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## Vulnerability Mapping for Water Stress in Kerala

### Objective

Developing an index of vulnerability taking into consideration the social, economic, hydrological, demographic, agricultural and climatic factors.

### Overview

This study is proposed with an objective of developing an index of vulnerability taking into consideration the social, economic, hydrological, demographic, agricultural and climatic factors. Based on this a district level/block level vulnerability mapping is planned.

The state of Kerala is reported to be slowly moving towards dryness from wetness (Rao, 2008), which exert serious shock on agricultural sector. This may influence the household welfare, through reduction in income and resultant change in consumption levels. The impact may be varied, according to the social settings and adaptive mechanisms. The result of the study may help to streamline policies for evolving support mechanisms to farmers in the event of shocks due to environmental factors, depending upon their resilience, and the relative influence of factors that influence the level of risk. This information facilitates policy decision regarding project development and resource allocation

During recent years of scarcity the social behavior develops coping mechanisms to adapt to the situation of widening gap in demand and supply. These adaptive strategies include, Change in cropping pattern, Changes in crop management practices, Diversification of farm enterprises, dependence on water markets, Deepening of wells, Dependence on ground water, increase in water use efficiency etc. The study tries to analyze the different behavioral responses to the situation, as influenced by the socioeconomic and other factors. The study can help in developing and piloting a range of coping mechanism for reducing vulnerability of farmers to future stress conditions. It helps in fine tuning/scientific validation of coping strategies currently adapted, which makes its social acceptance much easy. It can also aid to raise awareness on appropriate coping mechanisms and develop capacity of farmers, extension workers, community leaders and agro meteorologists to apply risk management techniques. This can support in assisting local communities in choosing appropriate coping mechanisms, thus improving resilience of farmers in vulnerable areas to climate change

### Methodology

The Panchayat level secondary data on demographic, geographic, agronomic and hydrological aspects will be compiled. Wherever data gaps are there primary data will be gathered through focus group discussions, quick surveys, or formal discussions.

The index based method suggested by Balasubramanian et al, will be the basis for estimation of the level of vulnerability. Based on this the mapping of geographical locations and sectors of population will be attempted.

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