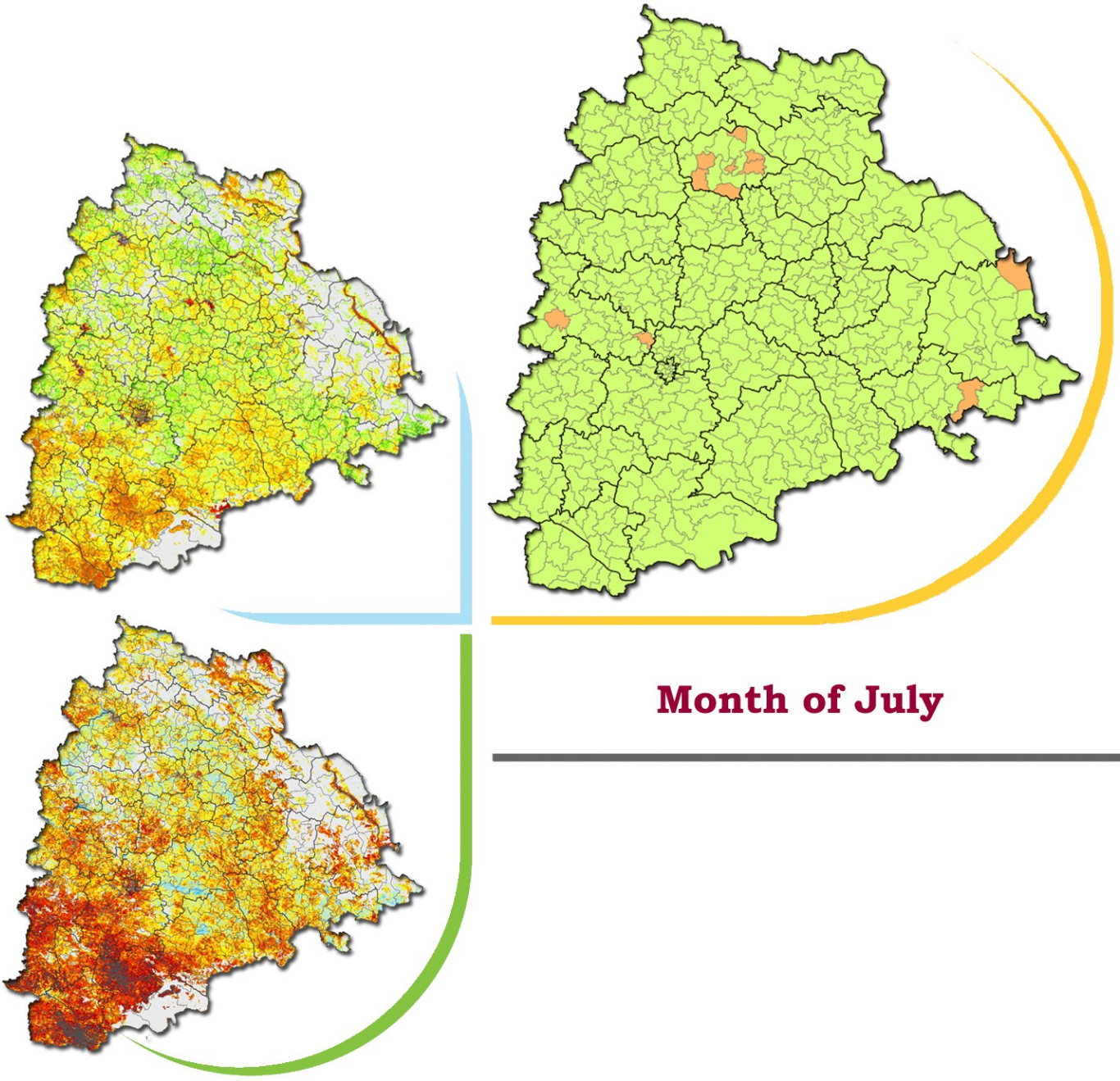
FORTNIGHTLY REPORT OF SEASONAL CONDITION

INTEGRATED SEASONAL CONDITION MONITORING SYSTEM



Month of July

TELANGANA STATE REMOTE SENSING APPLICATIONS CENTRE
Planning Department, Government of Telangana

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Acknowledgement

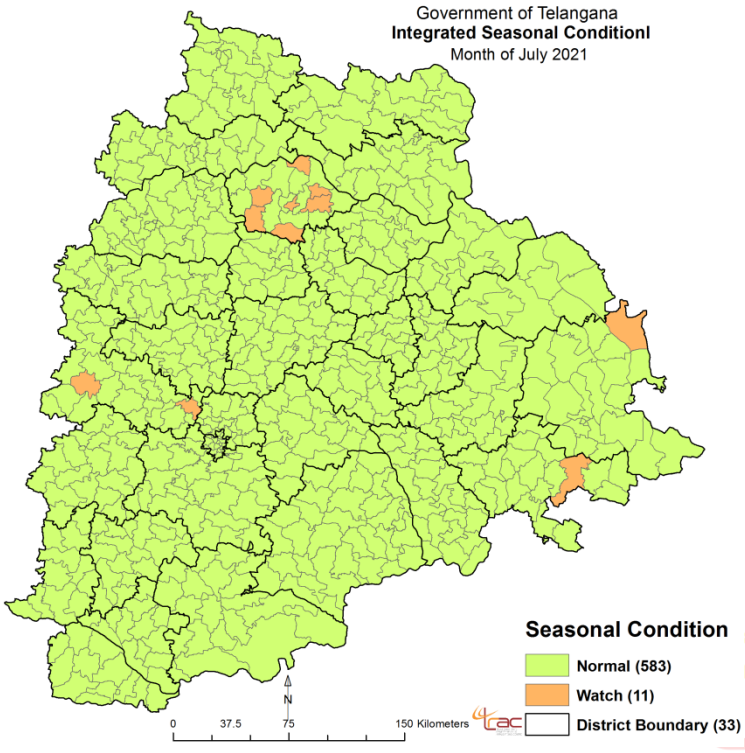
We take this opportunity to express our sincere thanks to Directorate of Economics and Statistics, Telangana State Developing Planning Society, and India Meteorological Department for providing rainfall data. We also express our gratitude to Department of Agriculture and Irrigation Department for sharing progress of crop sowings and reservoir water levels data respectively for integrated seasonal condition monitoring of the state.

HIGHLIGHTS

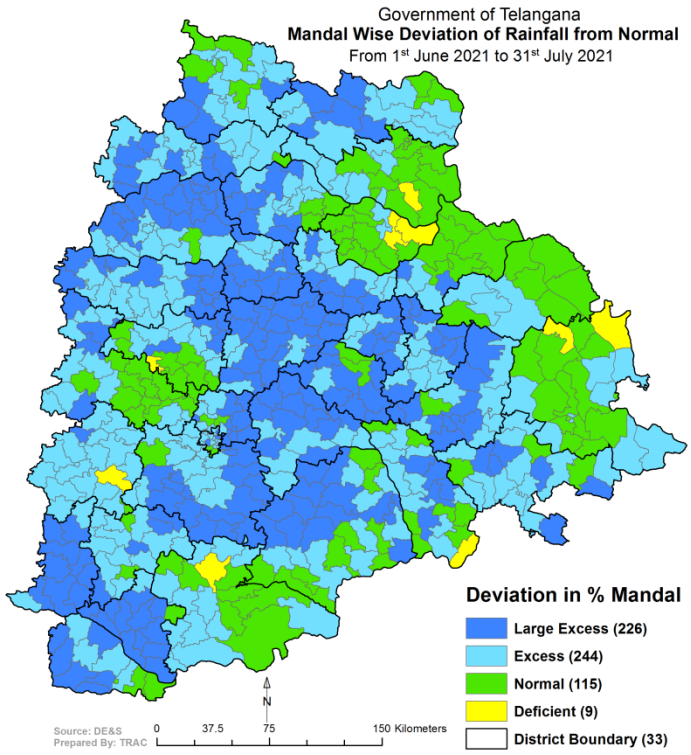
INTEGRATED SEASONAL CONDITION MONITORING SYSTEM (ISMS) - TELANGANA

Cumulative Report up to 31st July, 2021

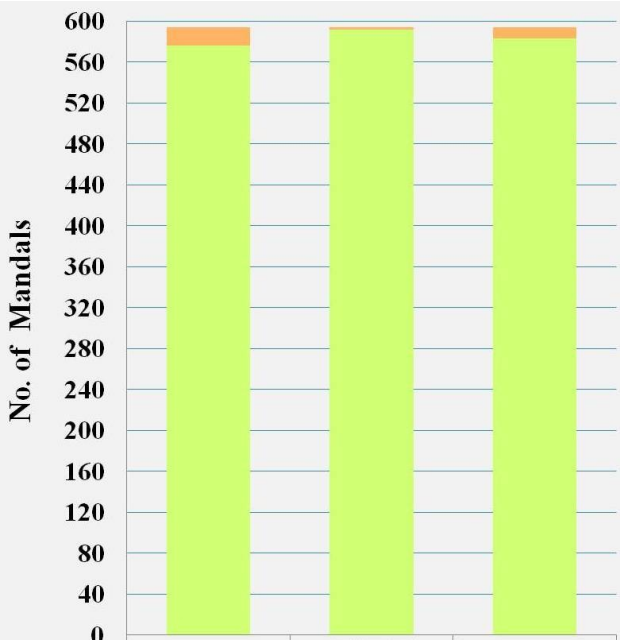
- Seasonal condition is categorised as **"Normal"** in **583** Mandals as on date 31st July, 2021
- Seasonal condition is categorised as **"Watch"** in **11** Mandals as on date 31st July, 2021



Seasonal Condition Month of July 2021



Rainfall from 1st June to 31st July 2021



	June	July 1st Fortnight	July
Alert	0	0	0
Watch	18	2	11
Normal	576	592	583

Seasonal condition of Telangana Month of July 2021

Rainfall 01st June to 31st July, 2021

226 Mandals (**38.05%**) of the state received ***Large Excess*** rainfall, **244** Mandals (**41.08%**) of the state received ***Excess*** rainfall, **09** Mandals out of 594 (**1.52%**) of state received ***Deficient*** rainfall.

115 Mandals (**19.36%**) have received ***Normal*** rainfall respectively.

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1. Background and Rationale

Drought is a complex natural hazard. It is defined as any deficiency of water to satisfy the normal need to agriculture, livestock, industry, or human population. Drought assessment and monitoring is essential for the agricultural sector to take appropriate mitigation measures. Drought indices derived from satellite data play a major role in assessing the health and condition of the crops/vegetation.

National Agricultural Drought Assessment and Monitoring System (NADAMS) project of National Remote Sensing Centre (NRSC), Indian Space Research Organization (ISRO) established a remote sensing based drought assessment protocol utilizing the Normalized Difference Vegetation Index (NDVI) and Normalized Difference Water Index (NDWI). The Government of India has established Mahalanobis National Crop Forecast Centre (MNCFC) under Department of Agriculture and Cooperation, New Delhi for carrying out drought assessment at national level.

The Department of Agriculture and Cooperation, Government of India published a drought manual in 2016 which suggested parameters like rainfall deficiency, area under sowing, NDVI, NDWI, Moisture Adequacy Index (MAI) and other indictors to declare drought. State Government monitor drought by obtaining information from various sources on key variables of drought which include rainfall, reservoir / lake water levels, surface water / groundwater, soil moisture and sowing / crop conditions etc. The key variables for monitoring drought in Telangana are:

- Meteorological Data – Rainfall and other parameters like Temperature, Wind speed and Relative Humidity (AWS data)
- Weather forecast - Short, medium, extended range
- Soil Moisture (Moisture Adequate Index)
- Sown Area / Crop Health / Stress
- Satellite based Vegetation Index (NDVI/NDWI)
- Stream Flow - Discharge
- Groundwater Levels
- Reservoir and Lake Storage / Level
- Impacts – distress sale and migration of cattle, human migration, fodder availability, drinking water, animal health, employment opportunities in agriculture sector

An extensive weather observation network of 1044 Automatic Weather Stations (AWS) is established in Telangana. Telangana State Development Planning Society (TSDPS) monitors the data and maintains the networks. Figure 1 showing the location of AWS stations in Telangana.

