# Water for Food Global Forum

## Panel brief Claudia Sadoff

**Date**: October 7, 2021
**Time**: 0900-1100 CST
**Event organizer**: Daugherty Water for Food Global Institute at the University of Nebraska
**Session style**: Panel
**Session title:** Water and Food Systems Panel and Discussion
**Panel duration**: 50-60 minutes

**Moderator:**
**Peter G. McCornick**; Executive Director; Daugherty Water for Food Global Institute

**Panellists:**
**Erin Fitzgerald**; Chief Executive Officer; U.S. Ranchers and Farmers in Action
**Melissa D. Ho**; Senior Vice President; Fresh Water and Food, World Wildlife Fund-US
**Anne Meis**; Board Chair; U.S. Ranchers and Farmers in Action
**Harkamal Walia**; Heuermann Chair of Agronomy; Department of Agronomy and Horticulture, University of Nebraska–Lincoln
**Roric Paulman**; Owner; Paulman Farms
**Claudia Sadoff**; Managing Director, Research Delivery and Impact of the CGIAR System Organization (CGIAR)

**Questions:**

1) ***Given your perspective, what do you view as the challenges and opportunities in the interconnections between food systems and water?***

**Assumptions that we will have enough water** and that floods, and droughts are predictable **no longer hold.**

One of the challenges is in **fostering a better understanding** of this simple fact.

The threats to and from water are among the **gravest threats to global development.**

If we don't have **water security**, we don't have food security.

So we need this **systems thinking** and new ways to bring the agricultural, environmental and energy sectors together.

Opportunities to foster *water for food security* include in the areas of **storage; irrigation and waste water**.

**Credible and reliable data** are also critical [see also answer to third question].

**STORAGE**

An estimated **30% of wetlands have disappeared since 1970**, and over 80% since 1700 – with **conversion for agriculture and diversion of water for irrigation major drivers** of degradation.

The **value of ecosystem services** relating to water supply, storage, regulation and filtration runs into the **10s of trillions of dollars**.

**Halting wetland losses** and restoring wetlands will contribute to sustaining water supplies for agriculture (and other sectors) and **lowering water risks** – while also sustaining inland fisheries and their benefits for human nutrition.

**Groundwater use for agriculture** is depleting supply in major agricultural regions, such as the North China Plain, North West India and the US High Plains – creating risks for global food supply

Depletion of groundwater and wetlands are contributing factors to a **growing water storage gap** – the gap between available water storage and needs to address growing water demand and climate change and variability.

**Freshwater storage has declined by an estimated 15,000 billion cubic meters since 1970**, driven by a combination of human and climate induced changes in storage in groundwater and ecosystems, with construction of engineered storage not keeping pace.

**Strategic approaches to storage** that focus on the services enabled – urban water supply, food security, healthy environments, energy, etc. – more than the quantity of water retained.

**IRRIGATION**

**Expansion of irrigation** *in some areas* is a strategy for reducing vulnerabilities to water shortages and climatic change and variability.

But globally research [led by the Potsdam Institute for Climate Impact Research] reckons that to stay within limits respecting planetary boundaries – an **overall cut in water use for irrigation worldwide of 7% will be necessary**

This signals **very significant policy challenges** ahead for irrigation and financing for irrigation

Despite the fact that 95% of African agriculture depends directly on increasingly unpredictable and unreliable rainfall, **only 7% of farmland is irrigated**.

So, for the remaining 93% if the rain doesn't come the crops don't grow.

CGIAR (IWMI) research identifies that investments in motorized irrigation pumps could benefit 185 million people and generate net revenues up to $22 billion per year.

**Increasing the number of small reservoirs** in sub-Saharan Africa could help meet the irrigation and other water needs of nearly 400 million rural people, generating net revenues of $20 billion annually.

And with **farmer-led irrigation** we have also been able to link **good nutritional outcomes**; where for example farmers can **diversify from staple crops** and grow more fruit and vegetables.

**Solar irrigation** gives us an opportunity to reduce the carbon footprint of irrigation where many still use diesel.

**WASTEWATER**

Globally **80% of sewage enters surface waters** without adequate treatment.

Only an estimated **8% of human waste collected in low-income countries is ever treated**.

The remaining waste can **pollute precious water resources** but is also a **valuable resource** in itself…

**Wastewater can be recycled** and used to **reduce risks of water shortage** in agriculture in water scarce regions.

It can be reused in **aquaculture and to grow vegetables** in urban environments – all with good nutritional outcomes.

And **human waste** can be turned into fertilizer

Informed by IWMI research, **the government of Ghana** added waste-based composts to its fertilizer subsidy program.

2) ***How effectively was water considered in the UN Food Systems Summit process and the summit outcomes?***

*n.b Peter McCornick and Mark Smith are among signatories of this paper published ahead of the UNFSS that asks "for water resilience to be brought to the forefront of building resilient and sustainable food systems that can provision communities, economies and ecosystems into a rapidly changing world."*

The UNFSS has **catalysed action** by a broad set of stakeholders; and given rise to **dynamic and innovative new partnerships** which could make a real difference.

The **statement of action** from the UNFSS recognises that it will be **impossible to sustainably manage water resources** to achieve SDG 6 **without agriculture** playing a central role.

The reverse is also true. If there isn't **water security** (at a systems level, across sectors and users), then **food systems face major risks**.

While we have seen **greater recognition of the centrality of water in some global dialogues** it has been argued that **the UNFSS underplayed the role of water** and growing risks in food systems. [n.b the paper above argues this]

**Water is not absent**, but there are gaps.

For example the **under-emphasis on the risks that climate change creates** for food security and food systems because of water.

To contemplate transforming food systems, these risks have to be addressed, or else **food systems will break**.

3) ***What do you consider to be the best opportunities to ensure the availability and sustainability of reliable water resources?***

**DATA**

Effective water management requires **good historical and current data**.

**Limited water data** makes cross continental water management challenging**.**

Large amounts of data are collected through **remote sensing** techniques

But we need more **mechanisms to make sense of that data.**

They can then be applied to **practical problem-solving on the ground**.

We have very **little information on current groundwater potential in Africa** and insufficient evidence on spatial and temporal recharge and use patterns (e.g. India)

A new CGIAR (IWMI) partnership consolidates decades of satellite information so that researchers can **develop tools to enhance the ability of Governments, communities and companies to better manage their water and strengthen water security.**

Additionally environmental flow (E-flow) assessments give **quick, accessible assessments of the quantity, quality and timing of water flows** needed to sustain a freshwater ecosystem.

Flow estimations have taken on a **strategic role in the efforts of developing countries to keep their rivers healthy** and **plan the management of water resources** in major river basins, and they have now also been launched onto the global stage.

Irrigation pumps can be **fitted with sensors** to monitor how much water is being used and from where. IWMI is doing this in partnership with solar pump manufacturer FuturePump.

**Citizen science** and the citizen-state interface in data collection also have an important role to play.

**GOVERNANCE**

**Water governance is central to how societies tackle new forms of risk** and avoid future systems failure.

**Localized governance and participatory approaches** enable better adaptability and rapid and inclusive responses to local **threats to water security** that could rapidly escalate across agricultural supply chains.

The emergence of **different governance institutions** necessitates **effective platforms for negotiation** that build capacity for cooperation across the system as well as supporting robust **conflict resolution mechanisms**.

Water governance therefore needs to not only be **responsive to current context** but also be capable of **reflexiveness and responsiveness to future change** as water systems undergo rapid and unprecedented degrees of change driven by global warming.