

# Assessment of the Impact of Draught : Natural Disaster

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**Abstract :** Drought is a natural disastrous phenomenon in which the rain fall is less than the average. The drought, natural calamity affects several factors that are too vital for our society. These factors include shortage of drinking water for people and cattle, agricultural irrigation, and industrial usage, lowering of ground water level, as well as imbalance in the environment causing severe irreversible damage to forests and animal-world. The present article is focused on a concise review of impacts of drought as well as effects on health.

**Keywords—**Drought, Rain fall, Disease, Mitigation.

## I. INTRODUCTION

A drought, a common unpredicted natural calamity affects our society as well as environment in several serious manners. In a country like India where agriculture is main driving factor, the draught has severe long term effects on the existing eco-system of all the living species that include mankind, animals, forests, scarcity of underground water affecting the overall soil structure, water and its structure, ultimately affecting economic development. The water borne diseases, often fatal are quite frequent in drought affected areas.

The current study is basically oriented to drought (a natural Disaster) , its impacts on the environment, human etc. and its remedies.



## II. CLASSIFICATION OF DISASTER

In general the disasters are of two types

1. Natural Disasters
2. Man Made Disasters.

**1. Natural Disasters:** The disasters which are happen due to natural forces. The various common natural disasters are earthquake, flood, drought etc.

- **Earthquake:** When stored energy under the earth was suddenly release the result is goes to earth quake. January 2001 in Gujarat India major earth quake happened approximately 30,000 people were died and a lot people were injured.
- **Flood:** When flow of the water on dry land beyond the limit then fold occurs. In June 2013 in Uttarakhand Rajasthan a big flood happened and approximately 5000 people were killed. In 2018 Kerala flood is also a major natural disaster.
- **Drought:** It happens when rain are very low or very shortage of rain. Due to less rain or weak monsoon in 2016 some part of Maharashtra, Odisha, Telangana, UP, MP and Rajasthan are affected by drought.
- **Tsunami:** A destructive combination (series) of gigantic ocean waves are known as Tsunami. In year 2004 in India tsunami happen and due to these major losses of people.

- **Cyclones:** In the lower part of atmosphere the circular winds are happen and it is known as cyclones. In year 2014 Hudhud Cyclone is measure natural disasters.

**2. Man Made Disasters:** The disasters which are happen due to activities of man. The man-made disasters are Accidents, Nuclear Radiation, and Chemical Disasters etc. In India some human made disaster are 1984 Bhopal gas tragedy, 2008 Mumbai attacks etc,

### III. DROUGHT

*Meteorological*, hydrological, agricultural are the important approaches that define the basis to measure drought in terms of physical phenomenon. *Socioeconomic* approach about drought deals with the supply and requirement (often terms as demand) of water shortage effects resulting in the disturbance in the social and economic sector of the society.

- *Meteorological:* Meteorological drought is defined in terms of extent of dryness (when compared to the “normal” or an “average” amount) as well as the typical duration of the dry period. Meteorological drought must be region-specific, since the precipitation deficiencies are the results of highly region-specific atmospheric conditions.
- *Hydrological:* Hydrological drought is associated with lowering of discharge and water volume in streams as well as reservoirs that may last over the months or years. Hydrological drought, a natural phenomenon, often associated with human activities. The magnitude and the frequency of the hydrological drought can be altered by the usage, degradation of soli/ land.
- *Agricultural:* When the characteristics of the hydrological droughts are associated with agricultural impacts with a focus on the precipitation, shortage, atmospheric loses and lowering of ground water level the droughts is termed as agricultural drought. Water requirement of plants depend on the available weather conditions, physical, chemical and biological characteristics such as biological family of plants, adapted changes in the plants due to surroundings, stage of growth and so on.
- *Socioeconomic:* This class of drought deals with the supply and demand of specific economic good with the basic components of drought such as meteorological, hydrological, and agricultural domains. The major difference between this class of drought and other classes lies in the fact that the former depends exclusively on the processes of supply and demand. The climatic changes affect of the supply of several highly needed materials namely water, forage, food grains, fish, and hydroelectric power to name a few. The climatic conditions may give the perception of adequate resources whereas the reality may be complete contrast.

### IV. IMPACT OF DROUGHT

There various types of drought impact include economic impacts, environmental impacts, and social impacts.

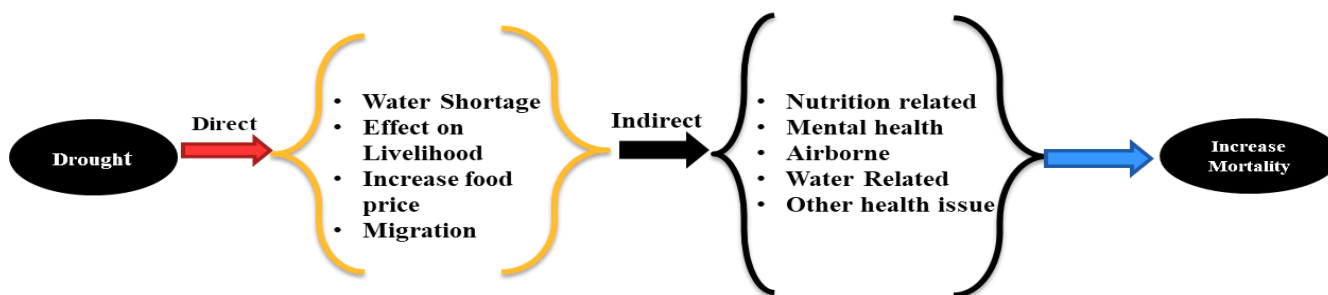
**1. Economic Impact:** There are two types of drought impact direct and indirect. For an example if a farmer lost his crop/s due to drought, he won't be able to build a store room for his crop or buy new agricultural equipment from shop then the first is the direct impact and second one is indirect impact. The unforeseen and least understood impact is decrease in overall production of the crop while demand remains the same or sometimes increased. This results in imbalance in the agricultural sector where the farmers won't get the appropriate credit of their crop and they are prey to the commission agents who stock the crop/ grains make huge money.