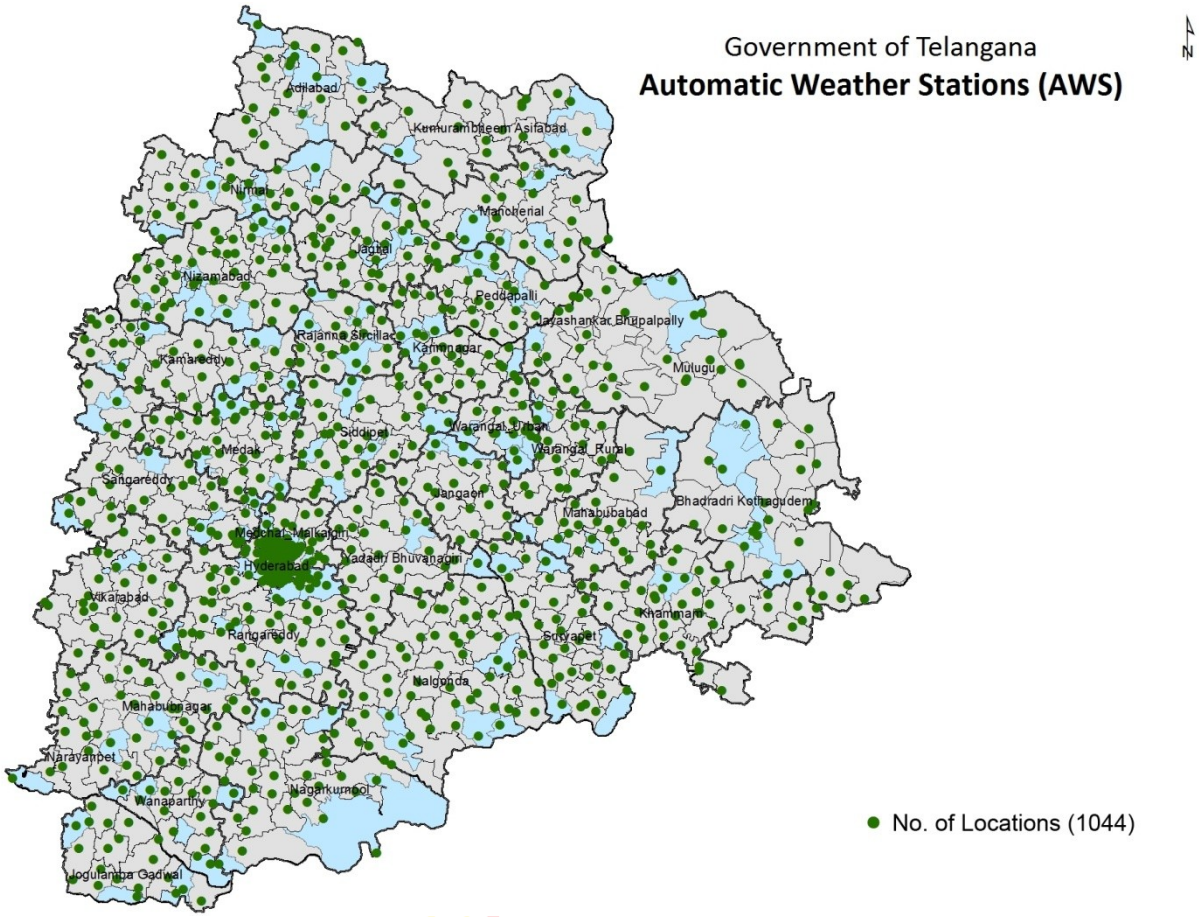

Figure 1: Location of automatic weather stations

Telangana State Remote Sensing Applications Centre (TRAC) has established a protocol ***Integrated Seasonal Condition Monitoring System (ISMS***). The objectives of the ISMS are

- *Concurrent monitoring of seasonal conditions using remote sensing, extensive weather network data and continuous ground truth.*
- *Develop an early warning (monitoring and forecasting) of drought using suite of indicators, which will help to increase drought preparedness, and identify and implement appropriate Disaster Risk Reduction (DRR) measures.*
- *Early warning to the Districts/Mandals.*

ISMS uses the rainfall data provided by Directorate of Economics & Statistics (DE&S), weekly progress of crop area sowings, groundwater level and its fluctuation, command and non-command area, water releases data, reservoir levels in addition to the Normalized Difference Vegetation Index (NDVI) and Normalized Difference Water Index (NDWI) based methodology of MNCFC. This output is verified through ground truth, additionally in context of the state specific drought declaration criteria. The agricultural situation is classified in three to four categories as per the NRSC i.e. Normal, Watch, Alert for June to August and Normal, Mild, Moderate and Severe for September to October. The details of the classification of agricultural situation are given in Table 1.

Table. 1. Classification of agricultural situation

Duration	Condition	Description
July - August	Normal	• Agricultural situation is normal
	Watch	• Progress of agricultural situation is slow • Ample scope for recovery • No external intervention needed
	Alert	• Very slow progress of agricultural situation • Need for intervention. • Develop and implement contingency plans to minimise loss
September - October	Mild drought	• Crops have suffered stress slightly
	Moderate drought	• Considerable loss in production. • Take measures to alleviate suffering
	Severe	• High risk significant reduction in crop yield • Management measures to provide relief

2. Data used, Indicators and Methodology

2.1. Data used

Details of data used under project are discussed in Table 2.

Table. 2. Data source and indicators

Data source	Product	Indicators
MODIS (250/500m)	Surface reflectance	NDVI & NDWI
AWiFS	Surface reflectance	NDVI & NDWI
AWS/ DES	• Daily rainfall • Crop sown area • Crop cutting experiments	• Rainfall deviation • Dry spells • Crop yield
Agriculture Department, GoTS	Weekly sowing progress	District wise sown areas deviation from normal
Irrigation Department, GoTS	Reservoir levels/ Water release data	Command area Mandals under canal irrigation

2.2. Indicators and Index

2.2.1. Rainfall data

In Telangana, South-West Monsoon is crucial for agriculture sector. ISMS uses integrated (AWS+DES+IMD) Mandal wise rainfall data provided by Directorate of Economics & Statistics (DES). This data is used for computation of meteorological drought situation and to derive the mandal wise spatial distribution of rainfall in the state.

2.2.2. Reservoir water levels and water release - major and medium project

A scheme having Culturable Command Area (CCA) up to 2,000 hectares individually is classified as minor irrigation scheme. A scheme having CCA more than 2,000 hectares and up to 10,000 hectares individually is a medium irrigation scheme. A scheme having CCA more than 10,000 hectares is major irrigation scheme. In Telangana, water is released during Kharif season to major and medium command areas.

2.2.3. Crop sowing progress

Weekly crop sowing progress reports are taken from 'Season and Crop Coverage Report-Kharif 2019' of Commissioner of Agriculture, Telangana. The report includes current status of Weather condition, Water level, Crop sowing and Agricultural Operations.

2.2.4. Vegetation index

The crop/vegetation reflects high energy in the near infrared band due its canopy geometry and health of the standing crops/vegetation and absorbs high in the red band due to its biomass and photosynthesis. Uses of these contrast characteristics of vegetation in near infrared and red bands indicate both the health and condition of the crops/vegetation. Normalised Difference Vegetation Index (NDVI) is widely used for operational drought assessment because of its simplicity in calculation, easy to interpret and its ability to partially compensate for the effects of atmosphere, illumination geometry etc., (Malingreau 1986, Tucker and Chowdhary 1987, Kogan 1995). NDVI is derived by the difference of these measurements and divided by their sum.

$$NDVI = \frac{(NIR - Red)}{(NIR + Red)}$$

The vegetation index is generated from each of the available satellite data irrespective of the cloud cover present. To minimize the cloud, monthly time composite vegetation index is generated.

2.2.5. Surface wetness indicator

Shortwave Infrared (SWIR) band is sensitive to moisture available in soil as well as in crop canopy. In the beginning of the cropping season, soil background is dominant hence SWIR is sensitive to soil moisture in the top 1-2 cm. As the crop progresses, SWIR becomes sensitive to leaf moisture content. SWIR band provides only surface wetness information. When the crop is grown-up, SWIR response is only from canopy and not from the underlying soil. NDWI using SWIR can complement NDVI for drought assessment particularly in the beginning of the cropping season. NDWI is derived as under;

$$NDWI = \frac{(NIR - SWIR)}{(NIR + SWIR)}$$

Higher values of NDWI signify more surface wetness. The wetness index is generated from each of the available satellite data irrespective of the cloud cover present. To minimize the cloud, monthly time composite wetness index is generated.

2.2.6. Vegetation condition index

Kogan (1995) developed Vegetation Condition Index (VCI) using the range of NDVI as under,

$$VCI = \frac{(NDVI - NDVI\ min)}{(NDVI\ max - NDVI\ min)} * 100$$

The current drought assessment expressed as percentage of deviation of NDVI and NDWI based on 10 year NDVI and NDWI index values. The minimum and maximum value of NDVI and NDWI, the VCI discriminated between the weather components.

2.3. Methodology

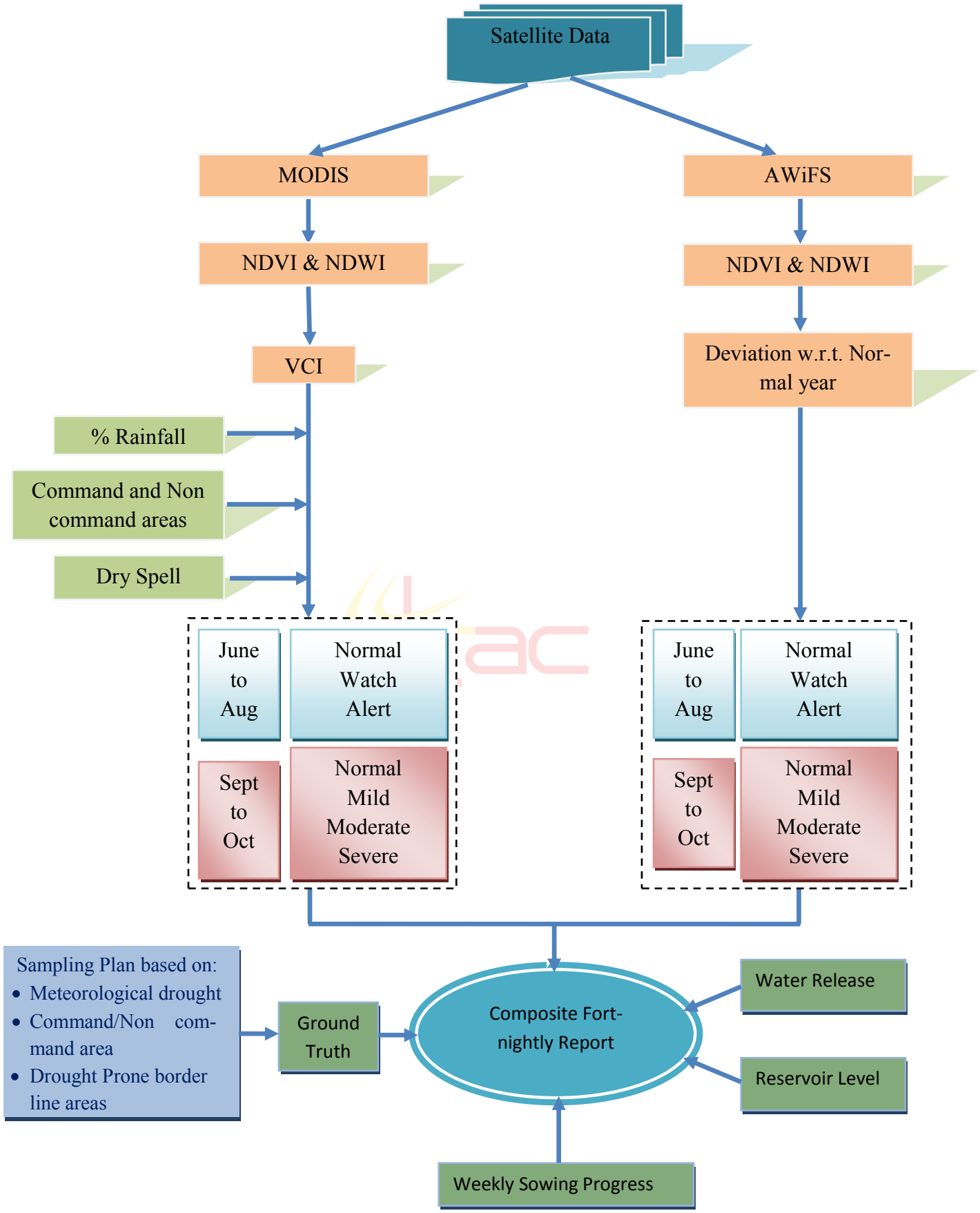

Figure 2: Flow chart of drought assessment methodology

The methodology to assess and monitor the agricultural conditions and situation in the state at district and Mandal level uses IRS Resourcesat-2 AWiFS data. Indian Remote Sensing satellite (IRS) Resourcesat-2 having Advanced Wide Imaging Field Sensor (AWiFS) payload collects data in two spectral bands 0.62-0.68 µm (red) and 0.77-0.86 µm (near infrared) with spatial resolution of 56 m and ground swath of 740 km with a revisit period of 5 days. Along with this MODIS 250/500 m satellite data provide spectra, radiometric and spatial resolutions products for better monitoring of the agriculture. The combination of AWiFS and MODIS is useful to increase the frequency of images.

The different activities carried out through ISMS commence with acquisition of MODIS (250 m) and AWiFS (56 m) satellite data. The satellite data being processed and NDVI and NDWI indices are developed. Based on these indices deviation with respect to normal year (2013) is calculated and Mandal wise statistics are derived. The agricultural situation is assessed incorporating rainfall deviation, command and non command areas, dry spell, drought prone border line areas, crop sown area progress and ground truth along with satellite derived indices. The flow chart of methodology is shown in Figure 2.

3. Present status up to Month of July 2021

3.1. Rainfall data

The status of rainfall as on 31st July 2021 is shown in Table.3.

- **226** Mandal (**38.05%**) of the state received **Large Excess** (+60% and above) rainfall.
- **244** Mandals (**41.08%**) of the state received **Excess** (+20% to +59%) rainfall.
- **09** Mandals (**1.52%**) of state received **Deficient** (-20% to -59%) rainfall.
- **115** Mandals (**19.36%**) have received **Normal** (+19% to -19%) rainfall.

