

# Multi-stakeholder Collaboration in Agricultural Water Management: Solutions/Advance SDGs

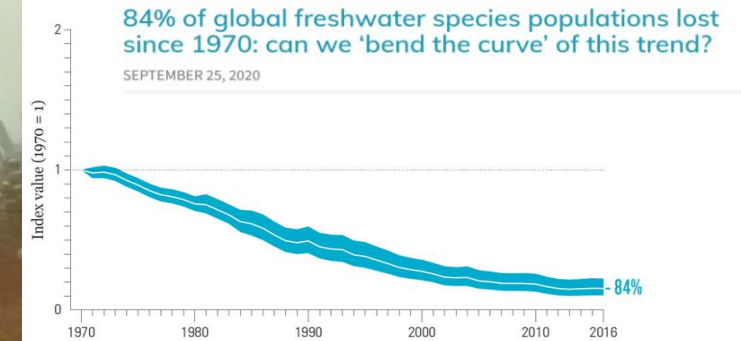
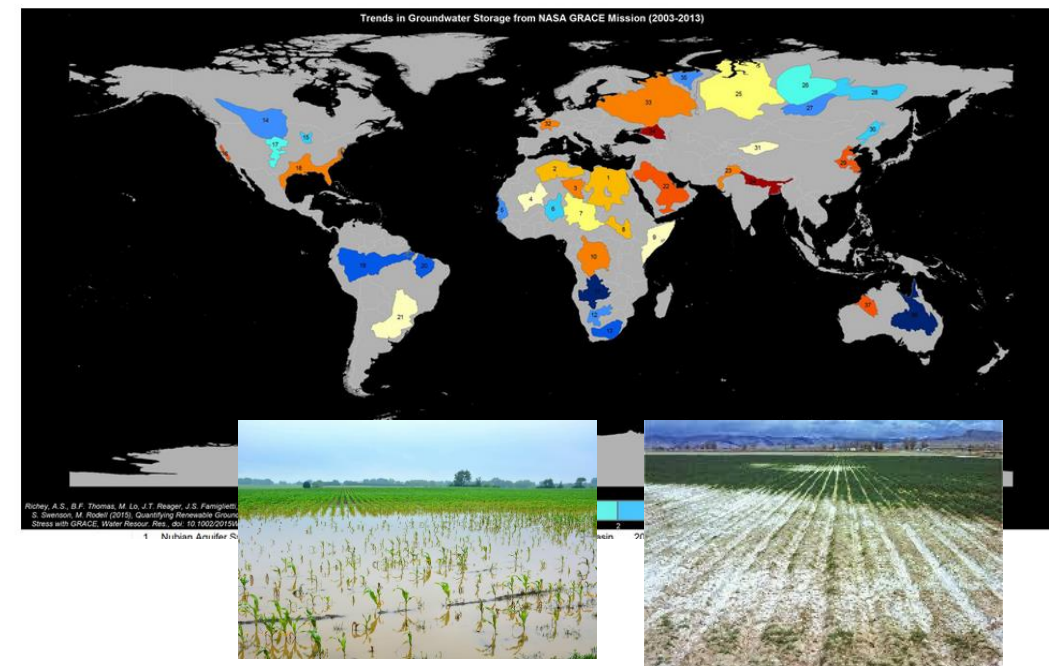
- Kathy Boomer, Ryan Comella, Catherine Maxwell and Shannyn Smith
- Peter McCornick, Christopher Neale, Frances Hayes, DWFGI
- John Farner, Netafim



# Our Environmental Water Challenges:

## NASA Data Reveals Most Major Aquifers Depleting Faster Than They Recharge

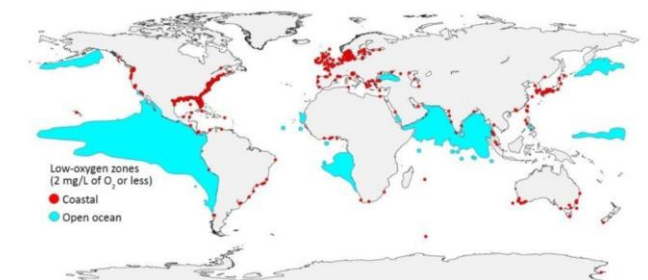
June 23, 2015 | By Linnea Bennett



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## Dead zones in our oceans have increased dramatically since 1950

Jan 16, 2018





# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



**GLOBAL AGRICULTURAL WATER SUSTAINABILITY GOAL:**  
Protect and restore natural waters/enhance agricultural production, domestic water supply, and biodiversity.



