BRINGING KRISHI AND VIGYAN TOGETHER

Krishi Care & Management Services Pvt.Ltd.

KHARIF 2021 PROGRESSION REPORT

- 15th July 2021

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INTRODUCTION

Rainfall

For District level , the Actual R/F is the simple Arithmetic average P in eq(1) while for subdivision, state, homogenous regions and country as a whole the Area weighted rainfall “Actual R/F” is defined as Psubdivision, P state, Phomogenous and Pcountry respectively in the points b, c and d above. Departure (As %) = (Actual R/F – Normal R/F)x 100 / Normal R/F

Departures (%) are categorized into Normal, Excess, Large Excess, Deficient and Large Deficient depending as per the ranges defined in Table-2 for spatial domain of District, Met Sub division and State/UT. Each category is associated with the color representing each of the categories.

CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
Large Excess (LE or L. Excess)	= 60%	
Excess (E)	= 20% and = 59%	
Normal (N)	= - 19% and = + 19%	
Deficient (D)	= - 59% and = - 20%	
Large Deficient (L. Deficient)	= - 99% and = - 60%	
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

Soil Wetness Index (SWI)

The Soil Water Index quantifies the moisture condition at various depths in the soil. It is mainly driven by the precipitation via the process of infiltration. Soil moisture is a very heterogeneous variable and varies on small scales with soil properties and drainage patterns. Satellite measurements integrate over relative large-scale areas, with the presence of vegetation adding complexity to the interpretation. The soil moisture, up to 5cm soil depth, is recognized as an Essential Climate Variable (ECV) by the Global Climate Observing System (GCOS).

Normalized Difference Vegetation Index (NDVI)

The normalized difference vegetation index (NDVI), which is derived from remote-sensing(satellite) data, is closely linked to drought conditions. To determine the density of green on a patch of land, the distinct colors (wavelengths) of visible and near-infrared sunlight reflected by the plants are observed. Range of NDVI is −1 to +1. Higher value of NDVI refers to healthy and dense vegetation. Lower NDVI values show sparse vegetation.

(NIR - RED) / (NIR + RED)

Vegetation Health (VH) System: Background and Explanation

No noise Normalized Difference Vegetation Index (SMN) The System contains the following vegetation health indices and products: Vegetation Condition index (VCI), Temperature Condition index (TCI), Vegetation Health index (VHI) VH is a product estimating vegetation health (condition) base on moisture conditions (VCI), thermal conditions (TCI) and their combination (VHI). VH is used often to estimate crop condition and anticipated yield. If the indices are below 40 indicating different level of vegetation stress, losses of crop and pasture production might be expected; if the indices above 60 (favorable condition) plentiful production might be expected. VH is very useful for an advanced prediction of crop losses.

No noise (smoothed) Normalized Difference Vegetation Index (SMN)

The SMN is derived from no noise NDVI, which components were pre- and post-launch calibrated. SMN can be used to estimate the start and senescence of vegetation, start of the growing season, phenological phases.

Vegetation Condition index (VCI)

VCI is based on the pre and post-launch calibrated radiances converted to the no noise Normalized Difference Vegetation Index (NDVI = (NIR-VIS)/(NIR+VIS)). The VCI was expressed as NDVI anomaly relative to 25-year climatology estimated based on bio-physical and ecosystem laws (law-of-minimum, law-of-tolerance and carrying capacity). VCI is a proxy for moisture condition.

(VCI <40 indicates moisture stress; VCI >60: favorable condition)

Temperature Condition index (TCI)

TCI is based on 10.3-11.3 µm AVHRR's radiance measurements converted to brightness temperature (BT), which was improved through completely removed high frequency noise. BT was expressed as an anomaly relative to 25-year climatology estimated based on bio-physical and ecosystem laws (law-of-minimum, law-of- tolerance and carrying capacity). TCI is a proxy for thermal condition.

(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Health index (VHI)

VHI=a*VCI + (1- a)*TCI, where 'a' is a coefficient determining contribution of the two indices. VHI is a proxy characterizing vegetation health or a combine estimation of moisture and thermal conditions.

(VHI <40 indicates vegetation stress; VHI >60: favorable condition)

(VHI<15 indicates drought from severe-to-exceptional intensity)

(VHI<35 indicates drought from moderate-to-exceptional intensity)

(VHI>65 indicates good vegetation condition)

(VHI>85 indicates very good vegetation condition)

CHATTISGARH

Out of the total geographical area of 137.36 lakh hectares of Chattisgarh, 34.80% i.e. 47.79 lakh ha is the net sown area.

Kharif Major Crops

Paddy is the principal crop and the central plains of Chattisgarh are known as rice bowl of central India. Other major crops include gram, maize and tur. Soybean, rape and mustard seed are also grown in some parts of the state.

Agro-climatic Zones of Chattisgarh

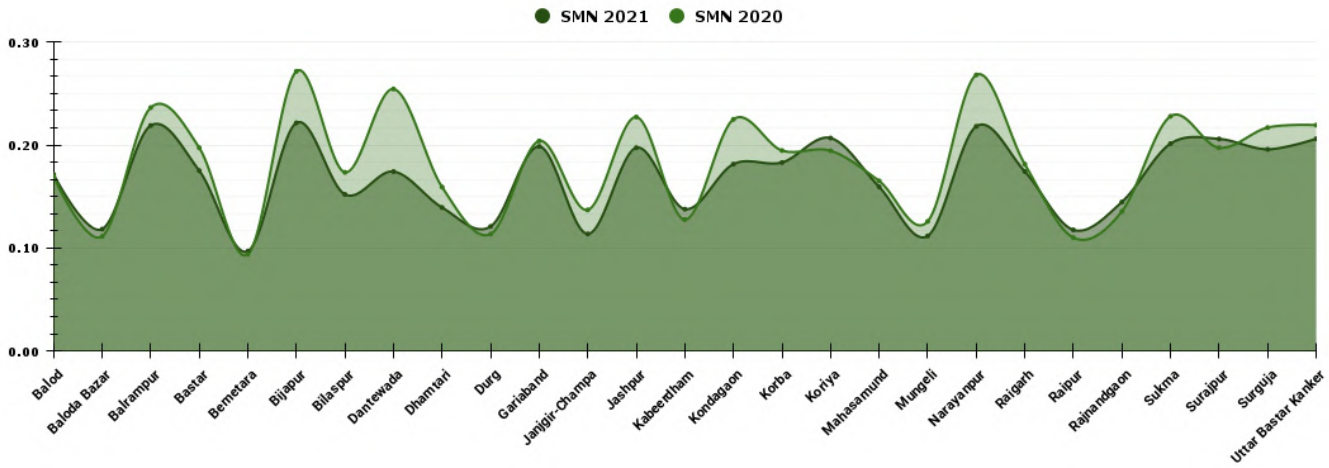
S. No.	Agro-Climatic zone	Districts
1	Bastar Plateau Zone	Sukma, Narayanpur, Kondagaon, Dantewada, Bijapur, Bastar
2	Chhattisgarh Plain Zone	Rajnandgaon, Raipur, Raigarh, Mungeli, Mahasamund, Korba, Kanker, Kabirdham, Janjgir-Champa, Gariaband, Durg, Dhamtari, Bilaspur, Bemetara, Baloda Bazar, Balod
3	North Hills Zone	Surguja, Surajpur, Korea (Koriya), Jashpur, Balrampur

Reservoir Storage Status

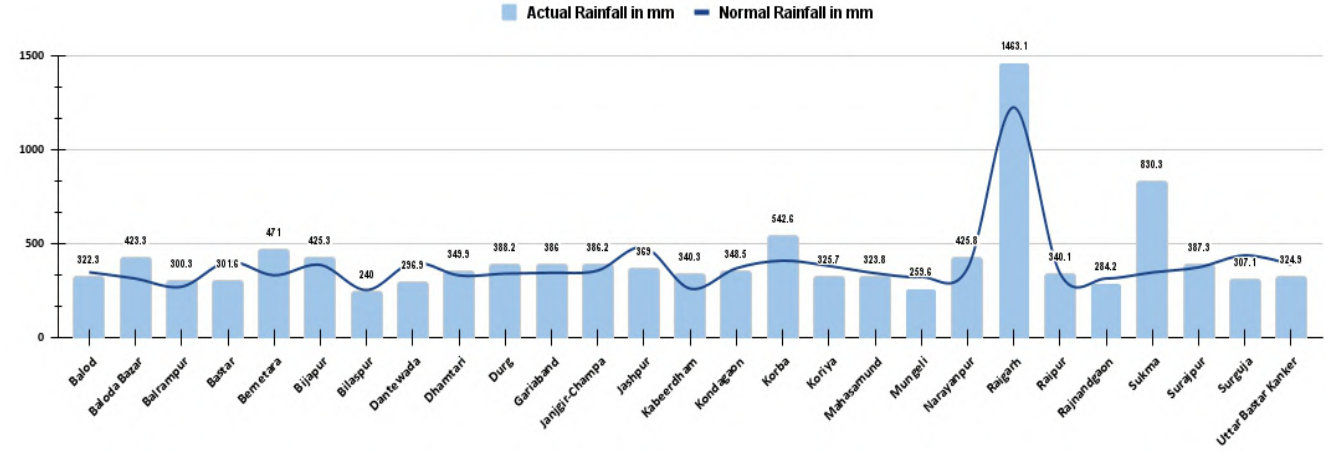
NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
MINIMATA BANGO	359.66	3.046	353.65	1.934	356.94	2.434
MAHANADI	348.7	0.767	342.86	0.312	344.15	0.392
DUDHAWA	425.1	0.284	416.69	0.055	423.01	0.198
TANDULA	332.2	0.312	323.18	0.029	326.17	0.087

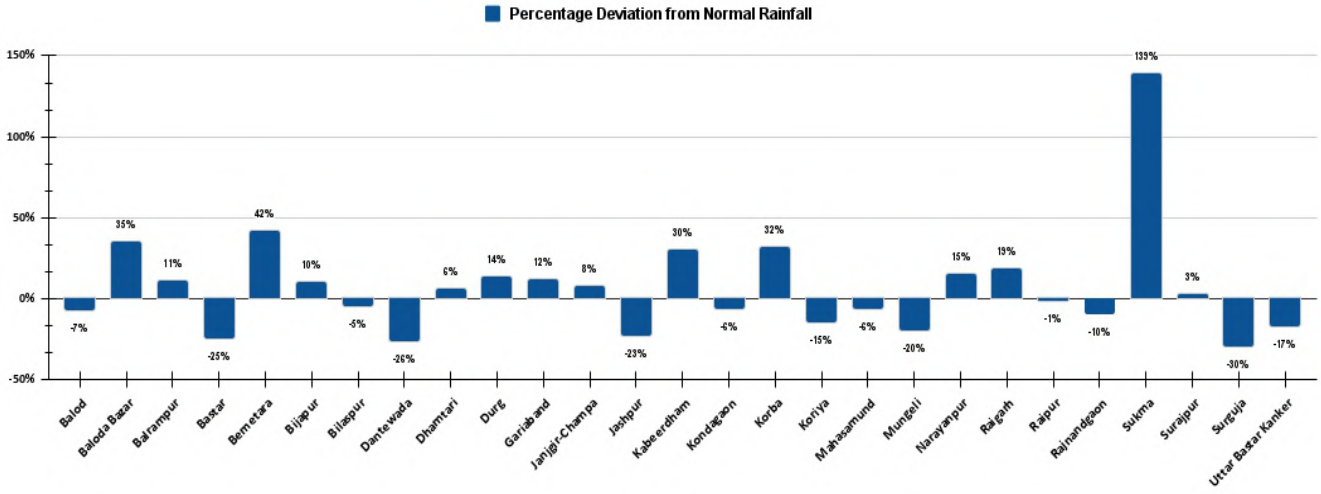
LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
80	79
51	80
70	28
28	33

Smoothed Normalized Difference Vegetation Index (SMN)



Rainfall





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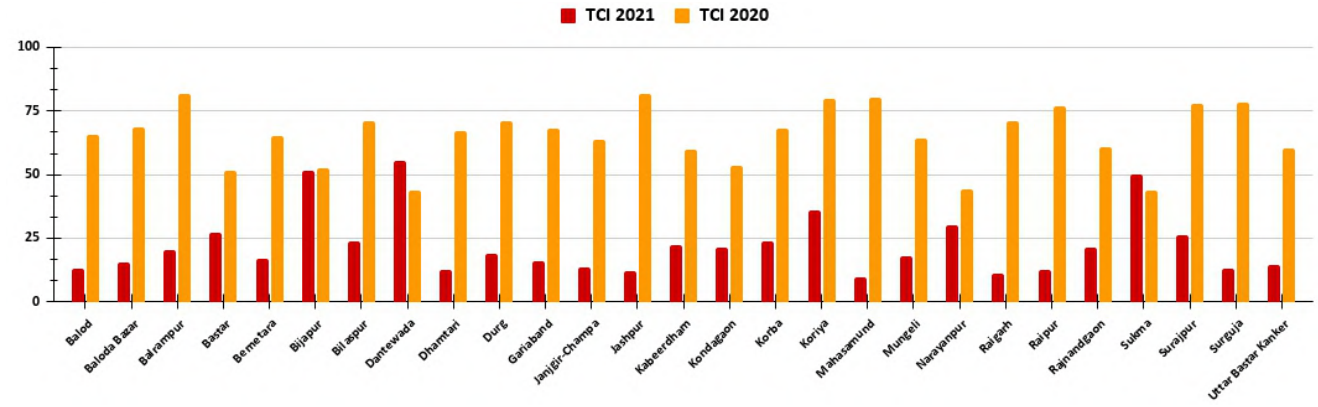
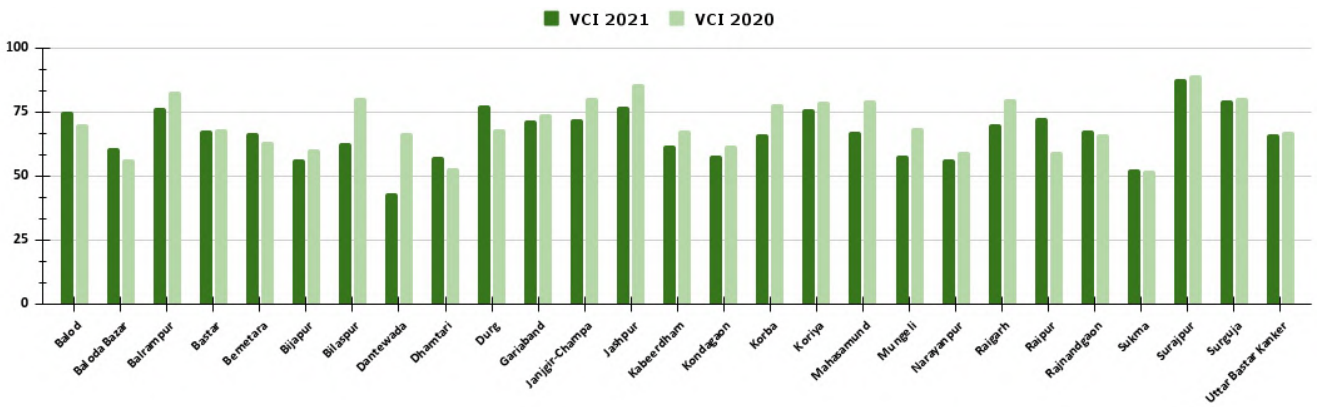
Temperature Condition Index (TCI)



(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



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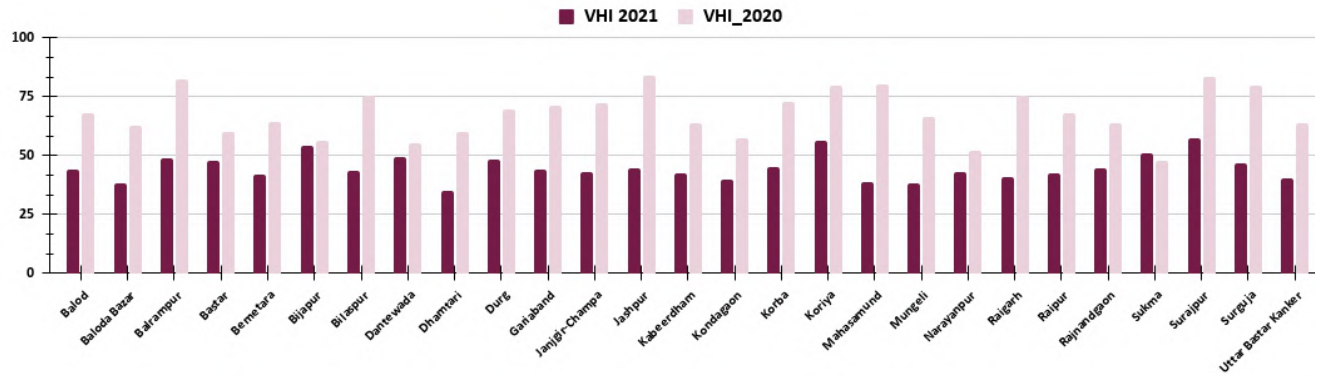
Vegetation Health Index (VHI)



(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
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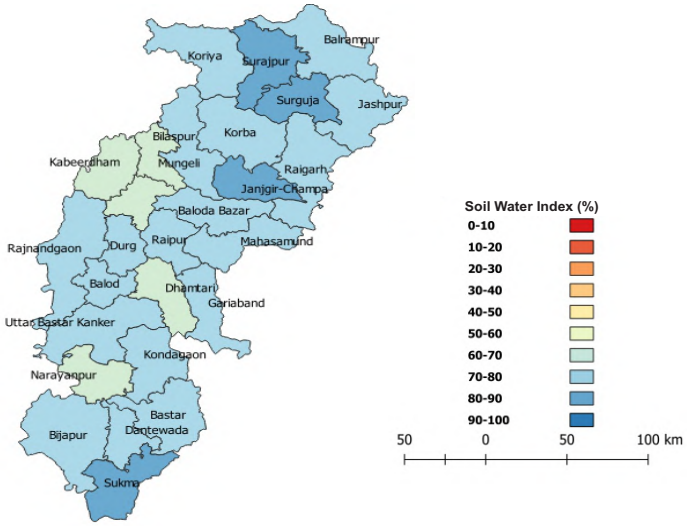
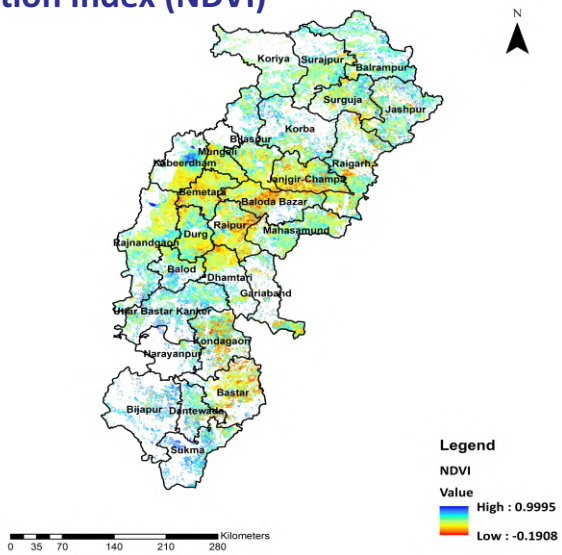
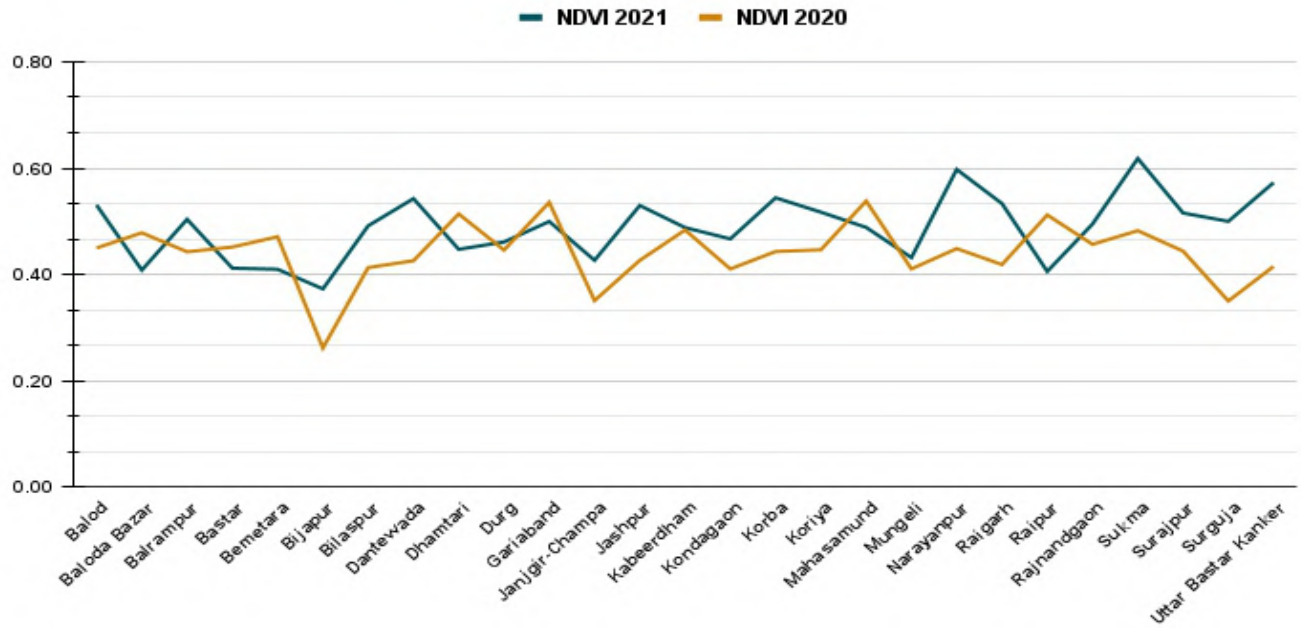
Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

HARYANA

The cultivable area is 3.809 million hectare (86.2%of total geographical area) and the net area sown is 3.566 million hectare (93.6% of cultivable area) and the percentage of net irrigated sown area is 82.3%.

Kharif Major Crops

The main crops in the state include sugarcane, groundnut, maize and paddy etc. The minor Kharif crops are Chillies, Bajra, Jowar, Pulses and vegetables.