Table. 3. Rainfall status as on 31st July 2021

S. No	District Name	Large Excess	Excess	No Rain	Normal	Deficient	Large Deficient	Total
1	Adilabad	9	8		1			18
2	Bhadradri Kothagudem	4	11		7	1		23
3	Hyderabad	11	5					16
4	Jagtial	6	8		4			18
5	Jangoan	8	3		1			12
6	Jayashankar Bhupalpally	4	2		4	1		11
7	Jogulamba Gadwal	5	3		4			12
8	Kamareddy	17	5					22
9	Karimnagar	8	7		1			16
10	Khammam	9	9		3			21
11	Kumurambheem Asifabad	4	8		3			15
12	Mahabubabad	13	3					16
13	Mahabubnagar	4	7		4	1		16
14	Mancherial	1	6		11			18
15	Medak	12	7		2			21
16	Medchal_Malkajgiri	8	7					15
17	Mulugu		5		4			9
18	Nagarkurnool	2	7		9	2		20
19	Nalgonda	12	12		7			31
20	Narayanpet	6	5					11
21	Nirmal	2	10		7			19
22	Nizamabad	15	12		2			29
23	Peddapalli	1	6		5	2		14
24	Rajanna Sircilla	11	2					13
25	Rangareddy	20	6		1			27
26	Sangareddy	12	12		3			27
27	Siddipet	23	1					24
28	Suryapet	12	1		9	1		23
29	Vikarabad	5	12		1	1		19
30	Wanaparthy	3	4		7			14
31	Warangal_Rural	10	4		2			16
32	Warangal_Urban	10	1					11
33	Yadadri Bhuvanagiri	15	2					17
	Total	**282**	**201**		**102**	**9**		**594**

SOURCE: DE&S

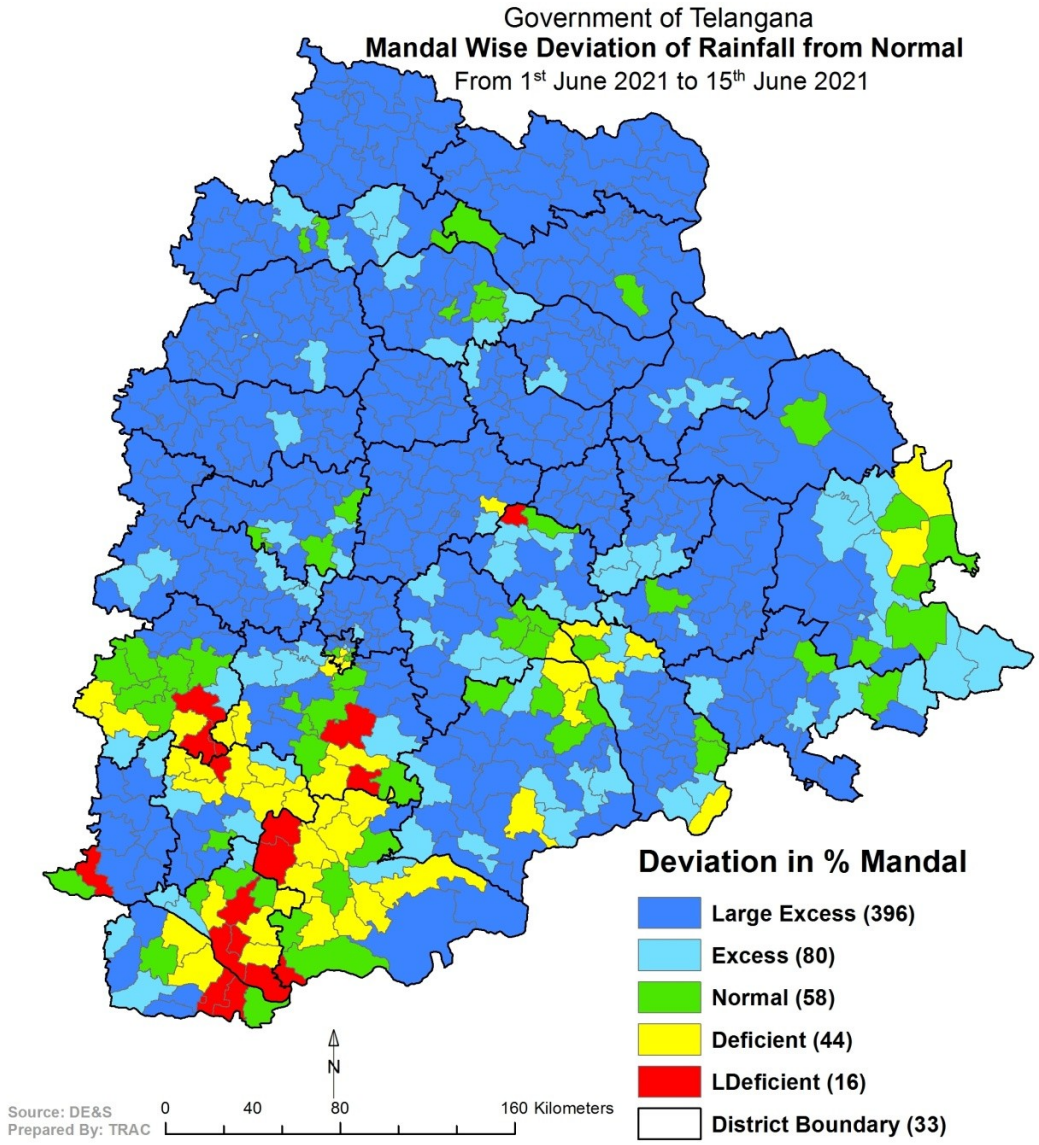

Figure 3: Deviation of rainfall in percent w.r.t. normal from June 01st to June 15th, 2021

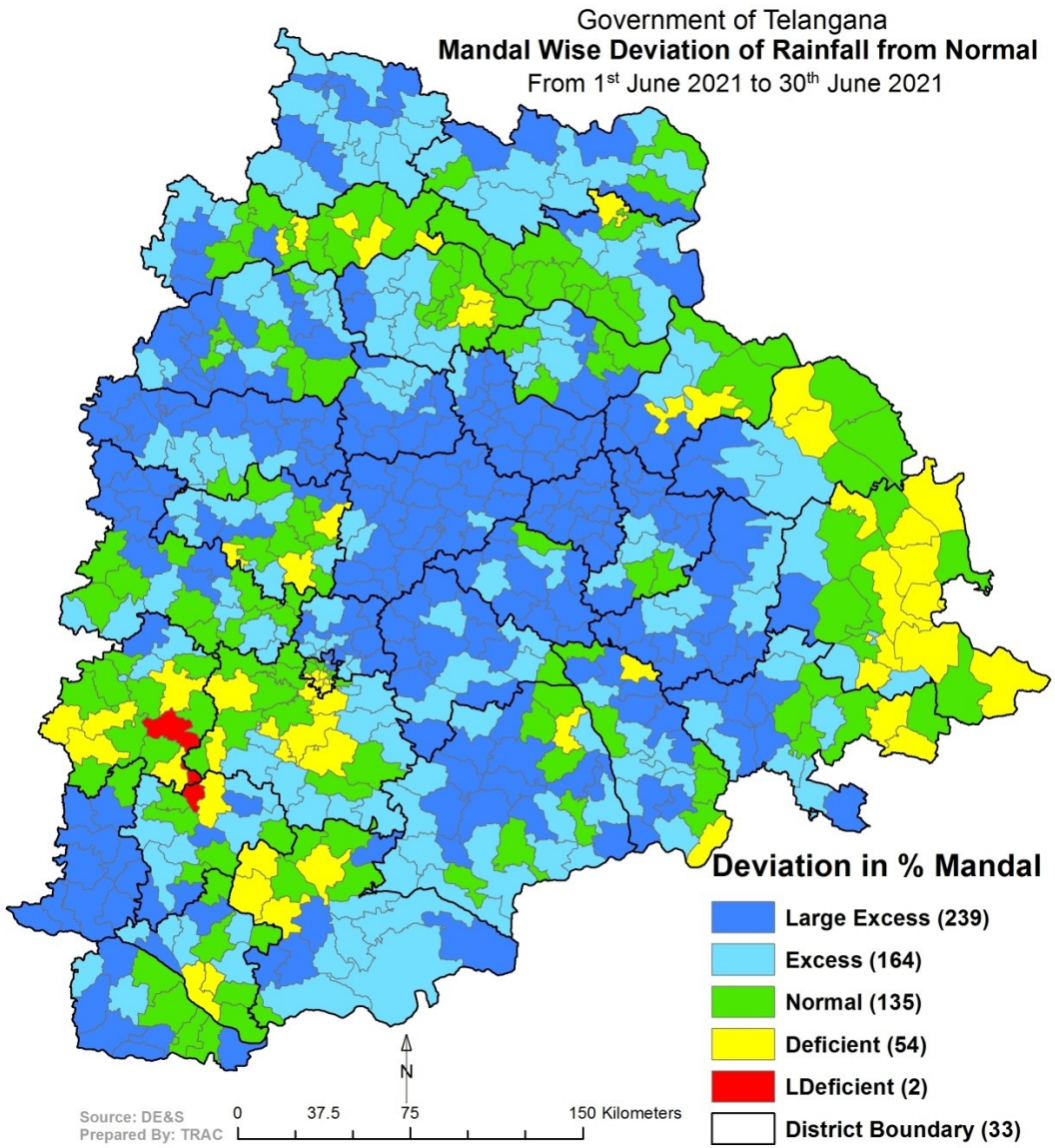

Figure 4: Deviation of rainfall in percent w.r.t. normal from June 01st to June 30th, 2021

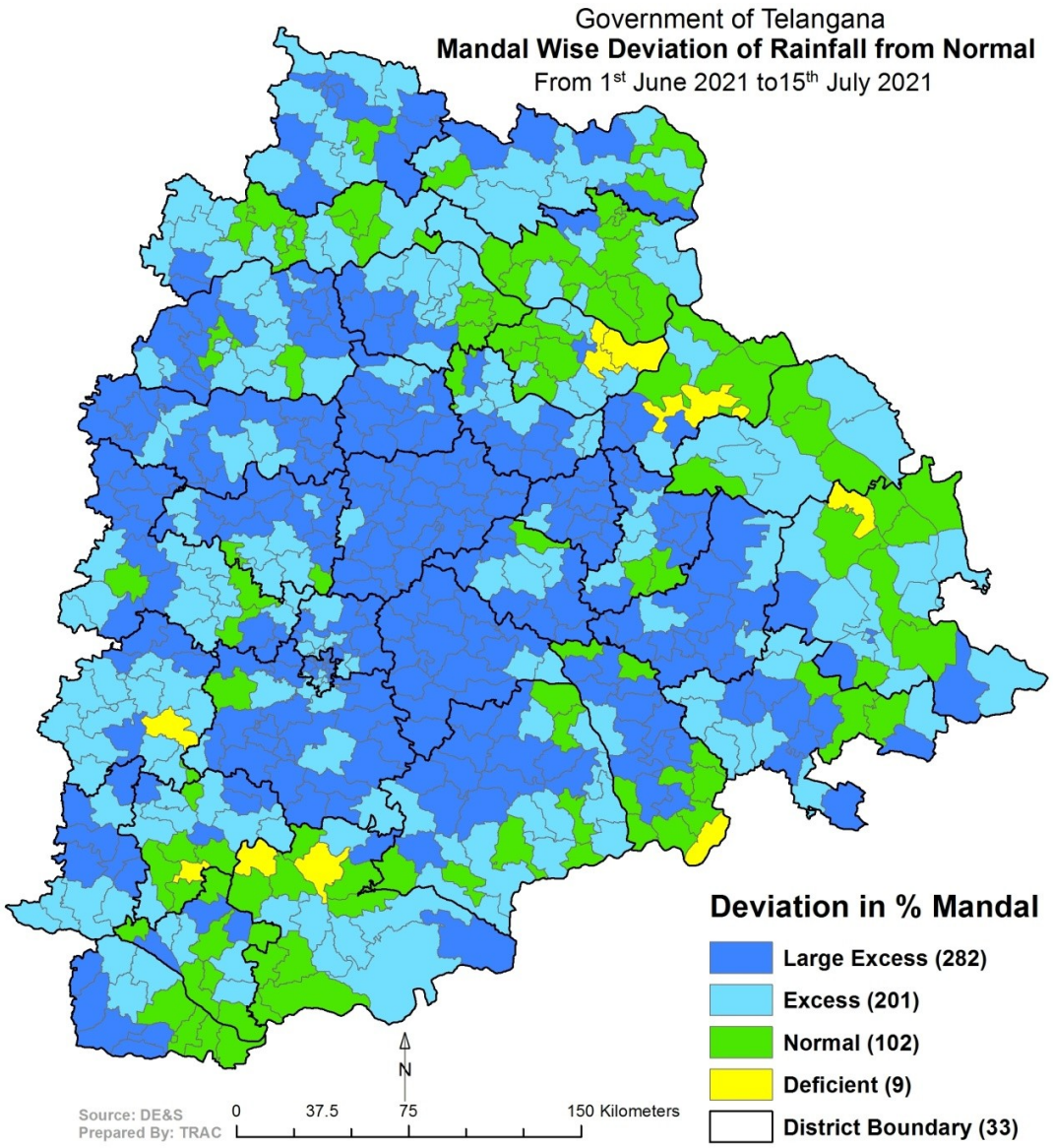

Figure 5: Deviation of rainfall in percent w.r.t. normal from June 01st to July 15th, 2021

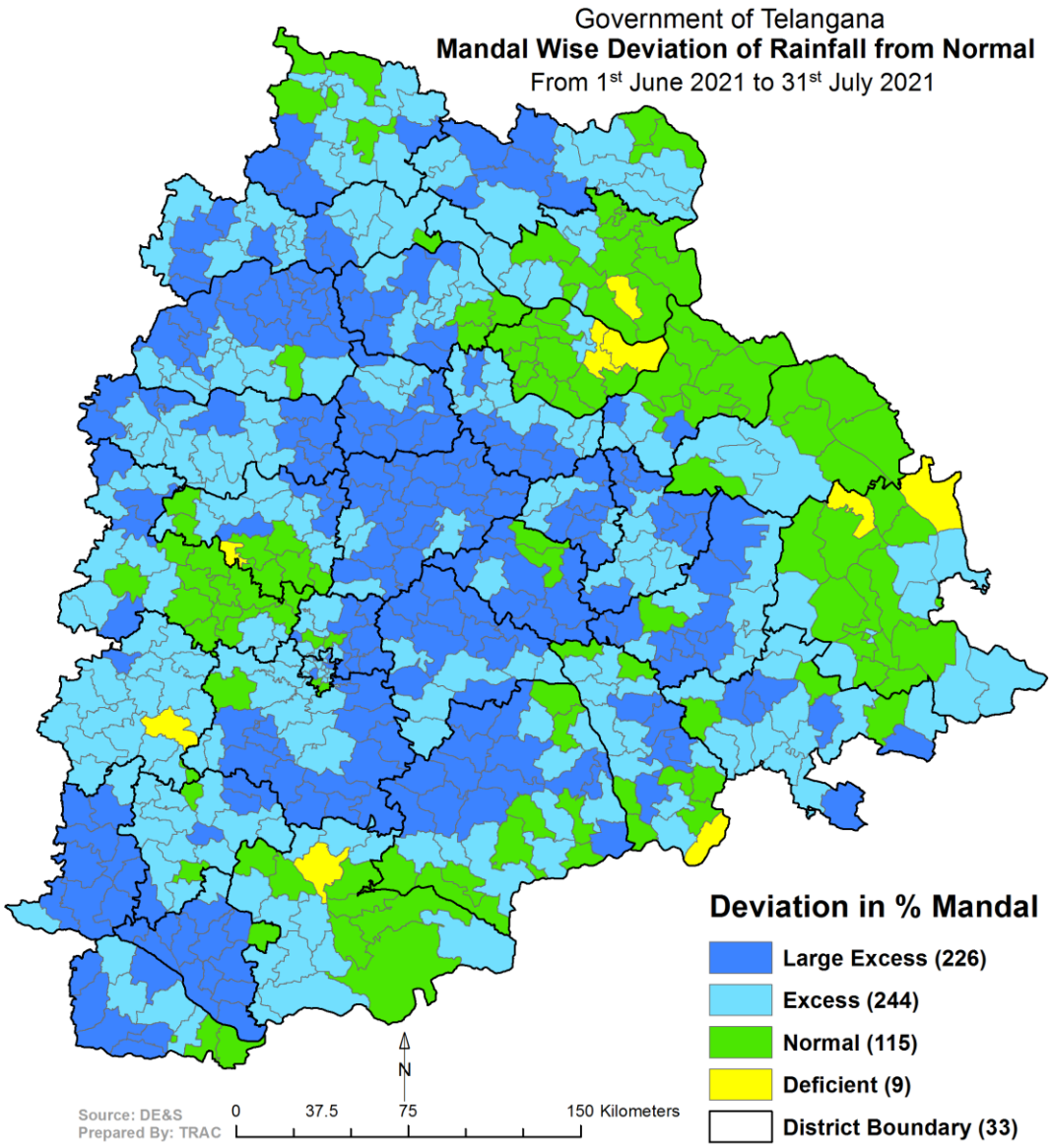

Figure 6: Deviation of rainfall in percent w.r.t. normal from June 01st to July 31st, 2021

3.2. Reservoir water levels

All the major reservoirs are holding 966.97 TMC as on 31-07-2021 and as on date last year the level had stood at 658.48 TMC. The details of water levels of all major reservoirs as on 31-07-2021 are furnished hereunder in Table.4.

