

Agricultural and Pastoral Systems as Nexus of Food and Water in Dryland Asia

*Jiaguo Qi^{1,2}, Xiaoping Xin⁴, Dennis Ojima⁵, Pavel Groisman³, Jiquan Chen¹

1.Center for Global Change & Earth Observations, Michigan State University, 2.Zhejiang University, 3.University Corp. for Atmospheric Research at the NOAA National Centers for Environmental Information, Asheville, NC, USA, 4.Chinese Academy of Agricultural Sciences, Beijing, China , 5.Colorado State University, Ft. Collins, CO, USA

It is estimated that by 2050 the global demand for food will be increased by 60%, water by 55% and energy by 80% (OECD-FAO, 2012; IRENA, 2015) in order to meet the needs of current and additional new 2.2 billion of people on the planet. The demand for additional food lies not only in producing the basic resources needed to sustain a healthy lifestyle, but also from a changing diet, especially in rapidly developing countries around the world. It is projected that the growing demand for meat will require additional 0.2 billion tons per year by 2050, which almost doubles the present meat consumption. These new demands create mounting pressures on agriculture and pastoral ecosystems. Furthermore, the anticipated trajectory of future warmer and drier climates major agricultural regions of the world increases uncertainties in food security, adding further stresses to the already stressed nations particularly those in the Asian dryland belt.

Given the complexity and interplay among the food, water and energy in dryland ecosystems, the questions arise 1) whether or not the existing agricultural and pastoral ecosystems are endowed to have the capability to produce the required food, given its nexus to water and energy, 2) whether or not the current land use and consumption practices are sustainable when considering other ecosystem services critical for societal sustainable development, and 3) what are alternatives to ensure a sustainable trajectory of regional development to meet the new food demand?

This presentation reviews existing practices and proposes alternative solutions from both producer and consumer perspectives. The focus will be specifically on examining the trade-offs between different ecosystem services that drylands in Asian may provide. Preliminary analysis suggested that the current trajectory of meat and milk production is likely not on a sustainable pathway.

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