



Conceptualizing the dynamics of a drought affected agricultural community

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Climate and especially water availability and variability play an important role in the development of our societies. This can be seen through the vast investments that are made in reaching water security and the economic impact regions experience when the rains fail. However, the limit of available fresh water is increasingly felt as our population increases and the demand for water continues to rise. But how do we as society respond? Are periods of drought making us more resilient? The answer to this question is sought through the development of a stylized model that is built within the spirit of the Easter Island model by Brander and Taylor and aimed at capturing the essence of the dynamics of water supply and demand. By explicitly incorporating feedbacks, but keeping the framework simple, the model seeks to understand qualitative behavior of our socio-hydrological system as opposed to predicting exact pathways. The model shows that carrying capacity dynamics are a determining factor for continued growth. Future work will explore the underlying relationships further, among others, through examination of case studies.