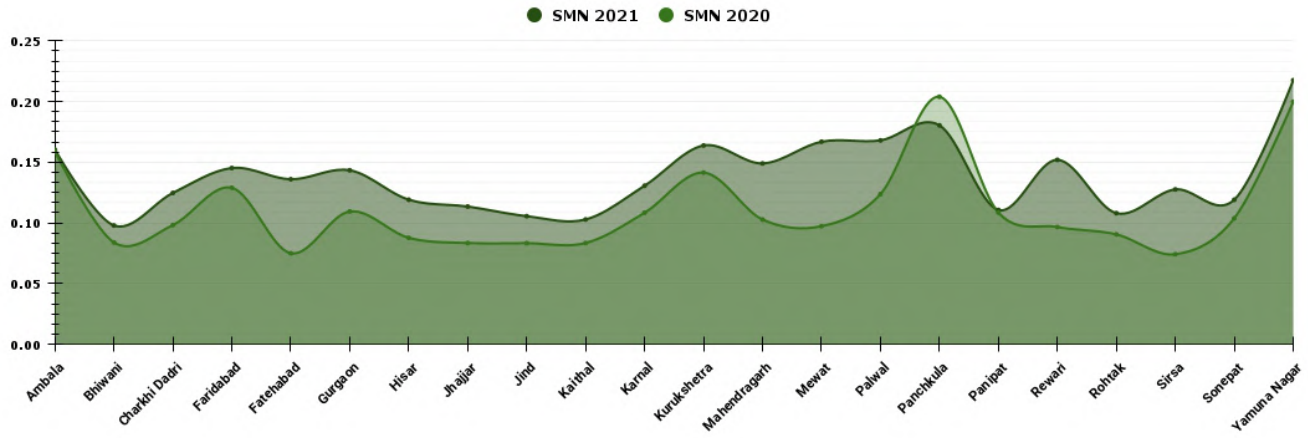
Agro-climatic Zones of Haryana

S. N.	Agro-Climatic Regions	Districts
1	Eastern Zone	Ambala, Faridabad, Gurgaon, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Panipat, Rohtak, Sonipat, Yamunanagar
2	Western Zone	Bhiwani, Fatehabad, Hisar, Mahendragarh, Rewari, Sirsa

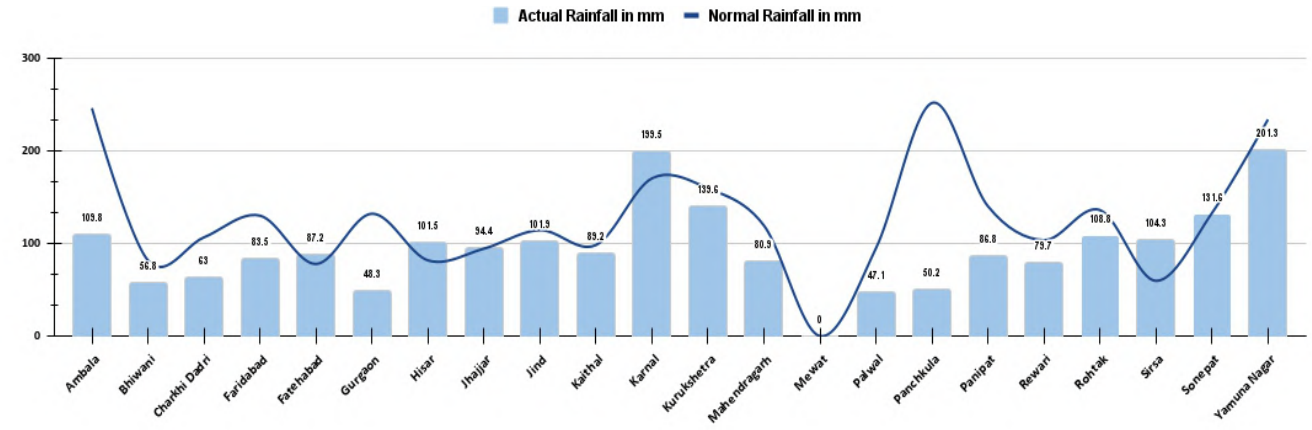
Reservoir Storage Status

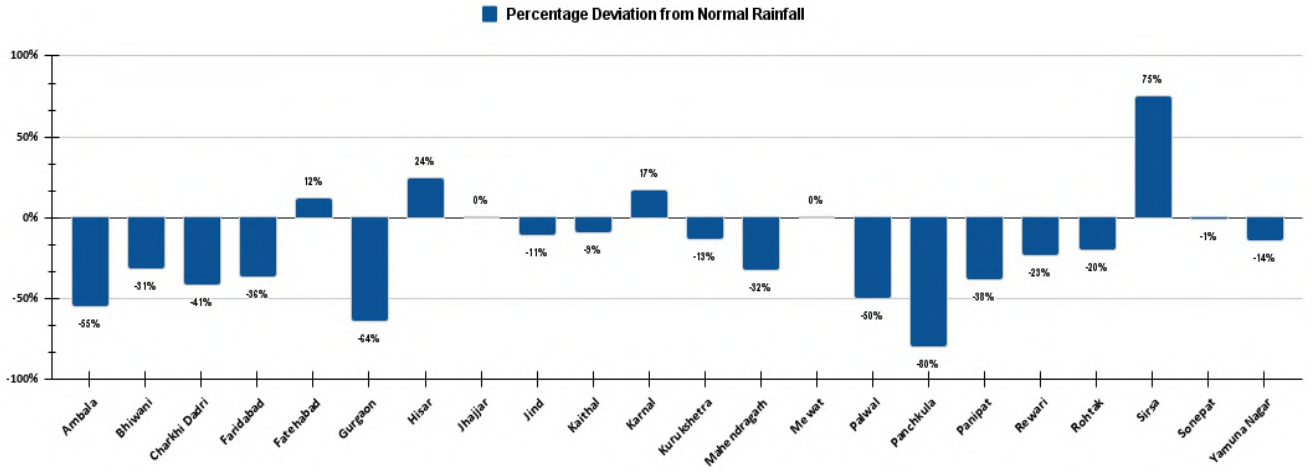
Not Available

Smoothed Normalized Difference Vegetation Index (SMN)



Rainfall





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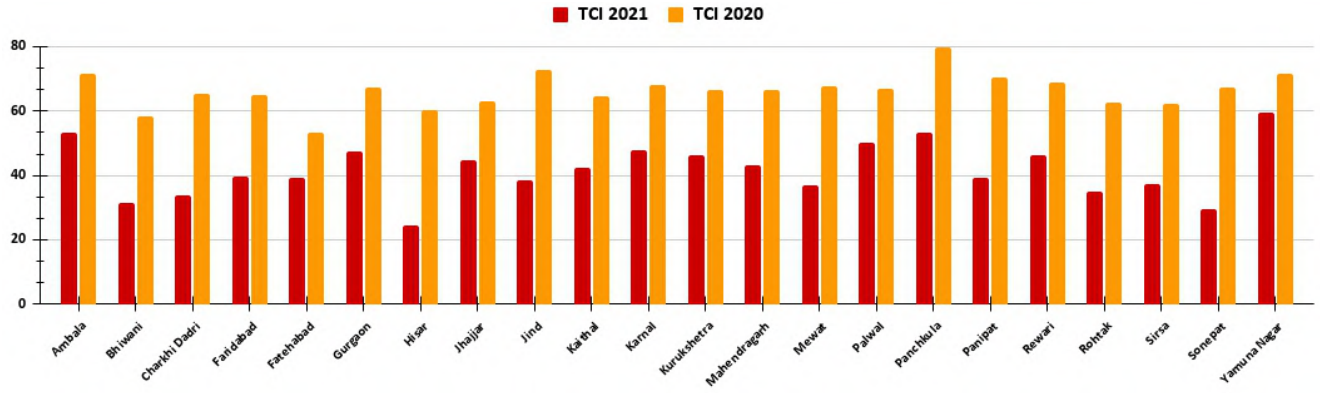
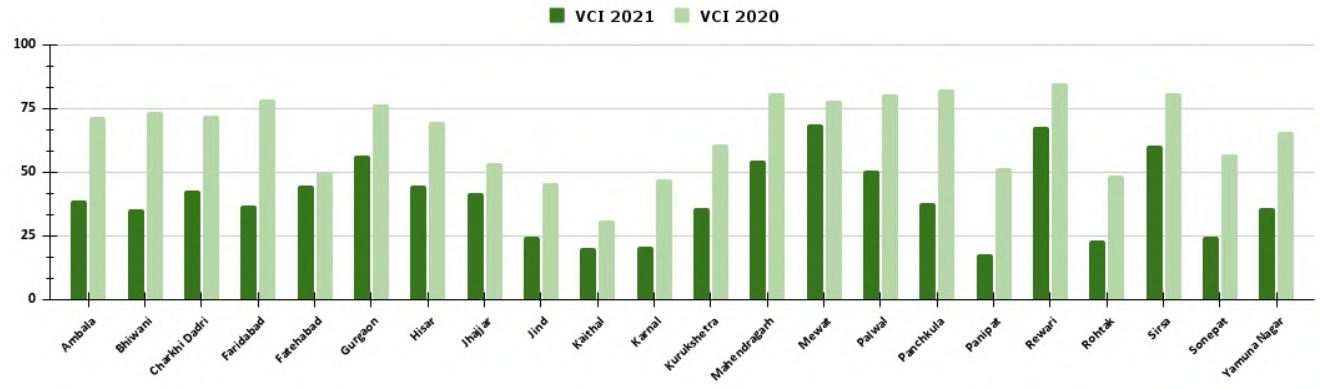
Temperature Condition Index (TCI)



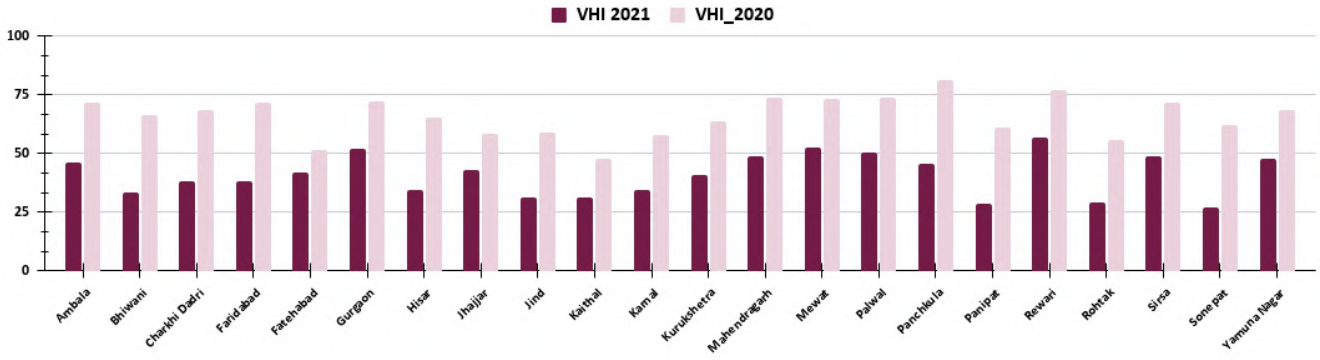
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

Vegetation Health Index (VHI)



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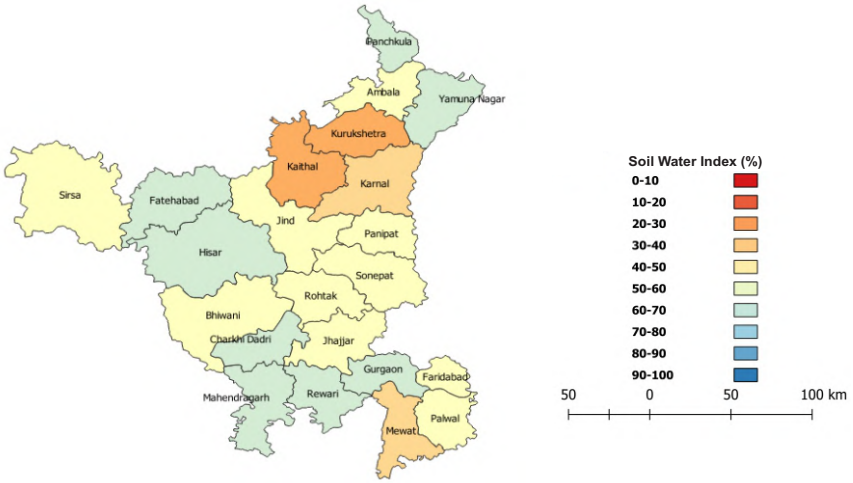
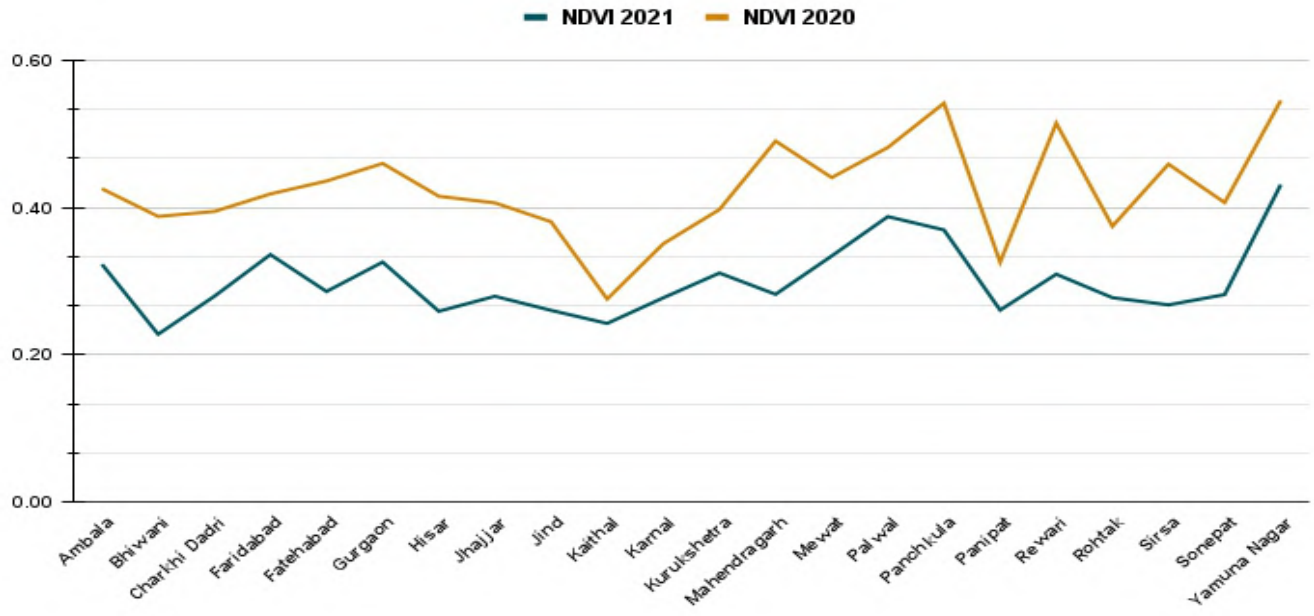
Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)



<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

KARNATAKA

The cultivable area of the state is 66.1%. This includes the net sown area (55.1%). The state has 1.3 million ha under paddy cultivation which is both irrigated and rainfed.

Kharif Major Crops

Maize, Jowar, Great millet, Bajra, Green gram, Groundnut, Cotton and Soybean are the major crops grown in Kharif season.

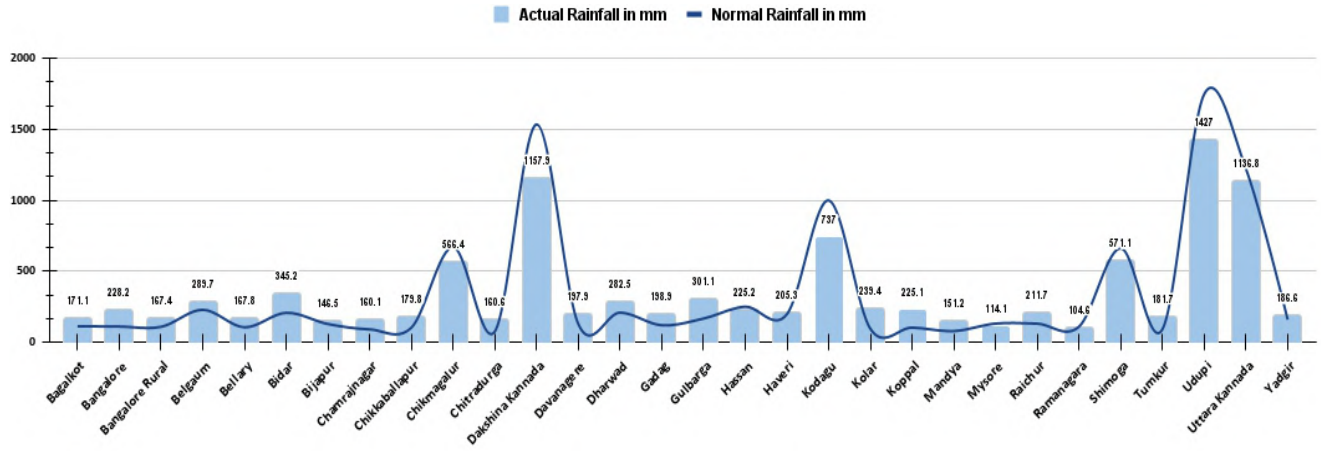
Agro-climatic Zones of Karnataka

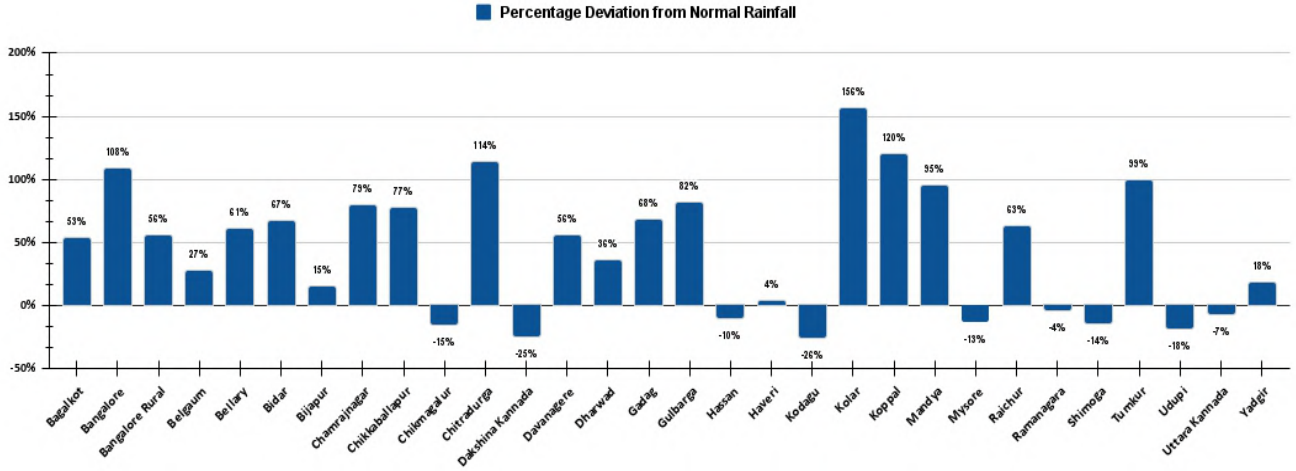
Sr. No	Agro-Climatic zone	Districts
1	Central Dry Zone	Tumkuru, Davanagere, Chitradurga, Chikkamagaluru
2	Coastal Zone	Udupi, Dakshina Kannada
3	Eastern Dry Zone	Kolara, Chikkaballapur, Bengaluru Urban, Bengaluru Rural
4	Hill Zone	Shivamogga, Kodagu, Uttara Kannada
5	North East Transition Zone	Bidar
6	North Eastern Dry Zone	Yadgir, Raichur, Gulbarga
7	Northern Dry Zone	Bellari, Koppala, Gadag, Dharwad, Vijaypura, Belagavi, Bagalkot
8	Northern Transition Zone	Haveri
9	Southern Dry Zone	Mysuru, Mandya, Hassan
10	Southern Transition Zone	Ramanagar, Chamarajanagar

Reservoir Storage Status

NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON		LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)		
KRISHNARAJA SAGARA	752.5	1.163	741.78	0.320	746.30	0.626	54	51
TUNGABHADRA	497.74	3.276	490.99	1.045	488.66	0.678	21	154
GHATAPRABHA(HIDKAL)	662.95	1.391	652.24	0.706	648.75	0.539	39	131
BHADRA	657.76	1.785	649.53	0.948	646.18	0.686	38	138
LINGANAMAKKI	554.43	4.294	545.01	1.967	538.28	0.978	23	201
NARAYANPUR	492.25	0.863	491.52	0.646	491.67	0.665	77	97
MALAPRABHA(RENUKA)	633.83	0.972	629.11	0.470	627.32	0.332	34	142
KABINI	696.66	0.444	694.55	0.353	692.20	0.236	53	150
HEMAVATHY	890.63	0.927	883.67	0.506	881.37	0.386	42	131
HARANGI	871.42	0.22	869.81	0.179	869.14	0.165	75	108
SUPA	564	4.12	540.00	1.761	532.82	1.267	31	139
VANI VILAS SAGAR	652.28	0.802	642.84	0.253	639.10	0.144	18	176
ALMATTI	519.6	3.105	517.68	2.293	517.50	2.226	72	103
GERUSOPPA	55	0.13	50.44	0.104	48.96	0.097	75	107
MANI DAM	594.36	0.884	575.46	0.164	574.96	0.154	17	106
TATTIHALLA	468.3	0.249	458.20	0.063	451.65	0.010	4	630

