2026 Joint Programme

NDE Forum and Capacity Building for System Transformation in LAC

19-22 May 2026,
San Ignacio, Belize

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Water Energy Food - Nexus

2026 Joint Programme: Latin America and the Caribbean
NDE Forum and Capacity Building, 19-22 May 2026

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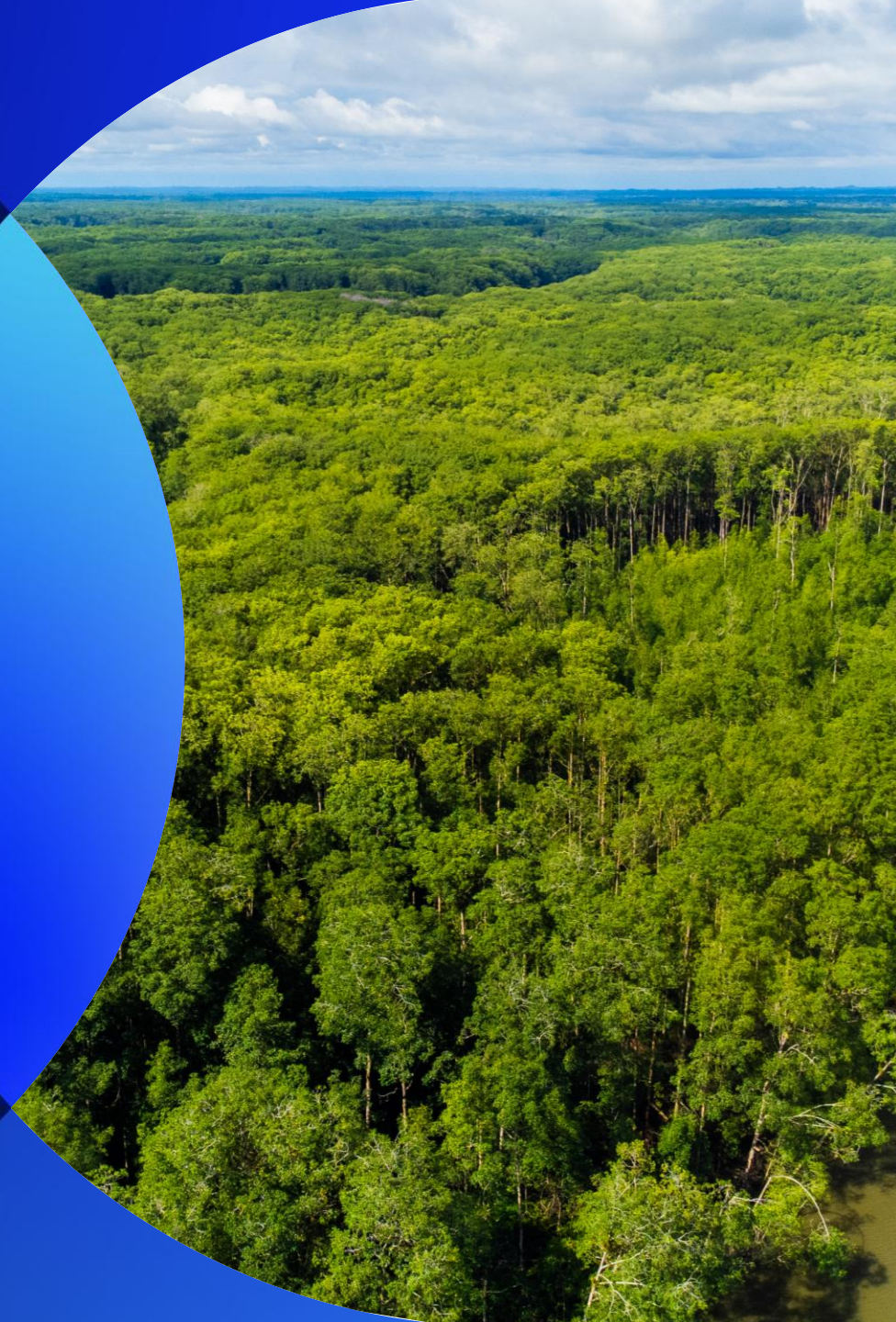


Relevance of Water Energy Food Nexus

The WEF Nexus approach addresses the complex interdependencies between water, energy, and food sectors, which are critical for sustainable development.

Climate change challenges:

