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Drought Assessment in the West Bank based on Reconnaissance Drought Index (RDI)

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Drought is a frequently occurring natural phenomenon in the semiarid areas, in which precipitation is the only source of recharge. Over the past few years, the West Bank has experienced lower than average annual precipitations. According to hydrologic data for the first part of the rainy season from October to December 2011, it is experiencing its eighth consecutive dry winter. Up to date, precipitation was only 60 to 70 per cent of the historical average for the West Bank. For a region characterized by a semi-arid climate, natural water scarcity, shared nature of water resources, conflicting demands and water scarcity and a complex hydro-political situation, the need to monitor and assess drought's onset, duration, severity and areal extent is highly crucial. There are several drought indices in the literature, however, in order to study the impacts of climate change on drought incidence, this paper has chosen to base the drought assessment on the Reconnaissance Drought Index. RDI is used to estimate the hydro-meteorological drought conditions based on precipitation and potential evapotranspiration. Data for more than 20 years has been used to produce 3, 6, 9 and 12 month period RDI maps. As in other Mediterranean basins , in which RDI has been used, this drought index is highly useful for the case of the West Bank as it enables proper decision making by water managers and proper adjustment of management plans for the drier months, based on the 3 or 6 month map. In addition , it is more effectively associated with both hydrological and agricultural drought, given that agriculture still remains as the main source of income for many Palestinians in the Northern West Bank and along the Jordan Valley; both of which are the national food baskets.