Rainfall





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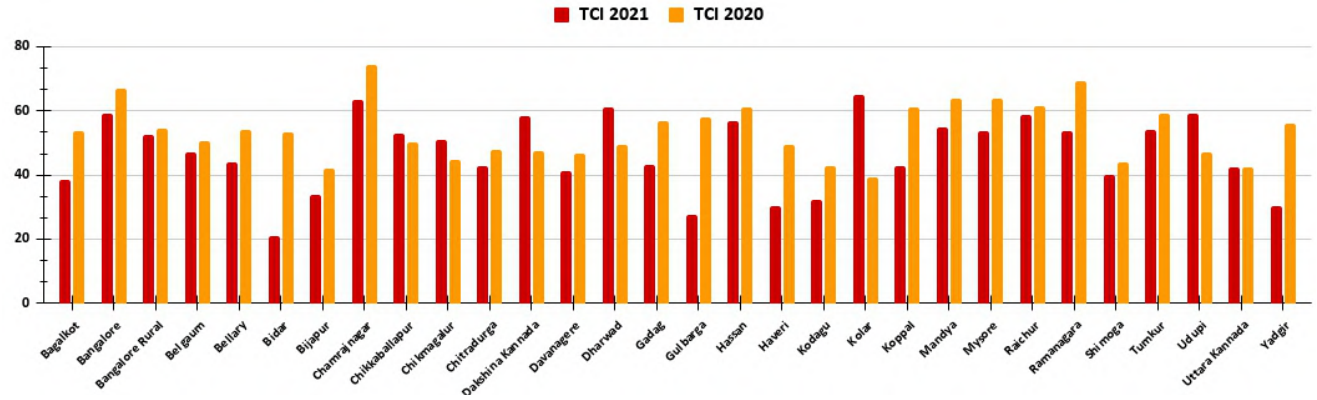
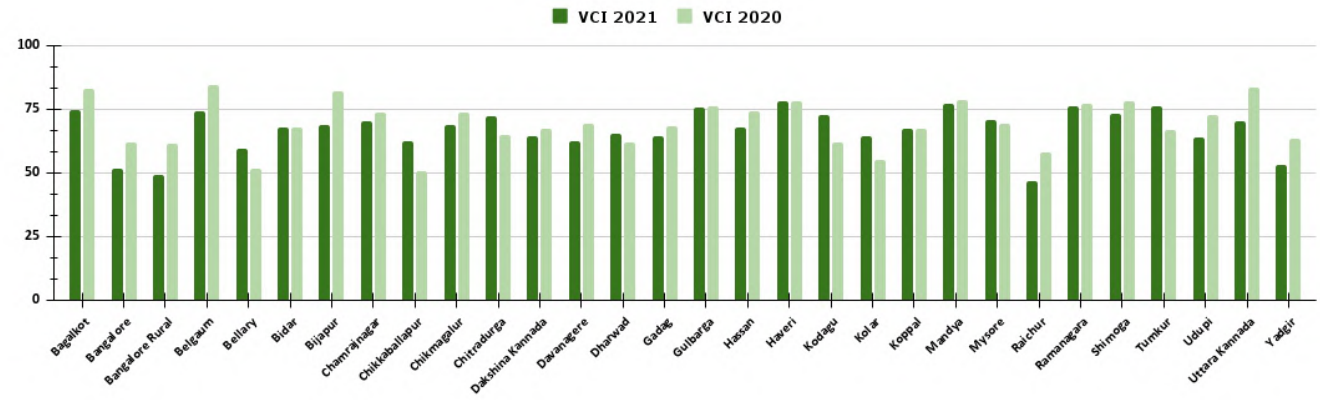
Temperature Condition Index (TCI)



(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



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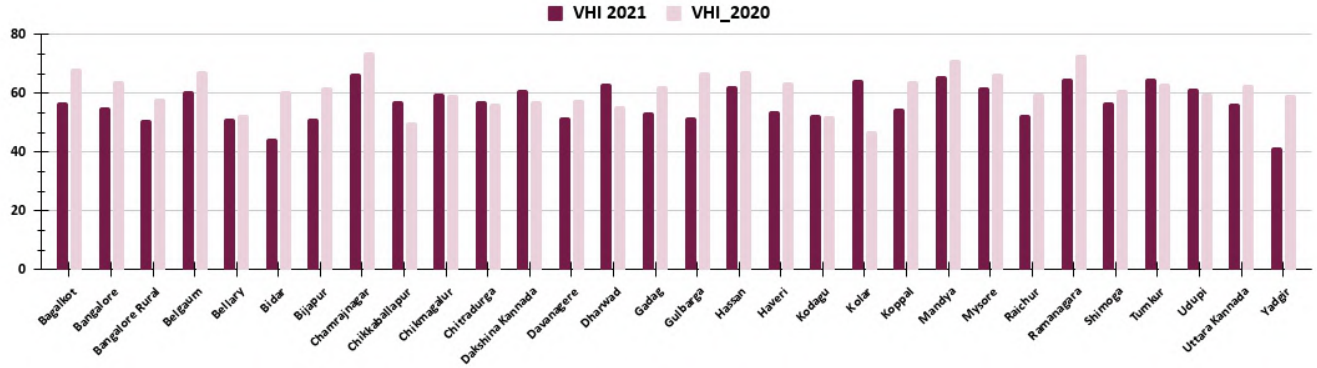
Vegetation Health Index (VHI)



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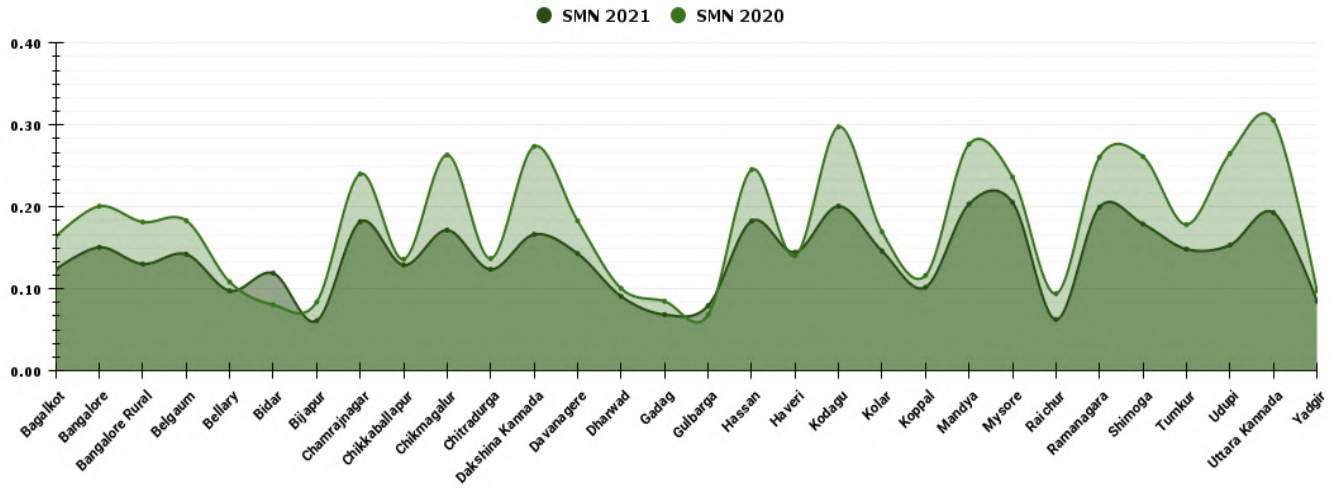
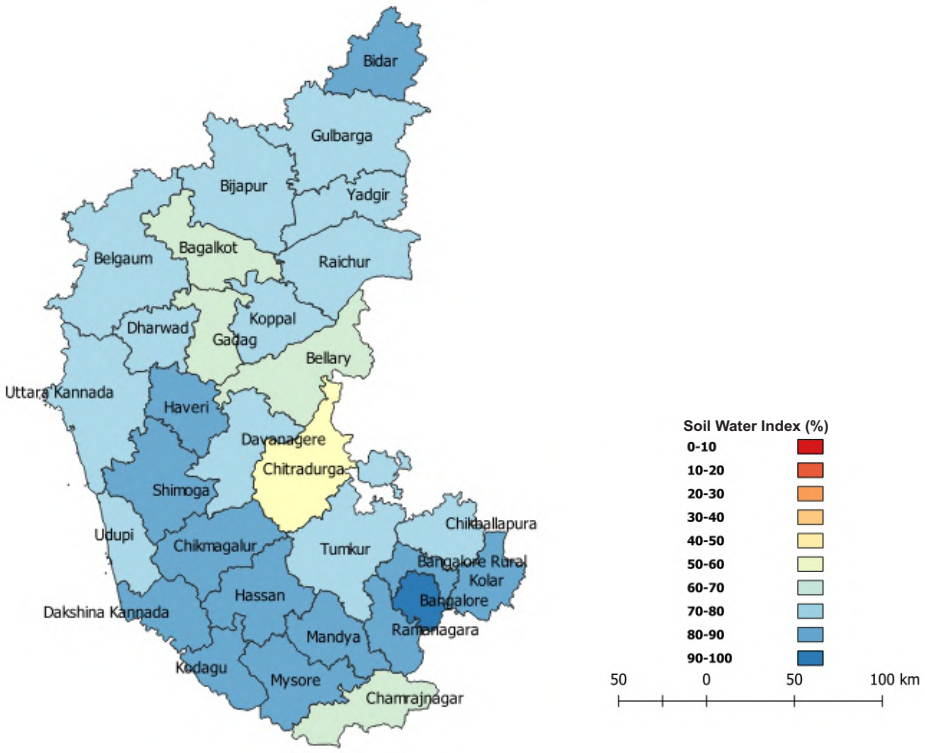
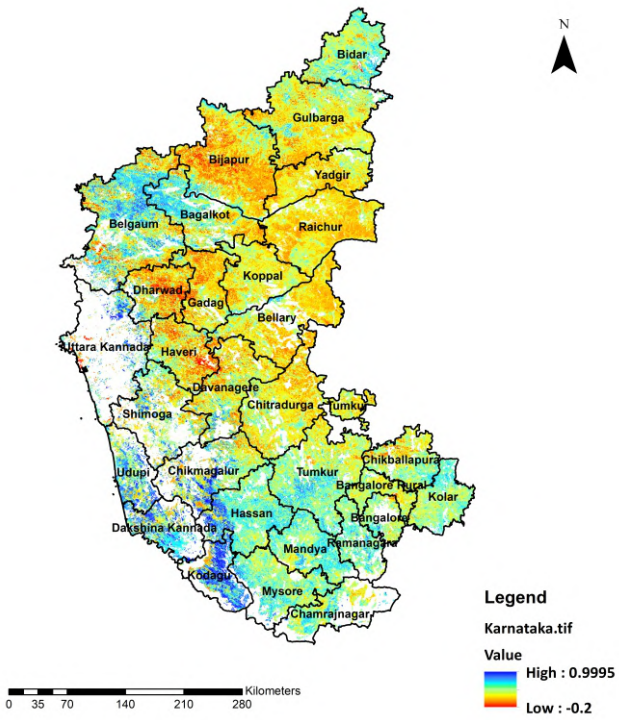
Smoothed Normalized Difference Vegetation Index (SMN)

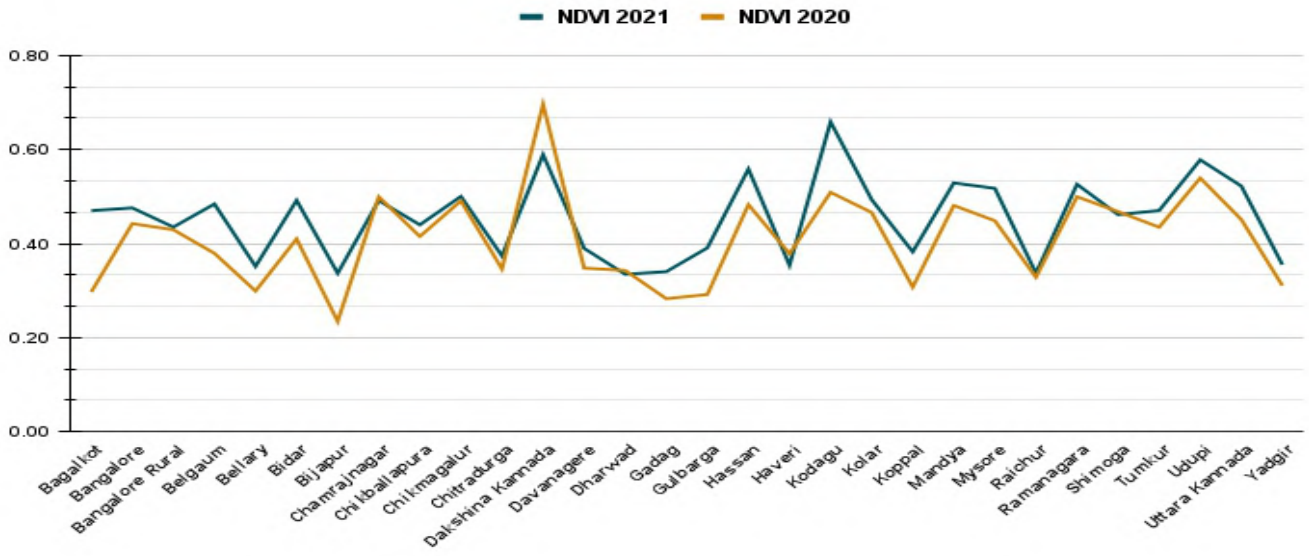


Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

RAJASTHAN

The cultivable area is 74.9%of total geographical area and the net sown area is 17.096 million hectare. The percentage of net irrigated sown area is 30.6%.

Kharif Major Crops

The Kharif crops include bajra, pulses, jowar, maize and groundnut. The regions that are highly irrigated or receive abundant water supply are utilized for the cultivation of improved high-yielding varieties of rice. Some places of Rajasthan that has black soil nurture the growth of major cash crops like cotton.

Agro-Climatic Zones of Rajasthan

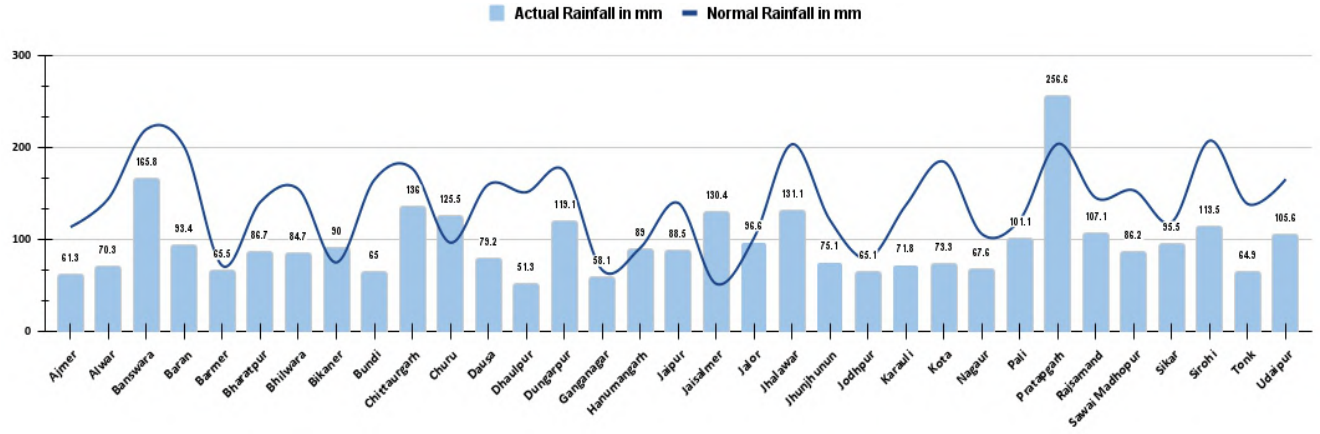
Sr. No.	Agro-Climatic Regions	Districts
1	Arid western plain	Barmer & part of Jodhpur
2	Irrigated north western plain	Sri Ganganagar, Hanumangarh
3	Hyper arid partial irrigated zone	Bikaner, Jaisalmer, Churu
4	Internal drainage dry zone	Nagaur, Sikar, Jhunjhunu, Part of Churu
5	Transitional plain of Luni basin	Jalore, Pali, Part of Sirohi, Jodhpur
6	Semi-arid eastern plains	Jaipur, Ajmer, Dausa, Tonk
7	Flood prone eastern plain	Alwar, Dholpur, Bharatpur, Karauli, Sawai Madhopur
8	Sub-humid southern plains	Bhilwara, Udaipur, Chittorgarh, Rajsamand, Pratapgarh
9	Humid southern plains	Dungarpur, Udaipur, Banswara, Chittorgarh
10	Humid south eastern plain	Kota, Jhalawar, Bundi, Baran

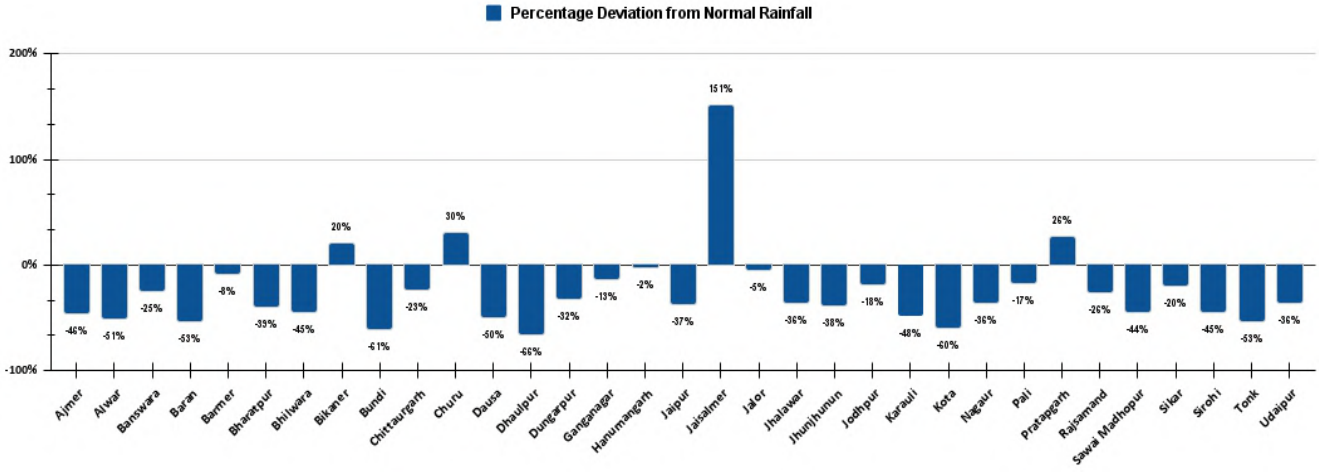
Reservoir Storage Status

NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
MAHI BAJAJ SAGAR	280.75	1.711	269.20	0.531	270.20	0.616
JHAKAM	359.5	0.132	344.40	0.028	346.40	0.036
RANA PRATAP SAGAR	352.81	1.436	348.06	0.589	348.32	0.627
BISALPUR	315.5	1.076	309.50	0.267	312.77	0.604

LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
36	86
27	78
44	94
56	44

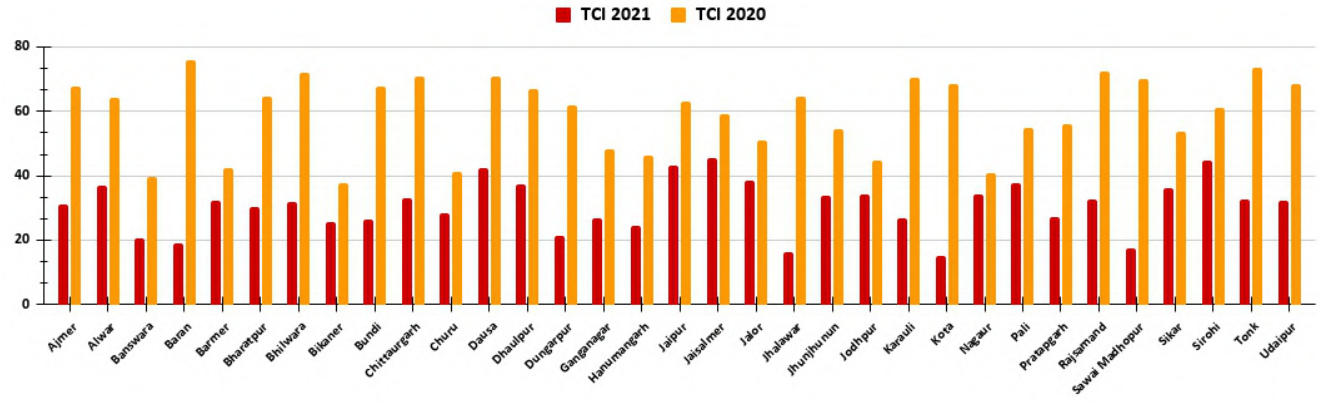
Rainfall





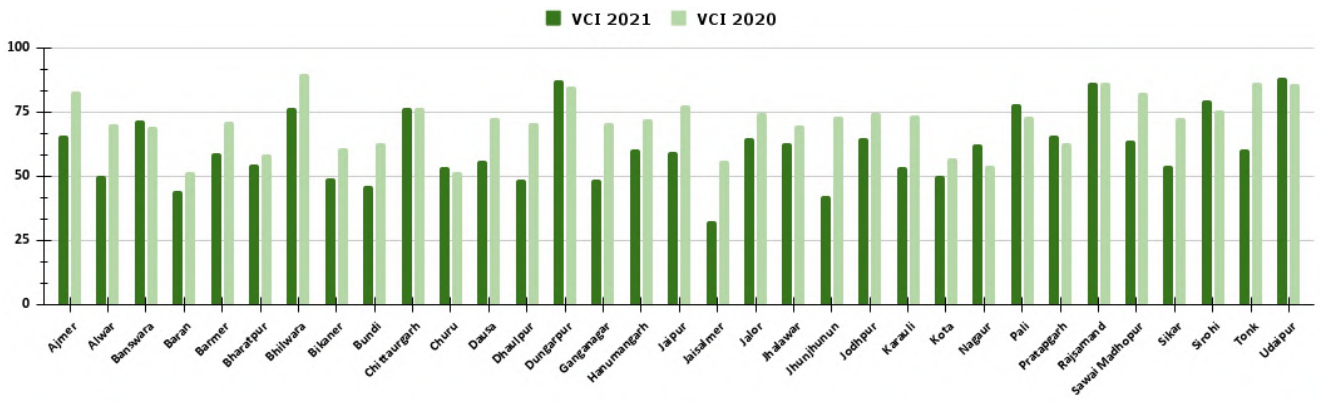
CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
Large Excess (LE or L. Excess)	= 60%	
Excess (E)	= 20% and = 59%	
Normal (N)	= - 19% and = + 19%	
Deficient (D)	= - 59% and = - 20%	
Large Deficient (L. Deficient)	= - 99% and = - 60%	
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

Temperature Condition Index (TCI)



