

Natural Calamities

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Natural Calamities Cell deals with Agricultural crop damages due to Natural Calamities i.e Cyclone/ Heavy rains/ Unseasonal rains/ Drought/ Floods/ Hailstorms/ Fire/ Landslide/ Avalanche/ Cloud burst/ Pest attack/ Frost & Cold wave/ Earthquake/ Tsunami and Thunder bolt (State Specific Disaster).

Objectives

1. To provide immediate relief to the affected farmers whose crops are damaged more than 33 percent loss due to any Natural calamity
2. Preparation of contingency plan for alternate crops under adverse seasonal conditions.

At the incidence of Natural Calamities

- Control rooms will be opened in the Joint Directors of Agriculture office in the district head quarters and responsible persons will be made in charge providing help line numbers for the farmers to contact.
- Immediately after the occurrence of any Natural Calamity i.e., Heavy rains, Cyclones, Floods and Hailstorms, the technical teams comprising of ADA, MAO along with scientists from DAATTC and KVKs extensively tour the affected fields to assess the impact of calamity on crops and also suggests necessary technical measures required for restoring the crops.
- The preliminary crop damages will be collected from the districts on daily basis and the same will be reported to the Government through C & DA.
- In case of occurrence of drought, to assess the drought affected areas / mandals in the state, several reports like mandal wise rainfall data, no. of dry spells occurred, area sown particulars and crop damages more than 33 percent etc will be obtained from district Collectors through district JDAs.
- Department will prepare contingency plan for supply of alternate crops seed on subsidy in case of late onset of monsoon / dry spells / cyclones / floods.
- Wide publicity will be given among farming community through print and electronic media on measures to be taken for different crops affected due to any natural calamity.
- Detailed enumeration will be done by the Joint teams comprising of Agriculture & Revenue officials at village and mandal level visits field to field and enumerate the farmer wise agricultural crop damages more than 33percent and displays the enumerated lists in Grampanchayat for three days.
- The enumeration team while enumerating the crop loss records the names and extent of the tenant farmers along with the owner's name with the consent of the owner of land (or) a resolution will be passed in the Gramsabha in the absence of owner for extending input subsidy to the tenant farmers.
- The crop losses will be collected at village level in 26 column proforma on farmer wise, crop wise area damaged (more than 33percent) with the number of farmers affected and category (SF/MF/

OF) of farmers along with bank account numbers and Aadhar numbers of the farmers. The crop damage reports will be consolidated at mandal level, district level in turn at state level.

- Final consolidated report (in state norms & NDRF norms proforma) along with the beneficiary list in 26 column proforma of all the affected districts will be submitted to the Government for sanction of input subsidy.
- After release of funds from the Government, the input subsidy amounts are directly credited to the affected farmer's bank accounts by concerned district authorities through online.

Criteria to declare drought prone areas

As per **Manual for drought management 2016** published by Ministry of Agriculture, Govt of India, the proposals for declaration of drought should be examined with reference to the following norms.

1. Rainfall deficit –

- ◆ - 15% annual rainfall of < 750 mm
 - ◆ - 20% annual rainfall of 750 – 999 mm
 - ◆ - 25% annual rainfall of > 1000 mm
2. Compression/ reduction in cropped area i.e less than 50 percent under all principal crops.
 3. Reduction in crop yields by 33 percent and above, comparative with normal yields
 4. Dry spells and their impact on crop damages.
 5. Percentage Available Soil Moisture (PASM)
 6. Normalized Difference Vegetation index (NDVI),
 7. Normalized Difference Wetness Index (NDWI).
 8. Moisture Adequacy Index (MAI)
 9. Standardized Precipitation Index (SPI)
 10. Reservoir Storage Index (RSI)
 11. Stream Flow Drought Index (SFDI)
 12. Ground Water Drought Index (GWDI)

For considering declaration of drought out of the (4) norms suggested, the first norm of rainfall deficiency must be satisfied. Apart, from norms (5) to (12) are prepared by NRSC, ANGRAU, CWC and CGWB respectively.

