

DROUGHT CRISIS IN RAJASTHAN AND THEIR MANAGEMENT

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INTRODUCTION:

Drought is one of the most frequently occurring national disasters in India. With its increased frequency and expanded coverage in the recent years, about one third of the country is either drought prone or under desert areas. These areas are lagging behind in agriculture and also in overall economic growth. Droughts and famines have received attention of rulers in India right from the 13th and 14th century. Muhammad Tughlakh was perhaps the first Sultan to take systematic steps to alleviate efforts of droughts by distributing grains to drought affected people in Delhi in 1343 AD .

The first Scarcity Manual was prepared by the British Government in 1883, which was followed by other manuals by some provincial governments (Hirway 2001), The Royal Commission on Agriculture in 1928 recommended promotion of dry land farming to promote agriculture in famine affected regions. However, the efforts were scanty and there was an alarming increase in the frequency of during the British period (Bhatia 1967). Though the term drought is associated with scarcity of water, it means different things to different people. To the agriculturist, it means the deficit of rainfall and soil moisture to support healthy crop growth: to the meteorologist, it indicates the deficiency of rainfall compared to normal' rainfall of the region and to the hydrologist it is the scarcity of water in surface and groundwater resources. According to the National Commission of Agriculture (1976). if the drought occurs in more than 40% of the years in an area, it is classified as chronically drought prone area. As per this classification, Indian arid zone is a chronically drought prone area.

This fact is substantiated by a popular saying in the region that in the course of a decade. One year would be of bumper harvest. Five years of moderate produce. Three years of scanty harvest and one year of disastrous drought. Analysis of rainfall data (1901-1999) indicated that Out of 99 years. The Indian arid zone experienced agricultural Drought in one part or the other during 33 to 46 years. which suggests a drought once in three years to alternate year, Often drought persists continuously for 3 to 6 years, as prolonged droughts faced by this region during 1903-05, 1957-60, 1966-71, 1984-87 and 1997-1999. Such prolonged droughts put tremendous stress on natural resources and lead to severe scarcity of food, fodder and water.

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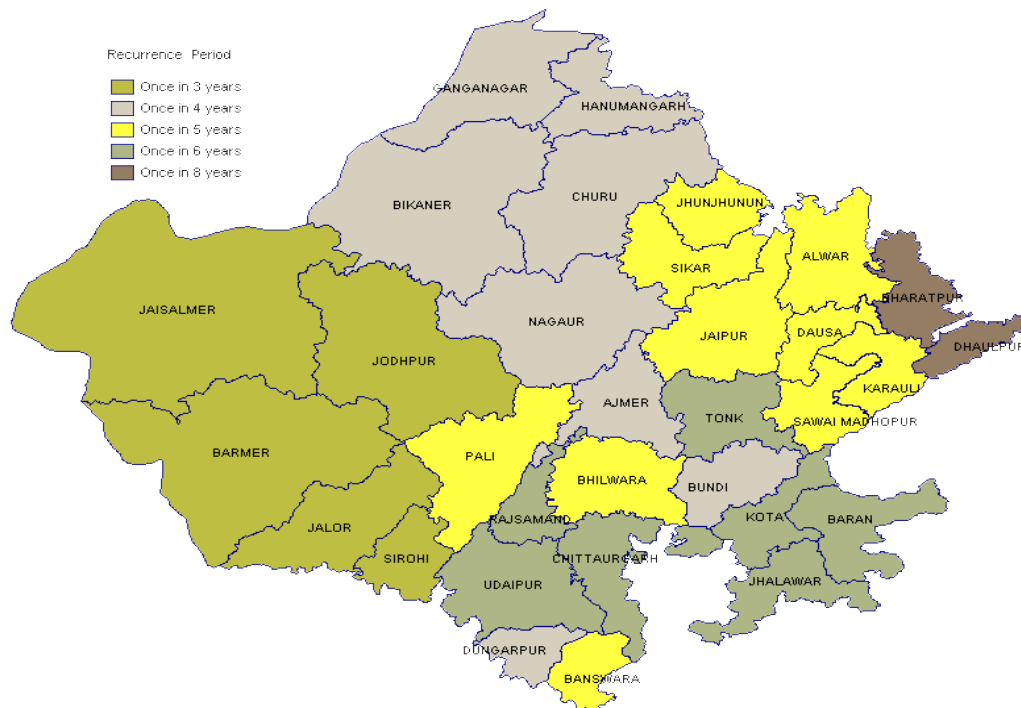


Figure 1- Recurrence Period of drought

Drought affects all parts of our environment as well as our communities. Different types of droughts have varying economic, environmental and social impacts. Approximately 16 percent of India's geographic area, mostly arid, semi-arid and sub-humid is drought-prone (GoI 2013a). Due to high temporal and spatial variability in rainfall and wide variations in physiographic and climatic conditions in the country, droughts are experienced in varying intensities (moderate or severe) almost every year irrespective of a good monsoon. Since 2001, the country has experienced three major droughts, in the years 2002, 2004 and 2009, severely affecting the various sectors and overall economic development of the country. The latest drought in South Asia (2000–2003) affected more than 100 million people, with severe impacts felt in Gujarat and Rajasthan States in western India, in Pakistan's Sind and Baluchistan provinces, as well as in parts of Iran and Afghanistan. Political instability, war and economic isolation have further exacerbated the effects of drought.