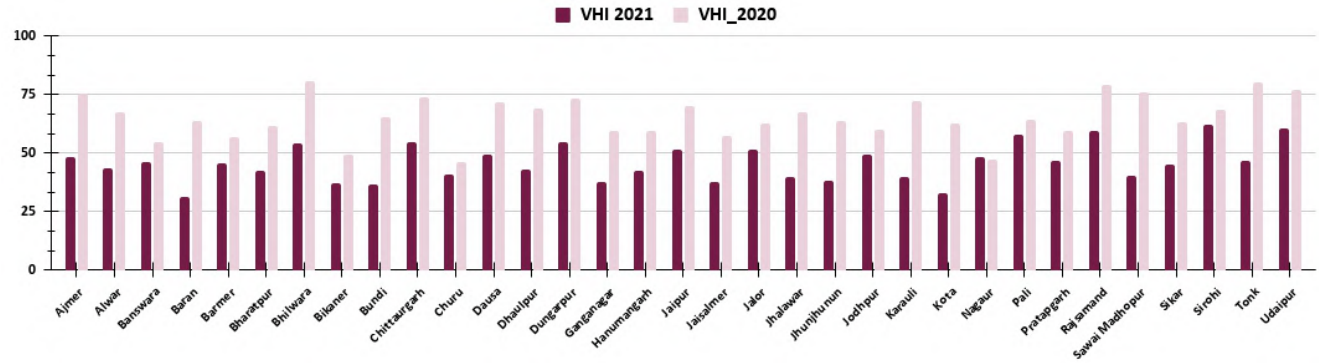
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

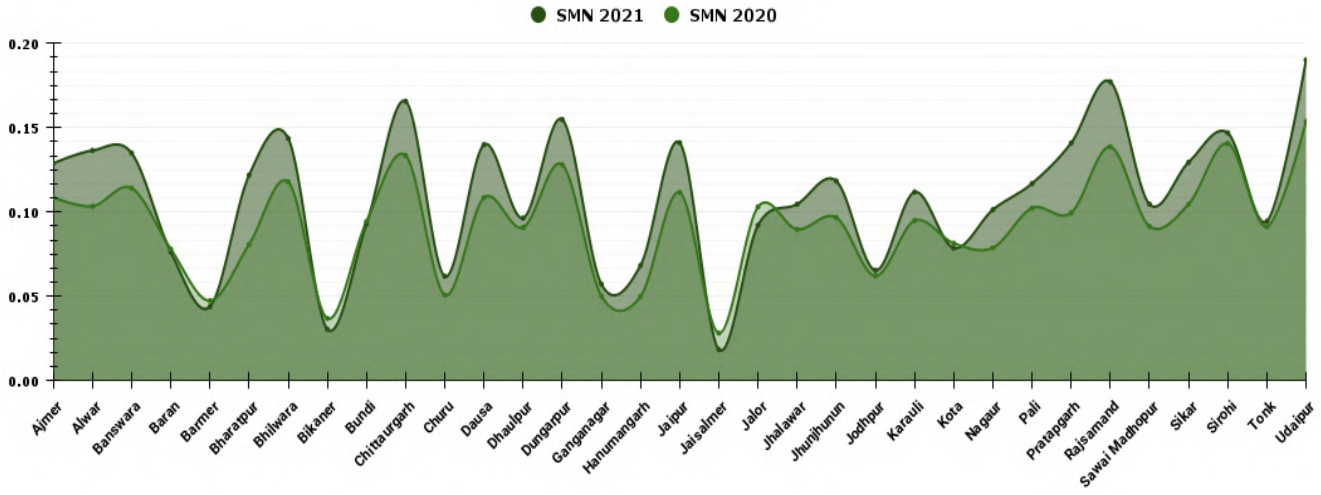
Vegetation Health Index (VHI)



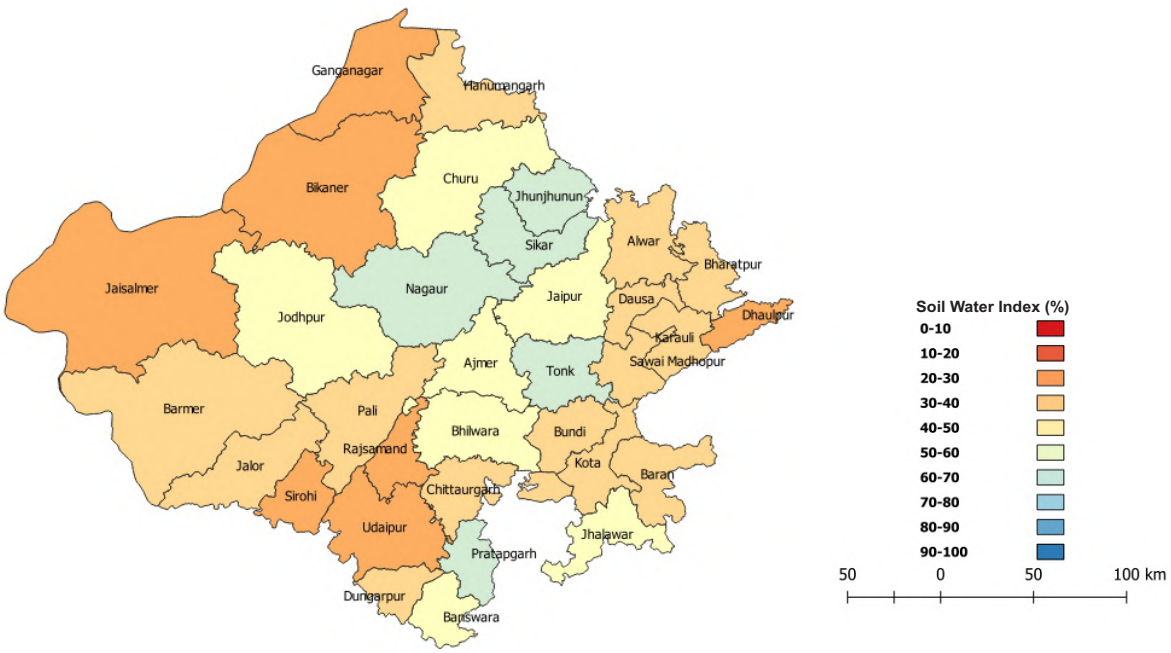
(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
(VHI<35 indicates drought from moderate-to-exceptional intensity)

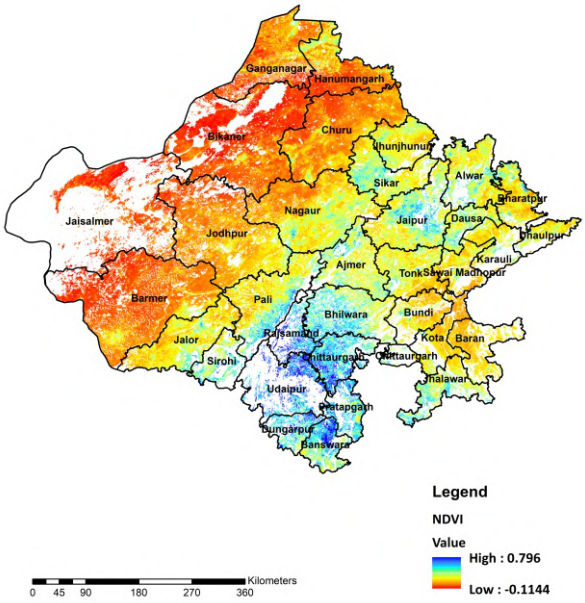
Smoothed Normalized Difference Vegetation Index (SMN)

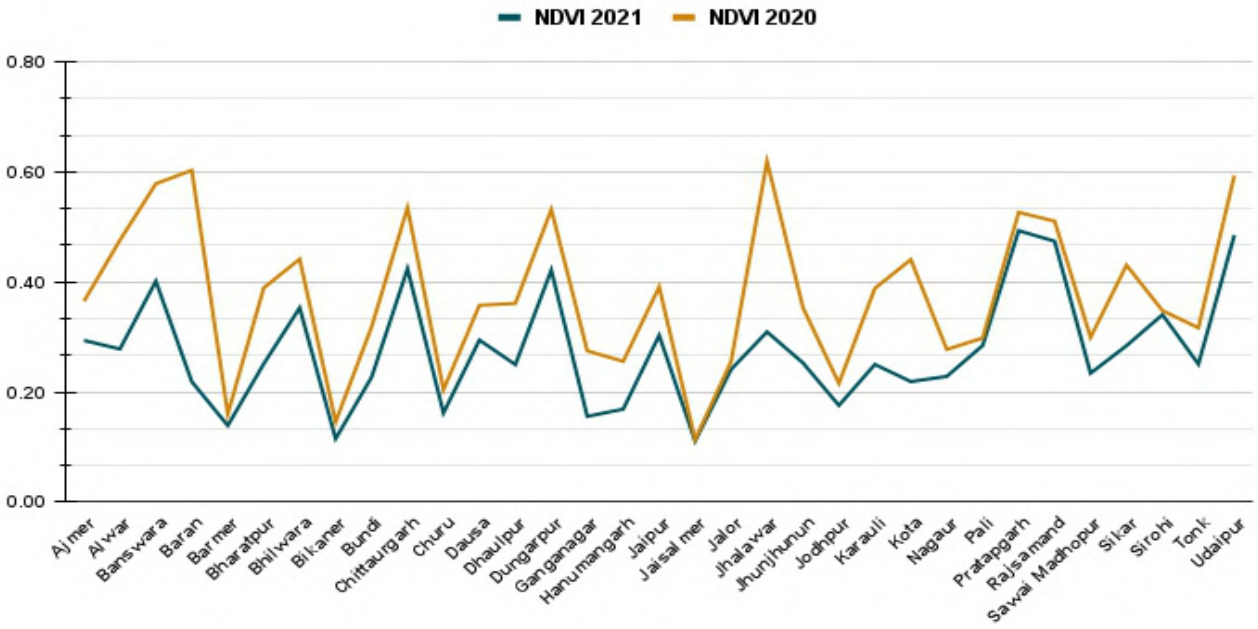


Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

MAHARASHTRA

Out of total cultivable land in Maharashtra about 60% land is under food grain crop.

Kharif Major Crops

Major crops in the state are Paddy, Wheat, Gram, Lentil, Nagali, Jowar, Niger, Groundnut, Bajra, Urad, Soyabean and Cotton.

Agro-Climatic Zones of Maharashtra

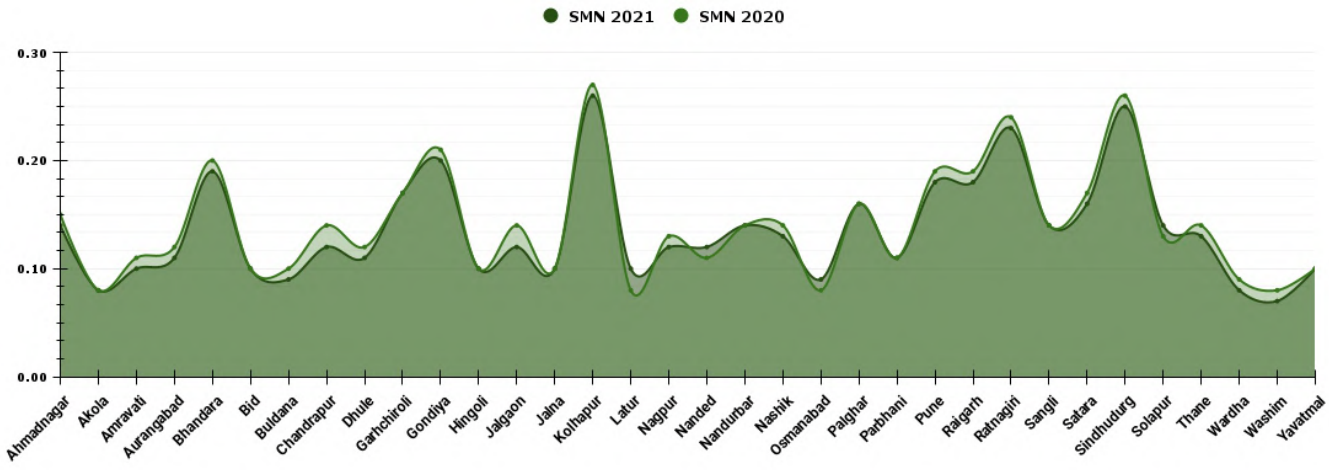
Sr.No.	Agro-Climatic Regions	Districts
1	South Konkan	Ratnagiri, Sindhudurg
2	North Konkan	Thane, Raigad
3	Western Ghat zone	Kolhapur, Satara, Pune, Ahmednagar, Nasik, Sindhudurg
4	Sub. Montane zone	Nasik, Pune, Satara, Sangli, Kolhapur
5	Western Maharashtra plain zone	Dhule, Ahmednagar, Sangli, Nasik, Pune, Satara, Kolhapur
6	Western Maharashtra scarcity zone	Nasik, Pune, Satara, Kolhapur
7	Central Maharashtra plateau zone	Aurangabad, Jalna, Beed, Osmanabad, Parbhani, Nanded, Buldana, Akola, Amravati, Jalgaon, Dhule, Solapur
8	Central Vidarbha zone	Wardha, Nagpur, Yavatmal, Chandrapur, Aurangabad, Jalna, Parbhani, Nanded,
9	Eastern Vidarbha zone	Bhandara, Gadchiroli, Chandrapur, Nagpur, Gondia

Reservoir Storage Status

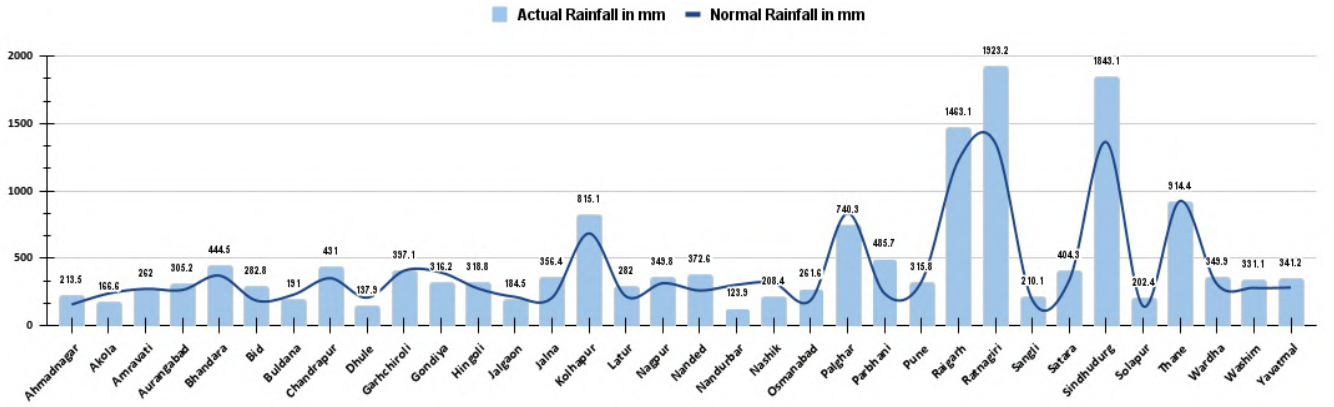
NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
JAYAKWADI(PAITHAN)	463.91	2.171	459.45	0.758	459.97	0.887
KOYANA	657.9	2.652	640.89	1.158	639.83	1.078
BHIMA(UJJANI)	496.83	1.517	490.54	0.000	490.91	0.000
ISAPUR	441	0.965	435.90	0.511	434.74	0.432
MULA	552.3	0.609	540.45	0.139	539.92	0.125
YELDARI	461.77	0.809	458.24	0.462	458.75	0.521
GIRNA	398.07	0.524	389.80	0.189	390.20	0.200
KHADAKVASLA	582.47	0.056	579.55	0.020	580.03	0.026
UPPER VAITARNA	603.5	0.331	0.59	0.058	595.58	0.106
UPPER TAPI	214	0.255	208.91	0.031	209.44	0.046
PENCH(TOTLADOH)	490	1.091	483.82	0.602	487.45	0.828
UPPER WARDHA	342.5	0.564	338.43	0.258	339.52	0.328
BHATSA	142.07	0.942	114.06	0.351	119.40'	0.437
DHOM	747.7	0.331	737.12	0.129	737.08	0.128
DUDHGANGA	646	0.664	631.13	0.261	636.70	0.396
MANIKDOH	711.25	0.288	689.88	0.032	688.67	0.024
BHANDARDARA	744.91	0.304	730.71	0.123	730.25	0.119
URMODI	696	0.273	687.44	0.152	688.35	0.163
BHATGHAR	623.28	0.673	604.41	0.147	607.40	0.214
NIRA DEOGHAR	667.1	0.332	645.5	0.090	640.40	0.054
THOKARWADI	667.14	0.353	653.77	0.080	656.94	0.126
KANHER	690.78	0.272	680.45	0.117	679.18	0.103
MULSHI	607.1	0.572	592.93	0.072	594.38	0.113
SURYA	118.6	0.276	103.65	0.068	107.25	0.126
TILLARI	113.2	0.447	109.06	0.383	107.40	0.359

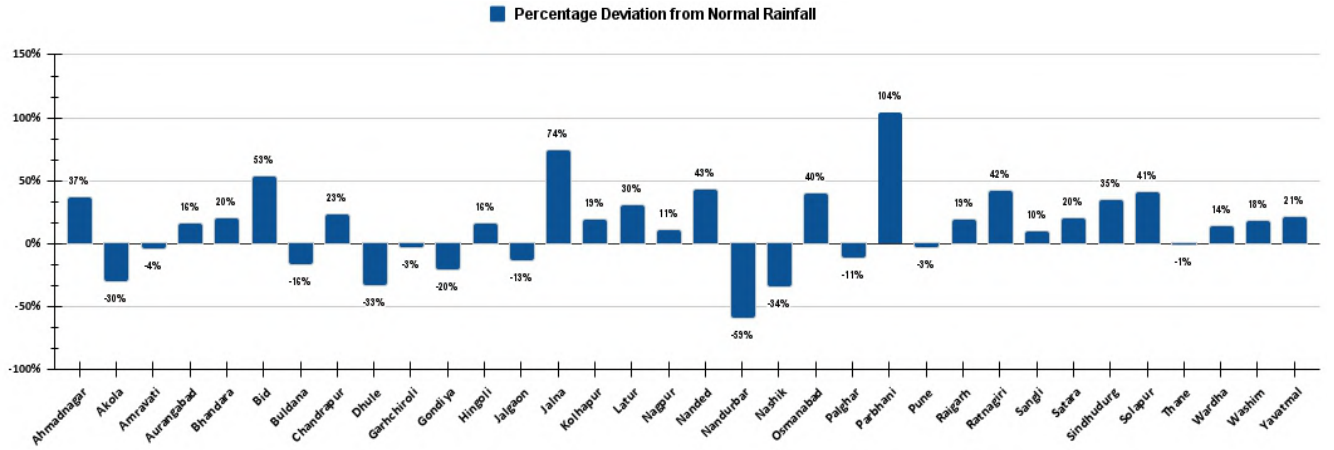
LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
41	85
41	107
0	0
45	118
21	111
64	93
38	95
46	77
32	55
18	67
76	73
58	79
46	80
39	101
60	66
8	133
39	103
60	93
32	69
16	167
36	63
38	114
20	64
46	70
80	107

Smoothed Normalized Difference Vegetation Index (SMN)



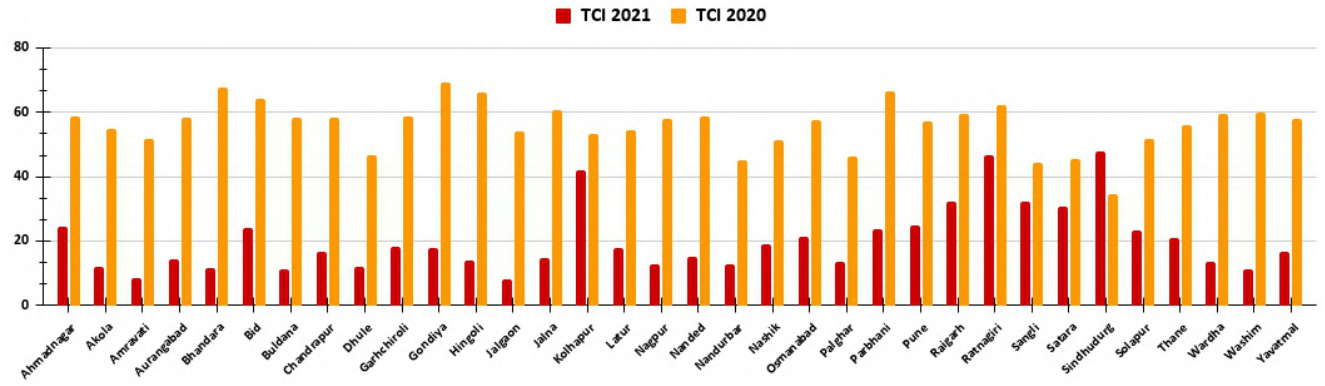
Rainfall





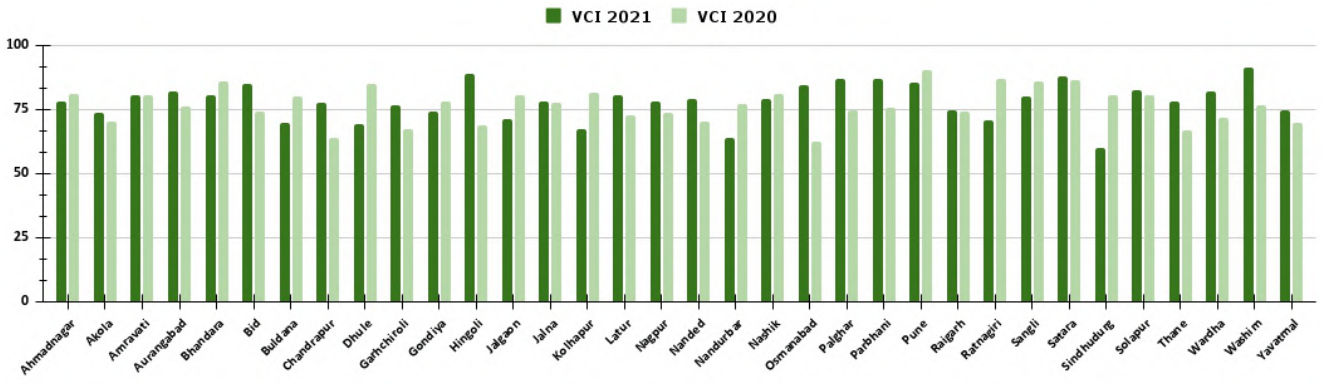
CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
Large Excess (LE or L. Excess)	= 60%	
Excess (E)	= 20% and = 59%	
Normal (N)	= - 19% and = + 19%	
Deficient (D)	= - 59% and = - 20%	
Large Deficient (L. Deficient)	= - 99% and = - 60%	
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

