



Effect of drought on Indian agriculture

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Summary

Drought is the greatest annoyance in countries like India where the economy is still depends on the agriculture. Hence tackling drought is foreseeable. The adoption of appropriate soil management regimes like conservational tillage, mulching, use of manure, compost, green manure, concentrated organic manure and sheep penning can show the way to an enhanced agricultural production in drought hit areas of our country. These management practices are not only cheap but also effective, environment friendly, good from soil health view point and sustainable in long period of time.

Drought is a complex, slow processes of ecological challenge that affects people than any other natural hazard by causing serious economic, social and environmental losses in both developing and developed countries. Drought period of unusual dryness is a normal feature of the climate and weather system in semi-arid and arid regions of the tropics, which covers more than one third of the land surface and is vulnerable to drought and desertification (Nagrajan, 2003). In simple words drought is a prolonged period of abnormally low rainfall leading to a storage of water affecting badly growing and living conditions. The characteristics like rainfall pattern, living requirement, flexibility of usage in the water resources etc are different for different regions. Due to varying characteristics and its varying impact for different regions around the world universally accepted definition of drought could be not concluded. Drought is a normal recurrent feature of Climate and occurs in all climatic regions and is usually characterized in terms of its spatial extension, intensity and duration. Drought is generally considered to be occurring when the principle monsoon, *i.e.* southwest monsoon and north cost monsoon, fail or are deficient or scanty. Monsoon failure causing crop failure, drying up ecosystems and shortage of drinking water results in undue hardship to the rural and urban communities (Hamdani *et al.*, 2006). Dry regions in India include



around 94 mha and around 300 million people (one third Indian population) live in these area, more than 50 % of the region is affected by drought once every four years. Different countries and states have developed codes, manuals, procedures, processes and policies for monitoring and management of drought with varying understanding. Now, India has developed a fairly elaborate governance system of institutionalized drought monitoring, declaration and imitation of different level (Samra 2004). India's response to the need for enhanced drought management has contributed to overall development e.g. the drought of 1965-1967 encourage the "Green revolution" after 1972 drought employment generation programmes were developed for the rural poor, the 1987-1988 drought relief effort focused on preserving the quality of life (Hamdani *et al.*, 2006).

Drought : Drought is a natural disaster characterized by the scarcity of water as a consequence of which the yield of the crops is adversely affected. About one-third geographical area of India constituting approximately two-fifth of the total cultivable area, supporting about 30 % of population is affected by drought. It covers around 100 districts, of which 67 districts are chronically affected by drought.

Drought affected areas in India : Mostly drought affected areas falls in the state of Rajasthan, Gujarat,

Punjab, Hariyana, Uttar Pradesh, Madhya Pradesh, Orissa, West Bengal, Bihar, Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh.

There are two distinct drought affected tracks in the country. The first track comprises the desert and semi-arid region of India in a rectangular form running between Ahmadabad to Kanpur and then to Jalandhar covering an area of about 0.60 million km² whereas the second track comprises the area lying in the leeward side of Sahyadris covering an area of about 0.37 million km². Besides these two tracks, there are certain isolated pockets of drought affected areas which comprises the Coimbatore and Triunelveli districts of Tamil Nadu, Jhansi, Jalaun, Lalitpur, Banda and Mirzapur district of Uttar Pradesh, Purulia district of West Bengal, Palamu district of Jharkhand and the Kalahandi district of Orissa covering an area of about 0.1 million square kilometer.

Types of droughts : The drought is categorized into following three types:

Meteorological drought: It is a drought in which actual rainfall is significantly less than the climatologically expected rainfall over a wide area. Meteorological drought is the most common drought which causing heavy losses to crop in India.

Hydrological drought: It is associated with drying up of surface water.

Agricultural drought: It is a drought in which the soil loses its effective moisture retention capacity through a complex of diverse processes and consequently leading to land aridization. It is also called as soil water drought.

Causes of drought : The main factors responsible for drought in India includes, delay in onset or early cessation of monsoon, variability in rainfall, duration of break in monsoon season, areal difference in diligence of monsoon, deforestation, monoculture conversions, over grazing, excessive mining, quarrying, intensive irrigation, change in cropping pattern etc.

Measured adopt for combat drought : Traditionally the crop production is low in drought prone regions due to scarcity of water. However, adoption of appropriate soil management practices can escort to enhanced agricultural production in these areas. The soils in drought affected areas are not only thirsty but also hungry too. Moreover, the soils in these areas are often susceptible to wind erosion. Therefore, conservation of soil, soil moisture and maintenance of soil fertility is inevitable to enhance agricultural production in such areas.

Conventional tillage practice, which involves the opening of the soil up to suitable depth with help of different ploughs results into the loss of soil moisture by the soil. Hence in drought hit areas, conservational tillage practices like zero tillage and minimum tillage must be practiced to

State	District
Andhra Pradesh	Anantapur, Chittoor, Cuddapah, Hyderabad, Kurnool, Mehaboobnagar, Nalgonda and Prakasam
Bihar	Munger, Nawadah, Palamau, Rphatas, Bhojpur, Aurangabad and Gaya
Gujarat	Ahmedabad, Amrely, Banaskanta, Bhavanagar, Bharuch, Jamnagar, Kheda, Kutch, Meshana, Panchmahal, Rajkot and Surendranagar
Haryana	Bhiwani, Gurgao, Mahendragarh and Rohtak
Jammu and Kashmir	Doda and Udhampur
Karnataka	Bangalore, Belgaum, Bellary, Bijapur, Chitradurga, Chickmangalur, Dharwad, Gulbarga, Hassan, Kolar, Mandya, Mysore, Raichur and Tumkur
Madhya Pradesh	Betul, Datia, Dewas, Dhar, Jhabuva, Khandak, Khargaon, Shahdol, Shahjapur, Sidhi and Ujjain
Maharashtra	Ahmednagar, Aurangabad, Beed, Nanded, Nashik, Osmanabad, Pune, Parbhani, Sangli, Satara and Sholapur
Odisha	Phulbani, Kalakhandi, Bolangir and Kendrapada
Rajasthan	Ajmeer, Banaswada, Barmer, Churu, Dungarpur, Jaisalmeer, Jalore, Jhunjhunu, Jodhpur, Nagaur, Pali and Udaipur
Tamil Nadu	Coimbatore, Dharmapuri, Madurai, Ramanathapuram, Salem, Tiruchirapalli, Tirunelveli and Kanyakumari
Uttar Pradesh	Allahabad, Banda, Hamirpur, Jalaun, Jhansi, Mirzapur and Varanasi
West Bengal	Bankura, Midnapur and Purulia

Source:

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