kishanpur-Pz	1.89		1.72	
582	Punjab	Ludhiana	Lalan1		-5.48	-0.16	0.49
583	Punjab	Ludhiana	Lil- II Pz	4.23	5.72	3.88	1.87
584	Punjab	Ludhiana	Lil-Pz III	0.93			7.17
585	Punjab	Ludhiana	Lodhiwal-Pz	1.70		1.49	
586	Punjab	Ludhiana	Lohara-Pz	2.43		2.42	
587	Punjab	Ludhiana	Maksudra-Pz	0.18	-0.13		
588	Punjab	Ludhiana	Manak Majra-Pz	1.46		0.88	
589	Punjab	Ludhiana	Mangat-Pz	0.07		-1.14	
590	Punjab	Ludhiana	Mangat-Pz-S	-1.11			
591	Punjab	Ludhiana	Mehma Singh Wala-Pz	1.92		1.95	
592	Punjab	Ludhiana	Mushkabad	0.73	-1.77	-0.63	-0.48
593	Punjab	Ludhiana	Nurpur-Pz	2.65		4.10	
594	Punjab	Ludhiana	P.A.U.Ludhiana 2(s)	6.02	1.84	5.89	5.91
595	Punjab	Ludhiana	Pabbian-Pz	2.10		3.29	
596	Punjab	Ludhiana	Pandori-Pz	1.50		2.23	
597	Punjab	Ludhiana	Payal-Pz	-7.06		0.05	
598	Punjab	Ludhiana	Punjeta		-0.15	2.45	
599	Punjab	Ludhiana	Ragba-Pz	1.49		1.88	
600	Punjab	Ludhiana	Raiqot-Pz	3.39		4.00	
601	Punjab	Ludhiana	Rajona Khurd	4.22		6.33	
602	Punjab	Ludhiana	Rashin	4.75		5.08	
603	Punjab	Ludhiana	Rattewal-Pz	2.21		3.37	
604	Punjab	Ludhiana	Sajaywal-Pz	3.39		3.39	
605	Punjab	Ludhiana	Samrala 2(s)	1.58	1.51	0.55	0.36
606	Punjab	Ludhiana	Sanewal-Pz	1.18		0.89	
607	Punjab	Ludhiana	Sangatpura-Pz	-0.18		-1.48	
608	Punjab	Ludhiana	Sherian	-0.37	-1.97	-0.61	0.83

609	Punjab	Ludhiana	Sidhwan Bet-Pz	1.53	2.11	2.06	2.80
610	Punjab	Ludhiana	Talwandi Kalan-Pz	1.51		2.81	
611	Punjab	Ludhiana	Udonwal-Pz	0.30		-0.60	
612	Punjab	Ludhiana	Upplan	-0.21		-0.72	
668	Punjab	Mansa	Bhikhi 1 (s)	0.14	2.22	2.32	0.52
669	Punjab	Mansa	Budhlada	1.05		5.67	4.41
670	Punjab	Mansa	Budhlada-Pz	2.98	3.84		
671	Punjab	Mansa	Burj Bhalaike	0.23	-2.28	1.03	0.43
672	Punjab	Mansa	Fattamaluka	0.53	0.99	1.18	1.24
673	Punjab	Mansa	Jhanda Khurd Pz	2.05			
674	Punjab	Mansa	Kot Dhamru	1.57	4.76		-3.79
675	Punjab	Mansa	Kotra	3.59			
676	Punjab	Mansa	Raipur-Pz	0.26	-0.53	-0.05	-0.15
677	Punjab	Mansa	Ralla	4.12	4.81	4.91	5.95
687	Punjab	Moga	Baje Ke-Pz	1.46	3.18	4.21	1.36
688	Punjab	Moga	Budh Singh Wala-Pz	4.06	4.42	4.88	5.44
689	Punjab	Moga	Chogawan-Pz	3.51	5.77	2.90	3.21
690	Punjab	Moga	Dagru- Pz	3.44	3.39	2.63	3.92
691	Punjab	Moga	Damru Khurd				5.85
692	Punjab	Moga	Dhudi Ke-PZ	3.22			
693	Punjab	Moga	Jhandewala-Pz	6.37		7.05	
694	Punjab	Moga	Kamalke-Pz	3.15		3.15	
695	Punjab	Moga	Khokri Kalan-Pz	4.06		4.85	
696	Punjab	Moga	Khosa Randhir-Pz	2.00		1.90	
697	Punjab	Moga	Mandar-Pz	4.33		3.55	
698	Punjab	Moga	Mangewala-Pz	2.78		3.24	
699	Punjab	Moga	Mehron-PZ	3.21		4.60	
700	Punjab	Moga	Nihalsinghwala-Pz	4.39	6.14	4.70	2.63
701	Punjab	Moga	Tota Singh Wala-Pz	1.60		0.83	
715	Punjab	Muktsar	Balochha Khera(rasoolpur)	-0.19	-0.09	1.13	0.06
716	Punjab	Muktsar	Bhaliana	2.20	2.24	2.61	
717	Punjab	Muktsar	Dahak-S				0.70
718	Punjab	Muktsar	Doda	0.90	0.71	-0.13	-0.54
719	Punjab	Muktsar	Doda-Pz	1.18	-0.30	0.08	-0.21
720	Punjab	Muktsar	Kabar Wala	0.82	1.85	1.21	1.05
721	Punjab	Muktsar	Khunde Halal-Pz	-0.09	-0.54	0.50	0.43
722	Punjab	Muktsar	Labanianwali	0.41	0.32	0.03	-0.14
723	Punjab	Muktsar	Lambi		-1.10	0.47	-0.66
724	Punjab	Muktsar	Lambi-Pz	-0.04	-0.40	-1.69	-1.66
725	Punjab	Muktsar	Muktsar	0.56	0.65	0.72	0.62
733	Punjab	Pathankot	Bamyal	-0.60	1.81	-0.05	-0.91
734	Punjab	Pathankot	Bhoa	-1.02	1.00	-0.38	-0.42
735	Punjab	Pathankot	Dhar Khurd	-0.50			
736	Punjab	Pathankot	Gharotakalan	0.77	2.35	-0.38	1.16
737	Punjab	Pathankot	Ghoh DW	-6.96	-4.68	-8.20	-8.12
738	Punjab	Pathankot	Jainpur-PZ	-0.70		-0.37	
739	Punjab	Pathankot	Jandwala	0.25		-1.64	
740	Punjab	Pathankot	Jhakolahri		1.31	-0.59	-0.54

741	Punjab	Pathankot	Khanikhui	-0.34	1.23	-0.41	-0.27
742	Punjab	Pathankot	Khogaki Chaka-PZ	-1.07		-0.08	
743	Punjab	Pathankot	Kiari- DW	-0.51	2.29	-0.58	-3.34
744	Punjab	Pathankot	Kirian Khurd-PZ	-1.07		0.12	
745	Punjab	Pathankot	Kui-DW	-0.17	1.39	-0.54	-1.99
746	Punjab	Pathankot	Kuther-PZ	-3.93		-5.42	
747	Punjab	Pathankot	Malikpur	0.00			
748	Punjab	Pathankot	Matti-PZ	-0.80		-1.13	
749	Punjab	Pathankot	Mirthal	-0.54		-1.57	
750	Punjab	Pathankot	Narot Jaimalsingh-Pz	-0.03		0.51	
751	Punjab	Pathankot	Nawan Pind	-0.23	3.02	0.44	-0.43
752	Punjab	Pathankot	Parmota-DW	-2.34	3.81	-2.51	
753	Punjab	Pathankot	Pathankot1	-0.71	0.97	-0.53	-1.54
754	Punjab	Pathankot	Philora-PZ	-0.73		-0.73	
755	Punjab	Pathankot	Phulpiara	0.37			
756	Punjab	Pathankot	Rani Pur-PZ	-3.43		-3.03	
757	Punjab	Pathankot	Sarna	-1.00		0.32	0.06
758	Punjab	Pathankot	Sujanpur-PZ	-0.95		-0.53	
762	Punjab	Patiala	Bassma Pipla	1.25	0.08		
763	Punjab	Patiala	Bhankhar-Pz	3.39		6.16	
764	Punjab	Patiala	Bhojo majri 07pz	5.10	-8.36	1.01	
765	Punjab	Patiala	Bhora-Pz	5.06			
766	Punjab	Patiala	Bhunerheri-Pz	5.79			
767	Punjab	Patiala	Birkauli	1.57	7.08		
768	Punjab	Patiala	Challeta-PZ	0.05		10.38	
769	Punjab	Patiala	Devigarh	6.48			-0.34
770	Punjab	Patiala	Devigarh 1Pz	7.08	6.60	6.10	7.43
771	Punjab	Patiala	Devigarh IIPz	7.26		6.66	-2.56
772	Punjab	Patiala	Devigarh-III Pz	7.46		6.46	
773	Punjab	Patiala	Dhaneta-PZ	1.62			
774	Punjab	Patiala	Gharam-PZ	3.87		5.72	
775	Punjab	Patiala	Gulwatti-PZ	1.90		2.57	
776	Punjab	Patiala	Haluka		2.03		1.09
777	Punjab	Patiala	Handesaran-s				
778	Punjab	Patiala	Hari Majra	-1.83	-3.77	-4.83	
779	Punjab	Patiala	Jainagar-PZ	-1.38		0.53	
780	Punjab	Patiala	Kalyan 07pz	4.21	3.74	4.30	-0.34
781	Punjab	Patiala	Kami Kalan	-2.08	-3.15	-2.61	-1.66
782	Punjab	Patiala	Kami Khurd-PZ	-3.73		-0.53	
783	Punjab	Patiala	Kheri Pandte-PZ	-2.27		4.55	
784	Punjab	Patiala	Kulburcha-Pz	6.17		7.48	
785	Punjab	Patiala	Kutha Kheri-Pz	2.32		5.44	
786	Punjab	Patiala	Lacharu Kalan	-1.22	-0.53	-0.77	-0.93
787	Punjab	Patiala	Lachkani-Pz	2.80	3.75	3.24	2.94
788	Punjab	Patiala	Mehmood Pur-PZ	1.55		2.63	
789	Punjab	Patiala	Mongowal-PZ	0.80		1.45	
790	Punjab	Patiala	Nanhera-Pz	9.69		1.10	
791	Punjab	Patiala	Nariana				-0.74

