EVALUATION OF THE DROUGHT VULNERABILITY OF BUYUK MENDERES RIVER BASIN

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EXPERTISE THESIS ABSTRACT

Droughts which occur as a result of natural (climatological) processes, may influence certain areas for certain periods of time. Drought is a naturally occurring disaster such as floods and droughts, but unlike this disasters it has a very long onset and impact duration. The impact duration of a severe drought may be expressed in terms of years. In the period which drought shows its effects and after, in order to mitigate drought impacts, drought sensitivity of the affected area should be identified in the best way.

The purpose of this study is to determine the drought vulnerability of Büyük Menderes River Basin which is one of the 25 river basins of Turkey. For this purpose, drought analyses of Büyük Menderes River Basin were carried out by using five different analysis methods which were recognized in the international literature. For the drought analyses, Percent of Normal Precipitation Index (PNPI), Standardized Precipitation Index (SPI), Deciles Drought Index, Palmer Drought Severity Index (PDSI) and Standardized Runoff Index (SRI) were utilized.

By using the drought time series obtained by drought analyses, dry periods, duration and intensity of the past droughts experienced in the basin were determined.

Drought vulnerability of Büyük Menderes Basin was assessed considering the effects of dry periods to many different water users separately from municipal water to energy production and from agricultural production to ecosystems.

Keywords: Büyük Menderes River Basin, Drought, Drought Analyses, Index, Vulnerability