



Basic concepts of drought

Agrometeorological Division of I.R.of Iran

Meteorological Organization (IRIMO)

(Oct. 30. 2007)

The most references of following text pertaining to Drought has been extracted from Assessment of the regional impact of drought in Europe technical report No. 6 with permission of Proff. H.Hisdal. Department of Geophysics,University of Oslo,Norway and other articles written by other scientists.

Contents:

- 1- An introduction to Drought**
- 2- Definition of Drought**
- 3- Drought and Aridity**
- 4- Different Types of Drought**
- 5- Drought Indices**
- 6- Drought Prediction**

1-AN INTRODUCTION TO DROUGHT

Drought is a period of abnormally dry weather sufficiently prolonged for the lack of precipitation to cause a serious hydrological imbalance and carries connotations of a moisture deficiency with respect to man's usage of water (McMahon and Diaz Arenas, 1982). The chief characteristic of a drought is a decrease of water availability in a particular period and over a particular area (Beran and Rodier, 1985). Drought is an interval of time, generally of the order of months or years in duration, during which the actual moisture supply at a given place rather consistently falls short of the climatically expected or climatically appropriate moisture supply (Palmer, 1965) .

respect to normal (Ben-Zvi, 1987). Drought is a condition whenever the amount of water which has been expected and relied upon for use in any of man's activities cannot be met for some reason (Takeuchi, 1974) .

These definitions are normally vague, do not provide Q/Q, (quantitative and qualitative) answers to "when", "how long" or "how severe" a drought is and are often used as a start-up in scientific papers and reports. Some sources like (*National Drought Mitigation Center,USA*) Drought as a severe shortage in the appearance of natural waters with refer to them as "conceptual definitions" and differentiate between conceptual and operational definitions of drought. Operational definitions identify the beginning, end, spatial extent and severity of a drought. They are often region specific and are based on scientific reasoning, which follows the analysis of certain amounts of hydro-meteorological information. They are beneficial in developing drought policies, monitoring systems, mitigation strategies and preparedness plans. Operational definitions are formulated in terms of *drought indices*.

Extreme rainfall deficits and the resulting periods of low flow can have severe effects on water management issues. This includes river pollution and ecological aspects, reservoir design and management, irrigation, small power plants, drinking water supply, etc. Future increase in the demand for water will be most critical in periods of severe and extensive droughts. Incorrect estimations of low flow and drought might have serious consequences for ecology and economy. ((H.Hisdal & .M.Tallaksen,University Of Oslo)