Temperature Condition Index (TCI)



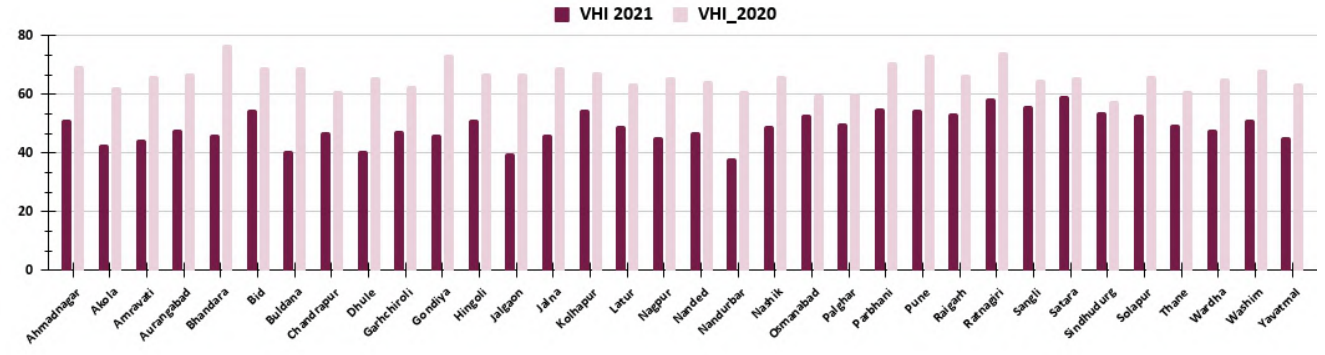
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

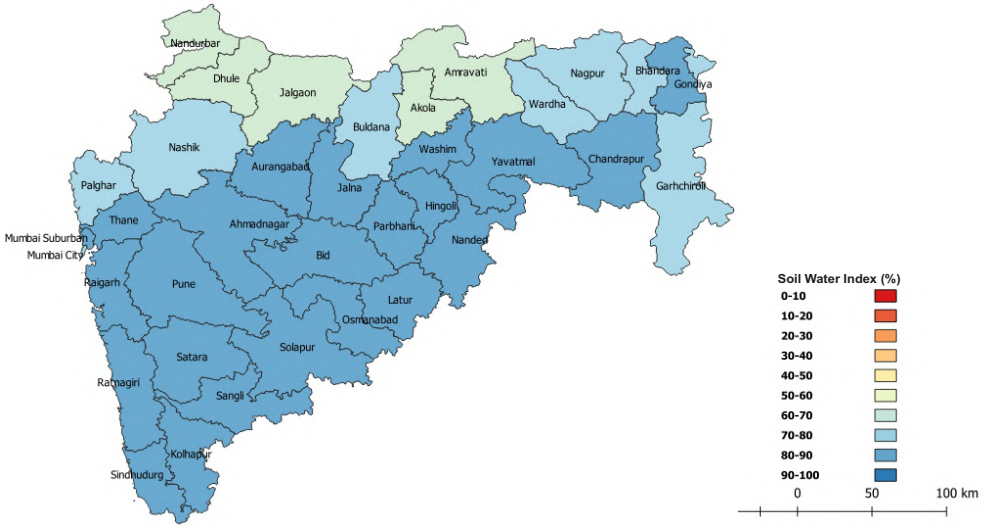
Vegetation Health Index (VHI)



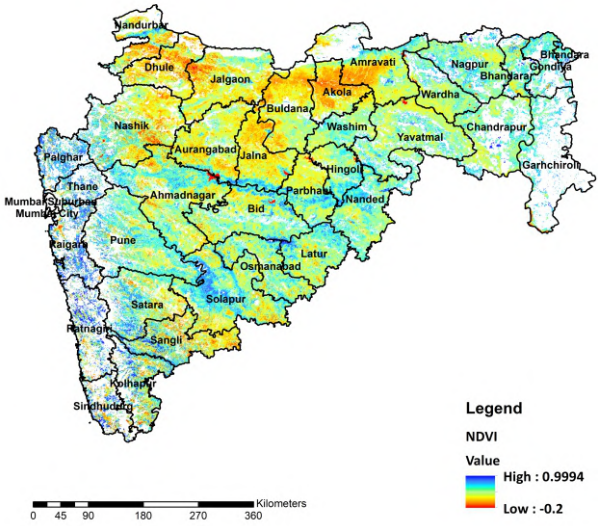
(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

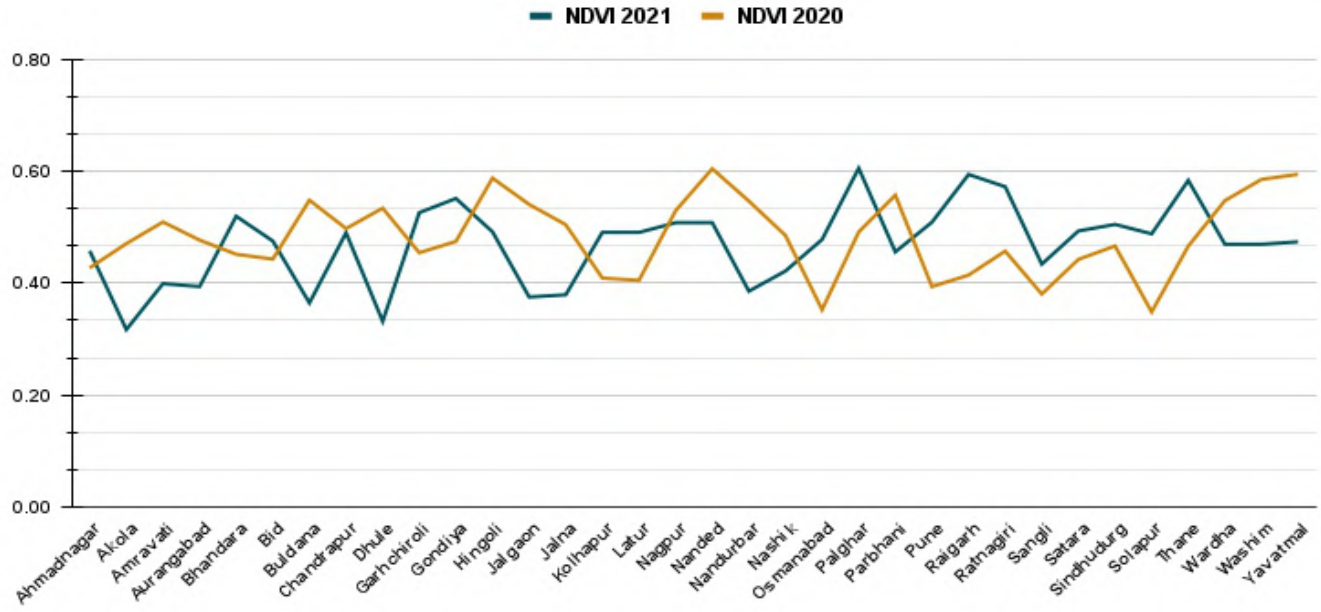
For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
(VHI<35 indicates drought from moderate-to-exceptional intensity)

Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

UTTAR PRADESH

The cultivable area is 82.1% of total geographical area and the net area sown is 68.5% of cultivable area. The percentage of net irrigated sown area is 80.3%. Traditionally rain fed and irrigated agriculture is common.

Kharif Major Crops

The main crops grown are rice, maize, pigeon pea, sorghum, pearl millet, moong beans during Kharif season. The important cash crops of the region are sugarcane, potato, tobacco, chillies, turmeric and coriander with supplemental irrigation. Rice–wheat cropping system is more predominant.

Agro-Climatic Zones of Uttar Pradesh

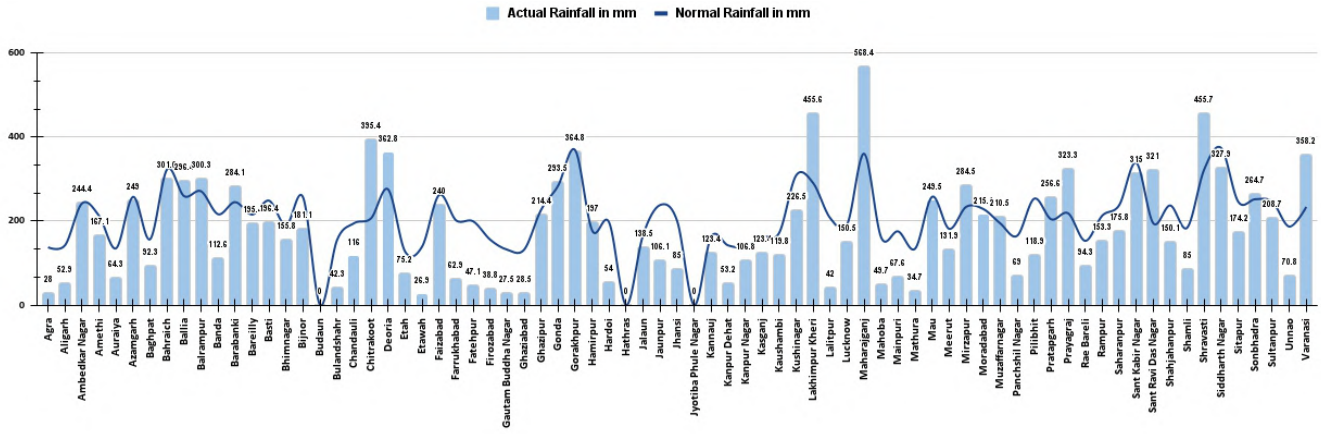
Sr.No.	Agro-Climatic Regions	Districts
1	Bhawar and plain, Tarai plain	Pilibhit, Sambhal (Bhim Nagar), Bareilly, Rampur, Moradabad, Shahjahanpur, Budaun and Jyotibaphule Nagar
2	Western Plain Zone	Saharanpur, Muzaffarnagar, and Baghpat
3	Mid-western plain zone	Bijnor, Moradabad, Amroha, Rampur, Bareilly, Badaun, Pilibhit and Shahjahanpur
4	Western sub-tropical zone	Aligarh, Mahamaya Nagar, Mathura, Agra, Firozabad, Etah, and Mainpuri
5	Mid plain zone	Farrukhabad, Kannauj, Etawah, Kanpur Nagar, Kanpur Dehat, Unnao, Hardoi, Kheri, Sitapur, Lucknow, Raebareli, Fatehpur, Pratapgarh and Allahabad
6	Bundelkhand Zone	Lalitpur, Jhansi, Jalaun, Hamirpur, Banda and Chitrakoot, Mahoba
7	North Eastern Plain Zone	Bahraich, Balrampur, Gonda, Siddharth Nagar, Basti, Maharajganj, Kushinagar and Deoria
8	Eastern Plain Zone	Barabanki, Faziabad, Sultanpur, Jaunpur, Azamgarh, Amethi, Mau, Ballia, Ghazipur, Varanasi and Sant Ravidasnagar
9	Bindhya Zone	Mirzapur and Sonbhadra

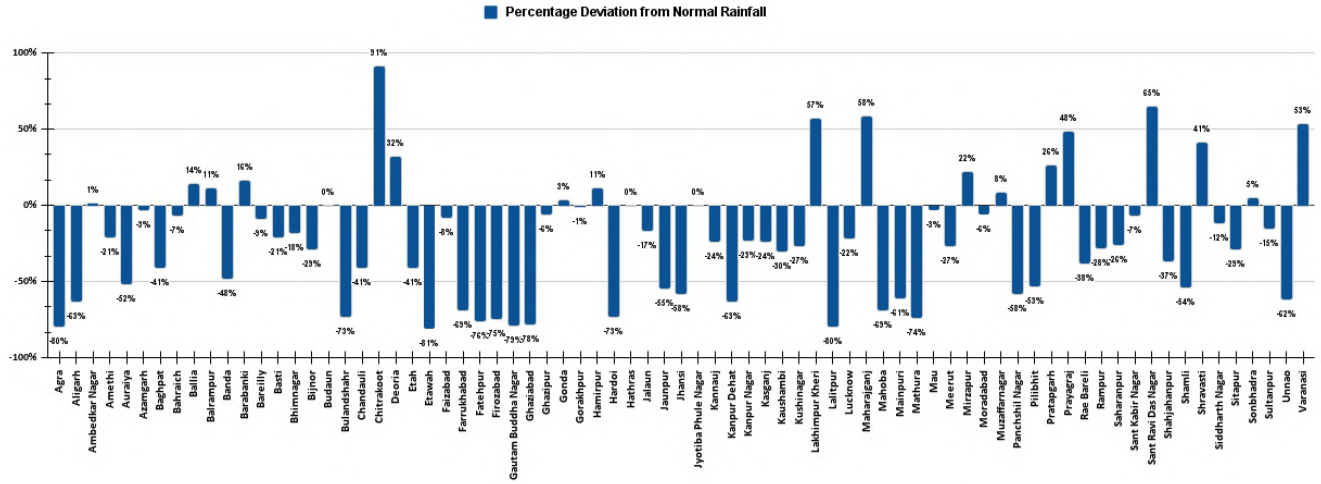
Reservoir Storage Status

NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
MATATILA	308.46	0.707	301.42	0.077	302.42	0.127
RIHAND	268.22	5.649	257.31	1.261	258.65	1,733
SHARDA SAGAR	190.5	0.33	187.82	0.263	187.88	0.265
SIRS	217.93	0.19	212.11	0.043	216.01	0.127
MAUDAHA	147.8	0.179	141.50	0.019	144.20	0.068
JIRGO	98.2	0.147	93.53	0.056	96.73	0.114
RANGAWAN	233.17	0.155	220.58	0.002	227.32	0.053
MEJA	178	0.299	168.05	0.116	153.65	0.002

LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
18	61
31	73
80	99
67	34
38	28
78	49
34	4
1	5800

Rainfall





CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
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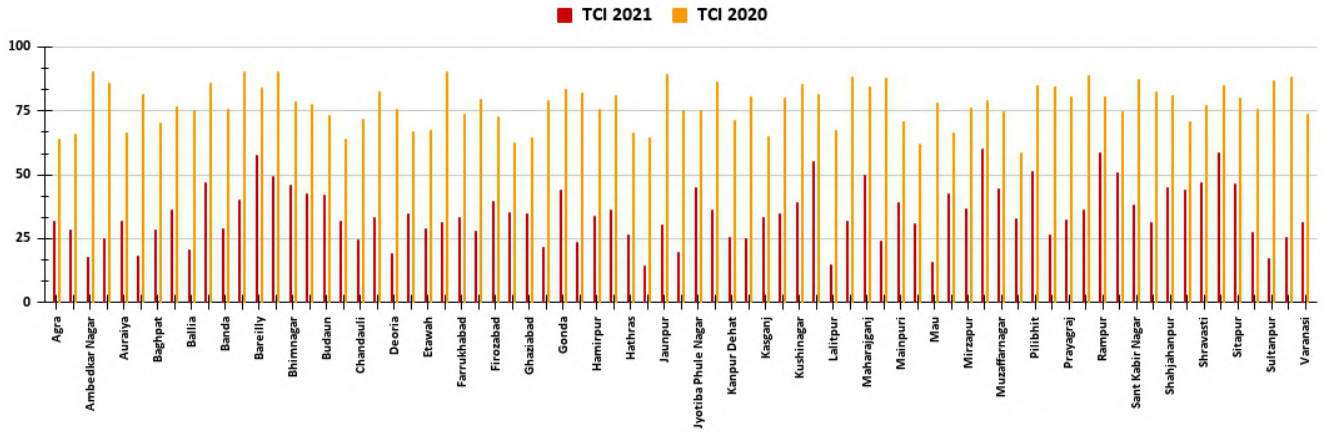
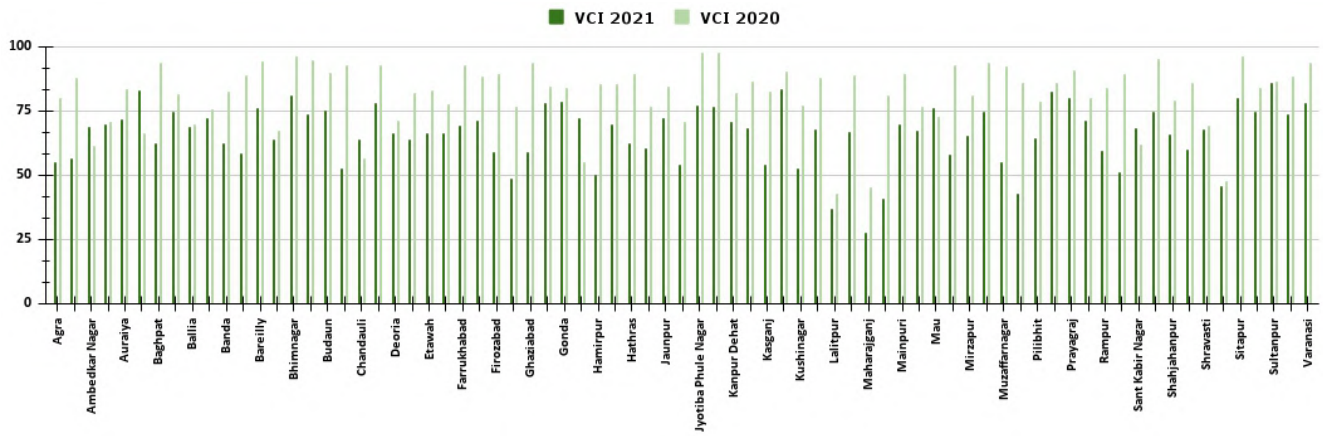
Excess (E)	= 20% and = 59%	
Normal (N)	= - 19% and = + 19%	
Deficient (D)	= - 59% and = - 20%	
Large Deficient (L. Deficient)	= - 99% and = - 60%	
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

Temperature Condition Index (TCI)



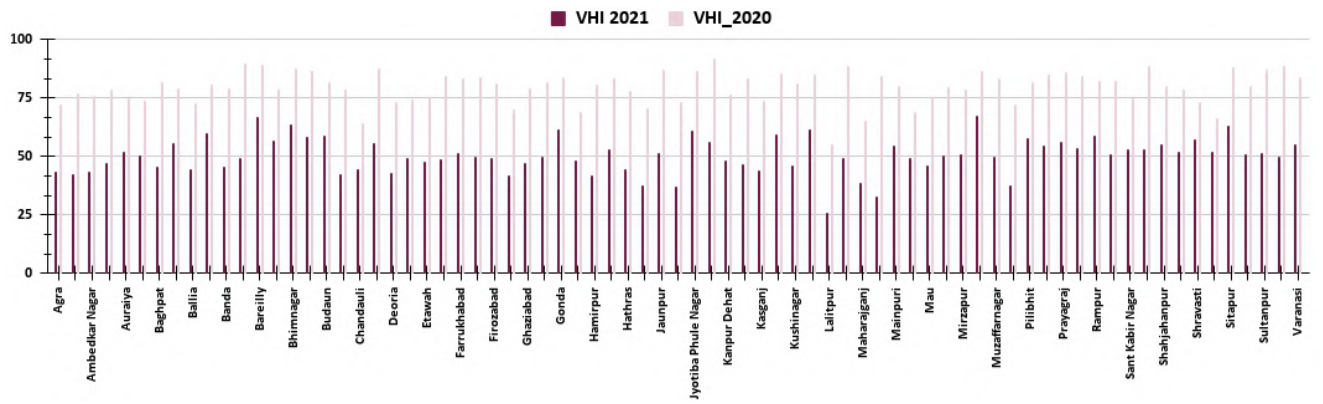
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

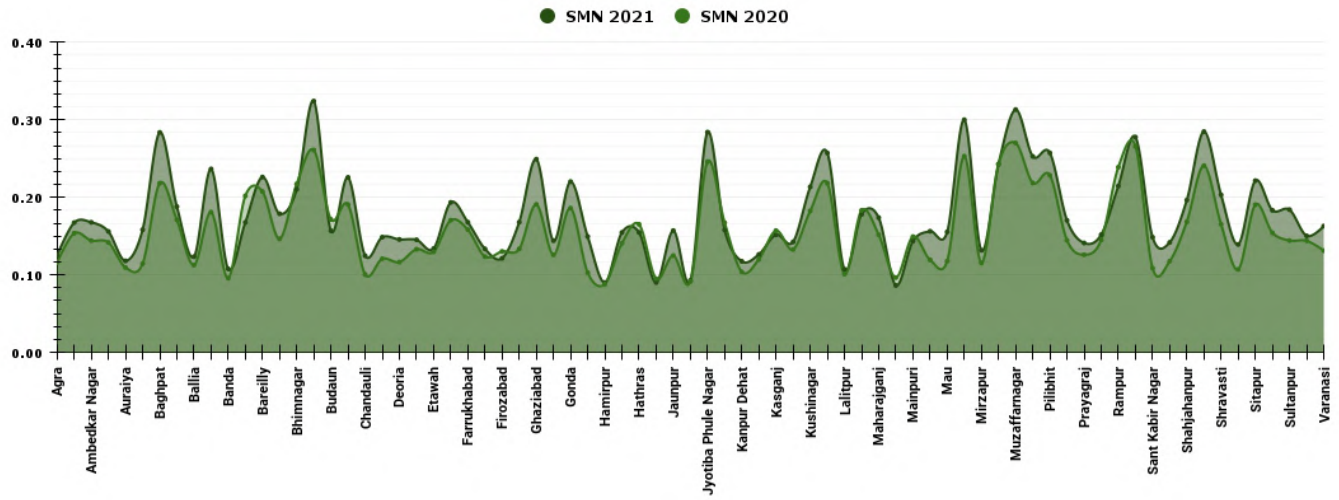
Vegetation Health Index (VHI)



