



## – The Creeping Disaster

When we think of drought, most of us immediately think of 'no rainfall'. But drought is much more complicated than that.

Basically, drought occurs when there is less rainfall than expected over an extended period of time, usually several months or longer. How bad a drought is usually depends on how little precipitation falls, how long the drought lasts, and the size of the area that is affected.

Unlike other natural disasters, such as hurricanes, earthquakes, fires

and floods, droughts do not appear suddenly and, while they might not appear as frightening, droughts can have far-reaching effects. Drought doesn't have a clear beginning or end. It starts slowly, and for that reason it is often called a 'creeping phenomenon'.

The damage caused by drought is not always seen right away. Farmers, who need adequate water to grow crops and raise livestock, usually feel the effects of drought first. In poor, rural areas, people are dependent on rain to grow their own food, so a

drought can mean hunger and starvation.

There are four main types of drought:

- ◆ **Meteorological drought** is brought about when there is a prolonged period with less than average precipitation (i.e. rain). Less than 75% of normal rainfall is regarded as a severe meteorological drought, however, a shortfall of 80% of normal rainfall can cause crop and water shortages.
- ◆ **Agricultural drought** is brought about when there is insufficient moisture for crop or range production. This can arise even in times of average precipitation, owing to soil conditions or agricultural techniques.
- ◆ **Physiological drought** is a condition afflicting plants that have been exposed to too much salt, preventing them from absorbing water from the soil.
- ◆ **Hydrological drought** is when water reserves available in sources such as rivers and dams fall below average.

Drought produces a complex web of impacts that spans many sectors

### WATER WORDS

**Climate:** Day-to-day weather over a long period of time. Climatology is the study of climate.

**Drought:** It is a deficiency of rainfall over a period of time, resulting in a water shortage for some activity, group, or environment sector.

**Drought index:** A numerical scale that scientists use to describe the severity of a drought.

**El Niño:** A weather phenomenon that occurs in the eastern and central equatorial Pacific Ocean. During an El Niño, the affected area's winds weaken and sea temperatures become warmer.

**Weather:** The condition of the Earth's atmosphere over a brief period of time, like day or a week.

*Drought often exacerbates environmental problems such as soil erosion.*



## HELPFUL WEBSITES

- ◆ <http://en.wikipedia.org/wiki/Drought>
- ◆ [www.weathersa.co.za](http://www.weathersa.co.za)
- ◆ <http://www.drought.unl.edu/kids/index.htm>
- ◆ [www.sciencenewsforkids.org](http://www.sciencenewsforkids.org)

of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is so integral to our ability to produce goods and provide services.

The potential economic impacts of drought includes farmers losing money because of destroyed crops; water companies having to spend money on new or additional water supplies; increased irrigation costs and increased importation of food (more expensive). There are also environmental impacts, such as the loss of fish and wildlife habitat; loss of wetlands; increased groundwater depletion; more wildfires; lower water levels in dams; lack of food and drinking water for wild animals; and soil erosion. Drought also has social impacts, such as health problems related to low water flows; loss of human life; reduced incomes; water user conflicts and mental and physical stress on people.

Unfortunately, being among the thirty driest countries in the world, drought is a normal, recurrent feature in South Africa. In the past, droughts have resulted in significant economic, environmental and social impacts.

Climate variability of South Africa is determined by prevailing patterns of sea surface temperature, atmospheric winds, regional climate fluctuations in the Indian and Atlantic Oceans and by the the El Niño phenomenon, a warming of sea-surface temperatures which influences atmospheric

circulation, and consequently rainfall and temperature.

During periods of low rainfall, people of the government, farmers, business people and the general public often require additional information regarding rainfall for decision making and planning. With this in mind, the South African Weather Service has created a drought monitoring desk where information regarding observed rainfall and long-range forecasts are presented in one place for easy access. It also provides an opportunity for people to compare this year's rainfall figures with figures from previously dry periods.

Assessing the severity of a drought period and the magnitude of the

impact base purely on the definition of 'percentage of normal rainfall' is extremely difficult, and so other drought indices are also monitored. High temperatures, high wind, low soil moisture and low relative humidity, for example, can aggravate the severity of drought conditions.

To mitigate against the effects of drought, several dams have been built in South Africa to store water for times of need. The country also has several water transfer schemes that transports water over long distances from one area to another, for example, the Lesotho Highland Water Project, which stores water in Lesotho before transferring it to Gauteng. 

## SOUTHERN AFRICA'S WORST DROUGHT

**S**outhern Africa (including South Africa) experienced one of the worst meteorological droughts of the century in 1991-92. From central Zambia through central Malawi and Mozambique southward, there were seasonal deficits of as much as 80% of normal rainfall. Abnormally high temperatures exacerbated the extreme dryness.

An estimated 30 to 40 million of the region's 100 million inhabitants were directly affected. The drought halved the region's grain harvest and required ten million tons of grain to be imported, the bulk within a 12-month period. Many people faced possible malnutrition and starvation.

The level of the Kariba Dam, which supplies power to Zambia and Zimbabwe, fell below the level required to generate hydroelectric power. The drought also resulted in increased unemployment, heavy government expenditure burden, and reduced industrial production due to curtailed power supply.

