Drought guidelines and Management Plan

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Why in news?

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- Tamil Nadu was declared drought-hit recently by the state government. Earlier Kerala also was declared drought-hit due to deficit South-West Monsoon.
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What is Drought?

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- There is no universally accepted standard definition of drought because of its varying characteristics and impacts.
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- A drought is a period of below-average precipitation in a given region, resulting in prolonged shortages in its water supply, whether atmospheric, surface water or ground water.
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- Drought is a recurrent feature of climate and occurs in all climatic regimes.
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- Drought is a temporary aberration unlike aridity, which is a permanent feature of climate.
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Why drought is different from other disasters?

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Unlike other natural disasters, drought is different in the sense that

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- It is difficult to determine the beginning and end of the event
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- Duration may range from months to years
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- No single indicator can identify the onset and severity and its impacts
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- Spatial extent is usuall greater than that for other hazards
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- Impacts are difficult to quantify and they usually magnify when events continue from one season to the next.
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Why drought recurs in India?

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- **High average annual rainfall** of around 1,150 mm. No other country has such a high annual average.
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- **Concentration -** About 73% of the total annual rainfall is received in less than 100 days during the south-west monsoon and the geographic spread is uneven.
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- **Variability** in rainfall as compared to Long Period Average (LPA) exceeds 30% in large areas of the country and is over 40- 50% in parts of drought prone Saurashtra, Kutch, and Rajasthan.
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- Around 33% of the cropped area in the country receives less than 750 mm rain annually making such areas hotspots of drought.
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- **Rain-Fed Agriculture -** Inadequacy of rains coupled with adverse land-man ratio compels the farmers to practice rain-fed agriculture in large parts of the country.
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- Irrigation, using groundwater aggravates the situation in the long term as groundwater withdrawal exceeds replenishment.
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- **Harvesting -** Traditional water harvesting systems have been largely abandoned.
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What are the impacts of drought?

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- **Economic -** Production losses in agriculture, loss of income resulting in reduction of purchasing power especially among those dependent on agriculture. It also has a multiplier effect on other sectors dependent on agriculture for raw material.
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- **Environmental -** Decreased water levels in reservoirs, canals, ponds are the primary environmental impacts leading to decreased availability of drinking water and water for other needs. It will also cause loss of forest cover etc.
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- **Social -** Migration of population, withdrawing children from schools, postponement of marriages, sale of assets etc. It will also lead to inadequate food leading to malnutrition and other health hazards.
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When is a drought declared?

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The drought is assessed on availability of drinking water, availability of irrigation water, availability of fodder, availability of food grains & energy sector requirement.

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Drought may be declared by the State Government at these levels.

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The following four indicators are usually applied in combination for drought declaration.

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1. **Rainfall Deficiency -** A departure in rainfall from its long-term averages is taken as the basis for drought declaration. The State Government could consider declaring a drought,
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- If the total rainfall received during the months of June and July is less than 50% of the average rainfall for these two months.
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- If the total rainfall for the entire duration of the rainy season of the state is less than 75%.
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2. **Area under Sowing -** Drought conditions could be said to exist if along with the other indicators, the total area sown by the end of July/August is less than 50% of the total cultivable area.
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3. **Normalized Difference Vegetation Index (NDVI) -** The National Agricultural Drought Assessment and Monitoring System (NADAMS issues NDVI. These reports provide quantitative information on sowings, surface water spread and District / Tehsil / Taluk /Block level crop condition assessment along with spatial variation in terms of maps.
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4. **Moisture Adequacy Index (MAI) -** It is based on a calculation of weekly water balance, is equal to the ratio of Actual Evapo Transpiration (AET) to the Potential Evapo Transpiration (PET) following a soil–water balancing approach during a cropping season.
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What are the classifications of drought?

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In the literature, droughts have been classified into three categories in terms of impact.

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- **Meteorological drought** is defined as the deficiency of precipitation from expected or normal levels over an extended period of time.
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- **Hydrological drought** is best defined as deficiencies in surface and subsurface water supplies leading to a lack of water for normal and specific needs. Such conditions arise, even in times of average precipitation when increased usage of water diminishes the reserves.
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- **Agricultural drought**, triggered by meteorological and hydrological

droughts, occurs when soil moisture and rainfall are inadequate during the crop growing
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What are the Relief Measures taken?

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The state governments submit reports on drought condition with all the relevant information and the government of India extends support via various ministries based on these reports. They include

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- Allocation of additional days of work under MGNREGA to households in drought affected areas
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- Diesel Subsidy Scheme for farmers in affected areas Enhancement of ceiling on Seed subsidy
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- Moratorium on farm loans and arrangement for crop loss compensation.
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- The public distribution mechanism should be strengthened to provide food and fodder as a measure to sustain the rural economy.
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- The government should initiate actions to recharge the groundwater table by building check dams and providing pipeline water and other irrigation facilities.
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- Interventions for saving perennial horticulture crops
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- Implementation of additional fodder development programme
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- Flexible allocation under Rashtriya Krishi Vikas Yojana (RKVY) and other centrally sponsored schemes for undertaking appropriate interventions.
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- Availability of seeds and other inputs for kharif.
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- SDRF/NDRF funds should be released.
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