792	Punjab	Patiala	Passiana-PZ	1.67		1.27	
793	Punjab	Patiala	Patran-Pz	5.23	5.89	6.09	4.93
794	Punjab	Patiala	Rajgarh			0.15	
795	Punjab	Patiala	Rajpura Pz M	13.15		17.75	
796	Punjab	Patiala	Ramgarh			2.55	
797	Punjab	Patiala	Rajpura-PzSt	2.55	9.49	-2.56	-0.75
798	Punjab	Patiala	Rakhra-Pz	5.07			
799	Punjab	Patiala	Randhawa-Pz	9.21			
800	Punjab	Patiala	Rasoolpur Jaura-PZ	0.33		1.07	
801	Punjab	Patiala	Samana-Pz	5.15	4.82	5.34	6.37
802	Punjab	Patiala	Samaspur-Pz	2.55		2.81	
803	Punjab	Patiala	Sangatpura-Pz	3.41	2.05	1.42	3.84
804	Punjab	Patiala	Sauja-PZ	1.23		0.77	
805	Punjab	Patiala	Surala Kalan-PZ	-0.58			
806	Punjab	Patiala	Thua	1.52			
812	Punjab	Rupnagar	Ahmedpur	1.28	-0.83	-0.65	0.01
813	Punjab	Rupnagar	Amrali-PZ	0.53		1.13	
814	Punjab	Rupnagar	Attari-PZ	-1.42		-1.40	
815	Punjab	Rupnagar	Bera Chauta	-0.70		-0.87	-0.95
816	Punjab	Rupnagar	Bhalan		-1.64	0.89	1.08
817	Punjab	Rupnagar	Bhatto-PZ	-1.08		-1.03	
818	Punjab	Rupnagar	Braham Pur	-0.41	-0.10	-0.45	-0.25
819	Punjab	Rupnagar	Chakdera	0.44	0.64	-0.33	0.96
820	Punjab	Rupnagar	Chatamli- Pz	1.49	3.19	-0.93	1.24
821	Punjab	Rupnagar	Dhair	-0.85	-1.20	0.04	0.07
822	Punjab	Rupnagar	Dumewal	1.02	2.37	-0.25	-1.68
823	Punjab	Rupnagar	Hardinamoh	4.15	-0.19	-0.13	-0.56
824	Punjab	Rupnagar	Kakrali	-0.65	-1.04	0.77	-0.98
825	Punjab	Rupnagar	Klwan-PZ	-0.70		-0.33	
826	Punjab	Rupnagar	Kotla	-0.21		-0.33	
827	Punjab	Rupnagar	Morinda-PZ	-0.32		-0.02	
828	Punjab	Rupnagar	Rajgiri-PZ	0.40		-0.70	
829	Punjab	Rupnagar	Rurki Heeran-Pz	0.76		18.09	
843	Punjab	Sangrur	Bagarian-Pz	4.41		2.82	2.92
844	Punjab	Sangrur	Bakshiwala-PZ	2.15		3.25	
845	Punjab	Sangrur	Banbhaura-PZ	2.42		2.80	
846	Punjab	Sangrur	Benra-PZ-S	-1.82	2.20		
847	Punjab	Sangrur	Bhojowali-Pz	5.12	4.36	4.34	4.85
848	Punjab	Sangrur	Bugra 1	5.92	7.44		-2.47
849	Punjab	Sangrur	Chatha Nanhera-PZ	1.35		2.40	
850	Punjab	Sangrur	Chural Kalan M	7.41	7.38	7.58	12.46
851	Punjab	Sangrur	Dharamgarh-Pz	8.05		8.79	
852	Punjab	Sangrur	Ghanauri Kalan-Pz	3.09	-27.50	3.51	
853	Punjab	Sangrur	Haryao-DW	9.77		9.37	
854	Punjab	Sangrur	Hassanpur-Pz	6.44			
855	Punjab	Sangrur	Khanpur Fakiran-PZ	4.03		4.13	
856	Punjab	Sangrur	Kheri Naran-PZ	2.20		3.22	
857	Punjab	Sangrur	Khurni-PZ	1.77		3.28	

858	Punjab	Sangrur	Kila Hakima	3.23		4.93	
859	Punjab	Sangrur	Kokahar-PZ	1.57			
860	Punjab	Sangrur	Kuler Khurd-Pz	5.87		7.32	
861	Punjab	Sangrur	Ladda-Pz	6.42	6.26	6.74	
862	Punjab	Sangrur	Lehal Kalan-Pz	7.27		7.74	
863	Punjab	Sangrur	Longowal-Pz	5.99	6.85	6.27	6.96
864	Punjab	Sangrur	Majji-PZ	7.44	0.88	1.43	
865	Punjab	Sangrur	Malerkotla-DW	6.47	6.98	5.22	8.69
866	Punjab	Sangrur	Manvi-Pz	2.01	1.30		3.82
867	Punjab	Sangrur	Minsa-Pz	6.29			
868	Punjab	Sangrur	Panjgaraian- Pz	6.56		6.97	
869	Punjab	Sangrur	Rajo Majra-PZ	2.32		2.77	
870	Punjab	Sangrur	Rampur Channa-Pz	5.25		4.98	
871	Punjab	Sangrur	Rurgarh-PZ	2.17		2.53	
872	Punjab	Sangrur	Rurki Kalan-Pz	4.78		3.86	
873	Punjab	Sangrur	Sekhpur Khurd-PZ	1.13		1.47	
874	Punjab	Sangrur	Sekhwas-PZ	2.55		3.58	
875	Punjab	Sangrur	Sikandarpur-PZ	1.57		2.00	
876	Punjab	Sangrur	Sunam-Pz	4.23		4.94	5.98
893	Punjab	SAS Nagar	Antala	0.12	0.70	-0.29	-0.98
894	Punjab	SAS Nagar	Balongi-PZ	1.88		-1.92	
895	Punjab	SAS Nagar	Barauli-PZ	-7.18		-1.12	
896	Punjab	SAS Nagar	Chandiala-Pz	-0.62		4.40	
897	Punjab	SAS Nagar	Dera Bassi 07pz	-0.06	-0.41	-0.33	-0.46
898	Punjab	SAS Nagar	Dheri	0.18	1.11	0.56	0.99
899	Punjab	SAS Nagar	Gharoon	-3.25		-4.74	
900	Punjab	SAS Nagar	Ghoga	-0.44	-2.85	-0.69	-0.69
901	Punjab	SAS Nagar	Gholu majra 07pz	0.43			
902	Punjab	SAS Nagar	Issapur- DW	-1.03			
903	Punjab	SAS Nagar	Joli	-1.08	-0.85	-0.44	-1.14
904	Punjab	SAS Nagar	Kurrha-Pz	3.16		2.65	
905	Punjab	SAS Nagar	Landran-Pz	-0.54	0.34		1.87
906	Punjab	SAS Nagar	Malkpur-Pz	1.44		5.67	
907	Punjab	SAS Nagar	Manoli-PZ	0.98		0.65	
908	Punjab	SAS Nagar	Palheri-PZ	-2.05		0.23	
909	Punjab	SAS Nagar	Pedol-PZ	0.97		0.60	
910	Punjab	SAS Nagar	Raipur Kalan	-0.34		0.01	
911	Punjab	SAS Nagar	Singhpura-Pz	8.15			
912	Punjab	SAS Nagar	Sirsini	0.22	-0.33	-0.03	-0.60
913	Punjab	SAS Nagar	Sohana-PZ	0.20			
914	Punjab	SBS Nagar	Bahlora Kallan- Pz	-0.17	-0.56	-0.96	-0.66
915	Punjab	SBS Nagar	Balachore				1.10
916	Punjab	SBS Nagar	Mauhra-Pz	6.94	0.92	-0.02	-0.94
917	Punjab	SBS Nagar	Rahon	1.09	1.03	-0.24	0.28
918	Punjab	SBS Nagar	Raipur Dhaba-Pz	1.82	3.42	1.40	1.57
919	Punjab	Taran Taran	Aima Khurd-Pz	1.47		1.60	
920	Punjab	Taran Taran	Aminshah Khalra			0.12	
921	Punjab	Taran Taran	Attari-Pz	-1.84		-0.06	