Table.4. Reservoir Water Levels

PARTICULARS OF MAJOR RESERVOIRS AS ON 31 / July / 2021										
Sl No	Reservoir Name	Time	FRL	Gross Capacity	THIS YEAR As on 31 / July/ 2021				LAST YEAR As on 31 / July / 2020	
			(feet)	(TMC)	Level (in feet)	Gross Storage (TMC)	Inflow (Cusecs)	Outflow (Cusecs)	Level (in feet)	Gross Storage (TMC)
Krishna Basin										
1	Almatti	6:00	1705	129.721	1696.52	88.94	408596	421882	1697.47	92.86
2	Jurala	6:00	1045	9.657	1039.5	6.46	472391	473629	1044.42	9.3
3	Nagarjunasagar	6:00	590	312.045	566.6	248.04	399034	33194	547.1	203.43
4	Narayanapur	6:00	1615	37.646	1605.41	25.54	417606	421507	1612.57	34.3
5	Srisailam	6:00	885	215.807	883.5	207.41	499437	552063	852.5	85.75
6	Tungabhadra	6:00	1633	100.86	1632.39	98.51	42475	44701	1612.49	40.24
7	Ujjaini	6:00	1630	117.24	1621.47	89.59	11945	311	1613.57	69.34
Godavari Basin										
8	Jaikwad	6:00	1522	102.732	1508.36	55.47	7672	323	1511.09	63.3
9	Kaddam	6:19	700	7.6	696.1	6.623	1387	748	696.35	6.684
10	Lower Manair Dam	7:11	920	24.074	918.85	23.044	1800	1800	903.3	12.05
11	Nizam sagar	6:00	1405	17.803	1399.05	10.36	0	0	1376.54	0.85
12	Singur	6:00	1717.93	29.91	1712.08	21.08	863	386	1680.77	1.61
13	Sri Ram Sagar	6:00	1091	90.313	1090.2	85.9	0	9260	1074.6	38.77

Source: Irrigation Department, Hyderabad

3.3. Crop Sowing Progress

For the 28th July 2021, the total area sown in the state **90,98,134** ha as against the normal sown area of **78,16,538** ha. as on date. The details are shown in Figure 7 and the deviation graph is shown in Figure 8.

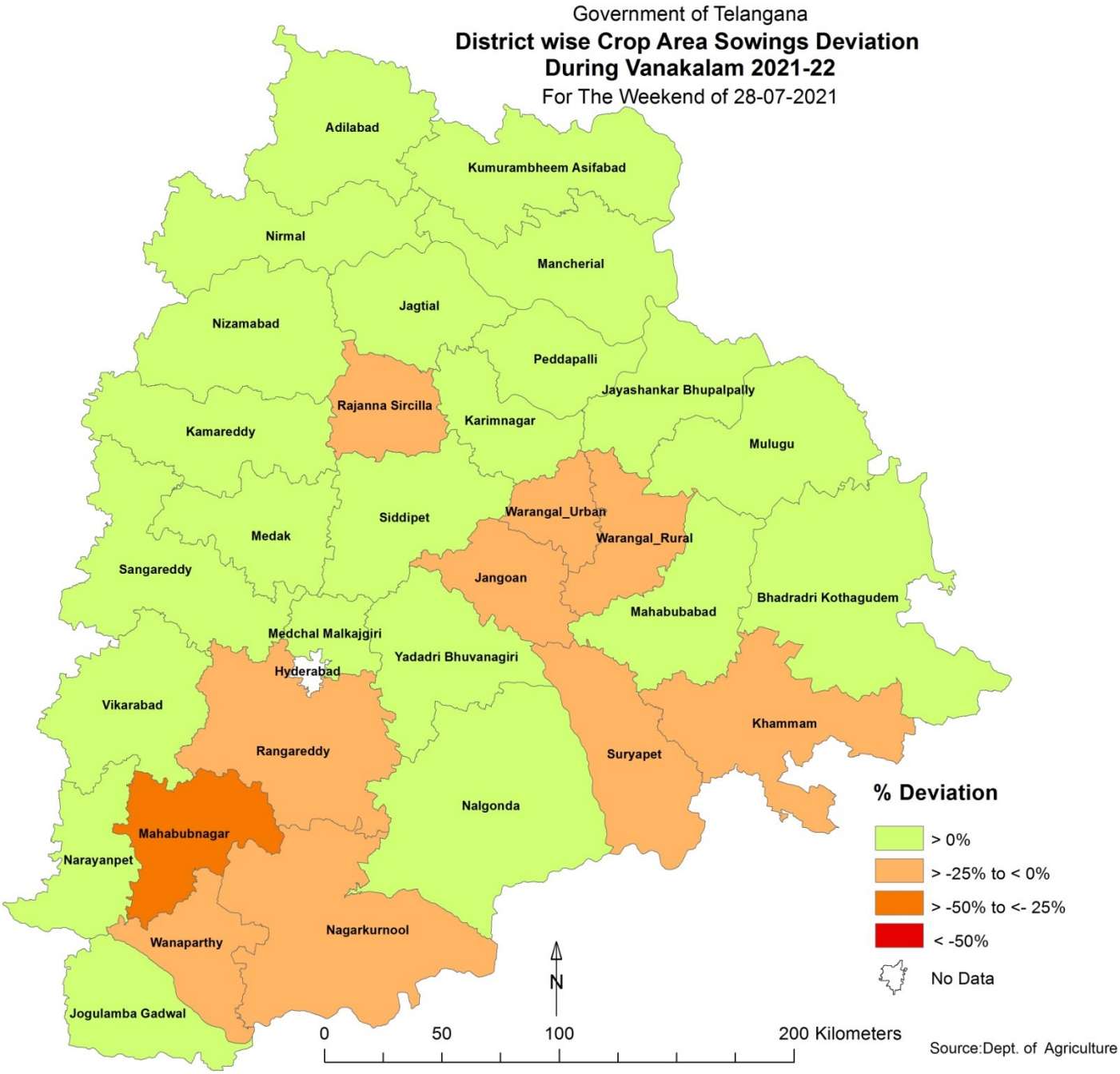

Figure 7: District wise deviation from normal crop sown area as on date 28-07-2021

Table 5: District Wise Crop Sowing Area - Up to the week ending 28.07.2021

S. No	District Name	Normal (ha)	Actual (ha)	Deviation %
1	**Mahabubnagar**	408580	245906	-39.81
2	Wanaparthy	86221	65393	-24.16
3	Warangal Urban	118820	92729	-21.96
4	Suryapet	171083	143301	-16.24
5	**Warangal Rural**	245508	222717	-9.28
6	Nagarkurnool	433096	395238	-8.74
7	**Rangareddy**	299861	280283	-6.53
8	Jangaon	225955	215557	-4.60
9	Rajanna Sircilla	160235	154412	-3.63
10	**Khammam**	288123	281517	-2.29
11	**Hyderabad**	0	0	0.00
12	Jogulamba Gadwal	172610	177074	2.59
13	Jayashankar Bhupalpally	163403	169851	3.95
14	Siddipet	355165	386647	8.86
15	Medchal Malkajgiri	10720	11915	11.15
16	Nirmal	300004	334467	11.49
17	**Adilabad**	489849	555879	13.48
18	Mahabubabad	191087	227871	19.25
19	Kamareddy	326562	394050	20.67
20	Mancherial	146555	177864	21.36
21	**Nalgonda**	618310	769544	24.46
22	**Nizamabad**	307946	390277	26.74
23	Jagtial	142854	186414	30.49
24	Kumarambheem Asifabad	280050	369963	32.11
25	Vikarabad	345420	467186	35.25
26	Bhadradri Kothagudem	213352	311977	46.23
27	**Karimnagar**	183418	270338	47.39
28	Sangareddy	450405	669089	48.55
29	Peddapalle	123667	188438	52.38
30	**Medak**	163351	250825	53.55
31	Yadadri Bhuvanagiri	205101	315749	53.95
32	Mulugu	26211	40916	56.10
33	Narayanpet	163016	334747	105.35
		78,16,538	**90,98,134**	

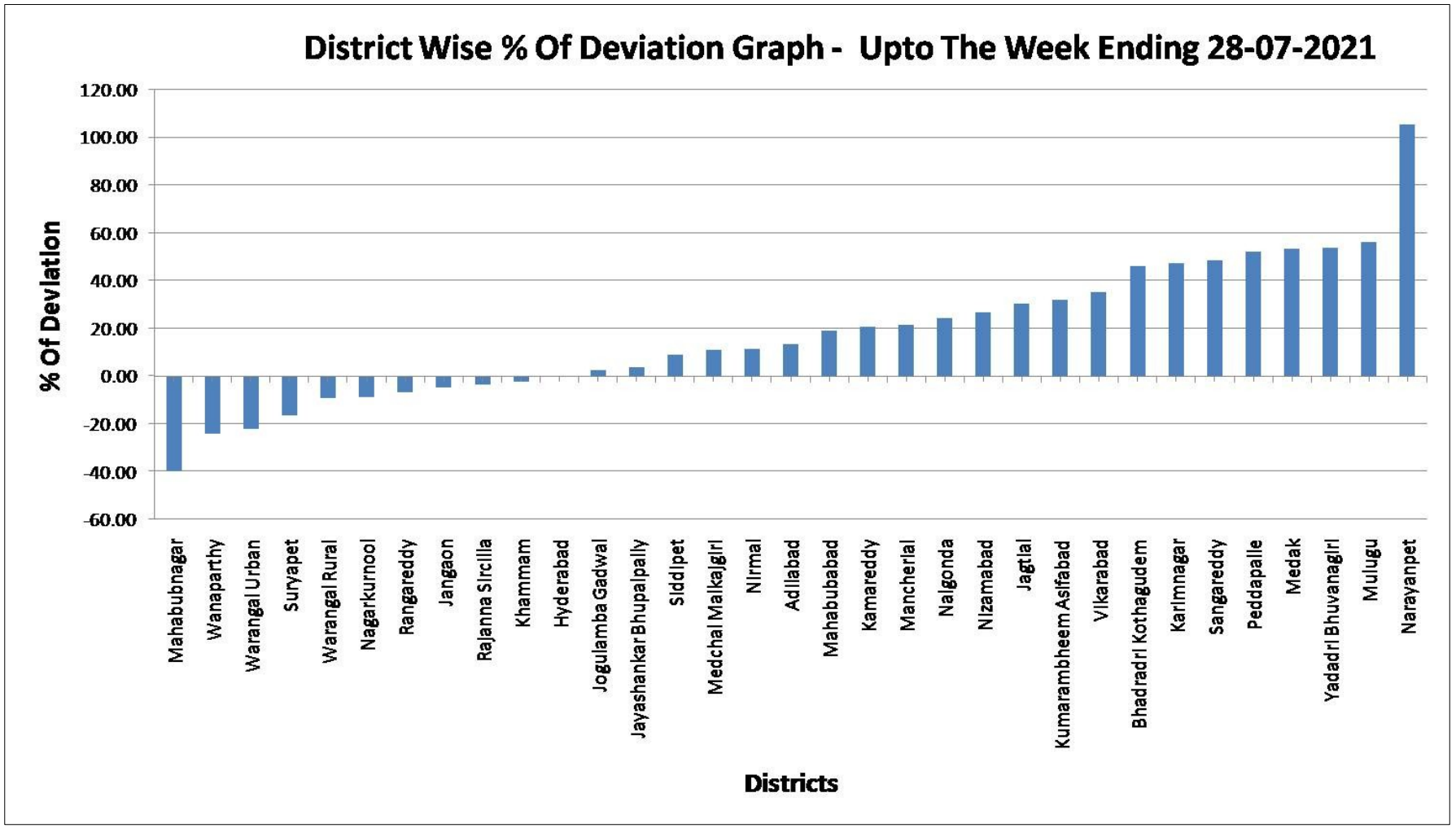

Figure 8: District wise deviation (graph) from normal crop sown area as on date 28-07-2021

3.4. Vegetation index

The Normalized Difference of Vegetation Index (NDVI) for the Month of July 2021 is shown in the figures and also compared with 2020 and 2019. The year 2013 is treated as a normal year. Mandal wise NDVI, Monthly agricultural situation for the year 2021, 2020 and 2019, deviation of NDVI w.r.t. 2013 are shown in the Figures 9, 10, 11, 12, 13 and 14 respectively. As per NDVI deviation w.r.t normal mild stress is observed in Karimnagar, Mahabubnagar, Nalgonda, Nagarkurnool, Peddapalli, Rangareddy and Suryapet districts. As per rainfall distribution the progress of agricultural situation and the vegetation condition in the state is normal and likely to improve in coming fortnight.

