

The issues:

- Global Change leading to major increase in Food Trade by 2050
- Climate Change has potential to impact major exporting nations, World Market Prices and risk of hunger in low income nations will increase,
- Risk of global crisis increased by CC and exacerbated by COVID 19 crisis
- Need to transform our food systems and call reduce food loss and waste (700 million are hungry, 650 million are obese, 14% of food is lost, 17% wasted)
- Food production for healthier diets could use less water and emit less GHG than currently.

Possible approaches and solutions

- Water programming in conflict sensitive zones needs a different approach: **risks** but also **opportunities (be creative)**
- **Implementation of the SD principles by the private sector**
- **Tools available (modelling, LULC scenarios, interventions for sustaining GW resources, mapping GW contaminated zones, digital water management, storing water (MAR), MUS**
- **Participatory approach to the solutions**

- Adoption of the circular economy approach vs the linear approach

The linear approach:



The circular economy approach



Benefits

Social impacts: improved sanitation management, job opportunities, generates products (biogas, fertilizers...)

Health impact: prevents public diseases, improves food security

Competition for resource: recycling, improved water security

Economic impact: Reserves and enhances natural capital, Improves revenue or saves costs, Sales from products

Water, food and health are bound together as a system – agricultural water management provides a set of system levers

- Agricultural practices are directly related to health – with relevance across the food supply chain
- Managing for water efficiency and quality are key for food security and combating malnutrition, water-borne disease, food-borne illness, poverty
- Policy design and shared governance should address barriers and provide incentives for adoption of management practices and innovation
- Education, learning and knowledge exchange, resolving competition for water and improved metrics and monitoring are key to moving forward

What opportunities lie in the improved cooperation between water, food, and public health sectors?

- The **interaction** between the three systems (W, F, H) is so **complex**.
- **Community engagement** is key to understanding these complexities and the related social, cultural, and economic factors. People and stakeholders and need to be involved in understanding the problems and implementing solutions.
- NGOs have a role to play but the **voice of the common person** (the vulnerable) should always be solicited/heard.
- Importance of **rigorous data collection** and the **role of tools and analytics** in informing public policy (esp health) as well as to design location specific behavior change programs.
- Importance of building on **collective action** examples to catalyze **breaking down stovepipes** at the institutional level and promote cross-sectoral cooperation
- Opportunities in improving community safety and health through **building partnerships** between universities and health departments; **resources needed** to be allocated to support such partnerships.
- **Climate change** impacts the agriculture sector affecting the water, food, and public health systems. Need to consider alternatives in crops and monitor closely.
- **New technologies** can help in wastewater treatment; potential applications of ferrate technology and how it can be applied to clean water to be reused for agriculture.
- **Inadequacy of WASH amenities** for **persons with physical disabilities** and the investment needed to support the development of this infrastructure
- Including the **dangers of consuming raw food** in the F-diagram

- **Fascinating range of perspectives:** geographies & scales; professions, disciplines, career stages; entry points to the conference theme (Santos, Craig)
- Q1 **Identifying and capitalising on synergies?**
 - Water quality a key area of alignment (Sharma, Craig, Aguirre, Essery). Net zero discharge, emerging tech, farmer behaviour, coastal fisheries
 - Improved water management planning processes key (Wang, Essery) if well-designed, politically savvy & “triple bottom line”
 - Scenario analysis a useful tool (Yanni). But how to define scope?
- Q2 **Role of markets and regulation?**
 - Zonation to guide water use (Yang)
 - \$\$\$\$ - Effluent credits (Essery) & trading schemes (Craig)
- Q3 **How can we protect and restore aquatic ecosystems urgently?**
 - ???
- More on synergies than trade-offs. **We need more insights on the difficult questions.**
- More on human health/well-being than ecosystems. **We need more explicit analysis on climate-nature-development “triple challenge” pathways**

- The potential for science to better inform public policy, governance and capacity building for water, food and health can be understood through a three-dimensional framework: ***science as a driver***; ***science and inclusiveness***; and ***science and public policy***.

- 1. ***Science as a driver***
 - Intergenerational collaboration among children; youths; educators; early career, mid-career, and senior researchers; practitioners; businesses; communities; civil society; and technocrats among others
 - Transdisciplinary research

- 2. ***Science and inclusiveness***
 - Political economy of science
 - Social, economic, environmental, and institutional aspects of inclusiveness
 - Gender

- 3. ***Science and public policy***
 - Communicating science
 - Integrated and intersectoral approaches