922	Punjab	Taran Taran	Bahla-Pz	7.31			
923	Punjab	Taran Taran	Bakipur-Pz	0.53		0.55	
924	Punjab	Taran Taran	Bath-Pz	1.76		0.29	
925	Punjab	Taran Taran	Bhagala-Pz	4.39		3.23	
926	Punjab	Taran Taran	Bhagwanpur-Pz	0.63		1.99	
927	Punjab	Taran Taran	Bhalaipur-Pz	-0.09		0.11	
928	Punjab	Taran Taran	Bhankar Kalan-Pz	0.99		0.33	
929	Punjab	Taran Taran	Bhikiwind- Pz	0.96	0.73		
930	Punjab	Taran Taran	Bhura-Pz	1.91		1.89	
931	Punjab	Taran Taran	Bhure-Pz	2.19		1.05	
932	Punjab	Taran Taran	Bhusse-Pz	0.72		0.78	
933	Punjab	Taran Taran	Brahmpur-Pz	0.79		0.16	
934	Punjab	Taran Taran	Chakkare Khan-Pz	1.22		0.92	
935	Punjab	Taran Taran	Chola Sahib-Pz	0.03	0.56		
936	Punjab	Taran Taran	Choudhary Wala-Pz	0.66		1.01	
937	Punjab	Taran Taran	Chuselawad-Pz	2.83		2.57	
938	Punjab	Taran Taran	Ekalgoda-Pz	1.42		1.54	
939	Punjab	Taran Taran	Fatehabad- PZ	1.03		-1.37	
940	Punjab	Taran Taran	Gandi Wind-Pz	2.32			
941	Punjab	Taran Taran	Goindwal 07	-1.37	1.38	0.58	0.32
942	Punjab	Taran Taran	Jalalabad-PZ	-0.90			
943	Punjab	Taran Taran	Jandoke-Pz	0.94		0.28	
944	Punjab	Taran Taran	Kairon-PZ	0.77		1.67	
945	Punjab	Taran Taran	Kalsia Kalan07	1.27	1.88	3.82	-1.41
946	Punjab	Taran Taran	Khadur Sahib-Pz	-0.11	0.76	1.11	
947	Punjab	Taran Taran	Khalra-Pz	-0.08		1.38	
948	Punjab	Taran Taran	Kirtowal-Pz	-2.70			
949	Punjab	Taran Taran	Kotbudda-Pz	-2.62		-1.71	
950	Punjab	Taran Taran	Kotli Sur Singh-Pz	-0.07		-0.84	
951	Punjab	Taran Taran	Mahendipur-Pz	1.80		0.30	
952	Punjab	Taran Taran	Marhona-Pz	1.00		0.88	
953	Punjab	Taran Taran	Mari Kamboke-Pz	0.75		3.01	
954	Punjab	Taran Taran	Nandpur-Pz	0.80		12.70	
955	Punjab	Taran Taran	Pindan-Pz	0.04		0.24	
956	Punjab	Taran Taran	Rajoke-Pz	-0.73		-1.68	
957	Punjab	Taran Taran	Ratoke-Pz	1.06	-20.88	3.47	
958	Punjab	Taran Taran	Sabran-Pz	-0.40		0.78	
959	Punjab	Taran Taran	Sahab Pura- Pz	0.09	2.43	2.39	
960	Punjab	Taran Taran	Sheron-Pz	1.82		0.36	
961	Punjab	Taran Taran	Sugga-Pz	0.69		1.02	
962	Punjab	Taran Taran	Varing-Pz	-0.30			

Annexure-5: Chemical Quality of Ground Water in Punjab and Chandigarh

S. No	District	Block	Location	Source	pH [*]	EC* in μS/cm at 25°C	mg/l														SAR in meq/l	RSC in meq/l
							CO ₃	HCO ₃	Cl [*]	SO ₄	NO ₃ [*]	F [*]	PO ₄	Ca [*]	Mg [*]	Na	K	SiO ₂	TH *as CaCO ₃			
1	Amritsar	Raiya	Beas	DW	8.40	500	24	195	35	BDL	15	0.50	<0.10	124	17	60	5.8	25	130	1.34	-3.59	
2	Amritsar	Jandiala	Jandiala guru	HP	8.70	882	48	293	71	38	48	0.57	<0.10	8	54	115	11	26	240	3.22	1.56	
3	Amritsar	Verka	Amritsar	TW	8.70	535	48	195	35	10	<0.20	0.30	<0.10	12	34	57	6.5	23	170	1.90	1.40	
4	Amritsar	Chogawan	Mahawa	HP	8.70	915	60	268	78	72	20	0.30	<0.10	8	32	165	15	25	150	5.83	3.36	
5	Amritsar	Chogawan	Chogawan	TW	8.65	430	36	159	28	20	<0.20	0.26	<0.10	8	24	58	6.2	24	120	2.32	1.43	
6	Amritsar	Ajnlala	Ajnlala	TW	8.55	368	36	195	14	BDL	<0.20	0.36	<0.10	8	24	53	5.4	23	120	2.12	2.02	
7	Amritsar	Ajnlala	Urdhan	TW	8.50	305	12	195	7.1	BDL	<0.20	0.27	<0.10	16	19	30	5.1	25	120	1.20	1.23	
8	Amritsar	Tarike	Nawan Tanel	HP	8.34	435	12	159	35	18	19	0.13	<0.10	20	24	35	7.7	28	150	1.25	0.03	
9	Amritsar	Raiya	Mehta	HP	8.65	455	48	207	7.1	BDL	4	0.48	<0.10	16	32	42	8.1	25	170	1.40	1.56	
10	Amritsar	Ajnlala	Gaggomahal	TW	8.90	884	72	317	35	80	<0.20	0.30	<0.10	8	24	182	2.2	27	120	7.27	5.22	
11	Amritsar	Ajnlala	Ramdas	DW	8.50	320	24	183	7.1	BDL	<0.20	0.20	<0.10	20	2.4	64	3.4	24	60	3.60	2.60	
12	Barnala	Sehna	Bhadaur	TW	8.80	1190	108	415	57	54	22	0.74	<0.10	12	32	235	7.1	25	160	8.04	7.17	
13	Barnala	Barnala	Barnala	TW	8.85	1010	96	366	43	20	15	0.49	<0.10	8.0	36	175	6.6	26	170	5.87	5.84	
14	Barnala	Mahal Kalan	Mahal Kalan	TW	8.87	1028	120	317	71	10	30	0.36	<0.10	12	39	180	12	22	190	5.68	5.39	
15	Bathinda	Talwandi Saboo	Gurusar	TW	8.60	1745	96	391	64	357	30	0.19	<0.10	12	92	250	14	26	410	5.38	1.44	
16	Bathinda	Talwandi Saboo	Jajjal	TW	8.50	1262	60	207	78	207	85	0.13	<0.10	40	19	110	195	25	180	3.59	1.83	
17	Bathinda	Talwandi Saboo	Bhagi bander	TW	8.80	3230	120	586	369	418	110	1.10	<0.10	16	44	400	500	23	220	11.71	9.19	
18	Bathinda	Talwandi Saboo	Kaile bander	TW	8.38	2830	24	146	355	498	398	0.32	<0.10	32	122	350	130	24	580	6.31	-8.44	
19	Bathinda	Bhatinda	Kot Shamir	TW	8.50	2610	72	293	369	312	250	<0.05	<0.10	16	92	430	43	25	420	9.15	-1.16	
20	Bathinda	Maur	Majri Khana	TW	8.80	2550	36	818	170	280	115	2.60	<0.10	12	19	570	15	25	110	23.85	12.44	
21	Bathinda	Rampura	Jhanduke	TW	8.60	1305	60	293	113	190	24	0.55	<0.10	12	153	265	5.5	22	140	4.49	-6.38	

22	Bathinda	Bhatinda	Gulabgarh	TW	8.38	3080	36	195	326	912	<0.20	0.70	<0.10	56	46	600	7	21	330	14.39	-2.18
23	Bathinda	Nathana	Poohla	TW	8.50	1050	72	317	43	40	77	3.80	<0.10	12	15	190	41	26	90	8.63	5.76
24	Bathinda	Rampur phul	Rampur phul	TW	8.60	1072	48	256	85	160	7.00	0.55	<0.10	12	34	190	5.5	28	170	6.34	2.40
25	Bathinda	Phul	Phul	TW	8.80	2170	108	647	220	110	95	1.60	<0.10	12	68	380	64	23	310	9.39	8.01
26	Bathinda	Rampur phul	Dhopali	TW	8.75	258	36	85	14	BDL	2.46	0.22	<0.10	16	12	28	4.04	25	90	1.29	0.81
27	Bathinda	Bhagta Bhaika	Dalpur Bhaike	TW	8.82	1094	96	415	43	BDL	17	0.84	<0.10	12	32	190	5.5	24	160	6.50	6.77
28	Bathinda	Rampura Phul	Dialpur Mirza	TW	8.90	2050	120	500	135	215	50	1.70	<0.10	12	32	420	6.9	22	150	14.37	8.96
29	Bathinda	Nathana	Kalyan sukhna	TW	8.70	1850	84	403	149	276	21	0.55	<0.10	20	17	350	7.5	24	220	13.91	7.01
30	Bathinda	Bhagta Bhaika	Kotha guru	TW	8.65	1340	48	232	92	326	11	0.45	<0.10	20	22	280	4.0	26	140	10.28	2.59
31	Bathinda	Rampura	Badiala	TW	8.80	2860	84	452	262	590	25	0.78	<0.10	8	61	570	8.3	23	270	15.07	4.79
32	Bathinda	Bathinda	Dera Tappa	TW	8.35	335	24	122	11	12	1.65	0.58	<0.10	48	7.3	8.50	4.6	24	150	0.30	-0.20
33	Bathinda	Bathinda	Khidiwala	HP	8.45	370	36	122	11	58	1.46	0.60	<0.10	24	15	53	3.05	25	120	2.09	0.77
34	Bathinda	Bathinda	Nahian wala	TW	8.98	5650	156	610	716	996	150	1.20	<0.10	16	71	1120	132	22	330	26.74	8.56
35	Bathinda	Bathinda	Ganga	TW	8.08	2980	0	525	319	640	31	0.60	<0.10	52	78	510	12	24	450	10.45	-0.41
36	Bathinda	Bathinda	Ablu	TW	8.35	765	36	85	64	170	26	0.28	<0.10	24	34	84	30	27	200	2.59	-1.40
37	Bathinda	Bathinda	Baluanga	HP	8.55	6210	108	452	815	1200	517	1.00	<0.10	20	271	980	220	25	961	12.49	-12.28
38	Bathinda	Sangat	Ghudda	TW	7.90	4290	0	183	532	918	554	0.08	<0.10	100	248	300	300	24	1271	3.66	-22.39
39	Bathinda	Sangat	Sangat Kalan	TW	8.45	428	36	159	14	25	11	0.40	<0.10	20	32	28	6.9	26	180	0.90	0.18
40	Bathinda	Sangat	Jansi Baghwali	HP	8.55	590	48	183	28	60	17	0.40	<0.10	24	34	63	11	28	200	1.94	0.61
41	Bathinda	Sangat	Raike kalan	HP	8.28	1355	0	195	163	320	40	0.19	<0.10	40	39	210	35	27	260	5.66	-2.01
42	Faridkot	Kotkapura	Bajakhana	DW	8.95	2970	156	683	206	375	28	1.80	<0.10	16	2.4	670	19	28	50	41.30	15.40
43	Faridkot	Kotkapura	Karirwali	TW	8.50	4590	72	488	475	1045	138	1.70	<0.10	24	70	920	38	28	350	21.46	3.44
44	Faridkot	Kotkapura	Matta	TW	8.75	1725	120	366	184	80	100	1.10	<0.10	4	83	235	64	23	350	5.45	2.97
45	Faridkot	Kotkapura	Wara Daroka	TW	8.57	1160	44	148	113	238	3.9	1.41	<0.10	29	27	196	5.20	22	185	6.30	0.22
46	Faridkot	Kotkapura	Dal singh wala	TW	8.68	2201	88	193	234	481	12	0.55	<0.10	17	51	417	9	22	252	11.42	1.05
47	Faridkot	Kotkapura	Dhilwar Kalan	TW	8.90	1401	117	475	71	BDL	22	1.73	<0.10	13	28	259	7.5	24	147	9.27	8.73
48	Faridkot	Kotkapura	Kolkapura	HP	8.64	1150	44	178	92	131	120	0.38	<0.10	17	56	112	44	19	273	2.95	-1.07

