



Drought and its Extermination of the Diastrophic Plants in the Thar Desert, Pakistan

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Abstract: The drought diastrophic instigated over the plant existences in the Thar Desert. While exploiting precisely of the SPI (Standardized Precipitation Index) and SPSS (Statistical Package for Social Science) for the climatic model, shows rainfall fluctuation and a gradual significant decrease led to Plant extinction.

The result of Meteorological data indicated rainfall decreased in the range of 100-200mm during late twentieth century. This research suggested a new intuition of determine the period of temporal correlation between drought and rainfall. From research perspective it's a significant finding which contributes to the aftermath as to how plant species eradicated from the region.

Keywords: Drought, Diastrophic, fluctuation, determine, temporal

1. INTRODUCTION

The decrease in the rainfall is an associated cause of drought condition in the Thar Desert, it is owing to the variation in global scale climate pattern, desert morphology and monsoon demonstration. Which was originated some 18000 to 20000 year ago (Gupta *et al.* 1997). The south Asian regions are generally influenced by rudimentary atmospheric circulation from the ancient time to present (stamp, 1965).

The climate variation caused drought activity enhancement and it was originated from Pleistocene glaciation. Which caused degradation significantly the ecosystem and disruption in vegetation of Desert (James *et al.* 2007). All these climate and atmospheric deteriorations including Arabian Sea brought immense unhealthy shift in rainfall pattern of Thar Desert, owing to the warmer temperature of Arabian Sea caused 10% drier of Thar Desert (Rad *et al.* 1999 Roy *et al.* 2005). Whereas, rainfall fluctuation is the single most basic element in climate change in Thar Desert, Pakistan. (Chauhan, 1996). The rainfall significantly fluctuates during summer monsoon (July-September) that prompted drought to set in for a start (Simister *et al.* 2005).

Human being is significantly a responsible factor for creating drought for the very human creature

employed iron instrument to change landscapes; such as deforestation, cultivation, building houses, unplanned urban constructions and roads. The land degradation flinched from 1000 BC, it caused very substantial blow to shift climate in this region (Homji, 1996).

Though rainfall is decreased all across but mainly between mid and late 20th century as evapotranspiration superlative increased. Which in turns caused the inevitable fluctuation year after year of rainfall from the range of 1650-2000mm in current Century (Rao, 1992). The decrease in rainfall induced drought and aridity, which is likely fluctuated and it is led to the disruption of the geomorphic features and the earth surface (El-Baz, 1984). These anti-eco circumstances suggested the scattered and some plants extinction forever.

The Thar Desert of Pakistan is a subtropical arid Desert, which is geographically located 69^o, 53' and latitude 24^o, 43' (Time Atlas, 1959). This, over the global map is located over the Southeast of Pakistan (**Fig. 1**) The length of this area is about 800 km north south and 490 east west wide (Herani *et al.* 2007). The total population of Thar Desert is 955,812 (Census 1998) with the land area of 22000 km². The distribution of population (44/km²) represented dense populated Desert in the world (Alvi *et al.* 2008; SAZDA 1988).

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4. RESULT

Predominately, decrease in rainfall at Thar Desert led to a very high depression, which resulted in just as much high drought spell. This drought severely affected over the Plant. The unhealthy variation in rainfall and drought are communal in 20th Century (Rashid, 2004). The rainfall was heavily fluctuated between 1970s and 1990 and 1970s was known as the drought decade in the present history of this region. Hence this record was recapitulated in 2000 and 2008. Though the ordinary rainfall range variation difference occurs some 15mm

(Fig.3). Whereas, this is the large duration of rainfall fluctuation period of 1960-1970, with difference at Badin 1 millimetres to 586 millimetres and Chhor indicated fluctuation of same period 1960-1970 was 8-645 mm. This duration not only left incredible chapter in the history of Geography but also left nearly inerasable marks on the landscape of the region owing to the heavy drought since 1900 and the rainfall fluctuation also triggered subsequently drought years such as 1951, 1965, 1966, 1968, 1972, 1974, 1979, 1982, 1985, 1986, 1987, 2002 (Fig.4).

