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## **Characterising and quantifying links between water, energy, and food consumption in a water-poor, energy-rich city; Adelaide, Australia**

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More than half of the world's population are urban dwellers, and this percentage is on the rise. Therefore, understanding the links between water, energy, and food requirements of cities plays a critical role in determining global resource consumption. Adelaide is a mid-size, coastal Australian city in Australia with a population of almost 1.3 million inhabitants. With its plentiful access to wind and solar energy, the Adelaide region has one of the highest rates of renewable energy production in the world, and access to additional, conventional energies supplies from other parts of the Australian network. However, the water supplies in this region are theoretically limited, as groundwater depletion is already occurring in the food production areas surrounding the city, and municipal water supplies rely heavily on the fully allocated Murray River system. Therefore, optimization of the food, energy and water requirements of the city provides an opportunity for optimal use of valuable resources. Quantification of these industries was not trivial and provided data availability and comparison challenges. Lessons learned on a quantitative example of the water-energy-food nexus at city scale are presented.