Rajasthan is the largest state in India covering an area of 34.22 million hectare i.e. 10.5 % of the country's geographical area but sharing only 1.15 % of its water resources. The estimated per capita water availability in the state during 2001 was 840 m³ and is expected to be 439 m³ by the year 2050 against the national average of 1140 m³ by 2050. More than 70% of its people depend upon agricultural activities. Rajasthan experiences acute weather and consists of four distinctive seasons- Pre-monsoon, Monsoon, Post-monsoon and winter. The average temperature in winter ranges from 2° to 26° C and in peak summer the average temperature range from 28° to 48° C making the region arid and draught-prone. Most of the area of the state (60-75%) is arid or semi arid. The conventional attitude to a drought as a phenomenon of arid and semi-arid areas is changing because even areas with high average rainfall often face acute water scarcity. In the case of Rajasthan, there have been 52 drought years of varied intensity since 1901. At the village level, the number of drought-free years will be even less. Therefore, every year some parts of Rajasthan are affected by drought. Despite this, the State considers drought as a transient phenomenon where short term relief measures are considered to be a solution. It is estimated that one year's relief fund may be sufficient to develop rain water harvesting structures to meet drinking water requirements in rural areas of western Rajasthan [11].

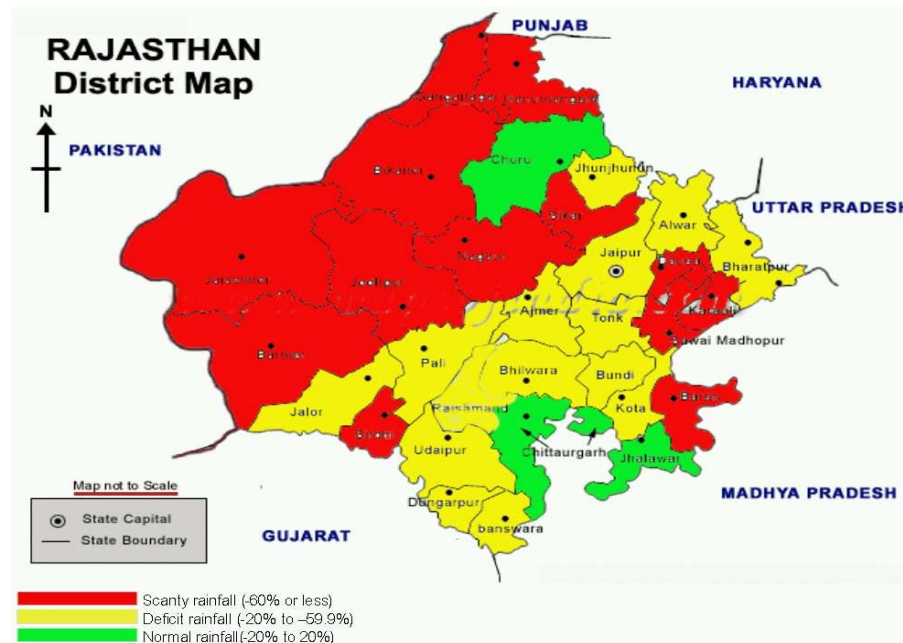


Figure 2- Average Rainfall in different districts



Emergency relief and drought response

While early warning indicators for drought have a considerably degree of ambiguity associated, as they may or may not culminate in a full-blown drought, the government has in place the requisite and institutional and policy framework to address the challenge.

Legal and Institutional Framework

While the central government plays the role of a facilitator, the primary responsibility of managing drought (or any other natural calamity) is that of the respective State government. With the enactment of the Disaster Management Act in 2005, the National Disaster Management Authority (NDMA) was set up as the apex body for Disaster Management in India, with the Prime Minister as its Chairman. Further, Disaster Management Authorities at the State and District Levels are headed by the Chief Ministers and Collectors/Zilla Parishad Chairmen respectively.