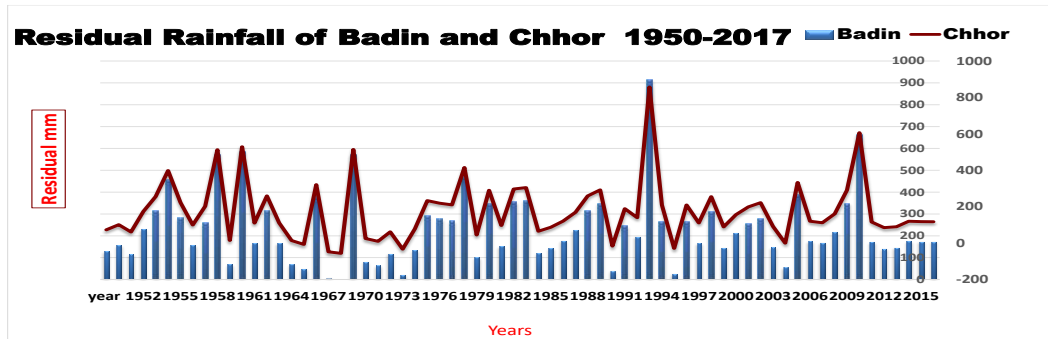


Figure 3 Rainfall fluctuation in Badin and Chhor weather station

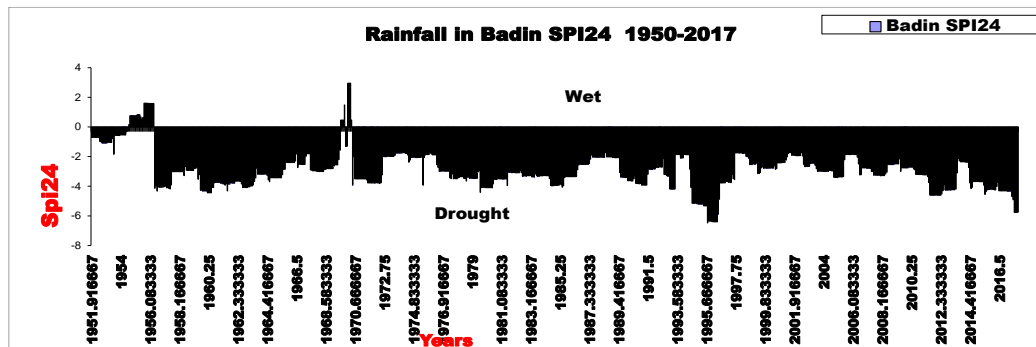


Figure 4 Drought ratio of Badin Weather station

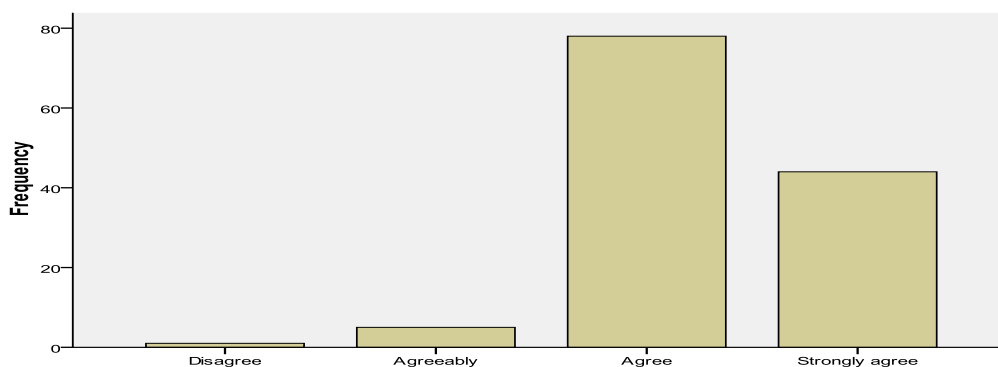


Figure 6. Review of Local people about decrease, scattered and elimination of vegetation

Fig. 5 Review of Local people about decrease, scattered and elimination of vegetation

This Figure represented drought decades as 1911-20, 1932-1940, 1961-70, 1981-90 and 2001-2009. That demonstrated severe back to back drought occurred 1-5 years rotation base and after every 2-3 years moderate drought used to take place in the region. The severe drought though intermittent period in this region yet problematic are: 1952, 1956, 1966, that caused massive damage to vegetation and plant pattern (**Fig.5**). The extinct plant name was *Calligonum polygonoides* (Local name Phog) eliminated forever

The anthropogenic responses demonstrated collectively 94 percentages that vegetation and plant are scattered and certain number led to elimination (**Fig.5**).

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