Drought Preparedness

- Establishing close linkage with IMD to disseminate the local specified weather report through Mandal /Village level officials to prepare for adverse seasonal conditions well in advance.
- Agriculture department prepares contingency plan in consultation with CRIDA, DAATTC, KVK, ARS Scientists of ANGRAU.
- Recommending short duration crops like Maize, Blackgram, Greengram, Redgram, Horsegram, Cowpea, Ragi, Korra and short duration varieties of Paddy.
- Stocking of quality seeds of short duration varieties well in advance for immediate distribution for re-sowing/delayed sowing in affected areas on subsidy.
- Creating awareness among the farmers for application of **booster doses of fertilizers** for recovery of crop and **soil conservation methods** for effective utilization of the available moisture to save the crop in the drought prone areas.
- Various soil moisture conservation methods will be adopted for effective utilization of the available soil moisture to save the crops in drought prone areas

Methodology for determination of Drought

As per **Manual for Drought management, 2016** published by Ministry of Agriculture , Govt. of India , the proposals for declaration of drought should be examined with reference to the following norms.

Step 1:

Mandatory indicators, viz. Rainfall deviation or SPI or Dry spell will be considered as per Matrix shown below to assess if the first drought trigger is set off.

Matrix for Rainfall deviation and Dry spells (Trigger-1)

RF deviation/SPI	Dry Spell	Drought Trigger
Deficit or Scanty RF/SPI<-1	YES	YES
Deficit or Scanty RF/SPI<-1	NO	YES, if rainfall is scanty or SPI<-1.5, else NO
Normal Rainfall/SPI>-1	YES	YES
Normal Rainfall/SPI>-1	NO	NO

Step: 2

In the event that the first drought trigger is set off in step 1, the impact indicators will be examined as per the following matrix

Mandatory Indicator		Impact Indicators				Category of Drought
Rainfall indices		Agriculture	Remote Sensing	Soil Moisture	Hydrology	
Rainfall deviation or SPI	Dry spell	Crop area sown	VCI or NDVI,NDWI deviations	PASM/MAI	SFI/RSI/GWDI	

It may consider any three out of four types of the impact indicators (one from each) for assessment of drought.

Explanation

The intensity of the drought will be contingent upon the values of at least three out of four Impact Indicators viz; Agriculture, Remote sensing, Soil moisture and Hydrology in the following manner.

- **Severe Drought:** If all the selected three impact indicators are in severe category.
- **Moderate Drought:** If two of the selected three impact indicators are in moderate class.
- **Normal:** For all other cases
- **Trigger 2** will be set off in the event of a finding of severe or moderate drought.
- The state has an option to reduce the drought category by one rank (i.e. severe to moderate) if the irrigation percentage of the administrative region (District/Mandal) for which drought intensity from “Moderate” or “Normal” it will be required to conduct field verification as prescribed in step-3.

Step-3

In the event that trigger 2 is set off, the district level officials concerned have to conduct sample survey for Ground Truthing. The finding of field verification exercise will be the final basis for judging the intensity of drought as severe or moderate.

Ground Truthing or Verification:

The Ground Truthing (GT) needs to be conducted in each of the 10 percent of the drought affected villages, selected on a random basis. In each of the selected villages, representative locations (about 5 sites for each of the major crops), may be inspected for data collection. The GT shall preferably be conducted using a smart phone based App. The app shall record the GPS coordinates and photo of the condition of crop, with the provision to upload these parameters on a computer server for archiving for post-facto analysis.

An estimation of crop damage/loss of 33 percent or more on the basis of field verification will qualify for the declaration of drought. However, for the drought to qualify as of a “severe” nature, the estimation of damage/loss to crops should be more than 50 percent.

It is clearly mentioned in the guidelines that declaration of drought by the state government shall be supported by the Matrix based analysis and field level verification/Ground Truthing only.

S.No	Key variable	Indicator/Indices	Source of Data
1	Rainfall	Rainfall deviation/SPI Dry spell	IMD,State Govt.
2	Crop sown Area	Deviation from normal	State Govt.(dept.of Agril.)
3	Satellite based crop condition	NDVI,NDWI deviation from normal VCI from of NDVI/NDWI	MNCFC,NRSC ISRO and state remote sensing centers
4	Stream Flow	SFDI	CWC/India-WRIS
5	Ground Water levels	GWDI	CGWB
6	Reservoir levels		CWC, Irrigation dept., Water Resources Dept.

Scale of relief in 2018-19

S. No	Crop	A.P. State Govt. (SDRF) norms	GoI (NDRF) norms
1	Paddy, Groundnut, Cotton and Sugarcane	15000	Rs.6800/- for rainfed crops and Rs.13500/- for irrigated crops
2	Maize	12500	
3	Pulses, Sunflower, Soybean, Wheat	10000	
4	Tobacco	10000	
5	Jowar, Bajra, Ragi, Castor, Sesamum	6800	
6	Mesta, Jute, Safflower, Korra, Sama, variga and Musturd	5000	
7	Sand casting	12200	12200
8	Soil erosion	37500	37500



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