



## **Assessing the Agricultural Vulnerability for India under Changing Climate**

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Global climate change has proven to show majorly negative impacts for the far future. These negative impacts adversely affect almost all the fields including agriculture, water resources, tourism, and marine ecosystem. Among these, the effects on agriculture are considered to be of prime importance since its regional impacts can directly affect the global food security. Under such lines, it becomes essential to understand how climate change directs agricultural production for a region along with its vulnerability. In India, rice and wheat are considered as major staple diet and hence understanding its production loss/gain due to regional vulnerability to climate change becomes necessary. Here, an attempt has been made to understand the agricultural vulnerability for rice and wheat, considering yield as a function of temperature and precipitation during growing period. In order to accomplish this objective, the ratio of actual to potential evapo-transpiration has been considered which serves as a reliable indicator; with more this ratio towards unity, less vulnerable will be the region. The current objective needs an integration of climatic, hydrological and agricultural parameters; that can be achieved by simulating a climate data driven hydrologic (Variable Infiltration Capacity, VIC) model and a crop (Decision Support System for Agrotechnology Transfer, DSSAT) model. The proposed framework is an attempt to derive a crop vulnerability map that can facilitate in strategizing adaption practices which can reduce the adverse impacts of climate change in future.