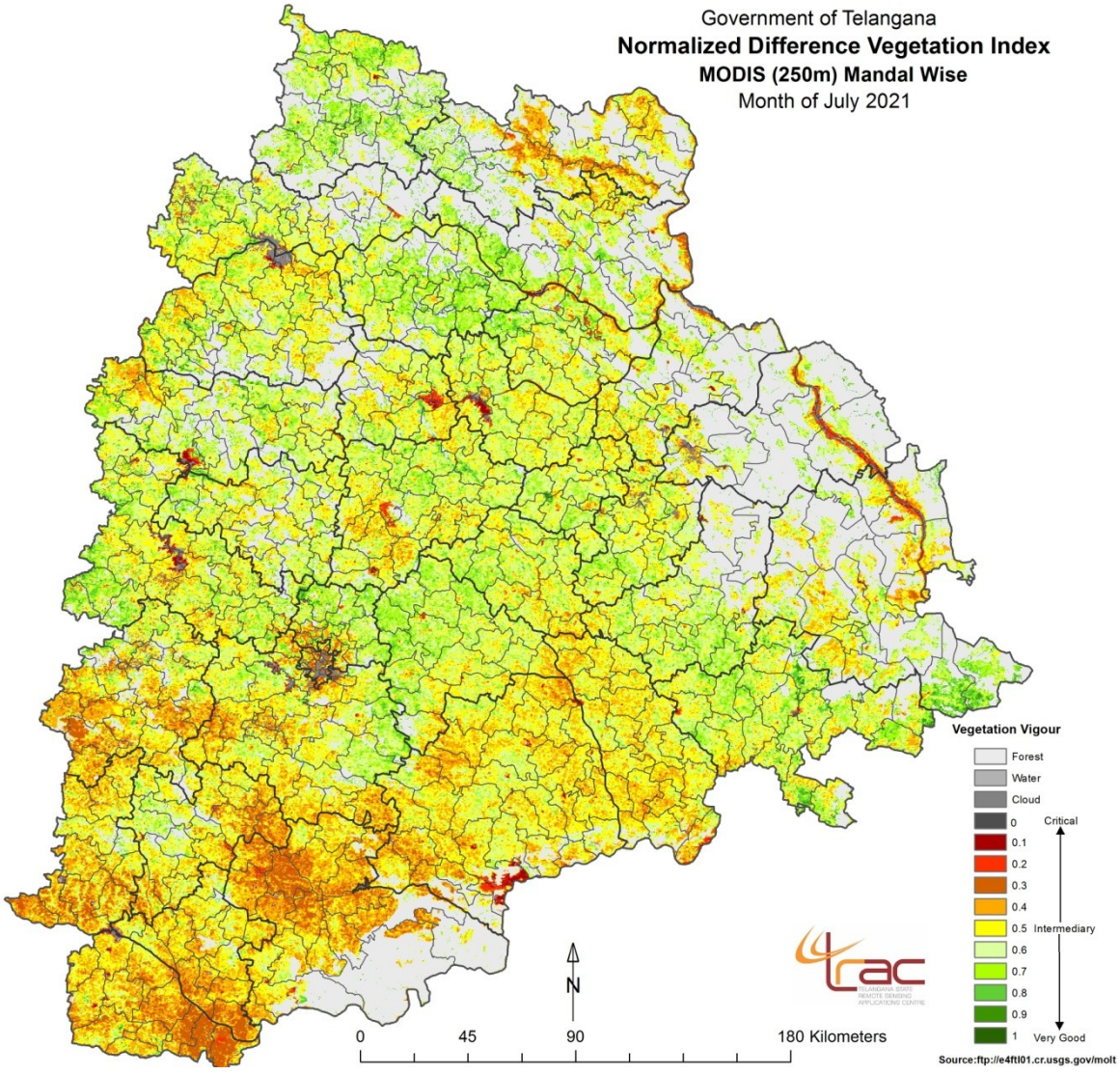

Figure 9: NDVI - MODIS: Month of July 2021

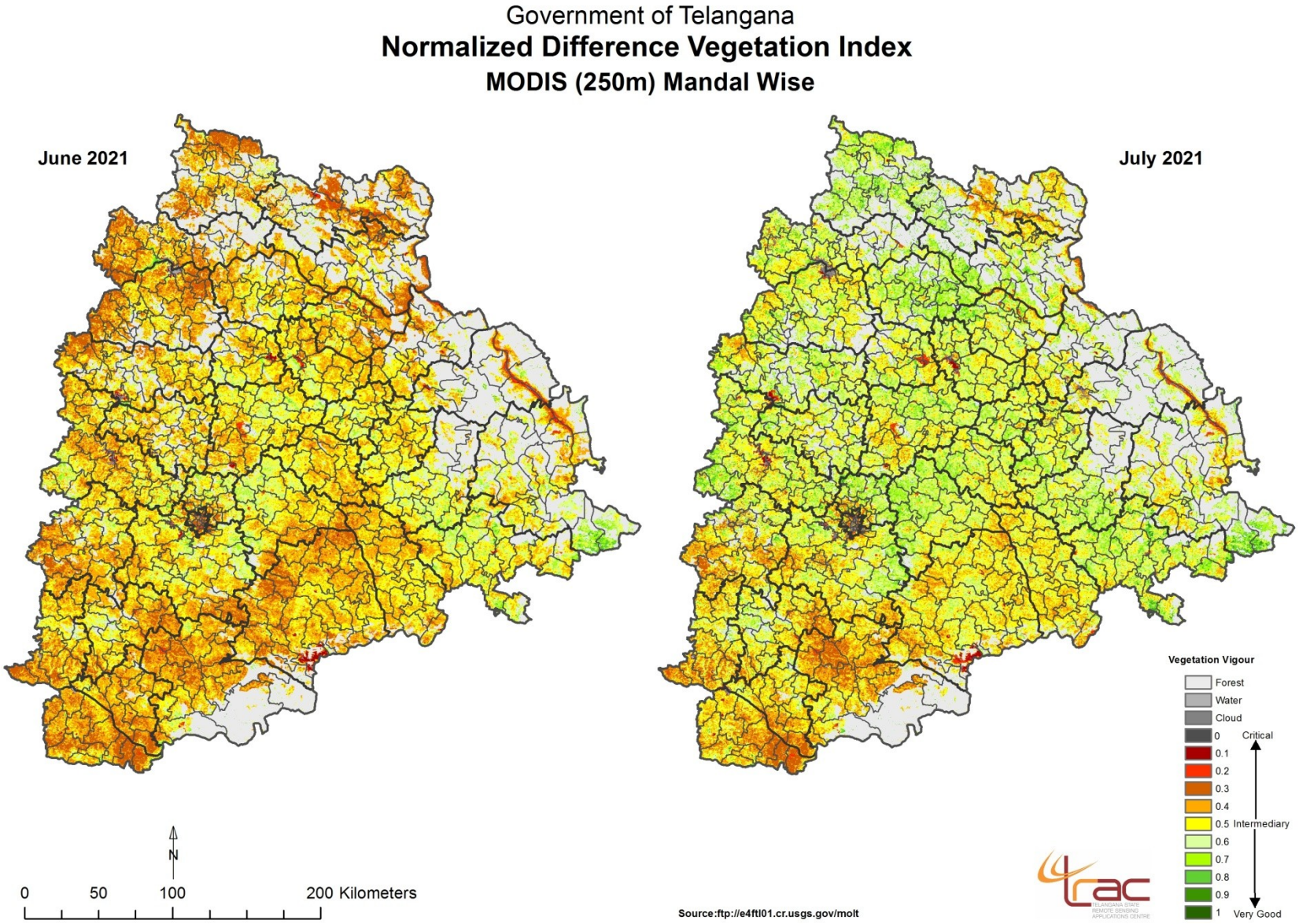

Figure 10 : NDVI - MODIS, Monthly agricultural situation from June and July 2021

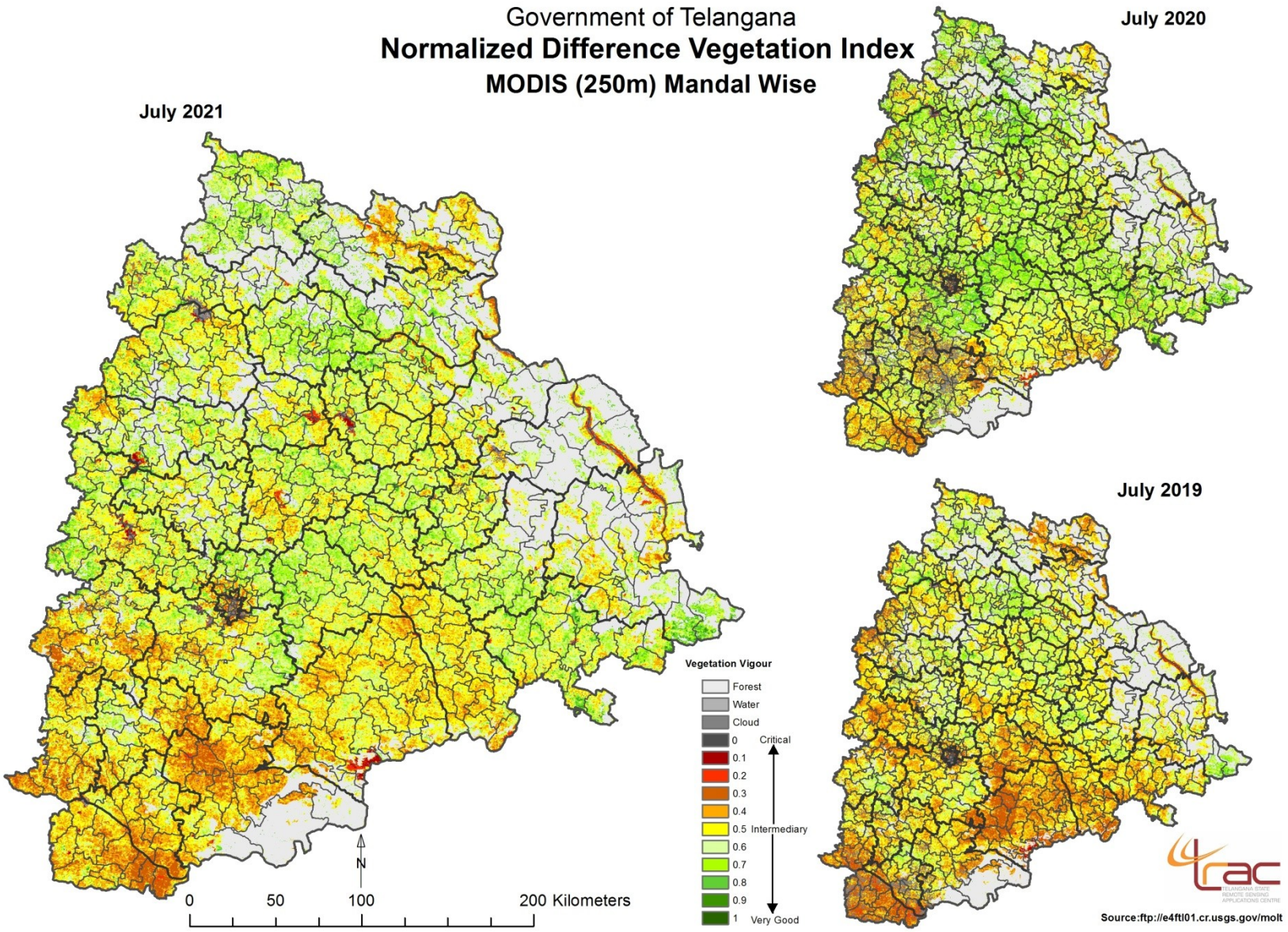

Figure 11 : NDVI - MODIS, Yearly agricultural situation from July 2019, 2020 and 2021

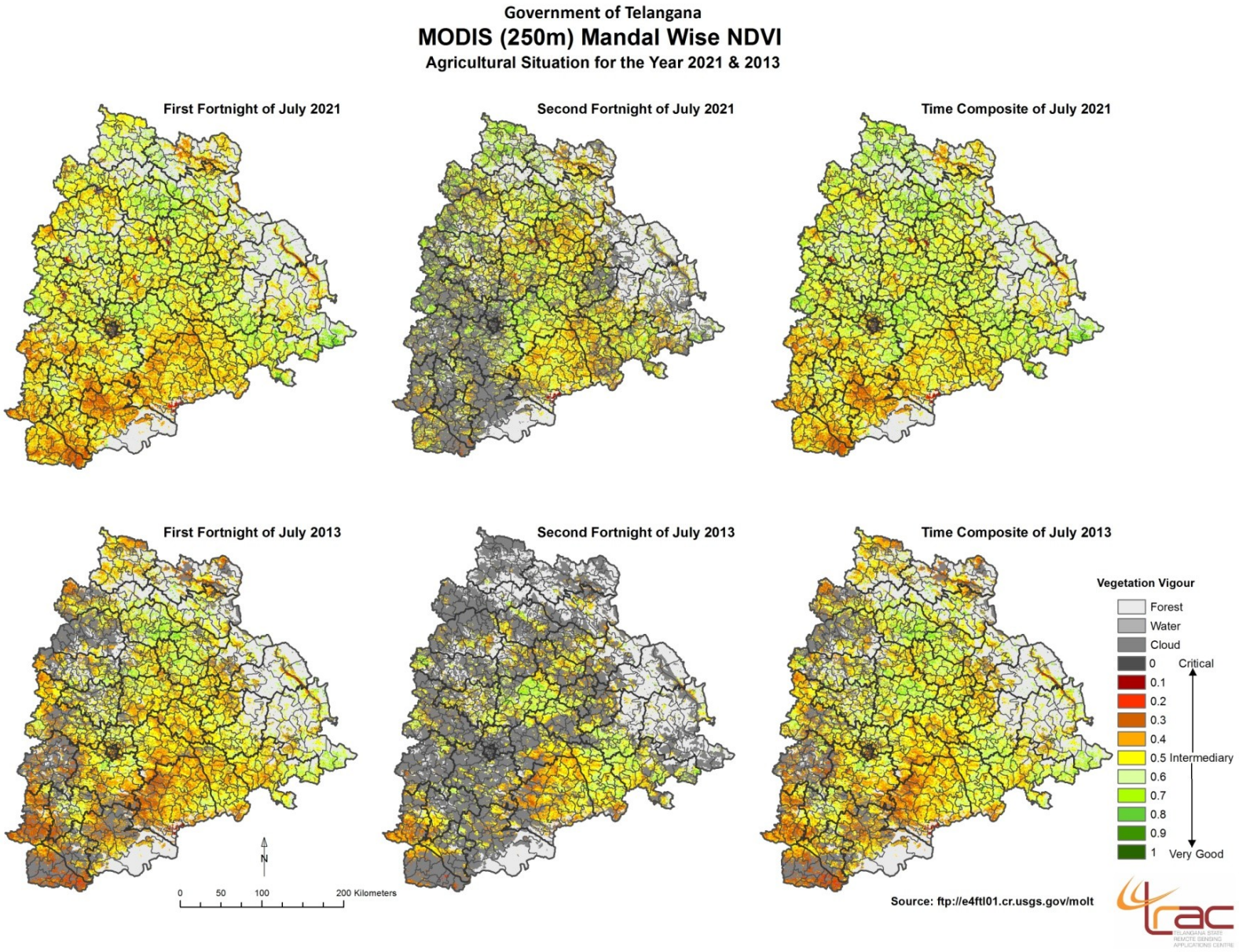

Figure 12: NDVI - MODIS, Fortnightly agricultural situation from July 2021 and 2013