49	Faridkot	Kotkapura	Deviwala	HP	8.80	1703	88	252	135	281	50	1.72	<0.10	13	66	214	102	28	305	5.34	0.99
50	Faridkot	Kotkapura	Bir Sikhar wala	HP	8.92	2555	146	711	128	266	25	1.04	<0.10	17	46	472	65	17	231	13.49	11.89
51	Faridkot	Kotkapura	Nangal	TW	8.34	1422	58	430	78	161	36	0.71	<0.10	17	46	247	8.5	19	231	7.06	4.35
52	Faridkot	Faridkot	Chandbaza	TW	8.72	2320	102	223	234	457	50	1.04	<0.10	8.4	77	394	35	14	336	9.33	0.30
53	Faridkot	Faridkot	Tehna	TW	8.70	1630	102	326	112	185	17	2.09	<0.10	21	26	301	8	21	158	10.37	5.56
54	Faridkot	Faridkot	Sukhanwala	TW	8.14	3750	0	178	588	780	150	0.38	<0.10	55	117	589	35	16	620	10.30	-9.45
55	Faridkot	Faridkot	Sher singh wala	HP	8.44	410	44	163	35	BDL	4.6	0.31	<0.10	34	23	37	5.6	22	179	1.20	0.55
56	Faridkot	Faridkot	Mehmuana(sadiq)	HP	8.27	2840	0	193	369	711	29	0.61	<0.10	21	20	576	10	18	137	21.59	0.47
57	Faridkot	Faridkot	Sadiq	HP	8.33	1331	29	104	99	336	90	1.00	<0.10	63	38	105	21	23	462	2.58	-3.60
58	Faridkot	Faridkot	Jand Sahib	TW	8.93	2780	102	415	248	465	38	0.91	<0.10	51	51	473	23	18	336	11.21	3.46
59	Faridkot	Faridkot	Deep singh wala	HP	8.90	1985	102	504	99	218	70	0.81	<0.10	114	117	104	7	24	767	1.63	-3.65
60	Faridkot	Faridkot	Nawan qila	HP	8.62	820	88	163	50	70	9.5	0.14	<0.10	17	38	106	7	25	200	3.27	1.63
61	Faridkot	Faridkot	Killi	HP	8.91	3820	190	756	255	482	180	4.57	<0.10	17	26	759	120	19	147	27.02	15.74
62	Faridkot	Ferozepur	Mumaru	TW	8.88	2062	131	311	149	337	18	0.76	<0.10	13	13	452	5.00	21	84	21.21	7.75
63	Fatehgarh Sahib	KHERA	Chunni Kalan	TW	8.72	735	14	307	64	7	9	0.45	<0.10	8.40	46	73	8	14	210	2.19	1.30
64	Fatehgarh Sahib	KHERA	Pawala	HP	8.39	1940	27	629	99	292	29	0.69	<0.10	4	49	361	26	13	210	10.79	6.97
65	Fatehgarh Sahib	KHERA	Bhagiana	HP	8.16	995	0	461	70	34	2	0.48	<0.10	8.40	72	87	8	11	315	2.13	1.21
66	Fatehgarh Sahib	KHERA	Badli Ala singh	HP	8.77	640	14	318	21	5	8	0.35	<0.10	42	15	66	10	10	168	2.23	2.35
67	Fatehgarh Sahib	Bassi pathana	Bhateri	TW	8.63	520	14	189	57	5	3	0.31	<0.10	25	23	44	9	12	158	1.53	0.43
68	Fatehgarh Sahib	Bassi Pathana	Bassi Pathana	HP	8.15	710	0	279	71	52	52	0.38	<0.10	21	38	98	8.30	10	210	2.95	0.40
69	Fatehgarh Sahib	Bassi pathana	Fatehgarh Sahib	TW	8.28	510	0	252	35	19	45	0.32	<0.10	17	49	28	8	12	242	0.78	-0.75
70	Fatehgarh Sahib	Sarhind	Innayatpur	HP	8.74	670	14	405	21	5	7	0.44	<0.10	4.20	28	120	7	15	126	4.66	4.59
71	Fatehgarh Sahib	Sirhind	Nalini	HP	8.49	585	27	252	35	12	28	0.19	<0.10	8.40	28	88	7.70	9	137	3.28	2.31

72	Fatehgarh Sahib	Sirhind	Bhaddal Thuha	HP	8.50	565	27	252	36	0	28	0.21	<0.10	13	28	77	8	10	147	2.76	2.08
73	Fatehgarh Sahib	Amloh	Amloh	TW	8.24	470	0	168	35	13	52	0.51	<0.10	13	31	35	7	14	158	1.20	-0.44
74	Fazilka	Abohar	Sito guno	TW	8.05	6660	0	268	817	2005	38	2.40	<0.10	112	151	1200	12	23	900	17.40	-13.61
75	Fazilka	Abohar	Bazidpur bhoma	TW	8.95	2980	240	574	166	495	120	3.10	<0.10	8	32	720	12	22	150	25.44	14.38
76	Fazilka	Abohar	Abohar	HP	8.20	8320	0	561	1432	1690	239	0.55	<0.10	88	418	1600	37	19	911	15.81	-29.57
77	Fazilka	Khuiyan Serovar	Alamgarh	HP	8.50	2380	36	207	354	412	115	0.44	<0.10	20	100	260	180	20	460	5.27	-4.63
78	Fazilka	Khuiyan Serovar	Khlian Serovar	HP	8.32	5865	36	256	969	1412	50	0.83	<0.10	32	119	1200	20	24	520	21.88	-5.99
79	Fazilka	Khuiyan Serovar	Dalewal Satkosi	TW	8.65	3140	48	427	441	400	253	0.47	<0.10	16	92	500	132	20	420	10.63	0.23
80	Fazilka	Khuiyan Serovar	Nihal Khera	HP	8.44	1230	44	207	135	238	4.5	0.61	<0.10	25	72	132	34	21	357	3.03	-2.31
81	Fazilka	Abohar	Khundal	HP	7.82	3390	0	74	674	525	186	0.32	<0.10	206	82	392	33	24	851	5.84	-15.81
82	Fazilka	Fazilka	Bannawala	HP	8.40	1320	44	134	177	255	6.00	0.86	<0.10	42	43	190	11	24	284	4.92	-1.97
83	Fazilka	Fazilka	Dipulana	TW	8.75	940	73	371	64	BDL	34	1.71	<0.10	17	28	176	12	23	158	6.10	5.36
84	Fazilka	Fazilka	Thoh Kalandor	HP	8.81	745	102	311	28	BDL	14	0.44	<0.10	8.4	43	110	22	24	200	3.40	4.54
85	Fazilka	Jalalabad	Swahwala	TW	8.65	820	44	297	43	80	14	1.87	<0.10	17	8	188	2.8	22	74	9.42	4.83
86	Fazilka	Jalalabad	Sohangarh,rttewala	DW	8.71	7130	58	445	844	1775	119	1.91	<0.10	25	64	1452	63	18	326	35.00	2.72
87	Fazilka	Jalalabad	Motiwala	TW	8.72	935	58	297	35	165	1.5	0.96	<0.10	17	13	218	4	23	94	9.68	4.88
88	Fazilka	Jalalabad	Nur ke uttar	TW	8.76	900	73	267	43	43	11	0.50	<0.10	29	5.1	158	7.2	17	95	7.11	4.94
89	Ferozepur	Jalalabad	Ludhuwala	HP	8.47	1205	44	148	85	305	26	0.44	<0.10	25	51	172	12	26	273	4.54	-1.55
90	Ferozepur	Mamdot	Sham singh wala	HP	8.71	802	58	311	43	BDL	24	0.33	<0.10	17	28	80	88	22	158	2.77	3.88
91	Ferozepur	Mamdot	Malsian	HP	7.97	1070	0	118	70	295	60	0.32	<0.10	25	31	92	136	23	189	2.90	-1.86
92	Ferozepur	Ferozepur	Mohrewala	TW	8.76	1641	88	356	106	150	172	1.21	<0.10	13	36	310	33	22	179	10.04	5.16
93	Ferozepur	Gahll Khurd	Piyarana	TW	8.86	953	102	370	28	BDL	17	0.50	<0.10	21	13	175	25	22	105	7.40	7.35
94	Ferozepur	Makhu	Lauke Kalan	TW	8.61	573	58	193	21	31	6.3	0.76	<0.10	46	31	37	7	18	242	1.03	0.25
95	Ferozepur	Ferozepur	Jaimal singh wala	TW	8.63	478	44	178	28	BDL	2.4	0.14	<0.10	13	26	51	4.3	19	137	1.88	1.60

