

Fourteenth session of the IRENA Assembly

Side Event

16 April 2024, 12:30 – 14:00 GST

St. Regis Hotel, Saadiyat Island, Abu Dhabi

Harvesting Synergies: The Water-Food-Energy Nexus for Enhanced NDCs

Background

Water, food and energy systems are inextricably linked and foundational for sustainable societies. However, an urgent transformation is needed of each of those systems and how they interact. Agri-food systems consume around 30% of the world's energy (mostly derived from fossil fuels) and account for one-third of global emissions.¹ According to the Food System Economics Commission², they are causing human and planetary harm in the range of USD 10 trillion with a net negative impact on global GDP. The interlinkage of water, food and energy, such as solar-powered irrigation systems, is key to improving the livelihoods of smallholder farmers in developing countries. Rethinking water-food-energy interactions is not only essential to meet the Sustainable Development Goals and climate commitments but can also deliver substantial socioeconomic benefits.

As such, the next submission of Nationally Determined Contributions (NDCs), countries' climate commitments, in 2025 will need to explore the sectoral integration between water, food and energy, specifying co-benefits, actions and targets. Harnessing the potential of renewable energy and energy efficiency measures remains an untapped resource for reducing agricultural emissions, providing access to sustainable energy and increasing resilience. While water-related climate change adaptation actions are well captured in NDCs, water as an opportunity for climate change mitigation has not been very recognised in NDCs³. A holistic approach to understanding interactions of water, food and energy systems can significantly enhance NDCs, unlocking opportunities for emission reduction, adaptation, and welfare.

¹ [Renewable energy for agri-food systems – Towards the Sustainable Development Goals and the Paris Agreement](#)

² https://foodsystemeconomics.org/wp-content/uploads/FSEC-Global_Policy_Report.pdf

³ [NDC Enhancement: Opportunities Through Water | World Resources Institute \(wri.org\)](#)

Objectives

The event will convene governments, civil society and private sector representatives to facilitate knowledge exchange on strategies, best practices, and technological innovations. The event offers a platform for developing holistic strategies and solutions while providing opportunities to identify potential collaborations. Additionally, it aims to encourage participating countries to consider more ambitious targets for sustainable agriculture in their enhanced NDCs for 2025, integrating renewable energy as a key driver.

Guiding Questions

- What are the key challenges and opportunities within the Water-Food-Energy Nexus? How can they be translated into actions in NDCs to ensure robust mitigation and adaptation plans?
- What innovative renewable energy solutions can facilitate food systems decarbonisation and sustainability?
- How can governments, the private sector and civil society collaborate to ensure sustainable low-carbon food production and responsible use of resources tapping into renewable energy potential?

Associated Publications

- [World Energy Transitions Outlook: 1.5°C Pathway \(IRENA, 2023\)](#)
- [Joint Statement: Advancing Renewables in Agriculture to Meet SDGs and Climate Objectives \(IRENA Coalition for Action and FAO, 2021\)](#)
- [Renewable energy for agri-food systems – Towards the Sustainable Development Goals and the Paris Agreement \(IRENA and FAO, 2021\)](#)

For further information please contact

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