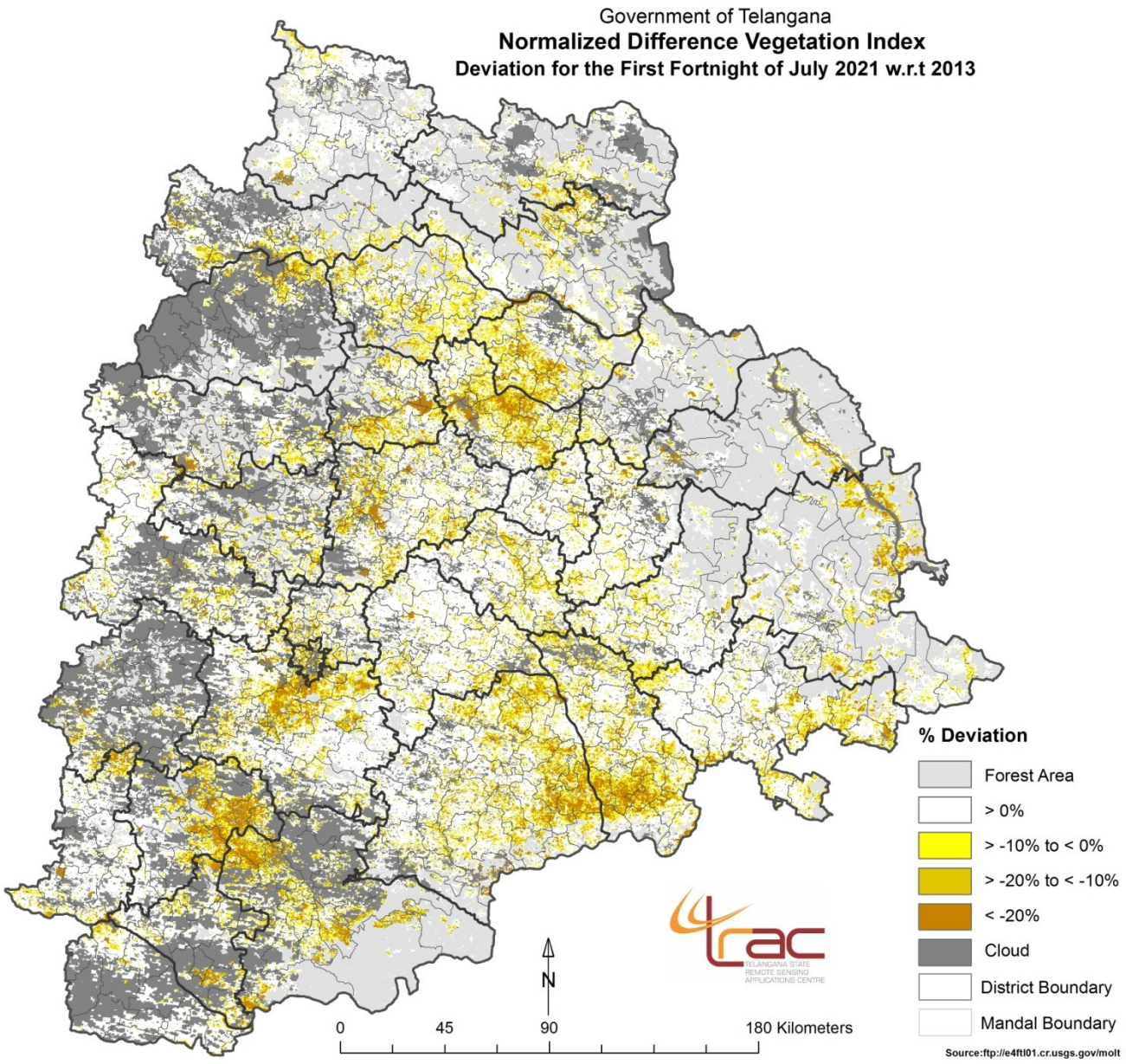

Figure 13: NDVI deviation (MODIS - 250m), Month of July 2021 w.r.t. 2013

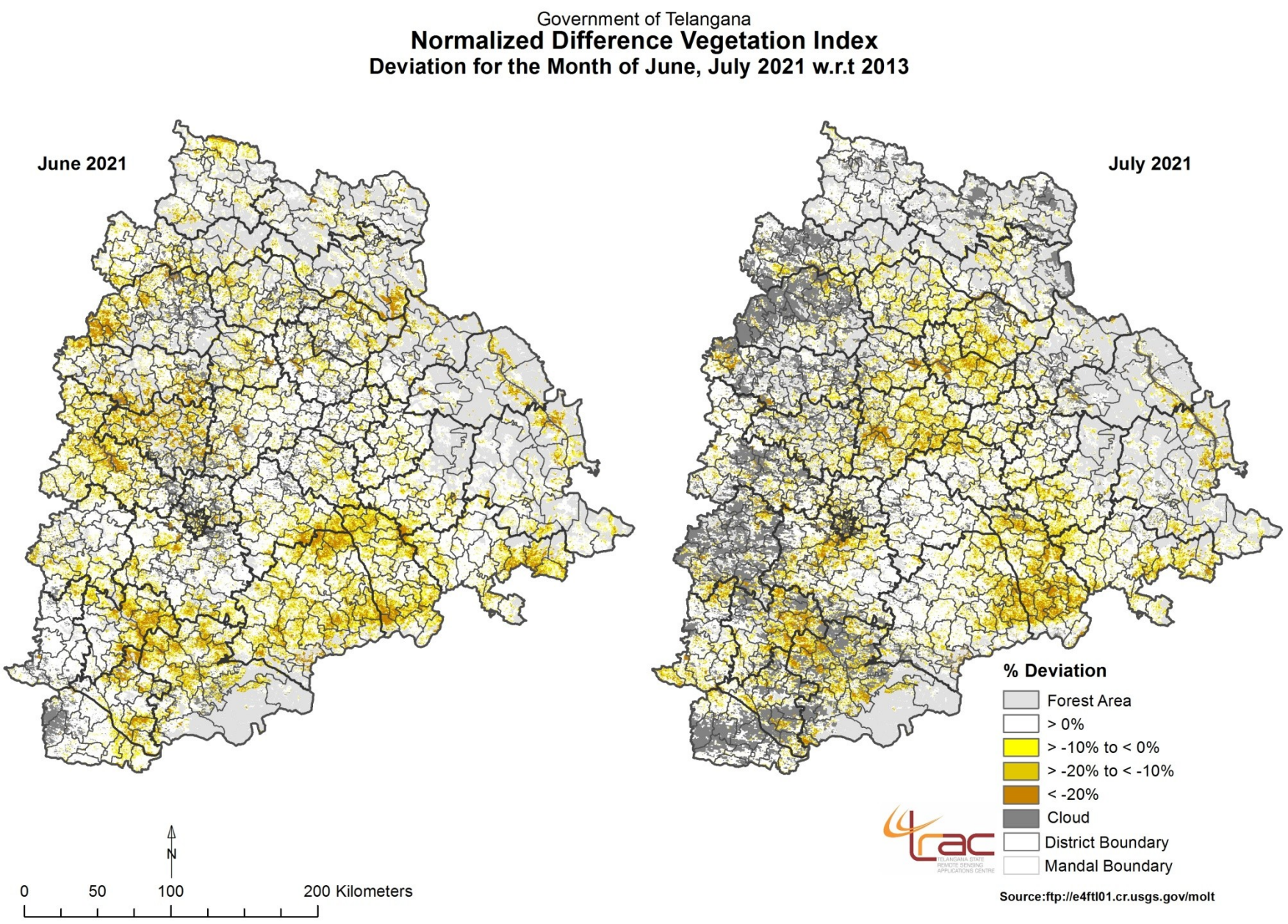

Figure 14: NDVI deviation (MODIS - 250m), Month of June and July 2021 w.r.t. 2013

3.5. Surface wetness indicator

The map indicates status of moisture availability in soil as well as in crop canopy for the Month of July 2021. The year 2013 is treated as a normal year. Mandal wise Normalized Difference Water Index (NDWI) situation the year 2021, 2020 & 2019, Monthly agricultural situation deviation of NDWI w.r.t. 2013 are shown in the Figures 15, 16, 17, 18, 19 and 20 respectively. As per NDWI deviation w.r.t normal Karimnagar, Mahabubnagar, Nalgonda, Nagarkurnool, Narayanpet, RangaReddy, Siddipet and Suryapet districts are under mild stress condition. As per rainfall distribution the progress of agricultural situation is normal and the soil moisture condition in the state is very much likely to improve in next fortnight.