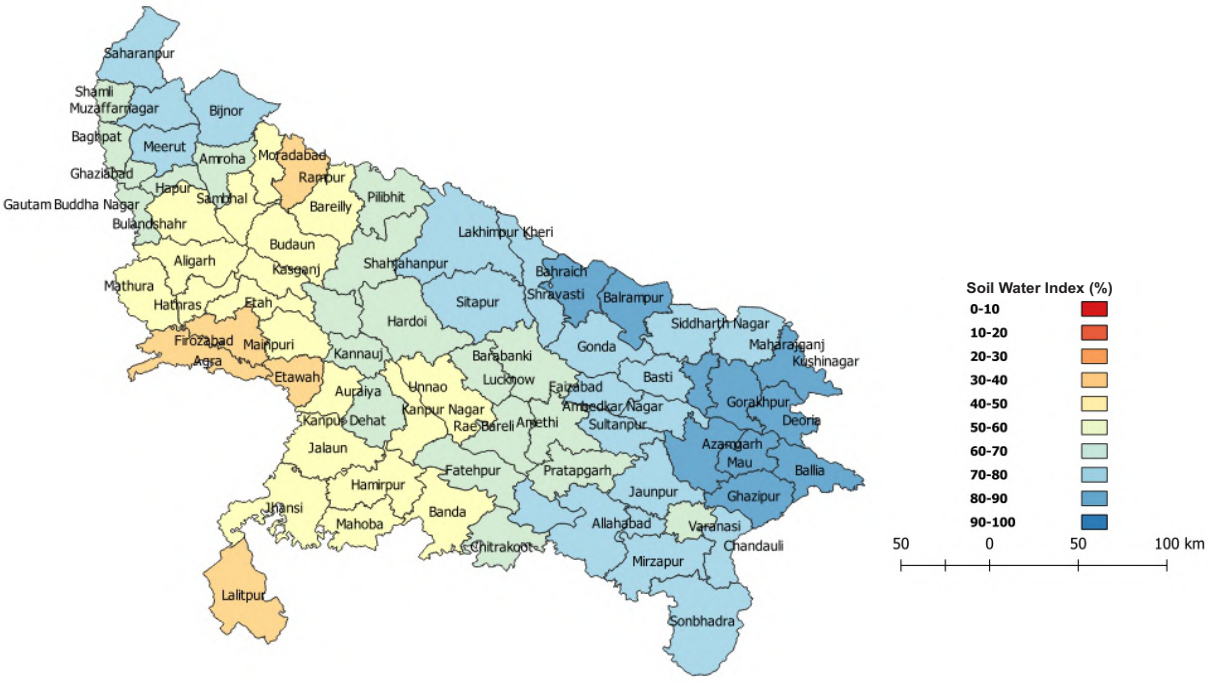
(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
(VHI<35 indicates drought from moderate-to-exceptional intensity)

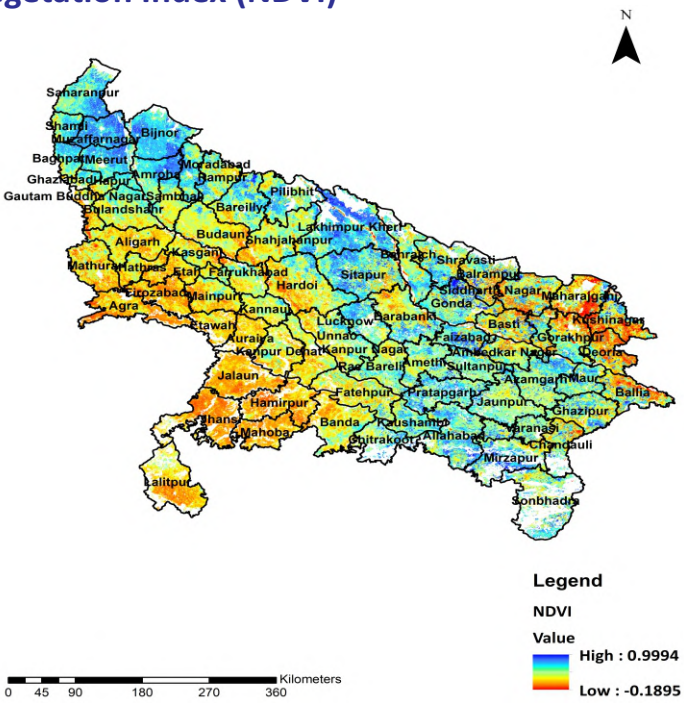
Smoothed Normalized Difference Vegetation Index (SMN)

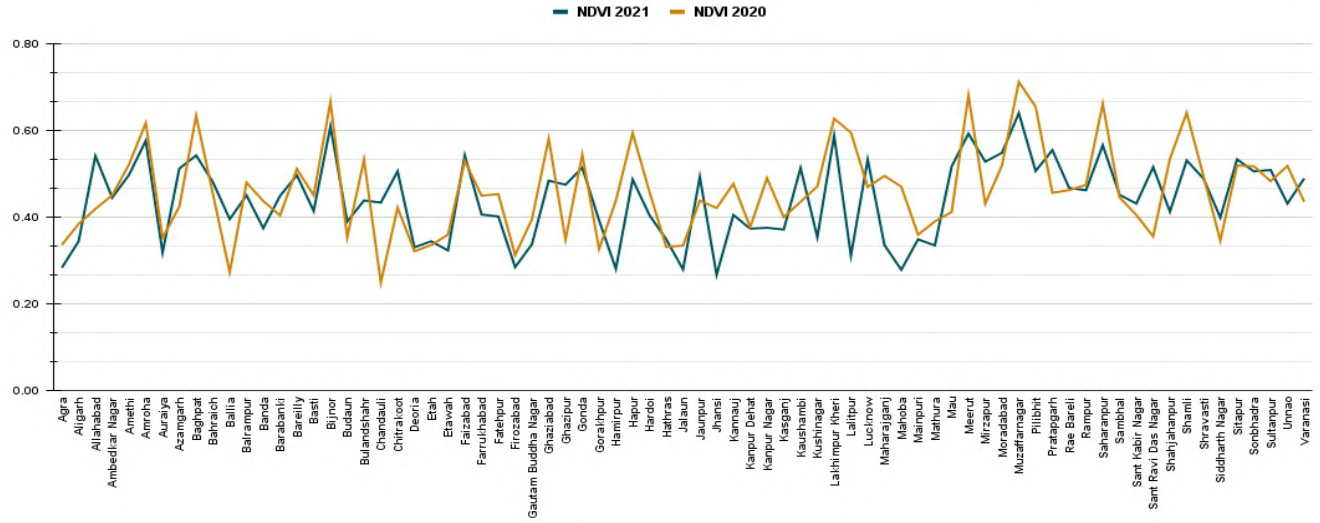


Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

ODISHA

The state has around 4.5 million ha under paddy cultivation, which covers both irrigated and rainfed areas.

Kharif Major Crops

Maize and Ragi are the important coarse cereal crops. Jowar, Bajra and small millets are also grown in the state to a lesser extent. Arhar, mung, kulthi, biri, gram, fieldpea, cowpea and lentil are the pulse crops grown in the State. Pulses are grown mainly in uplands during Kharif season predominantly in inland districts.

Agro-Climatic Zones of Odisha

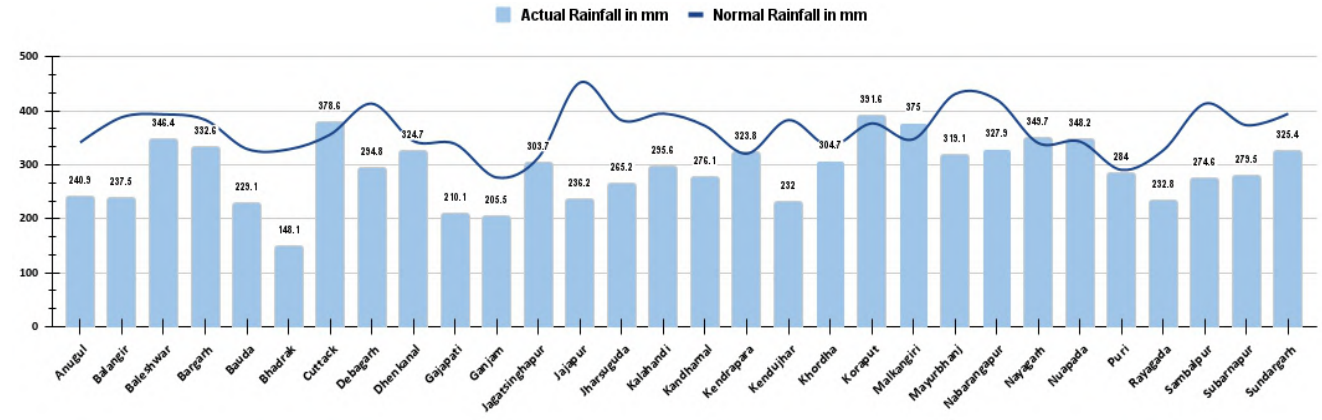
Sr. No.	Agro-Climatic zone	Districts
1	East & South East Coastal Plain	Puri, Nayagarh, Khordha, Kendrapada, Jagatsinghpur, Cuttack
2	Eastern Ghat High Land	Nabarangpur, Koraput
3	Mid Central Table Land Zone	Dhenkanal, Angul
4	North Central Plateau	Mayurbhanj, Keonjhar
5	North Eastern Coastal Plain	Jajpur, Bhadrak, Baleshwar
6	North Eastern Ghat	Rayagada, Kandhamal, Ganjam, Gajapati
7	North Western Plateau Zone	Sundargarh, Deogarh
8	South Eastern Ghat	Malkangiri
9	West Undulating Zone	Nuapada, Kalahandi
10	Western Central Table Land Zone	Subarnapur, Sambalpur, Jharsuguda, Boudh, Bargarh, Balangir

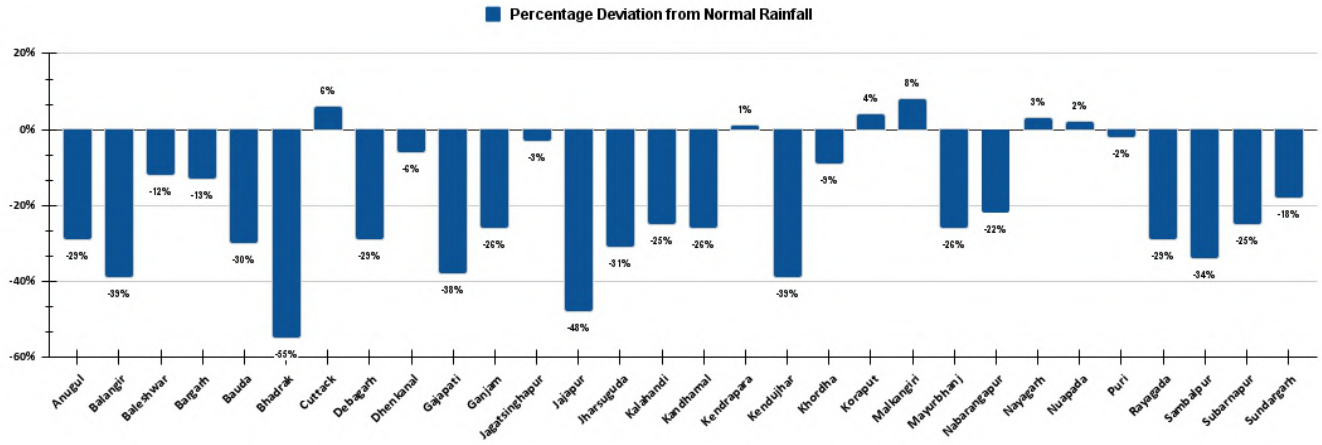
Reservoir Storage Status

NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
HIRAKUD	192.02	5.378	185.65	1.569	182.80	0.678
BALIMELA	462.08	2.676	445.22	0.483	445.47	0.504
SALANADI	82.3	0.558	69.20	0.201	75.80	0.359
RENGALI	123.5	3.432	114.20	0.799	111.92	0.366
MACHKUND(JALAPUT)	838.16	0.893	827.36	0.227	830.24	0.355
UPPER KOLAB	858	0.935	846.18	0.090	848.25	0.191
UPPER INDRAVATI	642	1.456	630.00	0.335	631.23	0.435
SAPUA	168.5	0.006	166.77	0.005	168.08	0.006
HARIHARJHOR	147.5	0.059	147.5	0.059	10	11
MANDIRA DAM	210.31	0.309	210.31	0.309	146.89	0.055

LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
13	231
19	96
64	56
11	218
40	64
20	47
30	77
100	83
12	15
93	2

Rainfall





CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
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Excess (E)	= 20% and = 59%	
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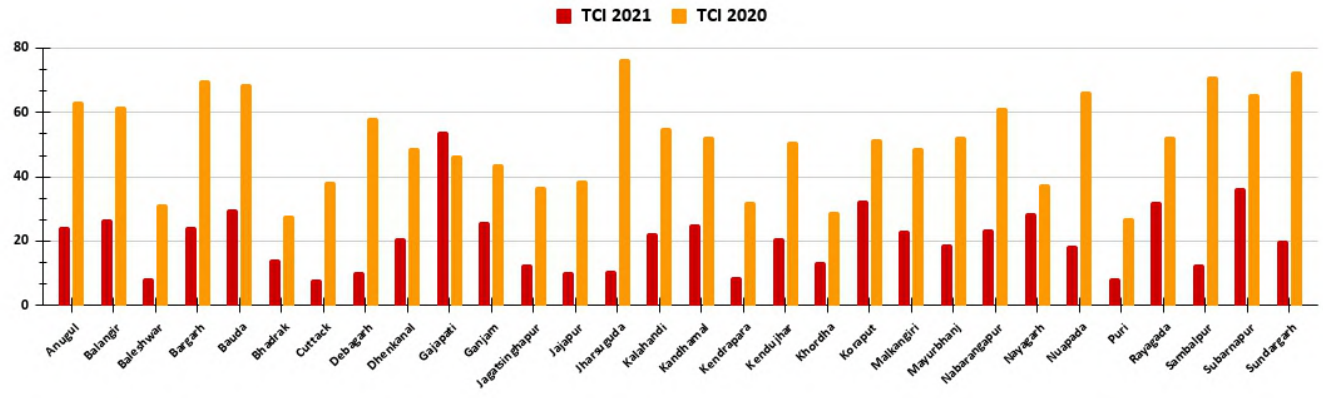
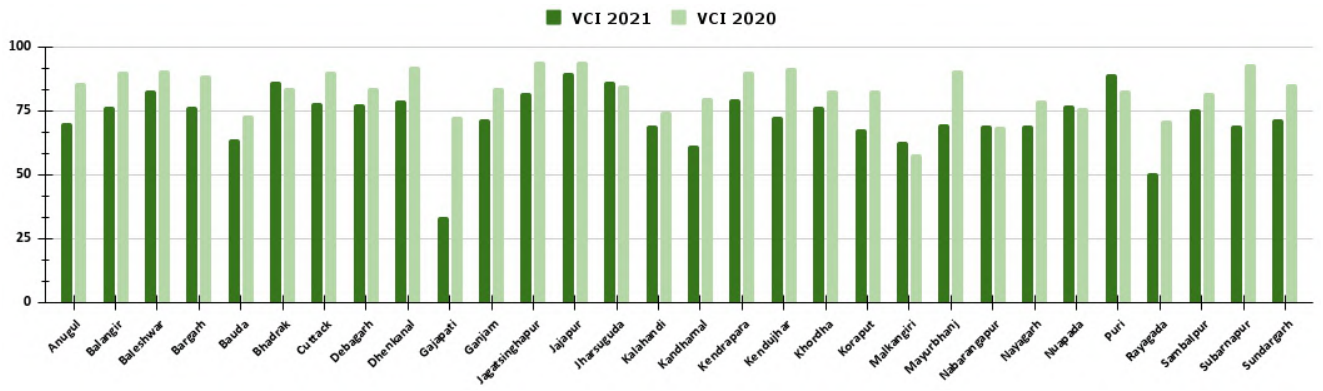
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

Temperature Condition Index (TCI)



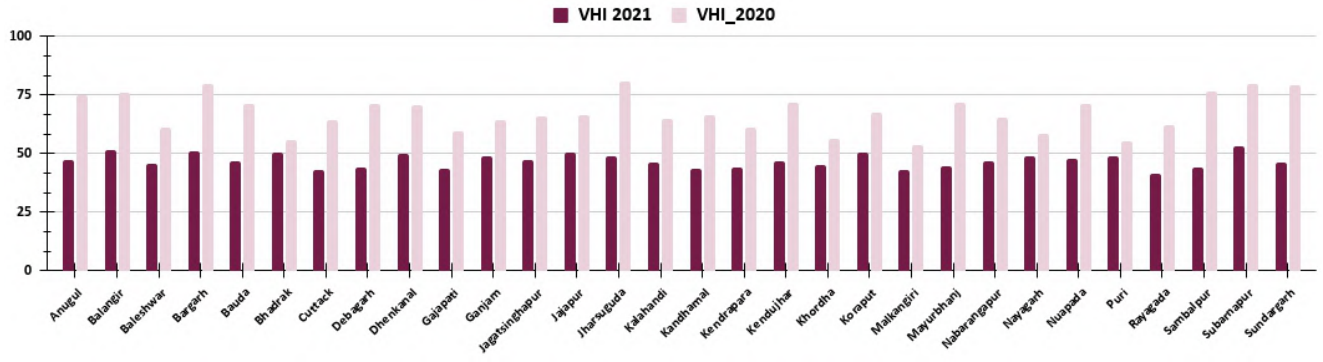
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

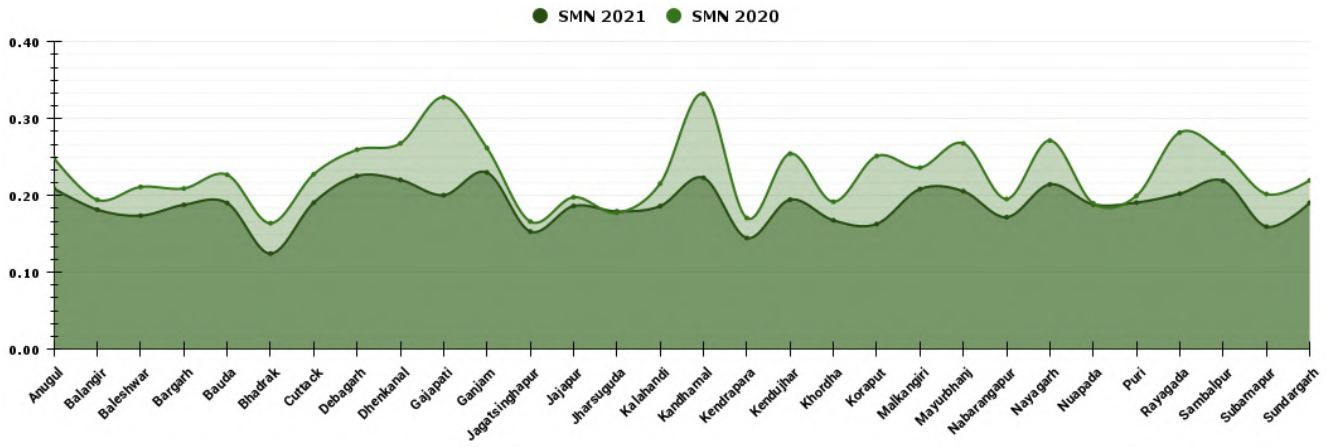
Vegetation Health Index (VHI)



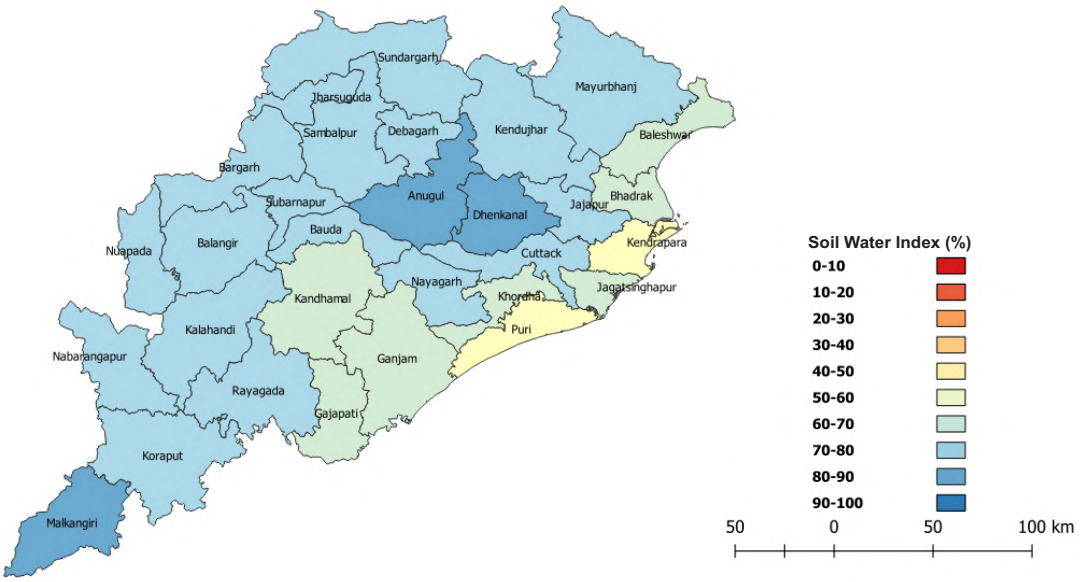
(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
(VHI<35 indicates drought from moderate-to-exceptional intensity)

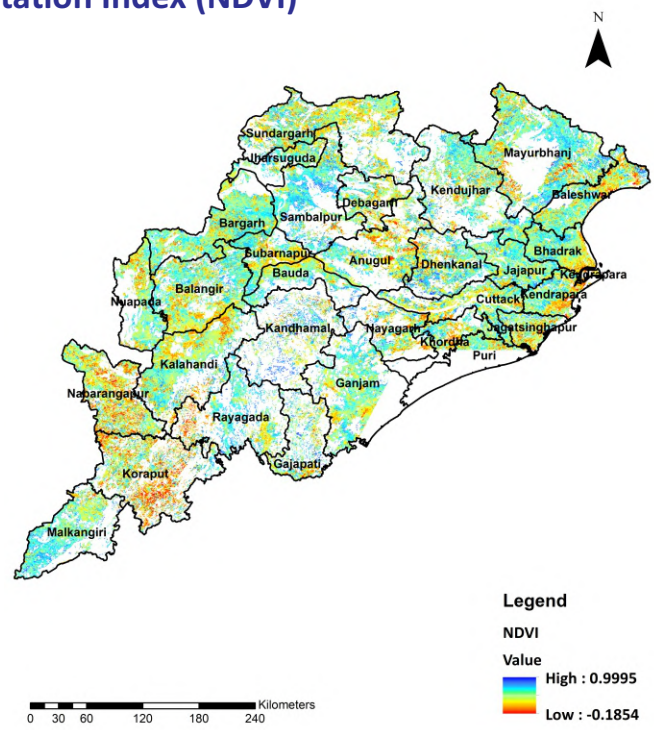
Smoothed Normalized Difference Vegetation Index (SMN)