96	Gurdaspur	Fatehgarh Churian	Madipur FG churian	TW	8.65	675	72	220	28	38	0.47	0.30	<0.10	16	17	105	36	26	110	4.36	3.81
97	Gurdaspur	Dera Baba Nanak	Dera Baba Nanak	TW	8.45	270	12	195	7.1	BDL	<0.20	0.21	<0.10	12	14	45	3.8	25	90	2.09	1.85
98	Gurdaspur	Gurdaspur	Kalanaur	TW	8.40	227	24	122	7.1	BDL	<0.20	0.18	<0.10	20	12	22	3.8	26	100	0.96	0.81
99	Gurdaspur	Gurdaspur	Saleh chok	TW	8.95	1214	132	464	14	72	0.20	0.86	<0.10	12	14	280	2.3	23	90	13.02	10.25
100	Gurdaspur	Dera Baba Nanak	Dhianpur	HP	8.35	500	24	98	14	95	38	0.25	<0.10	28	22	50	2.06	21	160	1.72	-0.80
101	Gurdaspur	Batala	Bhogowal	HP	8.75	857	72	207	50	68	46	0.25	<0.10	12	46	68	80	25	220	2.00	1.41
102	Gurdaspur	Fatehgarh Churian	Ganiya ke Banger	HP	8.40	885	60	220	57	65	44	0.43	<0.10	12	24	150	7.5	23	130	5.75	3.03
103	Gurdaspur	Sri Har Govindpur	Sri Har Govindpur	TW	8.41	470	24	110	35	36	52	0.18	<0.10	28	24	40	5.01	25	170	1.34	-0.77
104	Gurdaspur	Quadian	Harchowal	HP	8.40	220	24	98	7.1	BDL	<0.20	0.14	<0.10	40	2.4	10	2.5	23	110	0.42	0.21
105	Gurdaspur	Quadian	Aulakh kalan	TW	8.50	332	36	134	7.1	BDL	7.27	0.17	<0.10	20	19	24	6.5	26	130	0.92	0.84
106	Gurdaspur	Har Govindpur	Dokoha	HP	8.50	377	36	146	11	8.0	20	0.15	<0.10	12	27	34	5.8	24	140	1.25	0.77
107	Gurdaspur	Dera Baba Nanak	Mullo wali	TW	8.57	315	48	122	11	BDL	<0.20	0.16	<0.10	16	12	48	4.07	25	90	2.21	1.81
108	Gurdaspur	Kahnuwan	Satiali Nanekot	HP	8.55	315	36	110	7.1	14	26	0.25	<0.10	16	29	15	4.4	26	160	0.52	-0.18
109	Gurdaspur	Dinanagar	Saidowal	HP	8.80	980	72	342	71	36	22	0.23	<0.10	12	29	100	150	25	150	3.56	5.02
110	Gurdaspur	Gurdaspur	Pandori Tales	HP	8.50	710	36	171	35	41	100	0.22	0.1	40	29	40	55	30	220	1.18	-0.38
111	Gurdaspur	Kahnuwan	Gohlri	HP	8.47	570	36	195	43	20	0.52	0.14	<0.10	12	39	50	3.20	28	190	1.58	0.59
112	Gurdaspur	Dhariwal	Nishayara Majjasing	TH	8.55	361	36	146	28	BDL	<0.20	0.16	<0.10	8	27	40	4.6	25	130	1.52	0.97
113	Gurdaspur	Dina Nagar	Dina Nagar	HP	8.70	760	60	220	57	42	8.57	0.28	<0.10	12	49	85	0.63	26	230	2.43	0.98
114	Hoshiarpur	Garhshankar	Garhshankar	TW	8.66	490	14	238	21	12	14	0.29	<0.10	4.2	43	35	4	7	189	1.11	0.62
115	Hoshiarpur	Mahalpur	Mahalpur	TW	8.32	450	14	196	21	0	19	0.35	<0.10	21	23	35	3	14	147	1.26	0.74
116	Hoshiarpur	Mahalpur	Thakkarwala	HP	8.67	495	14	224	21	44	2	0.38	<0.10	4.20	36	56	3.50	11	158	1.93	0.97
117	Hoshiarpur	Hoshiarpur II	Phuglana	HP	7.82	1750	0	168	184	407	48	0.3	<0.10	93	95	109	2.50	7	620	1.90	-9.70
118	Hoshiarpur	Hoshiarpur II	Chohal	TW	8.15	275	0	126	21	0	17	0.25	<0.10	21	7.7	27	3	11	84	1.28	0.38
119	Hoshiarpur	Hoshiarpur	Nari	TW	8.26	300	0	146	14	3	17	0.24	<0.10	25	8	27	3	10	95	1.20	0.49
120	Hoshiarpur	Talwara	Bhamnaur	TW	8.13	290	0	84	21	42	12	0.67	<0.10	25	15	11	2	8	126	0.43	-1.10

121	Hoshiarpur	Talwara	Talwara	TW	8.04	290	0	122	21	3	23	0.23	<0.10	38	5	16	1	10	116	0.65	-0.31
122	Hoshiarpur	Talwara	Jhir Di Khui	HP	8.06	200	0	84	21	2	6.50	0.21	<0.10	21	7.7	9.5	0.80	7	84	0.45	-0.30
123	Hoshiarpur	Hajipur	Hajipur	TW	8.42	510	14	177	57	3	22	0.26	<0.10	17	28	49	3	10	158	1.70	0.22
124	Hoshiarpur	Hajipur	Sibochak	HP	8.79	510	14	224	43	21	2	0.30	<0.10	13	36	49	3	12	179	1.59	0.53
125	Hoshiarpur	Mukerian	Pankhuh	HP	8.25	245	0	116	21	5	3	0.29	<0.10	21	13	11	3	8	105	0.47	-0.22
126	Hoshiarpur	Mukerian	Chak Sheru	HP	7.86	605	0	157	43	126	2	0.25	<0.10	30	38	34	14	11	231	0.97	-2.05
127	Hoshiarpur	Mukerian	Bhangala	HP	8.26	840	0	377	50	24	38	0.32	<0.10	59	38	42	47	14	284	1.05	0.11
128	Hoshiarpur	Mukerian	Mukeriya	HP	8.35	350	13	112	21	14	21	0.23	<0.10	30	13	20	5	15	126	0.77	-0.30
129	Hoshiarpur	Hajipur	Dagan	TW	8.23	350	0	183	28	6	7	0.29	<0.10	46	15	10	1.30	16	179	0.33	-0.53
130	Hoshiarpur	Hajipur	Nangal Bhiala	DW	8.25	540	0	154	36	65	43	0.28	<0.10	34	36	21	1.30	14	231	0.60	-2.13
131	Hoshiarpur	Dasuya	Dulmiwal	HP	8.28	380	0	168	21	43	11	0.18	<0.10	25	31	13	3	10	189	0.41	-1.04
132	Hoshiarpur	Dasuya	Dasuya	TW	8.58	490	14	154	36	45	33	0.39	<0.10	25	36	27	3	12	210	0.81	-1.22
133	Hoshiarpur	Bhunga	Garhdiwala	TW	8.45	370	14	168	36	5	2	0.25	<0.10	21	26	26	1.20	9	158	0.90	0.03
134	Hoshiarpur	Hoshiarpur I	Sham Chaurassi	HP	8.59	350	14	189	14	3	3.20	0.32	<0.10	8.40	23	39	3	12	116	1.58	1.25
135	Hoshiarpur	Hoshiarpur II	Rampur Camp colony	TW	8.50	405	14	195	28	0	3	0.41	<0.10	17	20	44	3	13	126	1.71	1.17
136	Hoshiarpur	Mahilpur	Simbli	HP	8.74	650	14	318	50	3	17	0.43	<0.10	21	54	41	6	18	273	1.08	0.19
137	Hoshiarpur	Mukerian	Samraj Tanda	HP	8.39	360	14	104	50	3	18	0.31	<0.10	25	28	16	3	9	158	0.52	-1.38
138	Hoshiarpur	Dasuya	Haler Rampur	TW	8.41	415	14	201	21	2	10	0.32	<0.10	21	26	30	4	12	158	1.03	0.57
139	Hosiarpur	Bhunga	Adhowal Garhi	HP	8.26	235	0	140	14	1	2	0.27	<0.10	21	13	14	2	12	105	0.59	0.18
140	Jalandhar	Jalandhar city	Adampur	HP	8.45	725	36	171	42	38	72	0.38	<0.10	20	12	120	1.3	24	100	5.24	2.02
141	Jalandhar	Phillaur	Phillaur	HP	8.87	888	132	378	14	BDL	0.65	4.00	<0.10	8	51	150	6	23	230	4.31	6.00
142	Jalandhar	Rurka Kalan	Goraya	TW	8.80	1070	60	342	120	BDL	20	0.88	<0.10	12	29	190	7.2	25	150	6.77	4.62
143	Jalandhar	Jalandhar East	Lallian Kalan	TW	8.47	465	36	122	21	65	5.23	0.52	<0.10	28	32	28	5.62	21	200	0.86	-0.83
144	Jalandhar	Nakodar	Udhopur	TW	8.60	400	36	159	28	BDL	6.51	0.62	<0.10	20	19	48	4.2	24	130	1.85	1.25
145	Jalandhar	Nur Mahal	Sarih	HP	8.45	315	24	146	7.1	BDL	2.61	0.57	<0.10	20	22	14	3.16	26	140	0.51	0.39
146	Jalandhar	Rurka Kalan	Jandiala	TW	8.75	635	36	268	28	BDL	14	0.7	<0.10	16	29	96	6.60	28	160	3.31	2.41
147	Jalandhar	Nakodar	Nakodar	TW	8.70	585	60	232	7.1	BDL	5.21	1.20	<0.10	12	19	90	5.3	22	110	3.77	3.64
148	Jalandhar	Shahkot	Malsian	TW	8.59	650	48	256	35	BDL	34	0.60	<0.10	12	34	90	5.8	23	170	3.00	2.40
149	Jalandhar	Shahkot	Shahkot	TW	8.22	898	0	159	113	70	138	0.25	<0.10	72	22	92	6.6	25	270	2.43	-2.80

