

## **Water energy nexus under globalization with the implications of trade policy**

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Water and energy are interlinked, managing them in tandem offers potential for global-change adaptation. However, as conventional conceived the water-energy nexus primarily refers to the water and energy in resource use in production. Such as water footprint of electricity from hydropower on one hand and energy needed to secure water supply on the other hand. The production and consumption are linked through economic chains in an economy, where water and energy are discussed separately. Displacement of water and energy consumption comes about as embodied form in trade. Trade adjustment is regarded as a way to alleviate regional resource crisis in the face of the displacements of resource depletion. However, policies commonly focused on one single resource, lacking a comprehensive assessment of impacts for both resources. Since knowledge on how water and energy interact under the trade pattern can provide important information on resource utilization, it calls for the need to integrate both water and energy together with their conflicting and synergistic interactions under specific policies. This paper establishes a multi-region input-output framework to quantify both water and energy embodied in global trade in differentiated trade scenarios under the corresponding policies, and whether regional scarcity of one resource will be jeopardized when policies only concerning about the other resource. At last, this paper seeks for the 'win-win' possibility of trade policy making to achieve both water and energy security.