

Droughts: Notes for UPSC Geography

Drought is a phenomenon that comes under geography in the strict sense of the word but has reverberations across various fields. This is because droughts affect the livelihood and economies and even lives of people affected by it. Hence, it assumes importance for the UPSC exam. In this article, we talk about droughts for the IAS exam.

Definition of Drought

The term 'Drought' in simple words is the absence of water for a long period of time, at a place where it is considered abnormal as compared to its usual conditions. The distribution of water on the earth's surface is not even. Some places have lots of fresh water e.g. rivers, lakes, lagoons, ponds etc. and they are continuously replenished by rainfall and water from underground.

If a region that has had lots of rainfall, goes for a couple of weeks without rains, and people, animals and plants begin to experience a bit of dryness, it can be called a drought. Drought can be defined as a relatively long time where there is not enough water than there usually is, as a result of dry weather, to support human, animal and plant life. Droughts become an issue only when it begins to affect water supply for irrigation, municipal, industrial, energy, and ecosystem function. Severe droughts can have serious consequences.

Types of Drought

There are three types of droughts known to the scientific community:

1. Meteorological drought occurs when there is a prolonged time with less than average precipitation. Such types of droughts can be triggered by a high level of reflected sunlight and above average prevalence of high pressure systems, winds carrying continental, rather than oceanic air masses.
2. Agricultural droughts affect crop production or the ecology of the range. This condition can also arise independently from any change in precipitation levels when either increased irrigation or soil conditions and erosion triggered by poorly planned agricultural activities cause a shortfall in water available to the crops.
3. Hydrological drought is brought about when the water reserves available in sources such as aquifers, lakes and reservoirs fall below a locally significant threshold. Hydrological drought tends to show up more slowly because it involves stored water that is used but not replenished. Like an agricultural drought, this can be triggered by more than just a loss of rainfall.

Consequences of Drought

The effects of droughts can be divided into three groups: environmental, economic and social.

- Environmental effects: Lower surface and subterranean water-levels, lower flow-levels (with a decrease below the minimum leading to direct danger for amphibian life), increased pollution of surface water, the drying out of wetlands, more and larger fires, higher deflation intensity, loss of biodiversity, worse health of trees and the appearance of pests and dendroid diseases.
- Economic losses: Economic consequences include lower agricultural, forests, game and fishing output, higher food-production costs, lower energy-production levels in hydro plants, losses caused by depleted water tourism and transport revenue, problems with water supply for the energy sector and for technological processes in metallurgy, mining industries and disruption of water supplies for municipal economies.
- Social costs include the negative effect on the health of people directly exposed to this phenomenon (excessive heat waves), possible limitation of water supplies, increased pollution levels, high food-costs, stress caused by failed harvests, etc. This explains why droughts and fresh water shortages operate as a factor which increases the gap between developed and developing countries.

Effects vary according to vulnerability. For example, subsistence farmers are more likely to migrate during drought because they do not have alternative food-sources. Areas with populations that depend on water sources as a major food-source are more vulnerable to famine.