



El Nino and ground/underground water decreasing effects on coffee cultivation in DakNong Province, Vietnam by using GIS.

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El Nino is one of most common climatic events which are widely spread over the world. In case of Vietnam, the El Nino or ENSO event has various effects on agricultural cultivation over whole country; in the Central Highlands area, the coffee cultivation also has been affected heavily. The coffee is one of most important products of this area.

Our study area, the Dak Nong province located in the Central Highlands, the mountainous and highlands in central of Vietnam. The coffee production contributes roughly 40% of total GDP of the province. This province climate is influenced by tropical monsoon and high altitude terrain. The area has two seasons in which dry season from November to end of March and the wet season cover the rest. There is 80-90% of precipitation concentrated in wet season.

In El Nino years, the dry season is longer and drier than normal which affects the agricultural cultivation especially coffee. The effects of El Nino phenomenon on coffee cultivation need to clarify in order to help farmers and decision makers making their solutions.

The ground/underground water has been decreased by over watering of coffee growers as well as deforestation making water shortage in dry season. The over watering of coffee cultivation wasted more than 80% water resources especially underground water use.

In years of 1997-1998, coffee productivity decreased 30%; in years of 2003, the coffee productivity was downed by 25%; both examples show the relation between the combination of ENSO and decreasing of Ground/underground water and the coffee production in Dak Nong province. This is a necessary research to evaluate the effects of the combination.

This paper using GIS tools to estimate the effects of El Nino phenomenon combined with ground/underground water and the coffee cultivation in Dak Nong province