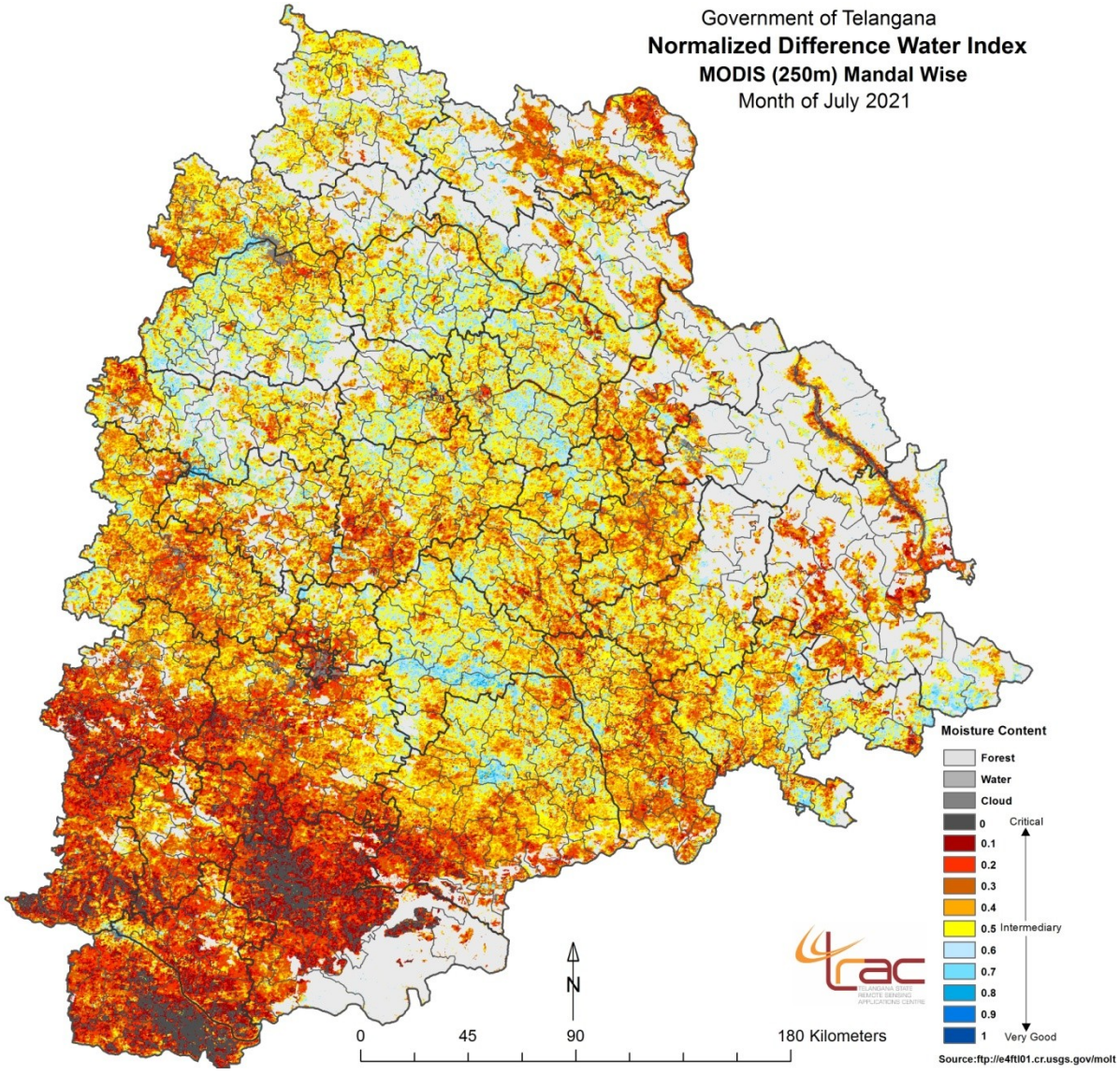

Figure 15: NDWI - MODIS: Month of July 2021

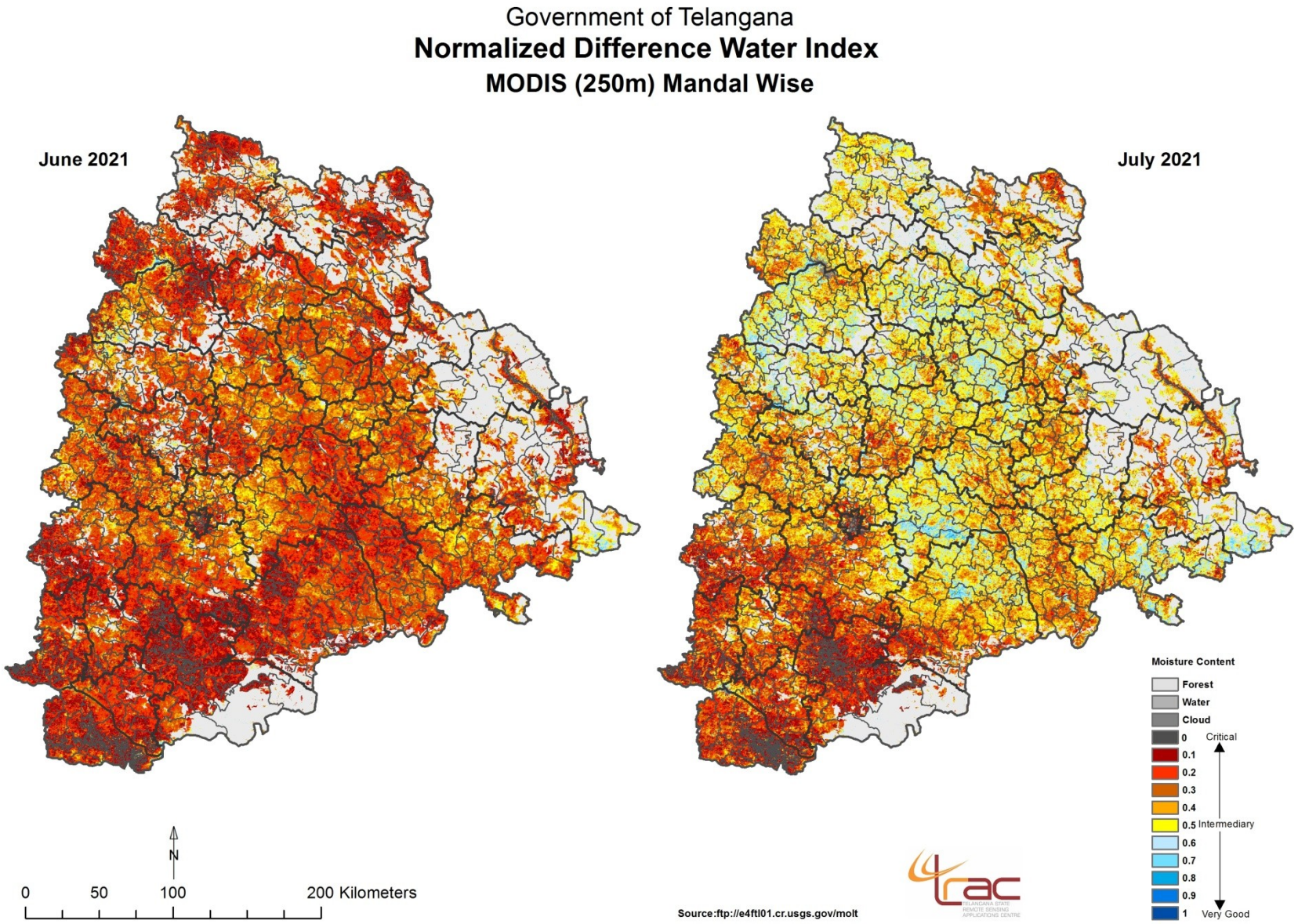

Figure 16: NDWI - MODIS, Monthly agricultural situation from June and July 2021

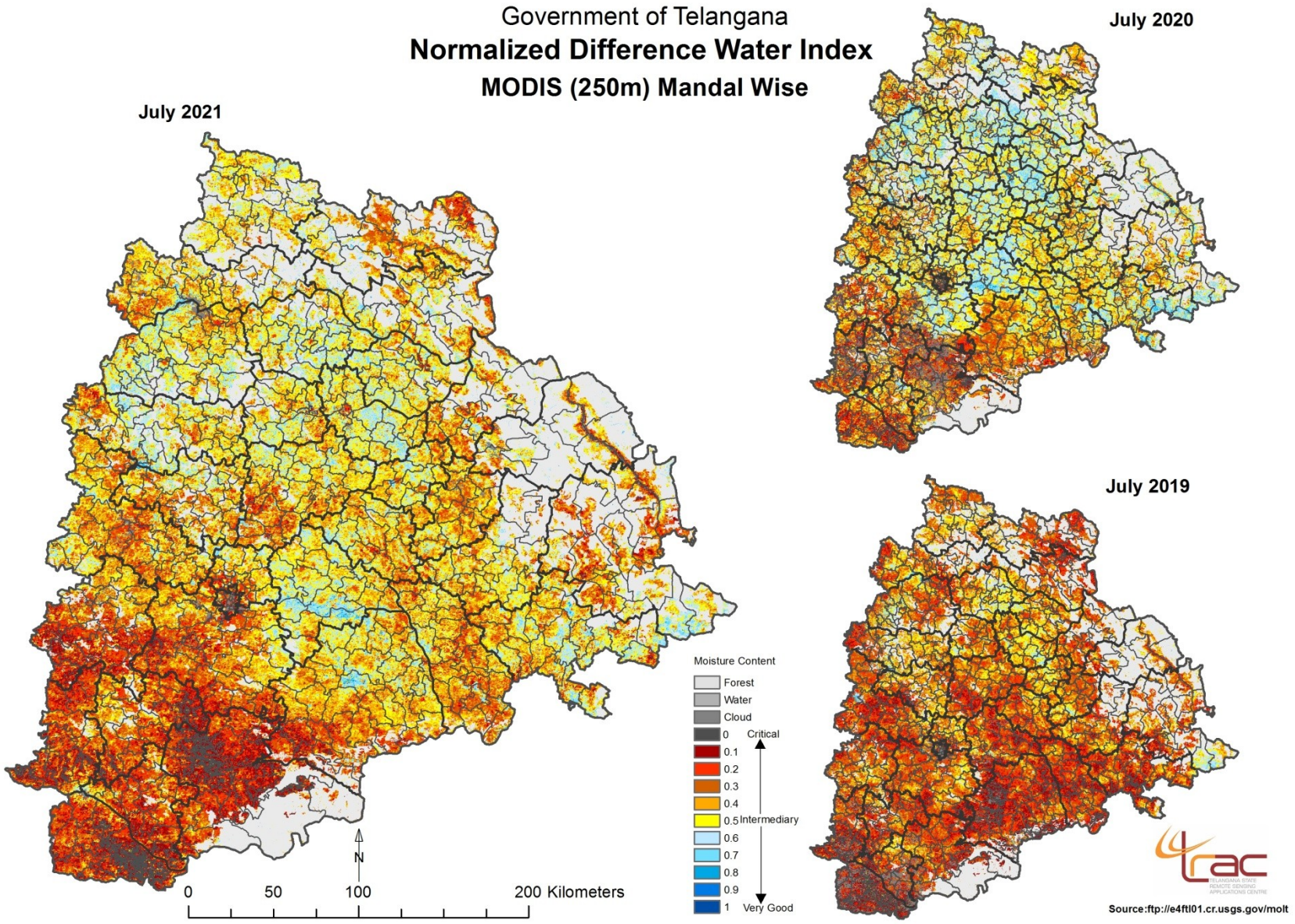

Figure 17 : NDWI - MODIS, Yearly agricultural situation from July 2019, 2020 and 2021

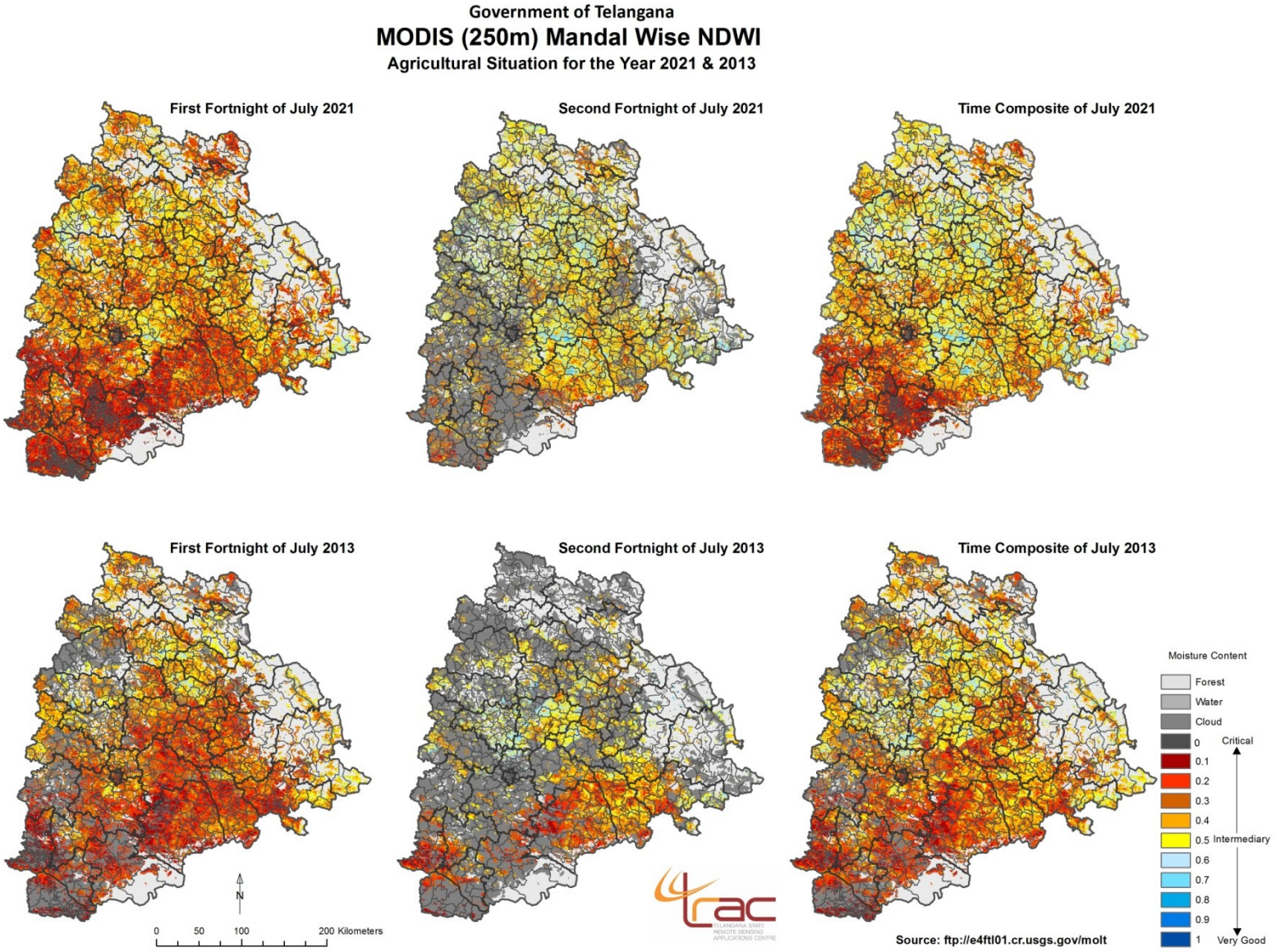

Figure 18 : NDWI - MODIS, Fortnightly agricultural situation from July 2021 and 2013