**2. Environmental Impacts:** The environmental effects are most serious and long term which need herculean and sustained efforts to restore the balance to its normal ways. All the forms of life that include mankind, animals including aquatic ones as well as plants are affected severely by draught. The environmental effects on plants and vegetation is an interesting research domain that involves study of plants growing in low-water areas.

**3. Social Impacts:** The factors such as public health and safety and conflicts between people due to insufficient water that leads to altering the life style are the major social impacts of drought. The health effects due to draught are discussed in the next section.

### V. EFFECT OF DROUGHT

**1. Effect on Heath due to Drought:** The health implications of any drought are uncountable as they may be grouped into direct and indirect, short-term and long-terms. The effect of these implications and the overall socioeconomic growth of any region is an area of intense research and warrants a separate review article. The short-term drought related effects are directly observed and hence measured. The drought effects on health due to inadequate intake of pure drinking water, poor air quality (due to dispersed dust particles) are two most crucial effects that can lead to fatalities in draught effected areas.



**2. Effects on Nutrition:** Poor nutrition or malnutrition is the known impact of drought with direct effect on morbidity as well as mortality [1]. These impacts are often indirect and complex to analyse. In a general scenario, drought affects the ecosystems we live in, resulting in reduced food supplies (principally crops and livestock). The above factors result in inadequate intake of the nutrients, increased vulnerability to illness, and increased risk of mortality.

**3. Air and Water-related Disease:** As water release and water levels related with drought are ordinarily low, with reduced dilution capacity and indirect implications on water pollution (e.g., higher concentration of harmful chemicals and low dissolved oxygen) [2]. The long-term drought followed by intense raining leads to poor water quality (generally due to convective storms in high temperature during the summer) and washing of accumulated chemicals from the ground or roads wash dumping everything to the rivers [3]. In case of polluted environment, in over industrialized area the acid rains resulting in crop damage pose higher risk to like and soil contamination. During high temperatures the evaporative losses are high that results in drying up soil. This is a triggering factor for the agricultural drought as well as increased risk of wildfire. The reduced infiltration capacity of the dry soil is the main cause of increased flooding risk. The further details on the diseases in drought affect areas may be found elsewhere. Dust resulting from dry soil) can be particularly harmful due to the possible medium fir pathogen carriage and direct trauma from inhaled poisonous Nano-particulates. A recent review of hazardous health effects of desert dust may yield more than ~50 studies focused on health effects related to several chronic diseases such as respiratory tract related, cardiovascular as well as cardiopulmonary disease [4].

**4. Mental Health:** A recent study [5] has demonstrated that the drought adds to the business-related pressures that farmers must face, with severe drought leading to financial impacts as well as consequent emotional stress that includes the disturbed sleep, being exhausted, crying [6], addiction and increased consumption of alcohol, or tobacco [7] and increased feeling of loss or worry [8].

**5. Others Effects:** A review of literature on drought related issues such as climatic conditions, conflict, baseline health of populations, sanitation and living conditions in refuge areas, community resistance to infections, etc. reveal that in certain regions of the world, huge people migration for sustaining livelihoods is a common socio-economic issue.

## VI. MEASURES TO AVOID AND FIGHT THE DROUGHT:

Water, a precious natural resource should be used carefully. Water conservation in every walk of our everyday life is the master-key to solve the drought and water scarcity problem. The simplest measure are rain-water harvesting in residential premises, refill of dry wells in agricultural land, percolation dams that can be done at individual and community levels. In agricultural sector one should practice recharging bore wells and employ non-irrigational agriculture methods. The work by Rajendra Singh, also known as 'The Water Man of India' has taken keen efforts to build mud-dams (johads) for collecting rain water in drought prone state of Rajasthan. It is estimated that over past 20 years, the technique has become very popular resulting in about 8600 johads that provide water to more than 1000 villages across Rajasthan. In our routine life, we can take only adequate quantity of water for drinking, washing and plantation, use bucket for bathing rather than shower, a bucket of water for washing a car rather than hose pipe-based washing.

### Possible Measures to avoid or Minimization of Drought:

Method and Techniques for ground water recharge: It is estimated that only 3% of the earth's water is freshwater, whereas rest is saline water in oceans. Recharging of underground water (also known as ground water) by using rainwater harvesting is extremely useful in rural and urban areas.

## VII. CONCLUSION

The current study explored that drought is the natural phenomenon and it may be various types on the basis of water source availability. It also explored that the impact of the drought on the different areas and also discussed in details with their remedies.

Therefore on the basis of their study it can be conclude that the drought: a natural disaster can be minimized by various discussed methods.

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