

EGU21-10773, updated on 20 Apr 2021
<https://doi.org/10.5194/egusphere-egu21-10773>
EGU General Assembly 2021
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Assessing policy coherence in the Water-Food-Ecosystems nexus

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To make coherent policies and strategies in the water-food system, it is necessary to analyse the synergies and trade-offs based on indicators approach. Policy coherence is considered a fundamental part of the EU's contribution to achieving the sustainable development goals (SDGs) and calls for addressing the interlinkages between various SDGs. In this research, key indicators have been identified to analyse policy coherence within the water-food system in Andalusia (Spain). Furthermore, food and water policy scenarios have been simulated using a system dynamics model to evaluate future water-food trends by 2050. These provide a better understanding of how relevant policies are linked, which in turn helps to conduct integrated policy analyses and develop coherent policies and programmes across various dimensions of sustainable development.

In this region, water availability is a limiting factor for food production. Significant synergies and trade-offs were identified between water saving indicators and food production. An increase in water price causes a decrease in the irrigated area, as well as in irrigation water use. However, water pricing policies also increase crop irrigation water productivity. Agricultural policies that promote alternative sources of water, such as the reuse of treated wastewater, contribute to mitigating water scarcity, especially in the context of adaptation to climate change.