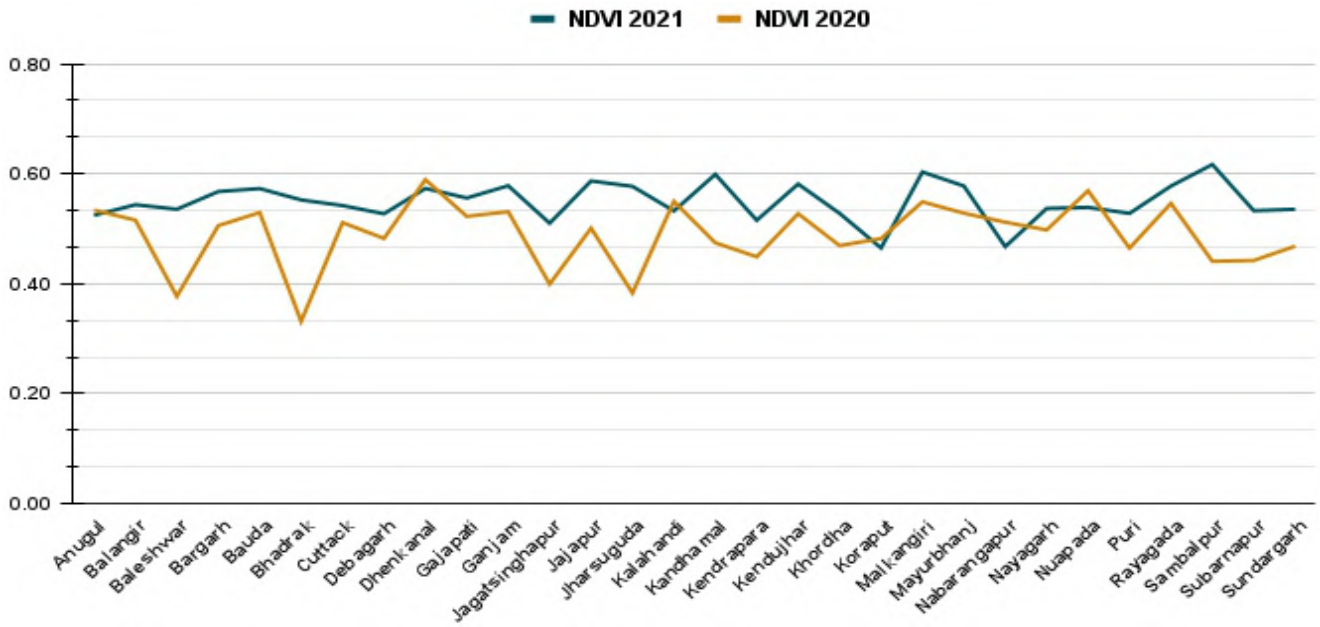


Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

West Bengal

The cultivated area of the state is 5.5 million ha comprising 62% of the total geographical area. About 54% of cultivated area is irrigated and the cropping intensity is high at 176%.

Kharif Major Crops

Rice is the most important kharif crop, which presently accounts for 77% of the total rice area and 68% of total area under food grains in the State. In addition, wheat, pulses, mustard, groundnut, jute, sugarcane, potato, fruits, vegetables and flowers are cultivated.

Agro-Climatic Zones of West Bengal

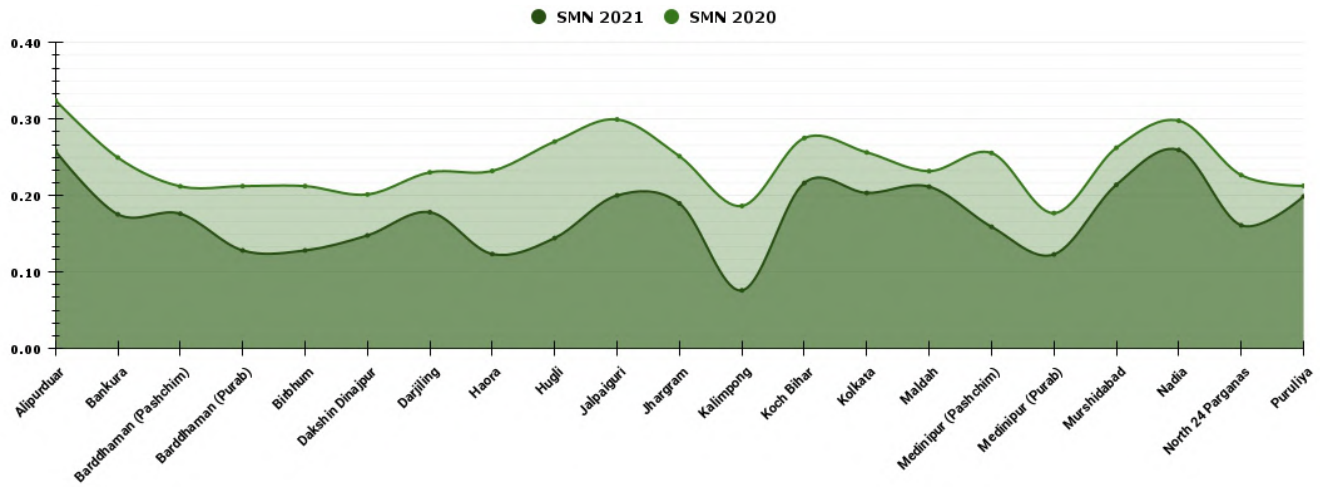
Sr No.	Agro-Climatic Regions	District
1	Northan Hill Zone (Eastern Himalayan Region)	Part of Darjeeling & Jalpaiguri
2	Teesta-Tarai Alluvial Zone (Eastern Himalayan Region)	Koch Bihar, Part of Darjeeling, Jalpaiguri & Uttar Dinajpur
3	Gangetic Alluvial Zone (Lower Gangetic Plain Region)	Dakshin Dinajpur, Malda, Nadia, Part of Uttar Dinajpur, Murshidabad,North 24 Paranganas, South 24 Paranganas, Howrah, Hoogly & Birbhum
4	Vindhyan Alluvial Zone (Lower Gangetic Plain Region)	Part of Murshidabad, Howrah, Hoogly, Burdwan, Birbhum, Bankura, Paschim & Purba Medinipur
5	Coastal Saline Zone (Lower Gangetic Plain Region)	Part of North 24 Paranganas, South 24 Paranganas, Howrah & Purba Medinipur
6	Red & Laterite Zone (Eastern Plateau & Hill Region)	Puruliya, Part of Burdwan, Birbhum, Bankura & Paschim Medinipur

Reservoir Storage Status

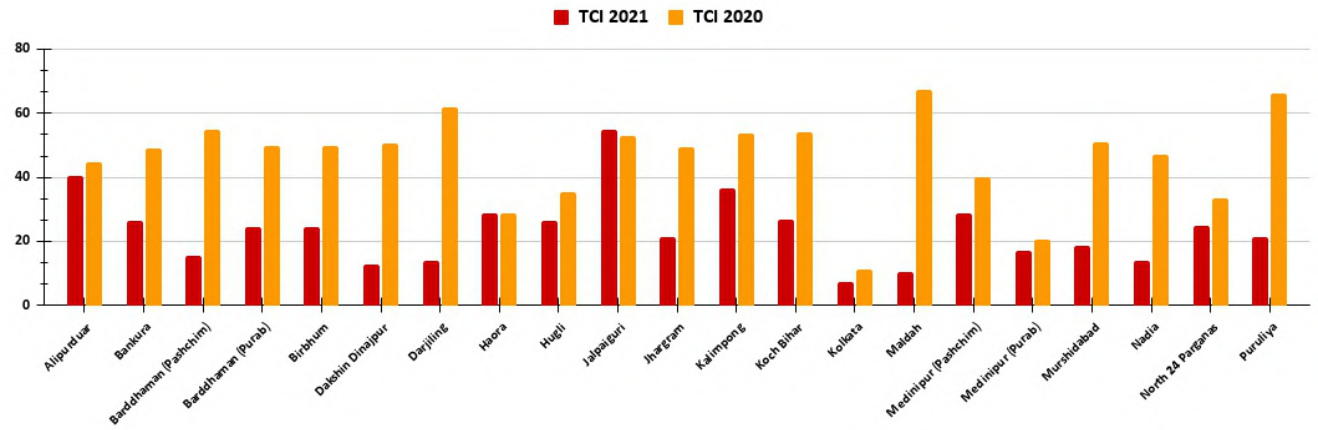
NAME OF RESERVOIR	FRL(MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
MAYURAKSHI	121.31	0.48	116.50	0.264	117.94	0.328
KANGSABATI	134.14	0.914	131.17	0.671	130.42	0.612

LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
68	81
67	110

Smoothed Normalized Difference Vegetation Index (SMN)

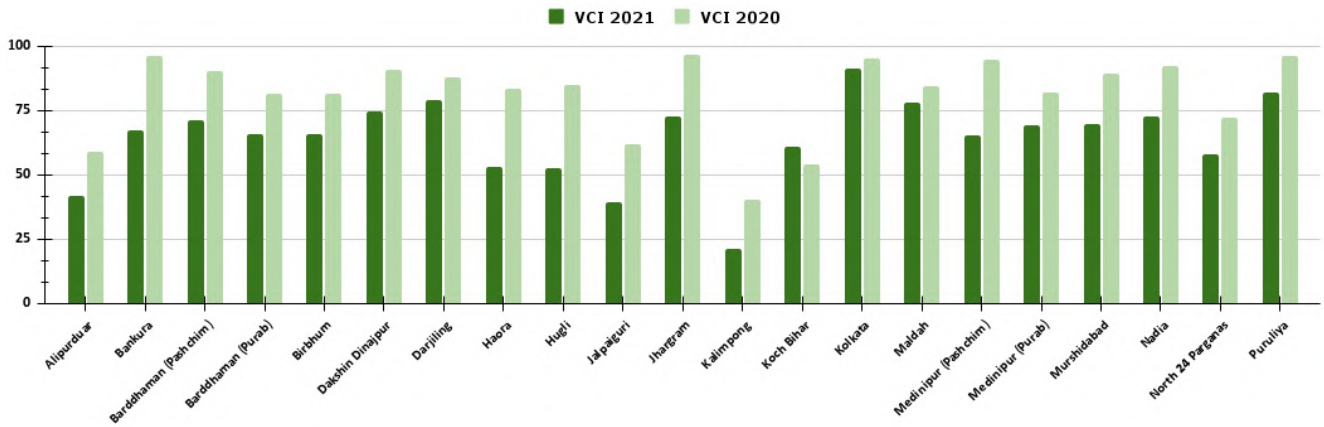


Temperature Condition Index (TCI)



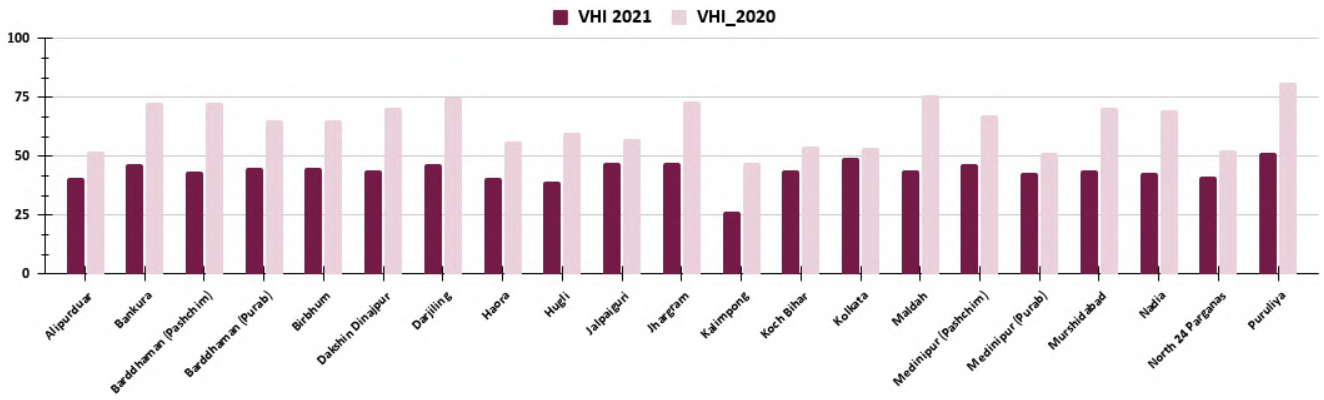
(TCI <40 indicates thermal stress; TCI >60: favorable condition)

Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

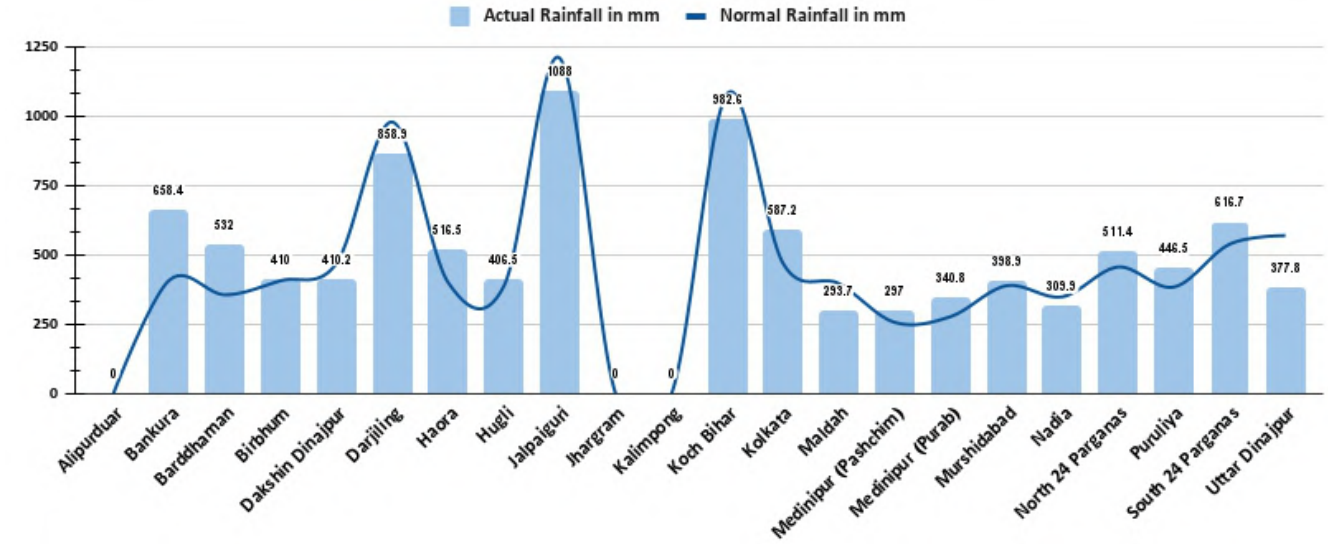
Vegetation Health Index (VHI)

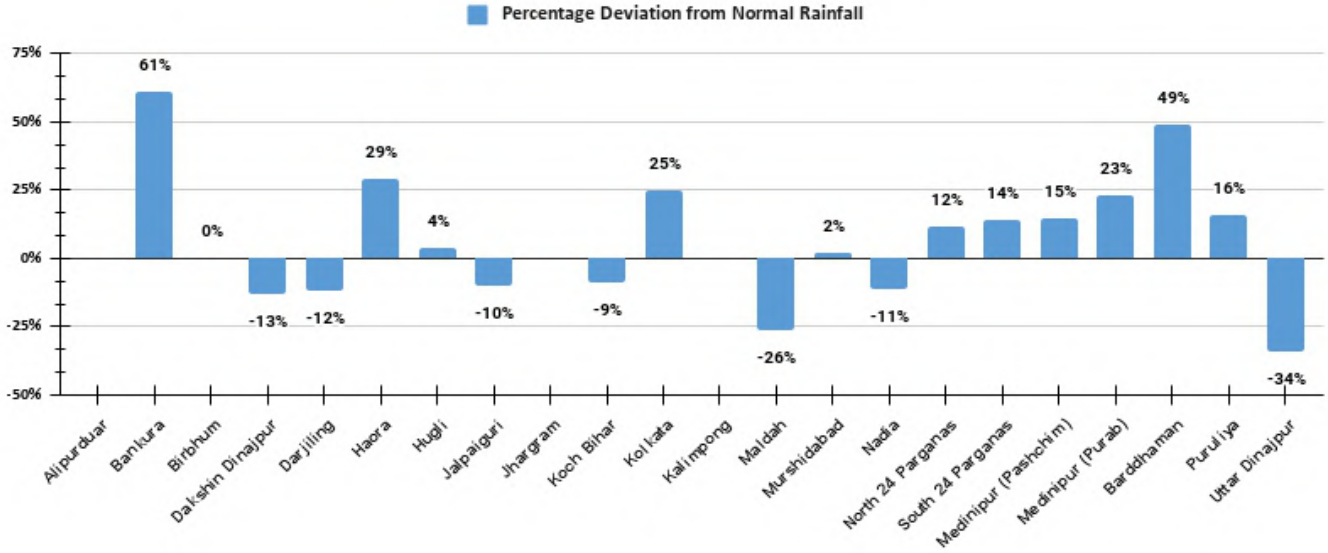


(VHI <40 indicates vegetation stress; VHI >60: favorable condition)
(VHI>65 indicates good vegetation condition)
(VHI>85 indicates very good vegetation condition)

For Drought : (VHI<15 indicates drought from severe-to-exceptional intensity)
(VHI<35 indicates drought from moderate-to-exceptional intensity)

Rainfall





CATEGORY	% DEPARTURES OF RAINFALL	Colour Code
Large Excess (LE or L. Excess)	= 60%	
Excess (E)	= 20% and = 59%	
Normal (N)	= - 19% and = + 19%	
Deficient (D)	= - 59% and = - 20%	
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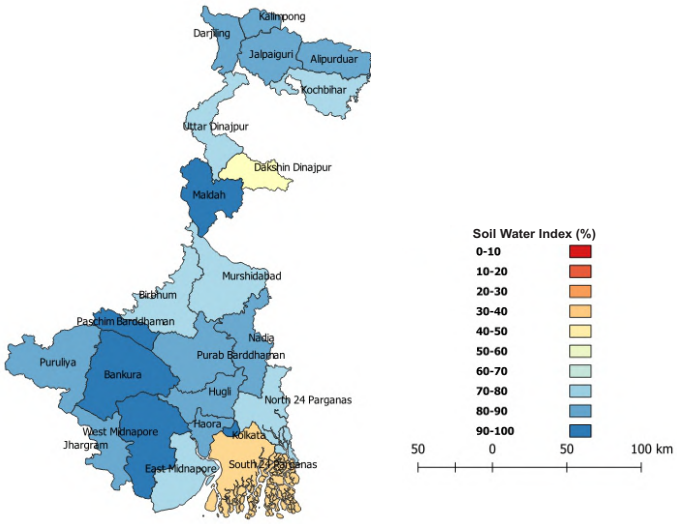
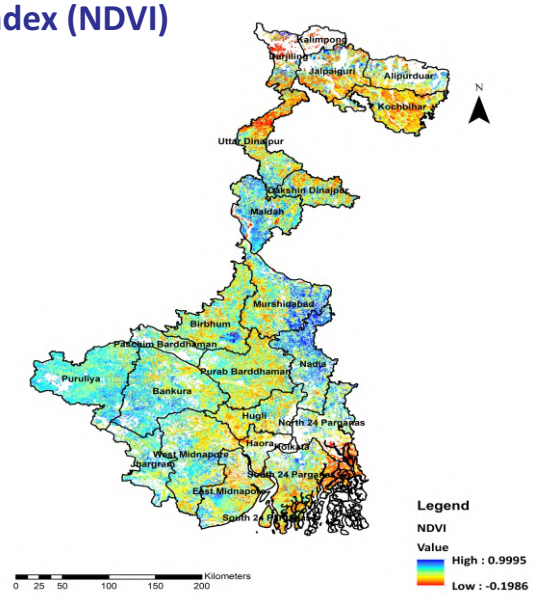
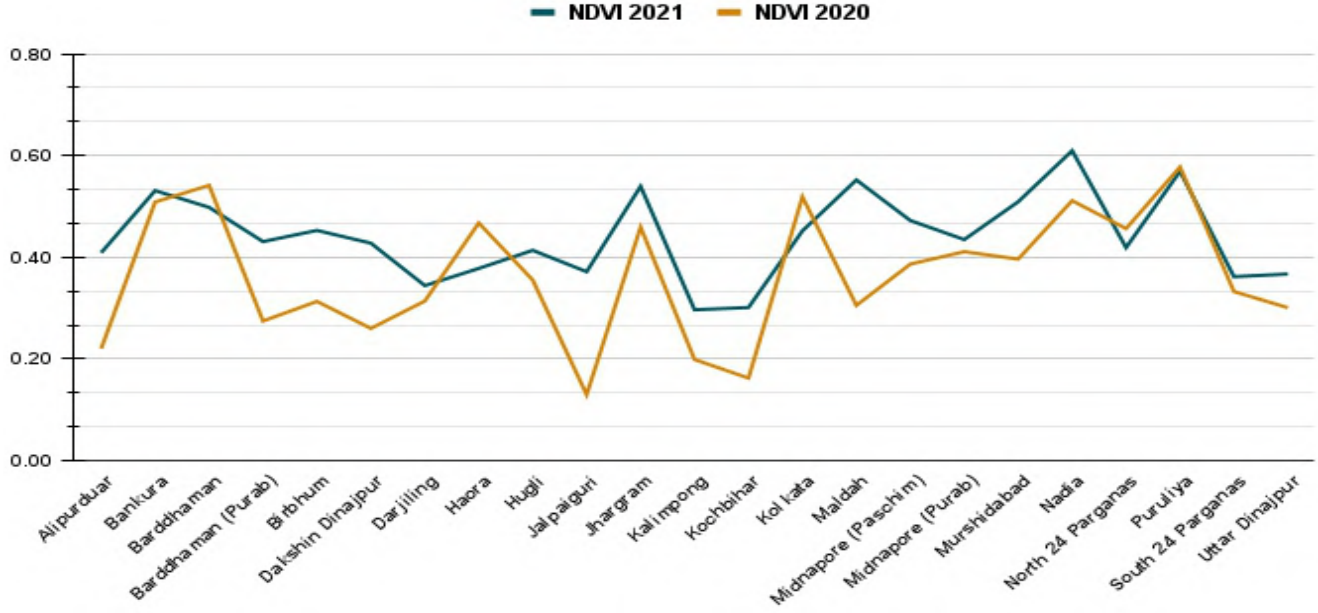
Soil Water Index (SWI)



Normalized Difference Vegetation Index (NDVI)





<0.2 Bare soil, rocks, clouds, rain, snow etc, 0.2 - 0.4 Moderate, 0.4 - 0.6 Good, >0.6 Very Good

Uttarakhand

The net area sown is 76,5150 hectare. The percentage of net irrigated sown area is 45.1%.