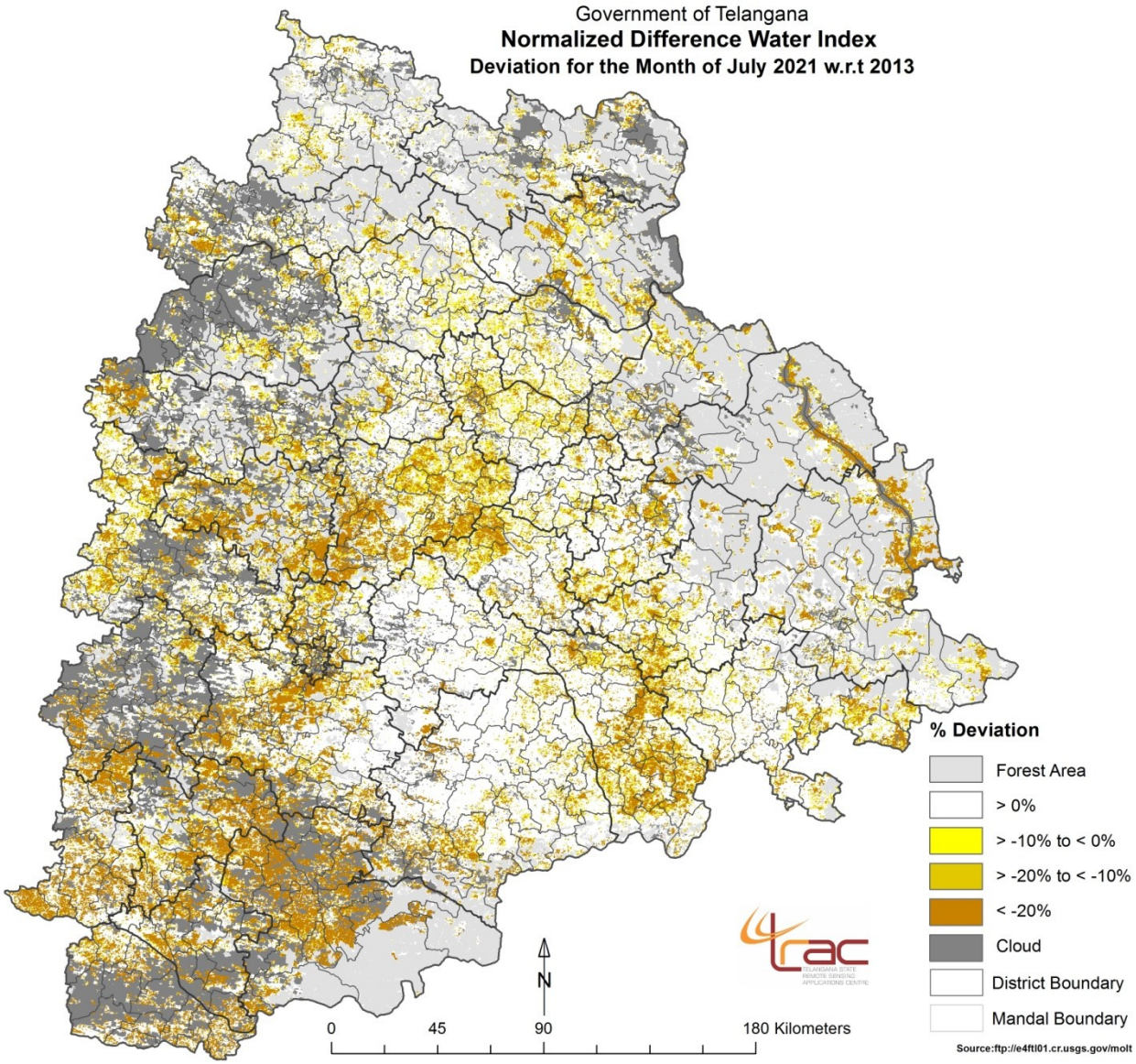

Figure 19: NDWI deviation (MODIS - 250m), Month of July 2021 w.r.t. 2013

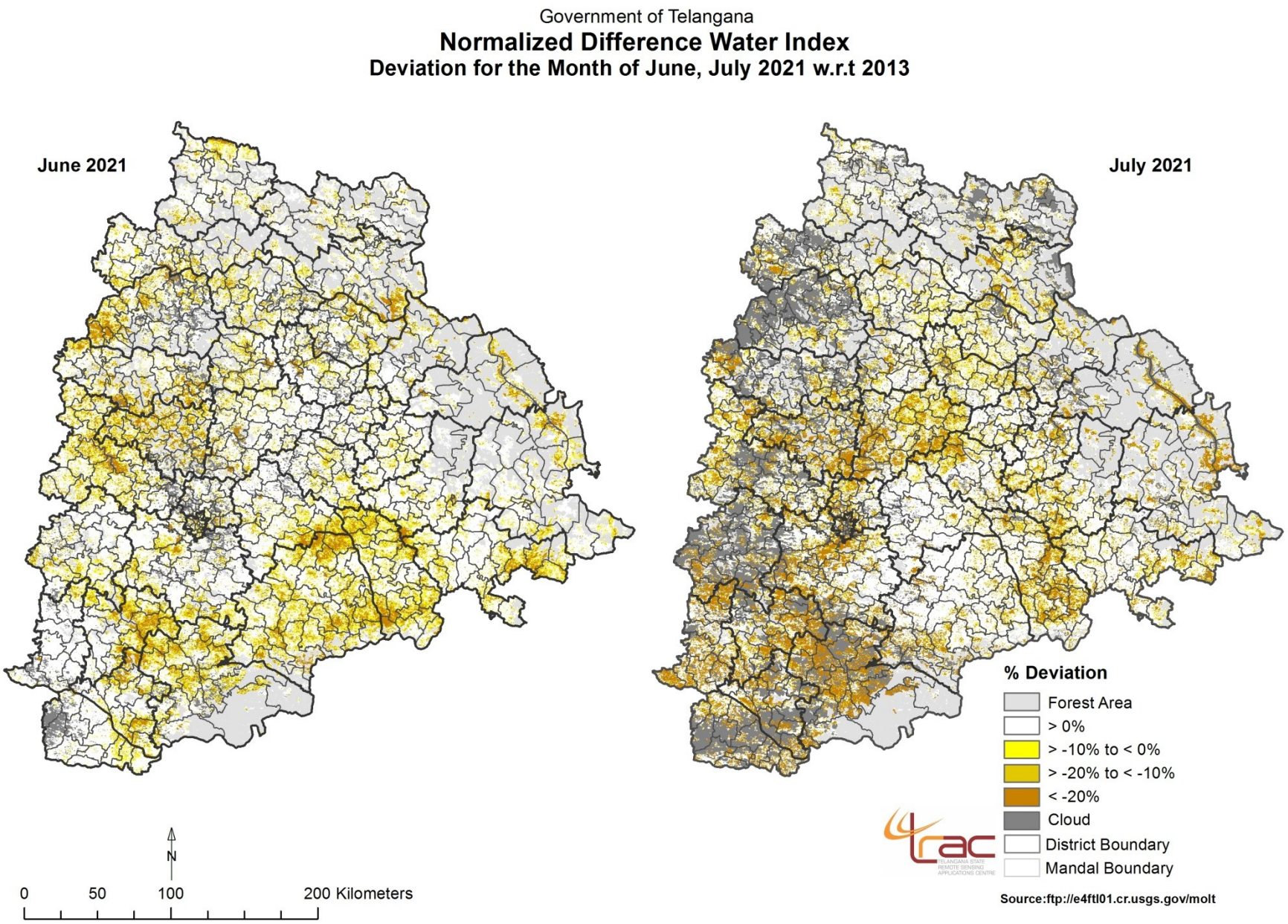

Figure 20: NDWI deviation (MODIS - 250m), Month of June and July 2021 w.r.t. 2013

3.6. Drought situation of Mandals

3.6.1 Composite criteria

The drought situation in the state is assessed using different indicators viz., NDVI, NDWI and rainfall deviation of mandals. Compositing all indicators, mandals were categorised into Normal, Watch. Mandal-wise analysis for the Month of July 2021 indicated **"Normal"** agricultural situation in **583** Mandals. The agricultural situation is categorized as **"Watch"** in **11** Mandals. The Mandals under Watch categories are given in the Table.6 and their spatial distribution is shown in Figure 21.

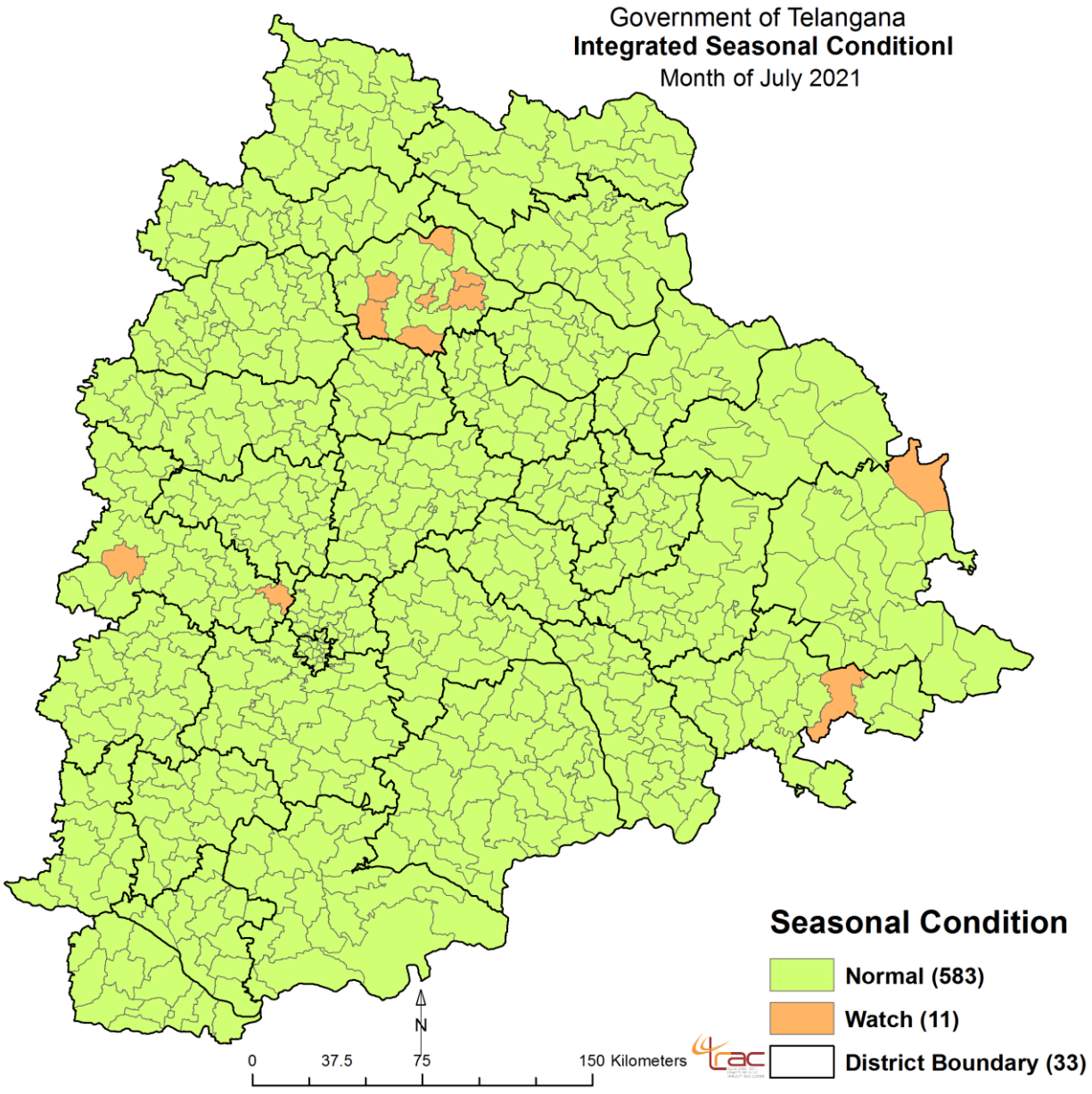

Figure 21: Mandal wise drought assessment based on July ISMS criterion

Table.6. Mandals under Watch category based on ISMS criteria

District Name	Watch(11)
Bhadradri Kotha-gudem	**Total: 01** Cherla.
Jagtial	**Total: 07** Beerpur, Buggaram, Gollapalle, Jagtial, Kathlapur, Kodimial, Koratla.
Khammam	**Total: 01** Kalluru.
Sangareddy	**Total: 02** Jharasangam, Jinnaram.

3.7. District Wise NDVI / NDWI / VCI

Table.7 District wise NDVI / NDWI / VCI Status

NDVI/NDWI/VCI status as on 31/07/2021, Telangana								
S. No	District	NDVI Value	Average NDVI	NDWI Value	Average NDWI	VCI (NDVI)	VCI (NDWI)	VCI Condition
1	Adilabad	0.588	0.399	0.438	0.279	96.676	95.650	Normal
2	Bhadradri-Kothagudem	0.503	0.439	0.345	0.317	82.483	62.711	Normal
3	Hyderabad	0.467	0.348	0.346	0.226	87.979	83.635	Normal
4	Jagtial	0.382	0.298	0.263	0.198	74.780	67.208	Normal
5	Jangaon	0.579	0.494	0.472	0.349	85.308	86.871	Normal
6	Jayashankar-Bhupalpally	0.524	0.414	0.397	0.256	83.118	79.170	Normal
7	Jogulamba-Gadwal	0.485	0.370	0.355	0.245	93.006	78.433	Normal
8	Kamareddy	0.438	0.331	0.258	0.175	84.051	70.853	Normal
9	Karimnagar	0.538	0.438	0.441	0.302	81.931	84.107	Normal
10	Khammam	0.512	0.458	0.431	0.317	72.042	81.182	Normal
11	Komaram Bheem-Asifabad	0.523	0.456	0.392	0.308	76.989	75.395	Normal
12	Mahabubabad	0.515	0.410	0.392	0.287	87.364	82.546	Normal
13	Mahabubnagar	0.511	0.429	0.340	0.267	84.758	72.304	Normal
14	Mancherial	0.488	0.337	0.297	0.198	90.245	74.038	Normal
15	Medak	0.524	0.385	0.390	0.258	90.803	82.093	Normal
16	Medchal-Malkajgiri	0.521	0.406	0.370	0.270	90.795	82.997	Normal
17	Mulug	0.533	0.371	0.357	0.246	93.424	82.481	Normal
18	Nagarkurnool	0.441	0.332	0.264	0.213	90.001	63.947	Normal
19	Nalgonda	0.417	0.329	0.254	0.153	80.272	79.052	Normal
20	Narayanpet	0.440	0.363	0.351	0.196	79.263	99.808	Normal
21	Nirmal	0.450	0.310	0.270	0.171	95.327	87.529	Normal
22	Nizamabad	0.507	0.396	0.416	0.274	81.860	86.568	Normal
23	Peddapalli	0.518	0.426	0.455	0.318	80.609	85.530	Normal
24	Rajanna-Siricilla	0.510	0.441	0.449	0.314	84.936	89.398	Normal
25	Rangareddy	0.478	0.381	0.338	0.232	78.361	74.271	Normal
26	Sangareddy	0.488	0.361	0.316	0.229	84.684	74.326	Normal
27	Siddipet	0.516	0.391	0.373	0.248	86.141	80.346	Normal
28	Suryapet	0.486	0.426	0.362	0.258	73.312	73.584	Normal
29	Vikarabad	0.449	0.376	0.292	0.225	70.329	67.445	Normal
30	Wanaparthy	0.435	0.309	0.255	0.196	82.908	72.464	Normal
31	Warangal Rural	0.427	0.321	0.225	0.180	82.575	61.966	Normal
32	Warangal Urban	0.532	0.417	0.380	0.279	90.356	77.854	Normal
33	Yadadri-Bhongir	0.550	0.392	0.456	0.242	84.295	91.833	Normal

*Normalized Difference Vegetative Index (NDVI) Value - Current year NDVI
*Normalized Difference Wetness Index (NDWI) Value - Current year NDWI
*Average NDVI - Average of previous 17 years NDVI
*Average NDWI - Average of previous 17 years NDWI
*VCI (NDVI) - Vegetation Condition Index based on NDVI
*VCI (NDWI) - Vegetation Condition Index based on NDWI
*NDVI/NDWI Condition - **VCI>=60 (Normal), VCI>=40 (Mild), VCI>=20 (Moderate), VCI<20 (Severe)**

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