150	Jalandhar	Jalandhar city	Jalandhar	TW	8.25	655	0	122	50	145	1.71	0.24	<0.10	44	24	50	4.8	26	210	1.51	-2.17
151	Jalandhar	Adampur	Allawalpur	HP	8.65	558	24	159	35	60	22	0.27	<0.10	12	27	70	9.1	28	140	2.56	0.59
152	Jalandhar	Adampur	Jalbhe	TW	8.80	885	84	317	71	BDL	4.08	0.49	<0.10	4	36	155	9.4	23	160	5.36	4.83
153	Jalandhar	Lohian	Kharar Kalan	TW	8.50	705	60	207	28	36	43	0.32	<0.10	20	29	95	8.5	25	170	3.18	2.01
154	Jalandhar	Jalandhar west	Kartarpur	TW	8.25	890	0	134	142	BDL	88	0.30	<0.10	52	32	55	5.8	22	260	1.48	-3.03
155	Kapurthala	Phagwara	Phagwara	TW	8.76	702	36	134	106	14	68	0.50	<0.10	20	36	85	7.00	28	200	2.63	-0.56
156	Kapurthala	Sultapur Lodhi	Dalla	TW	8.58	400	36	220	14	BDL	<0.20	0.47	<0.10	12	22	62	7.6	24	120	2.46	2.40
157	Kapurthala	Sultapur Lodhi	Sultapur Lodhi	TW	8.65	472	36	159	35	15	<0.20	0.37	0.15	8	0	110	1.2	23	20	10.71	3.41
158	Kapurthala	Sultapur Lodhi	Talwandi choudhry	HP	8.72	592	36	207	64	BDL	<0.20	0.30	<0.10	20	4.86	115	2.0	21	70	5.98	3.19
159	Kapurthala	Kapurthala	Hussainpur	TW	8.55	504	36	134	35	BDL	55	0.30	<0.10	16	29	48	5.3	22	160	1.65	0.21
160	Kapurthala	Kapurthala	Kapurthala	TW	8.30	487	12	159	35	12	34	0.32	<0.10	28	19	40	4.8	25	150	1.43	0.05
161	Kapurthala	Dhilwan	Bhantura	HP	8.70	710	48	256	43	35	23	0.65	<0.10	8	39	100	11	21	180	3.24	2.19
162	Kapurthala	Dhilwan	Bholath	TW	8.59	302	36	159	7.1	12	<0.20	0.70	<0.10	16	15	50	8	19	100	2.16	1.77
163	Ludhiana	Samrala	Otaian	HP	8.50	538	60	146	28	35	35	0.36	<0.10	16	41	50	7.2	24	210	1.51	0.22
164	Ludhiana	Macchiwara	Samrala	TW	8.33	440	36	159	14	10.0	23	0.42	<0.10	24	29	15	25	22	180	0.49	0.22
165	Ludhiana	Macchiwara	Muskabad	HP	7.73	665	0	330	28	18	60	>0.05	<0.10	48	27	64	11	19	230	1.83	0.79
166	Ludhiana	Macchiwara	Behlolpur	HP	8.26	481	0	183	14	15	78	0.11	<0.10	24	36	17	5.0	18	210	0.51	-1.16
167	Ludhiana	Macchiwara	Sherian	HP	8.28	862	0	452	21	58	2.5	0.50	<0.10	12	39	120	15	23	190	3.78	3.60
168	Ludhiana	Samrala	Panjeta	HP	8.35	365	36	110	14	BDL	42	0.22	<0.10	16	32	17	5.7	24	170	0.56	-0.43
169	Ludhiana	Macchiwara	Lallia Kalan	HP	8.18	270	0	122	14	18	3.41	0.29	<0.10	32	9.72	9.2	3.8	26	120	0.37	-0.40
170	Ludhiana	Samrala	Begowal	HP	8.65	724	72	317	28	BDL	14	0.81	<0.10	12	39	110	7.2	21	190	3.47	3.79
171	Ludhiana	Dehlon	Doraha	HP	8.76	855	96	268	42	35	55	1.62	<0.10	8.0	97	49	2.4	23	420	1.04	-0.78
172	Ludhiana	Khanna	Ikloha	TW	8.43	685	24	171	64	58	46	0.42	<0.10	24	39	50	37	25	220	1.47	-0.80
173	Ludhiana	Khanna	Maksudra	HP	8.82	820	48	281	35	48	55	0.59	<0.10	8.0	44	115	9.0	27	200	3.53	2.19
174	Ludhiana	Dehlon	Gopalpura	HP	8.88	1220	24	696	28	30	25	0.46	<0.10	24	44	235	8.1	22	190	6.59	7.39
175	Ludhiana	Pakhowal	Lil	TW	8.70	580	72	232	14	28	19	0.36	<0.10	8.0	44	80	6.7	23	200	2.46	2.18
176	Ludhiana	Sudhar	Halwara	HP	8.58	722	24	195	50	58	64	0.29	<0.10	8.0	36	58	73	24	170	1.95	0.64
177	Ludhiana	Ludhiana I	Pau Ludhiana	TW	8.55	605	48	195	21	35	65	0.22	<0.10	16	44	62	7.5	25	220	1.81	0.38

178	Ludhiana	Ludhiana I	Chatar singh Park	TW	8.48	625	12	195	57	82	17	0.49	<0.10	28	36	60	12	18	220	1.77	-0.76
179	Ludhiana	Ludhiana II	Mangat	TW	8.60	510	36	195	14	25	<0.20	0.56	<0.10	12	15	80	3.9	21	90	3.64	2.56
180	Ludhiana	Sidhwan Bet	Sidhwan Bet	TW	8.40	338	36	122	7.1	BDL	10	0.32	<0.10	24	24	6.7	3.7	22	160	0.23	0.03
181	Ludhiana	Jagraon	Jagraon	HP	8.70	540	48	134	21	45	24	0.74	<0.10	12	22	75	5.35	26	120	2.97	1.39
182	Mansa	Bhikhi	Ralla	DW	8.60	798	54	207	35	60	52	1.00	<0.10	16	54	44	51	25	260	1.18	-0.05
183	Mansa	Bhikhi	Katra kalan	TW	8.27	1345	0	574	105	60	38	0.66	<0.10	20	32	240	14	23	180	7.75	5.78
184	Mansa	Bhikhi	Bhikhi	TW	7.51	268	0	100	25	35	3.6	0.7	<0.10	14	6.1	43	2.1	29	60	2.41	0.44
185	Mansa	Budhwala	Budhwala	TW	8.28	2180	0	537	220	358	34	1.50	<0.10	48	58	360	12	24	360	8.27	1.64
186	Mansa	Budhwala	Kot dhamu	HP	8.60	510	36	195	21	5.0	<0.20	0.66	<0.10	16	2.4	95	2.2	26	50	5.86	3.40
187	Mansa	Budhwala	Mofar	TW	7.86	612	10	240	60	60	8.5	0.40	<0.10	60	29	43	5.9	17.4	270	1.14	-1.11
188	Mansa	Sardulgarh	Fatta maluka	HP	8.70	5140	204	1062	737	548	34	0.55	<0.10	12	99	1100	17	18	440	22.89	15.46
189	Mansa	Sardulgarh	Jhanda khurd	TW	7.85	1428	60	320	180	235	13.6	0.80	<0.10	40	48	253	8	16	300	6.38	1.30
190	Mansa	Jhunir	Burj Bhalike	TW	7.55	2750	30	680	400	240	38	1.20	<0.10	52	60	392	395	22	380	8.79	4.61
191	Mansa	Jhunir	Raipur	HP	7.78	3230	80	570	415	280	71	2.00	<0.10	16	77	396	24	31	360	9.12	4.88
192	Moga	Moga-I	Chogawan	HP	8.92	1192	132	476	28	15	15	1.72	<0.10	12	24	251	7.3	23	130	9.63	9.63
193	Moga	Kote Ishe Khan	Bajeke	TW	8.50	465	48	134	14	65	<0.20	0.36	<0.10	16	39	36	4.7	24	200	1.11	-0.21
194	Moga	Moga-II	Dagru	TW	8.75	780	60	293	28	48	6.87	0.77	<0.10	12	9.7	170	2.5	23	70	8.85	5.41
195	Moga	Moga-I	Darapur	TW	8.80	1155	60	366	43	138	0.40	0.86	<0.10	12	7.30	252	3.8	20	60	14.16	6.80
196	Moga	Bagha Purana	Dameru Khurd	TW	8.55	1205	36	195	85	315	10	0.86	<0.10	12	19	260	7.3	18	110	10.88	2.23
197	Moga	Bagha Purana	Budh singh wala	TW	8.80	1060	84	330	85	48	24	0.39	<0.10	20	24	205	7.6	25	150	7.32	5.24
198	Moga	Nihal singh wala	Nihal singh wala	TW	8.92	1368	108	549	92	0	46	0.39	<0.10	8.0	54	255	9.4	22	240	7.13	7.76
199	Muktsar	Muktsar	Bhaliana	TW	8.42	5400	72	281	610	892	900	0.30	<0.10	24	170	780	340	19	761	12.32	-8.17
200	Muktsar	Lambi	Lambi	HP	8.80	2360	120	415	213	412	44	1.00	<0.10	12	63	460	18	26	290	11.77	5.02
201	Muktsar	Lambi	Sherawali	HP	8.80	5840	144	720	340	1630	178	0.99	<0.10	20	158	780	620	24	700	12.83	2.61
202	Muktsar	Muktsar	Balochkhera,	HP	8.10	915	0	110	101	200	40	0.12	<0.10	72	22	76	36	25	270	2.01	-3.60
203	Muktsar	Malout	Kaburwala	TW	8.80	2450	102	237	284	378	109	3.41	<0.10	21	31	498	13	23	179	16.15	3.69
204	Muktsar	Muktsar	Muktsar	HP	8.39	760	44	74	78	87	58.00	0.55	<0.10	34	36	34	53	21	231	0.97	-1.98
205	Muktsar	Muktsar	Doda	HP	8.72	1335	88	207	121	211	4	0.86	<0.10	21	43	225	9.5	20	231	6.46	1.74