Kharif Major Crops

The main crops are wheat, paddy, maize, manduwa and sanwa in food grains, urad, gram, pea, masoor & rajma in pulses and mustard, soybean, groundnut in oil seeds. The influence of the monsoon on the cropping pattern is very dominant; with the result of the total cropped area about 70 to 75% is under 'Kharif' season crops. The highest sown area is under wheat crop (34.79%) followed by rice with 24.3%. Mandua, a traditional millet crop has 15.1% sown area, while the area under pulses is 4.61%. Rest of the area is under other millets including koni, jhangora, jowar, bajara, maize and oilseeds.

Agro-Climatic Zones of Uttarakhand

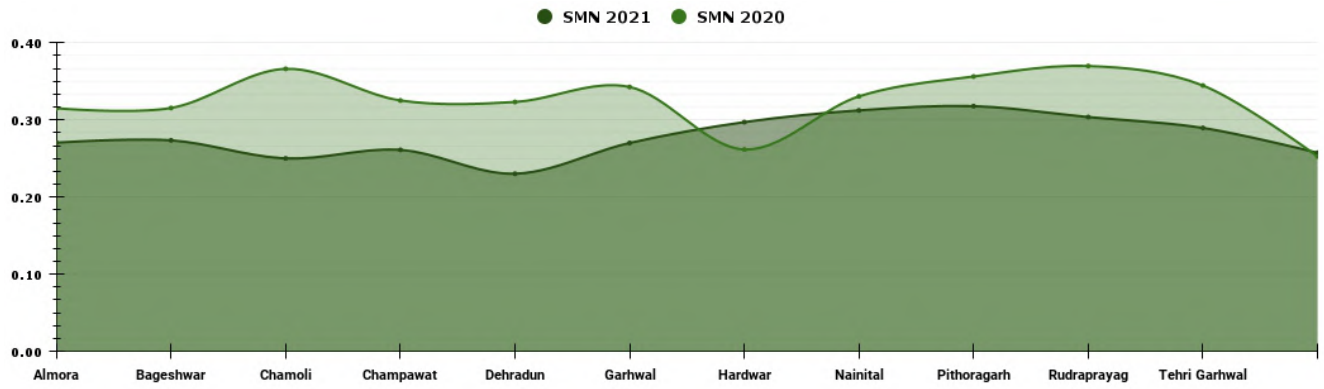
Sr. No.	Agro-Climatic Regions	District
1	Zone A up to 1000 M	U.S. Nagar, Haridwar
		Nainital, Dehradun and Pauri Garhwal
		Champawat, Pauri Garhwal, Dehradun, Nainital, Tehri Garhwal
		Champawat, Nainital, Pauri Garhwal, Dehradun, Tehri Garhwal, Bageshwar
2	Zone B 1000-1500M	Champawat, Nainital, Almora, Dehradun, Tehri Garhwal, Bageshwar
3	Zone C 1500-2400M	Pithoragarh, Almora, Chamoli, Bageshwar
4	Zone D>2400 M	Pithoragarh, Chamoli and Uttarkashi

Reservoir Storage Status

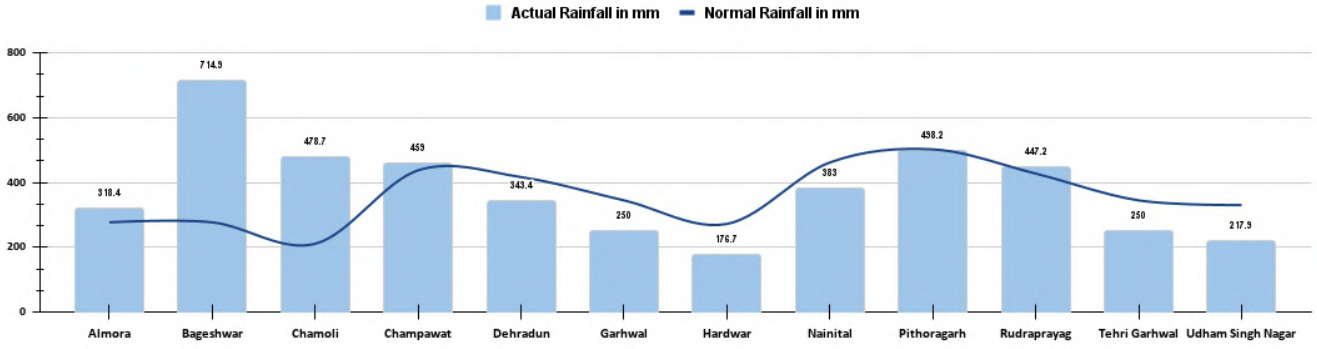
NAME OF RESERVOIR	FRL (MTS.)	LIVE CAP. AT FRL (BCM)	THIS SEASON		LAST SEASON	
			LEVEL(MTS)	LIVE STORAGE (BCM)	LEVEL(MTS)	LIVE STORAGE (BCM)
RAMGANGA	365.3	2.196	342.69	0.824	348.91	1.120
TEHRI	830	2.615	769.50	0.620	767.68	0.575

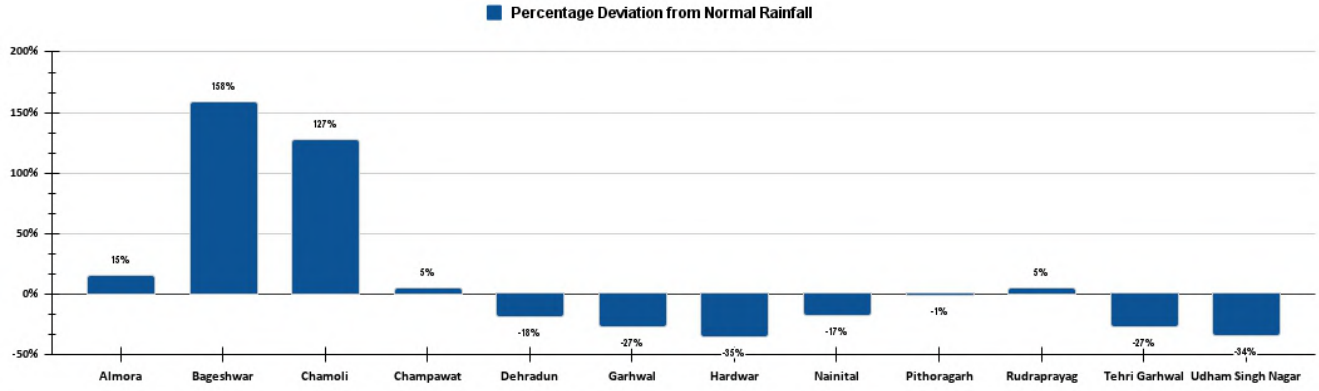
LAST YEAR STORAGE AS % OF LIVE CAP AT FRL	% OF THIS YR STORAGE TO LAST YEARS STORAGE.
51	74
22	108

Smoothed Normalized Difference Vegetation Index (SMN)



Rainfall





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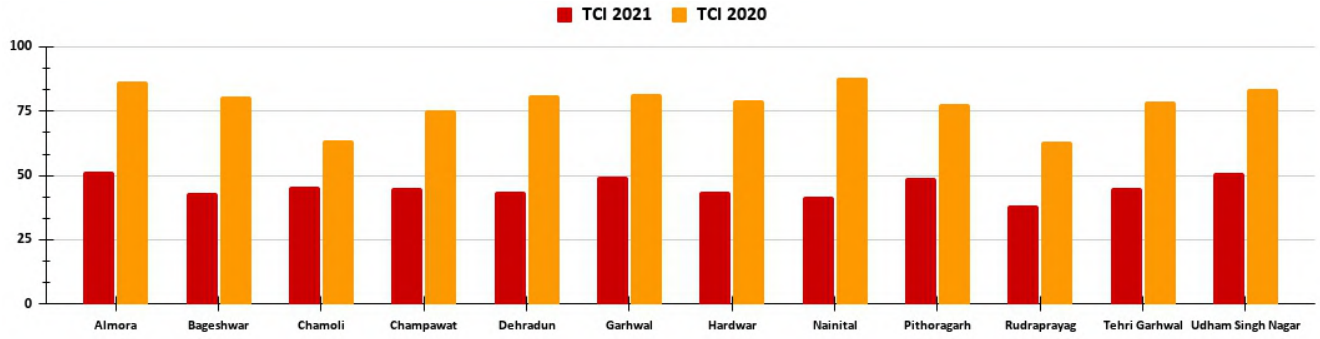

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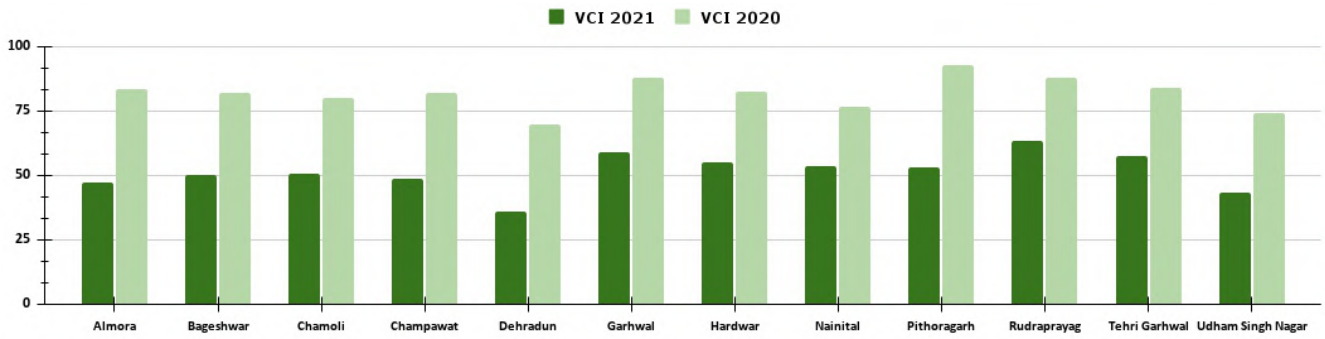
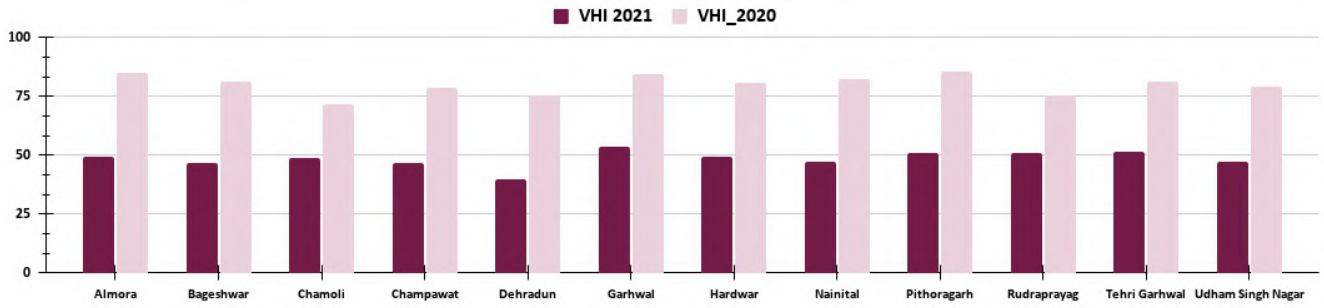
Vegetation Condition Index (VCI)



(VCI <40 indicates moisture stress; VCI >60: favorable condition)

Vegetation Health Index (VHI)



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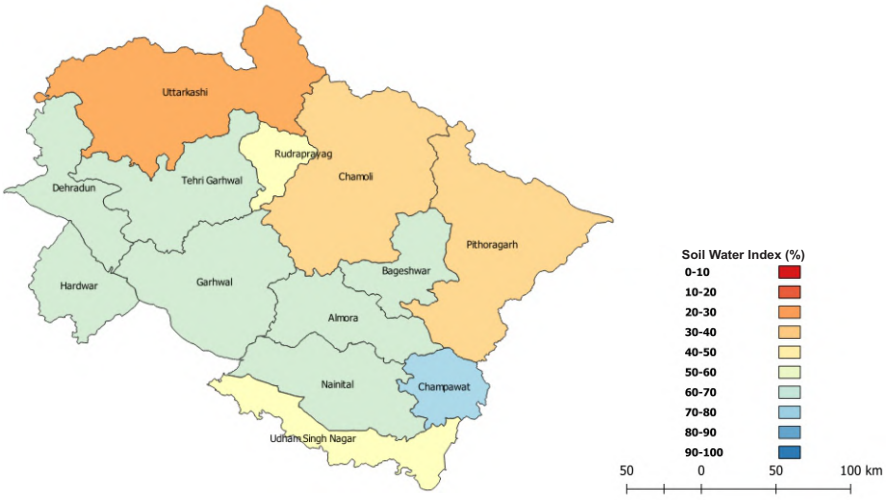
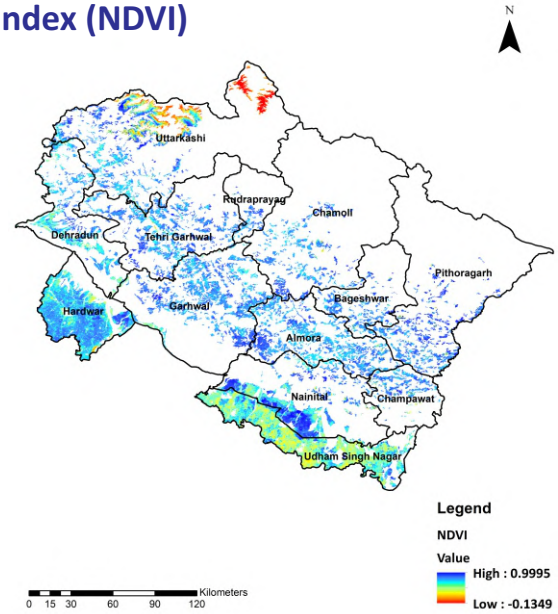
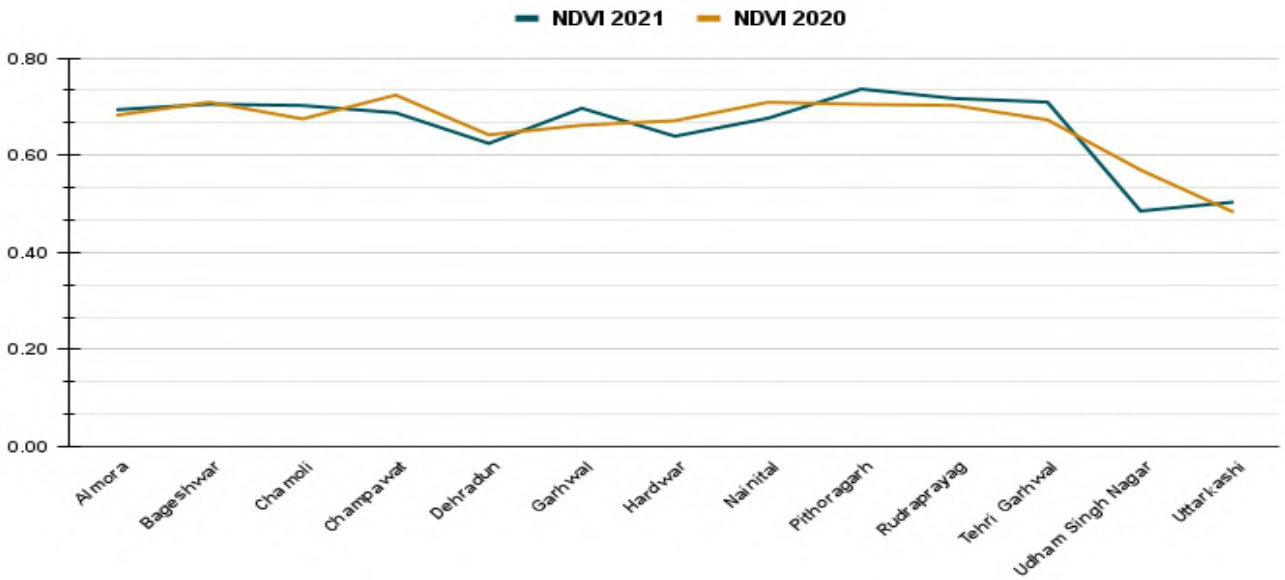


Normalized Difference Vegetation Index (NDVI)





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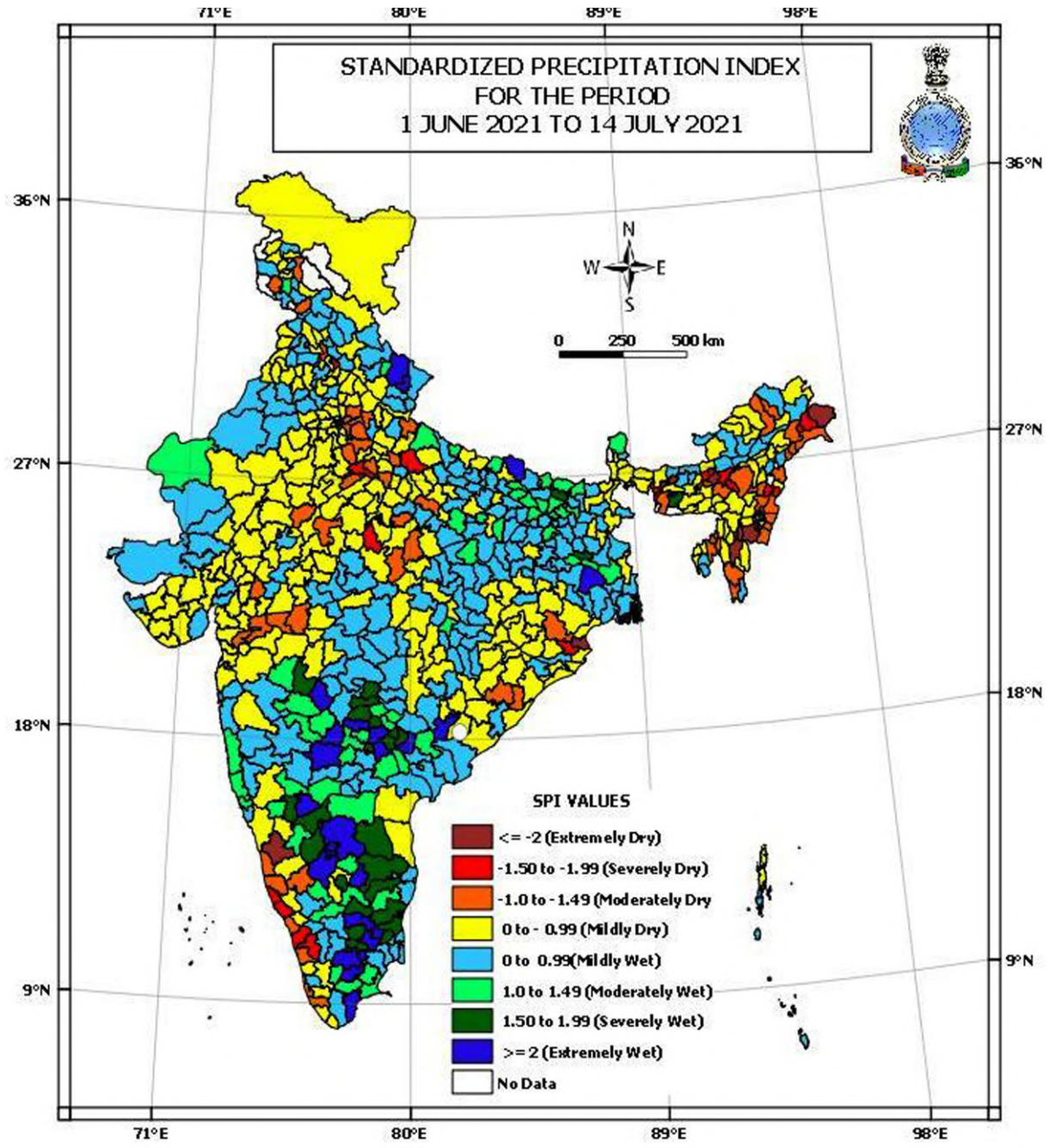
Standardised Precipitation Index (SPI)

The SPI is an index developed by McKee et al. (1993) based on the probability of rainfall for the time scale of interest and is relatively less complex to compute. SPI is the most useful drought monitoring index because of its versatility in covering all three forms of drought viz., meteorological, agricultural and hydrological.



Sources

Reservoir Status: CWC (Central Water Commission), India | FRL: Full Reservoir Level; BCM: Billion Cubic Meter
Rainfall: India Meteorological Department (IMD)
Standardised Precipitation Index (SPI) : India Meteorological Department (IMD)
Soil Water Index (SWI): Copernicus Data
Normalized Difference Vegetation Index (NDVI) : Moderate Resolution Imaging Spectroradiometer (MODIS)
Smooth Normalized Vegetation Index (SMN): National Oceanic and Atmospheric Administration (NOAA)
Temperature Condition Index (TCI): National Oceanic and Atmospheric Administration (NOAA)
Vegetation Condition Index (VCI): National Oceanic and Atmospheric Administration (NOAA)
Vegetation Health Index (VHI): National Oceanic and Atmospheric Administration (NOAA)

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