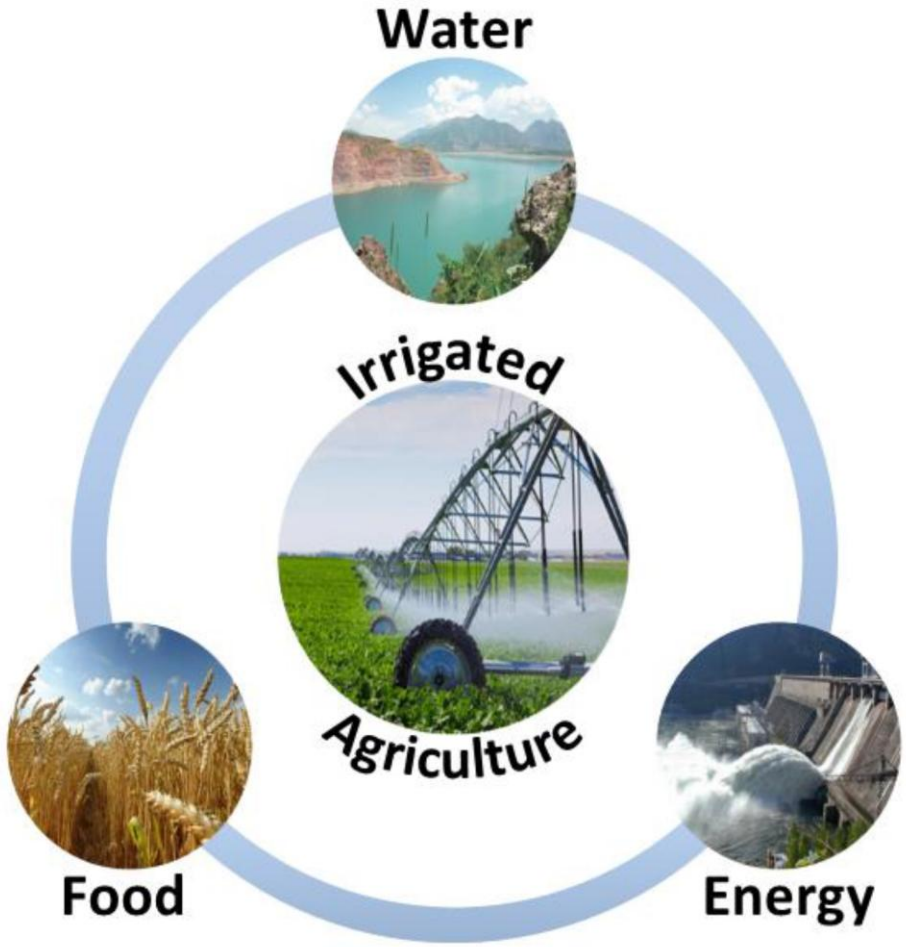
- freshwater scarcity
- energy supply vulnerabilities
- food security threats

Therefore, an integrated management of these sectors is vital.

- **The WEF nexus approach enables** systems thinking that can lead to more efficient, equitable, and climate-adapted solutions, addressing trade-offs and maximizing synergies between water, energy, and food sectors under increasing climate stresses.

CTCN supports countries through technical assistance:

- Sensors to improve crop resilience
- Enhancing water management and productivity
- Digital technologies to better understand and manage WEF nexus trade-offs.



WEF-Nexus: Key insights

- Agriculture is the largest consumer of freshwater; water is used to produce myriad forms of energy; and agriculture is of course dependent on energy.
- Demand is rising rapidly for all three, driven by an increasing global population which is quickly urbanizing, alongside changing diets, economic growth, and rising living standards.
- Feeding a global population expected to reach 9 billion people by 2050 will require a 60 percent increase in food production (FAO, 2022).
- Benefits accrued are beyond reduction in emissions, benefits, such as use of locally produced green building materials, reducing electricity loads, and transforming the roles of small and medium enterprises.
- Governments play role from leading in policymaking, regulations and standards that may incentivize sustainable financing, to supporting research and development of promising cooling technologies through partnership and collaboration.

Examples of CTCN WEF TAs

	WEF Technical Assistance	Type of Assistance
1	**Fiji:** Technical capacity enhancement for **climate-resilient agriculture** through the revision of national policies and the improvement of **data management systems.**	Capacity Building
2	**Jamaica:** Enhancing **multi-scalar mapping and research** on food security risk due to the impacts of climate change on rural and urban environments.	Sectoral roadmaps and strategies
3	**Dominica:** Technical and economic **feasibility of solar units and water storage** on public buildings in Dominica.	Feasibility study
4	**Suriname:** Enhance the resilience of Suriname´s water supply system by **modelling drought risks** and developing a roadmap of prioritized **alternatives for aquifer recharge.**	Sectoral roadmaps and strategies
5	**Saint Kitts and Nevis:** Improvement of water supply management through a **GIS-based monitoring** and control system for **water loss reduction** in Saint Kitts and Nevis.	Decision making tools

Ideas for new WEF TAs

- In addition to supporting countries in the collection and sharing of data and information, strengthening of institutions, and delivery of **programmatic and multi-country technical assistance**, the CTCN also explores **emerging technologies** and solutions to **maximize synergies** across water, energy, and food systems, including:

Sensor deployment to aid **food and crop resilience**

Improved water management, accounting, and productivity. For example, CTCN's **AFCIA SPIS** projects Liberia and Guatemala

Enhanced platforms and tools for collaboration and learning on **agri-food technology development** and transfer. CTCN's Malawi TA - simple mobile technologies for collecting climate data.

Using **digital technologies** for the WEF-nexus. **AI, IoT** (soil moisture, temperature, localized weather sensors for precision irrigation), **predictive ML models** (optimize renewable energy usage for desalination and heavy water pumping)

Integrated planning and management opportunities include developing **early warning systems for floods**, which assist farmers in planning to mitigate losses from flooding.

Designing **knowledge transfer and capacity building programs,** such as integrated water resources management, sustainable agriculture, and renewable energy technologies. CTCN´s Congo TA - developing an **incubation programme** for innovative companies based on climate technologies.

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