Title: Socio-Economic impact of Crop Choices and Resource use Efficiency in the contract of Climate Change: A case of deteriorating water and land quality in South Punjab-Pakistan

Irrigated agriculture is subject to multiple challenges in recent times. On one hand, higher demand of foods is putting extra pressure on the scarce resources, whereas on the other hand, rapidly changing climatic conditions are limiting the supply of essential natural resources like water. Southern Punjab region is the main crops growing zone in Pakistan and is placed as highly vulnerable regions due to abruptly changing climatic conditions and resultantly stress on the water resources not only in terms of the availability but also quality of the resource especially the groundwater quality. Present study has focused on the estimation of the water productivity in the region considering the crop choices of the farmers, focusing the economic returns to the farmers and economy. Whereas the novelty of the study is in employing the scenario analysis considering water and soil quality parameters to workout the solutions that can work well in farming context. The study also employed an innovative research process to involve community in the scenario building process. The study has integrated the groundwater modelling results of the South Punjab to build community focused scenarios for proposing the future sustainable water and land use scenarios. Results of the study showed that adapting to the new crop enterprises based on the agro-climatic conditions would improve the head-count poverty and income levels in the community.

Key words: Agriculture, Climate change, water quality, salinity, South Punjab