Policies and Programmes

In 2009, India launched its National Policy on Disaster Management with a vision to build a safe and disaster resilient India. The policy aims to develop a holistic, proactive, multi-disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response (GoI 2009). Some of the major government programmes help mitigate the adverse impacts of drought and build resilience of people by encouraging efficient water management practices, ensuring livelihoods, ensuring economic access to food and supplying fodder among other measures. A major programme of the GoI, significant from the drought relief and management perspective, is the Mahatma Gandhi National Rural Employment Guarantee Scheme.

District-wise contingency plans are prepared by Central Research Institute for Dryland Agriculture (CRIDA), in collaboration with State Agricultural Universities (SAUs) / Indian Council of Agricultural Research (ICAR) Institutes / Krishi Vigyan Kendras (KVKs) (GoI 2012). Research institutions like the International Crops Research Institute for Semi-arid Tropics, Central Arid Zone Research Institute, Indian Grassland and Fodder Research Institute, Central Soil Salinity Research Institute, Indian Council of Forestry Research and Education and those under the Indian Council of Agriculture Research provide information on various aspects of drought management (Gupta et al. 2011).



- ✓ Improvement in methodologies and analytical tools for drought analysis and vulnerability assessment at local and regional level;
- ✓ Organization of joint training programmes to build human capacity in improved resilience towards drought;
- ✓ Effective and collaborative implementation of drought relief programmes;
- ✓ Strengthening effective water and commodities supply system.

WATER MANAGEMENT STRATEGIES

Drought affects all components of the water cycle; deficit in soil moisture, reduced groundwater levels and dried up ponds and reservoirs. The specific issue of droughts can be planned on the long term basis by drought management committee by keeping in mind the following remedial measures:

- ✓ With the water crisis worsening in the desert state of Rajasthan, the state government should focus on community-based water management solutions instead of predominantly engineering-based ones. The first step taken by the government is to revamp most of the ponds and Johars under the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA).
- ✓ All the traditional water harvesting structures and sources should be renovated and people should be encouraged for roof-top rain water harvesting, storm-water harvesting, recycling and reuse of waste water under Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)
- ✓ Authors observed that people getting support from government during drought have become immune to this help and loves a good drought.
- ✓ Only less water consuming crops shall be permitted to avoid the use of excessive water in irrigation.
- ✓ Publication of public-awareness material on water management for dissemination in schools and public buildings. Movies and documentaries shall be shown to villagers on water management techniques.

CONCLUSION:

India is endowed with a rich repository of knowledge relating to cloud formation, lightning, wind direction, rains and drought which has evolved over centuries to perceive and manage natural disasters and extreme weather events by disaster prediction, response, mitigation, and effects of weather on crops. Droughts adversely impacts



livelihood and economies of a large section of population in the rain-fed, arid and semi-arid regions.

Shortage of drinking water supplies and food insecurity are the other consequences that emerge. Fodder deficit drives away the animals to distress sales. Thus, while climate is the initial causative factor for drought, its implications are governed by the human interactions with the situation. For demarcating drought prone districts, a combination of variables including climatic, area under irrigation and source of irrigation are used.

In the context of increasing climate variability and climate change, there is growing recognition of a need for effective and efficient drought warning systems that rely on accurate and timely assessments of soil crop, micro-climate (because of slow onset nature of drought) and its linkage with livelihoods support programme to trigger mitigation and emergency response programs at grassroots level (Bandyopadhyay 2009). Several policy measures undertaken by the Government of India (GoI) help in building capacity for drought prevention, preparedness, mitigation and management. This has also led to a shift in perception of droughts from a 'crisis of an urgent nature' to a management issue (GoI 2012). In development context agricultural drought, compare to meteorological drought, concerns are centered largely on issues of food security, availability of non-skilled and semi-skilled wages in rural areas, migration etc.

REFERENCE:

Gupta, AK, Tyagi, P & Sehgal, VK 2011, 'Drought disaster challenges and mitigation in India: strategic appraisal', *Current Science*, vol. 100, no. 12, pp. 1795-806.

GoI2013b, 'State of Indian Agriculture, 2012-13'. Ministry of Agriculture, Government of India.

GoI 2012, 'Crisis Management Plan; Drought (National)'. Ministry of Agriculture, Government of India.

Hirway, Indira., (2001), *Food Security and Disaster Management*, Paper presented at the National Consultation on "Towards hunger free India", Organized by the World Food Programme, Planning Commission, Government of India and Swaminathan Foundation, Chennai, New Delhi.

GoI 2009, 'National Policy on Disaster Management'. Ministry of Home Affairs. Government of India. http://nidm.gov.in/PDF/policies/ndm_policy2009.pdf. Last Accessed: 20th April 2014

Bhatia, B.M., (1967), 'Famines in India: A study in some aspects of the Economic History of India,' Asia Publishing House, New Delhi.