206	Muktsar	Malout	Khunde balal	HP	8.91	5420	263	816	603	737	28	2.01	<0.10	13	69	1123	12	18	315	27.47	15.82
207	Muktsar	Muktsar	Dohak	HP	8.17	2570	0	178	411	536	23	0.38	<0.10	67	94	351	10	17	557	6.49	-8.16
208	Muktsar	Muktsar	Lubnaian wali	HP	8.20	3325	0	134	496	815	65	0.96	<0.10	64	51	589	18	17	370	13.33	-5.19
209	Nawanshahar	Talwara	Balachor	HP	8.78	580	14	349	21	3	8	0.59	<0.10	13	13	119	5	9	84	5.59	4.47
210	Nawanshahar	Balachor	Mauhra	HP	8.51	695	14	307	36	0	44	0.42	<0.10	13	51	50	5.50	12	242	1.40	0.66
211	Nawanshahar	Hosiarpur	Mehandpur	HP	8.59	565	14	252	36	1	3	0.34	<0.10	8.40	41	39	6.50	11	189	1.23	0.81
212	Nawanshahar	Nawanshahar	Rahon	DW	8.36	1220	14	224	121	222	48	0.26	<0.10	12	61	111	103	15	273	2.88	-1.48
213	Nawanshahar	Nawanshahar	Behloor Kalan	HP	8.70	665	14	363	14	2	2	0.37	<0.10	13	26	90	10	17	137	3.32	3.63
214	Nawanshahar	Aur	Raipur Daba	TW	8.53	420	25	224	14.0	9	2	0.79	<0.10	8	36	38	7	10	168	1.27	1.12
215	Pathankot	Shri Govindpur	Bham	TW	8.50	333	36	146	14	18	<0.20	0.15	<0.10	24	22	30	4.6	23	150	1.06	0.59
216	Pathankot	Pathankot	Bhimpur Khanikui	HP	8.85	1108	108	317	64	40	60	0.60	<0.10	4	78	135	1.8	23	330	3.23	2.18
217	Pathankot	Pathankot	Gharota Kalan	HP	8.35	248	12	122	14	BDL	5.62	0.18	<0.10	24	9.73	20	1.5	25	100	0.87	0.40
218	Pathankot	Pathankot	Jakho Lahri	HP	8.36	292	24	98	14	10	13	0.13	<0.10	28	12	15	8.0	24	120	0.60	0.02
219	Pathankot	Pathankot	Sarna	DW	8.23	195	0	110	7.1	10	2.47	0.12	<0.10	24	19	10	1.2	26	90	0.37	-0.96
220	Pathankot	Dhar kalan	Nawan Pind	HP	8.20	196	0	110	14	5.0	2.00	0.15	<0.10	24	9.73	8	1.4	23	100	0.35	-0.20
221	Pathankot	Pathankot	Bhoa	DW	8.30	388	12	98	21	45	27	0.12	<0.10	28	15	28	9.7	28	130	1.06	-0.62
222	Pathankot	Bamyal	Bamyal	HP	8.28	750	0	122	85	168	3.34	0.08	<0.10	36	34	77	3.5	23	230	2.21	-2.59
223	Pathankot	Pathankot	Dhalorian	HP	8.32	250	12	110	14	BDL	11	0.11	<0.10	24	12	14	1.6	26	110	0.58	0.02
224	Pathankot	Pathankot	Ghoh	DW	8.10	540	0	232	35	12	46	0.22	<0.10	32	32	38	0.90	22	210	1.14	-0.43
225	Pathankot	Dhar kalan	Parmota	HP	8.50	280	24	171	7.1	BDL	9.11	0.22	<0.10	40	9.73	26	1.5	24	140	0.96	0.81
226	Pathankot	Narota Jaimal singh	Kiari	DW	8.35	228	24	110	7.1	BDL	4.24	0.18	<0.10	20	12	20	1.7	21	100	0.87	0.62
227	Pathankot	Dhar kalan	Kui	DW	8.05	525	0	134	71	52	14	0.25	<0.10	36	22	45	1.4	19	180	1.46	-1.41
228	Pathankot	Pathankot	Pathankot	TW	8.18	425	0	207	312	BDL	30	0.21	<0.10	40	17	30	1.1	26	170	1.00	0.00
229	Patiala	Rajpura	Hulka	HP	8.80	1290	41	573	35	78	0.35	0.55	<0.10	8	38	224	3	12	179	7.32	7.21
230	Patiala	Nabha	Chahal	TW	8.68	475	48	232	14	BDL	<0.20	0.46	<0.10	16	27	63	6.3	25	150	2.23	2.38
231	Patiala	Nabha	Bhojo Majri	TW	7.80	611	0	422	14	BDL	15	0.19	<0.10	48	32	59	4.0	21	250	1.62	1.89
232	Patiala	Nabha	Rajgarh	TW	8.74	740	60	293	25	15	14	0.49	<0.10	12	32	110	6.5	19	160	3.76	3.57
233	Patiala	Nabha	Ramgarh	TW	8.50	520	36	232	28	BDL	27	0.29	<0.10	16	39	50	5.2	20	200	1.54	1.00
234	Patiala	Nabha	Majhi	TW	8.78	812	72	305	64	5.00	18	0.29	<0.10	16.0	27	150	7.5	25	150	5.31	4.38

235	Patiala	Nabha	Sangatpura	TW	7.60	913	0	330	50	65	12.3	0.6	<0.10	48.0	39	86	23	29	280	2.24	-0.19
236	Patiala	Nabha	Kalyan	TW	7.58	965	0	370	100	70	9.7	0.7	<0.10	64.0	34	35	17.3	26	300	0.88	0.07
237	Patiala	Rajpura	Thuha	TW	8.32	1660	12	171	206	458	4.47	0.32	<0.10	28	51	302	0.7	22	280	7.86	-2.39
238	Patiala	Rajpura	Basma Pepla	HP	8.10	4060	0	195	666	665	358	0.49	<0.10	72	156	380	348	19	821	5.77	-13.23
239	Patiala	Ghanaur	Kami Kalan	HP	8.80	960	60	183	7.1	206	<0.20	0.42	<0.10	12	34	180	6.3	21	170	6.01	1.60
240	Patiala	Ghanaur	Lacharu kalan	HP	7.64	2740	0	360	365	470	7.6	1.30	<0.10	52	63	494	13	23	390	10.90	-1.88
241	Patiala	Ghanaur	Hari Majra	HP	8.47	3150	72	195	248	1022	9.04	0.98	<0.10	20	61	650	1.1	25	300	16.30	-0.42
242	Patiala	Bhuner Heri	Devi Garh	TW	8.67	842	84	244	28	138	<0.20	0.43	<0.10	16	39	150	2.7	22	200	4.61	2.79
243	Patiala	Bhuner Heri	Miranpur	TW	8.59	1220	72	232	142	195	<0.20	1.84	<0.10	16	41	235	5.5	19	210	7.08	2.03
244	Patiala	Patiala	Lachkani	TW	7.55	949	0	370	70	55	22	0.50	<0.10	21	32	133	28	29	182	4.27	2.38
245	Patiala	Nabha	Allowal	TW	8.72	742	60	281	50	18	28	0.32	<0.10	16	41	105	6.7	25	210	3.16	2.43
246	Patiala	Patiala	Birkauli	TW	8.67	1457	60	366	121	195	3.71	0.81	<0.10	12	46	255	7.4	22	220	7.49	3.62
247	Patiala	Rajpura	Rajpura	TW	8.88	1505	84	220	78	372	<0.20	4.12	<0.10	24	19	320	4.05	24	140	11.85	3.65
248	Patiala	Patrah	Patrah	TW	8.68	775	60	232	43	30	37	0.74	<0.10	12	46	85	10	18	220	2.50	1.42
249	Patiala	Sanour	Mardan heri	TW	8.62	1072	48	366	106	24	23	0.39	<0.10	8.0	56	145	9.35	20	250	3.99	2.59
250	Patiala	Samana	Behmana	TW	8.65	948	72	305	14	128	<0.20	0.95	<0.10	4.0	2.43	235	1.0	22	20	22.87	7.00
251	Patiala	Samana	Samana	TW	8.45	1005	36	171	113	100	118	0.25	<0.10	20	39	140	43	26	210	4.20	-0.20
252	Patiala	Samana	Dakrba	TW	8.22	355	0	202	11	12.0	13	0.32	<0.10	16	29	20	2.4	23	160	0.69	0.13
253	Ropar	Nurpur Bedi	Dumewal	HP	7.92	810	0	84	64	226	10	0.10	<0.10	67	38	34	3	10	326	0.82	-5.09
254	Ropar	Anandpur Sahib	Bhalan	HP	8.21	840	0	321	64	26	52	0.17	<0.10	21	51	50	40	10	263	1.34	0.02
255	Ropar	Anandpur Sahib	Brahampur	DW	8.50	300	14	70	28	17	12	0.18	<0.10	34	10	9.5	0.80	8	126	0.37	-0.91
256	Ropar	Anandpur Sahib	Dher	TW	8.29	480	0	224	36	17	2	0.23	<0.10	30	28	27	4	11	189	0.85	-0.13
257	Ropar	Rup Nagar	Chak Dehra	HP	8.35	900	27	154	70	129	43	0.17	<0.10	17	59	61	19	12	284	1.57	-2.28
258	Ropar	Rup Nagar	Ahemadpur	HP	8.49	420	14	182	21	0	5.20	0.98	<0.10	21	10	25	13	10	137	1.12	1.58
259	Ropar	Rup Nagar	Bara Chauta	HP	8.42	665	14	196	78	36	13	0.60	<0.10	21	33	68	3	8	189	2.16	-0.08
260	Ropar	Chamkaur sahib	Rurkee Heeran	TW	8.45	475	14	232	21	4	5.90	0.54	<0.10	17	23	49	7	9	137	1.82	1.53

