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## A Hydro-Economic Modeling Framework for Climate Change Impacts and Adaptation Assessment in Thailand with Multi-Sectoral Linkages and Multi-Scale Vulnerability

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Recent research has demonstrated the multidimensional and multi-sectoral impacts of climate change, evidencing the need to develop national and sub-national integrated tools and policies for the analysis of impacts and adaptation, especially central to local policy recommendation and implementation. This framework combines an area-based economic optimization model with the hydrological model WEAP, and represents the socio-economic, agronomic, and hydrologic systems in a spatially explicit manner covering dimensions and scales relevant to downscaled climate change impacts. Simulated scenarios are setup to incorporate climate scenario, prior-historic dependence to adaptation conformity, and two policy-based adaptation scenarios. Preliminary results indicate that climate change may impact severely in rain-fed agricultural area and also to irrigation systems reducing water availability and security and crop yields, and increasing in more efficient irrigation water allocation. The adaptation strategies analysis based on socio-economic, agronomic, and hydrologic dimensions capitalizes the key role of Thailand supply- and demand-side management policy in facilitating adaptation. The under developing framework is currently anticipated to be a useful tool for supporting water resources and climate change policy making. It can contribute to improve understanding on potential impacts of climate change, multi-sectoral linkages, multi-scale vulnerability, and adaptation programs.