261	Ropar	Morinda	Kakrali	TW	8.44	520	14	174	57	6	17	0.33	<0.10	21	33	31	7	10	189	0.98	-0.44
262	Ropar	Morinda	Chitamli	TW	8.74	670	14	276	64	4	17	0.51	<0.10	13	59	35	6	12	273	0.92	-0.51
263	Ropar	Rup Nagar	Hardo Namo	HP	8.71	695	14	409	14	2	12	0.61	<0.10	8.40	43	85	4	11	200	2.63	3.21
264	Sangrur	Amargarh	Maler Kotla	DW	8.65	902	60	293	57	35	57	0.49	<0.10	16	39	135	12	25	200	4.15	2.80
265	Sangrur	Maler Kotla II	Manvi	HP	7.68	329	0	150	25	24	5.7	0.3	<0.10	44	22	19	6.4	13.1	200	0.58	-1.55
266	Sangrur	Maler Kotla II	Bagarian	TW	8.60	395	36	220	14	BDL	<0.20	0.29	<0.10	16	17	70	2.5	16	110	2.91	2.61
267	Sangrur	Dhuri	Bhojowal	TW	8.90	1715	108	683	113	12	30	0.65	<0.10	12	29	360	6.0	18	150	12.82	11.81
268	Sangrur	Dhuri	Behra	TW	8.75	690	60	305	14	25	12	0.22	<0.10	4.0	36	110	6.9	20	160	3.81	3.84
269	Sangrur	Dhuri	Ladda	TW	8.70	552	60	232	21	BDL	23	0.39	<0.10	12	27	90	6.45	23	140	3.30	2.98
270	Sangrur	Dhuri	Ghanauri Kalan	HP	8.75	532	60	244	14	BDL	13	0.42	<0.10	8.0	29	86	7.0	21	140	3.17	3.21
271	Sangrur	Dhuri	Bugra	TW	8.75	1157	72	488	78	BDL	41	0.39	<0.10	8.0	68	165	8.4	20	300	4.15	4.41
272	Sangrur	Sangrur	Longowal	TW	8.92	1295	120	549	43	25	14	0.36	<0.10	8.0	36	265	5.9	18	170	8.89	9.64
273	Sangrur	Sangrur	Badru khan	TW	9.10	1650	156	645	43	58	20	0.77	<0.10	4.0	19	385	4.4	17	90	17.84	14.01
274	Sangrur	Sunam	Sunam	TW	8.60	800	36	207	64	12	105	0.15	<0.10	16	27	120	7.7	20	150	4.25	1.57
275	Sangrur	Lehra Gaga	Chural Kalan	TW	8.16	1097	70	440	60	85	6.4	1.2	<0.10	26.0	33	212	7.0	28	200	6.51	5.53
276	Sangrur	Andana	Bhulan	TW	7.86	1441	50	380	130	175	18.6	0.9	<0.10	48.0	106	83	69	26	560	1.53	-3.22
277	SAS Nagar	Kharar	Landran	HP	8.71	1080	14	447	43	72	38	0.43	<0.10	13	33	157	35	8	168	5.27	4.43
278	SAS Nagar	Kharar	Goga	DW	8.67	450	14	261	21	0	2	0.37	<0.10	17	38	30	1	9	200	0.93	0.77
279	SAS Nagar	SAS Nagar	Banur	TW	8.54	615	14	293	28	23	15	0.44	<0.10	8	18	111	2	11	95	4.95	3.37
280	SAS Nagar	Kharar	Dheri	HP	8.54	695	14	252	71	31	0.40	0.32	<0.10	8	33	93	1	13	158	3.23	1.46
281	SAS Nagar	Dera Bassi	Sawara	HP	8.09	1485	0	265	255	124	89	0.32	<0.10	42	95	120	19	16	494	2.35	-5.57
282	SAS Nagar		Nariana	TW	8.87	1560	14	685	92	100	21	1.52	<0.10	8.41	41	294	5	12	189	9.29	7.90
283	SAS Nagar	Dera Bassi	Chhat	HP	8.65	1590	14	545	85	201	24	0.32	<0.10	8.41	43	281	6	11	200	8.69	5.44
284	SAS Nagar	Dera Bassi	Issapur	DW	7.89	6480	10	380	215	880	342	0.8	<0.10	360	14	820	315	24.6	1490	11.54	-12.55
285	SAS Nagar	Dera Bassi	Dera Bassi	TW	7.79	3200	0	450	105	320	407	0.4	<0.10	220	111	329	7	25	1010	4.51	-12.73
286	SAS Nagar	Dera Bassi	Joli	HP	7.68	1450	0	349	106	260	39	0.40	<0.10	13	38	251	3	16	189	7.95	1.95
287	SAS Nagar	Dera Bassi	Handesra	TW	8.28	890	0	377	99	20	2	0.34	<0.10	13	26	153	2.20	11	137	5.64	3.39

288	SAS Nagar	Dera Bassi	Sirsini	HP	9.01	2590	14	182	432	569	1	0.44	<0.10	88	163	215	11	15	893	3.14	-14.35
289	SAS Nagar	Dera Bassi	Antala	HP	8.17	650	0	252	64	24	17	0.32	<0.10	21	44	47	2	9	231	1.34	-0.54
290	SAS Nagar	Dera Bassi	Gholu Majra	TW	8.01	1260	0	699	28	61	1	1.52	<0.10	8	28	247	3	9	137	9.21	8.73
291	Tarn Taran	Tarn Taran	Daburji	TW	8.55	362	36	134	14	BDL	7.98	0.38	<0.10	16	22	30	7.7	23	130	1.14	0.79
292	Tarn Taran	Khadur sahib	Khadur sahib	TW	8.24	1180	0	244	199	48	120	0.20	<0.10	48	58	120	8	25	360	2.76	-3.17
293	Tarn Taran	Gandiwind	Goindwal Sahib	DW	8.80	422	60	183	7.1	BDL	<0.20	0.30	<0.10	12	9.7	76	4.2	26	90	3.96	3.60
294	Tarn Taran	Chola Sahib	Chola Sahib	TW	8.60	510	36	183	21	34	17	0.35	<0.10	12	29	62	7.0	30	150	2.21	1.22
295	Tarn Taran	Patti	Barwala	HP	8.98	1700	180	720	50	BDL	8.20	2.70	<0.10	8	7.30	420	11	25	50	25.84	16.80
296	Tarn Taran	Valtoha	Rattoke	TW	8.95	1670	84	537	120	88	48	6.50	<0.10	16	17	360	6.9	26	110	14.94	9.40
297	Tarn Taran	Bhikhiwind	Kalsian kalan	TW	8.57	705	48	171	43	80	23	0.60	<0.10	20	34	85	10	23	190	2.68	0.61
298	Tarn Taran	Bhikhiwind	Bhikhi wind	TW	8.90	1240	84	391	50	108	40	1.60	<0.10	16	27	240	7.6	24	150	8.50	6.19
299	Tarn Taran	Bhikhiwind	Aminsha Khalra	TW	8.95	1720	132	708	57	20	0.28	8.00	<0.10	18	17	380	5.4	21	90	15.43	13.71
300	Tarn Taran	Tarn Taran	Chabal	TW	8.90	1712	144	488	170	35	70	2.00	<0.10	8	61	320	11	20	270	8.46	7.38
301	Tarn Taran	Gandi wind	Gandi wind	HP	9.02	1115	120	525	14	BDL	7.74	1.60	<0.10	4	24	250	11	18	110	10.43	10.43
302	Tarn Taran	Naushera Panun	Sahab pura	TW	8.97	915	96	378	21	72	<0.20	1.10	<0.10	12	22	205	15	29	120	8.13	6.99

Note : Red colour Indicate That The Samples Analysed Through PPCB at PBTI Punjab

S. No	District	Location	Source	pH*	EC* in µS/cm at 250 C	CO3	HCO3	Cl*	SO4	NO3*	F*	PO4	Ca*	Mg*	Na	K	SiO2	TH *as CaCO3	SAR	RSC					
						mg/l																		meq/l	meq/l
1	Chandigarh	Sector-46	TW	8.12	260	0	112	21	4	3	<0.05	<0.10	25	13	5	1.8	10	116	0.20	-0.48					
2	Chandigarh	Sector-37	TW	8.23	310	0	140	21	15	2	0.26	<0.10	25	20	6	1.8	11	147	0.22	-0.60					
3	Chandigarh	IMD Sector-39	TW	8.23	310	0	126	36	8	2	<0.05	<0.10	25	20	6.4	1.8	9	147	0.23	-0.83					
4	Chandigarh	Sector-39D	HP	7.92	395	0	168	36	30	9	0.38	<0.10	17	33	21	1	14	179	0.68	-0.81					
5	Chandigarh	Maloya	TW	8.26	735	0	210	71	17	85	0.26	<0.10	21	31	80	5	12	179	2.59	-0.16					
6	Chandigarh	Sector 38 West	HP	7.87	560	0	210	43	51	11	0.19	<0.10	25	36	38	1	15	210	1.14	-0.77					
7	Chandigarh	Sector 10C	TW	8.21	350	0	126	28	24	3	0.44	<0.10	17	28	5	1.8	10	158	0.17	-1.09					
8	Chandigarh	Leisure valley	TW	8.24	285	0	98	14	43	3	0.13	<0.10	30	15	4	1.8	9	137	0.15	-1.12					
9	Chandigarh	Sector 31D	TW	8.66	550	14	279	21	2	<0.20	0.23	<0.10	17	10	91	1.4	7	84	4.33	3.37					
10	Chandigarh	Burail	DW	7.99	235	0	122	21	5	3	0.19	<0.10	34	10	4.3	1.8	10	126	0.17	-0.52					