- Alternate Titles:

Advancing Global Theory for Local Implementation

Developing a Systems-Based Framework for Sustainability

All Hands-On Deck: Learning While Doing

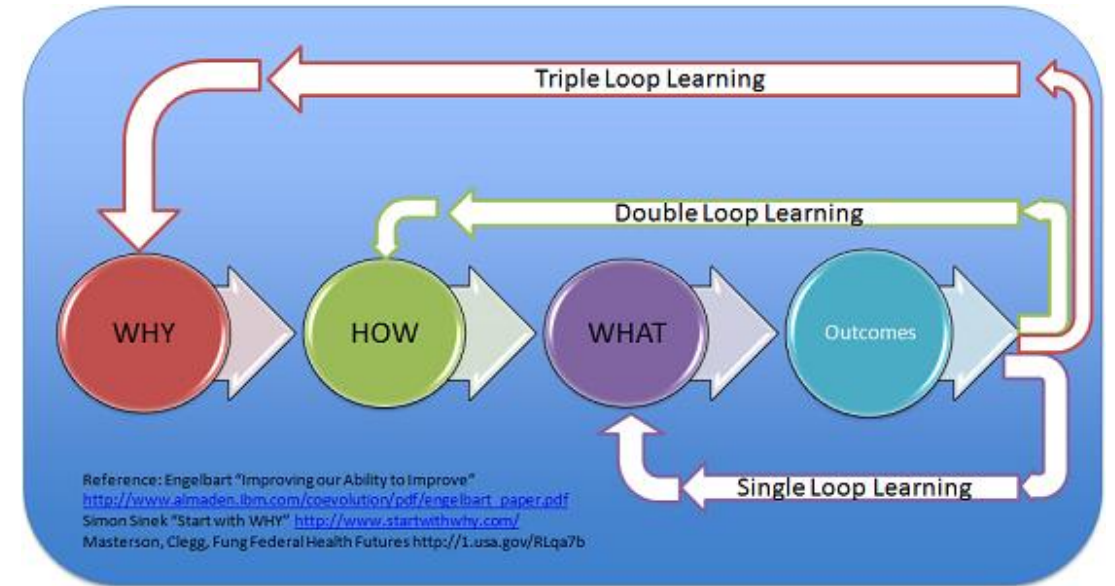


# Framing the Conversation:

## Adaptive Management



Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.



# Global Water Sustainability Goal:

GOAL: PROTECT AND RESTORE NATURAL WATERS/ENHANCE AGRICULTURAL PRODUCTION, DOMESTIC WATER SUPPLY, AND BIODIVERSITY

## **Inextricably-Linked Objectives:**

- Maximize near-surface water storage/minimize deep aquifer depletion.
- Limit soil carbon loss and enhance carbon sequestration
- Reduce nutrient loss via leaching and greenhouse gas emissions
- Restore habitat suitability for targeted terrestrial and aquatic species of concern
- Limit on-site and downstream vulnerability/extreme weather events
- Maintain adequate, nutritious crop production

# Global Water Sustainability Goal:

GOAL: PROTECT AND RESTORE NATURAL WATERS/ENHANCE AGRICULTURAL PRODUCTION, DOMESTIC WATER SUPPLY, AND BIODIVERSITY

## Proposed Implementation Strategy:

**Optimize near-surface terrestrial water storage through agricultural water management (precision irrigation and conservation drainage)/** minimize withdrawals of irreplaceable deep groundwater and create more natural and resilient (diffuse and continuous) catchment flow regimes.

# Precision Irrigation:

Need a diagram providing an overview of precision irrigation practices, one that parallels the next conservation drainage slide



# Conservation Drainage:



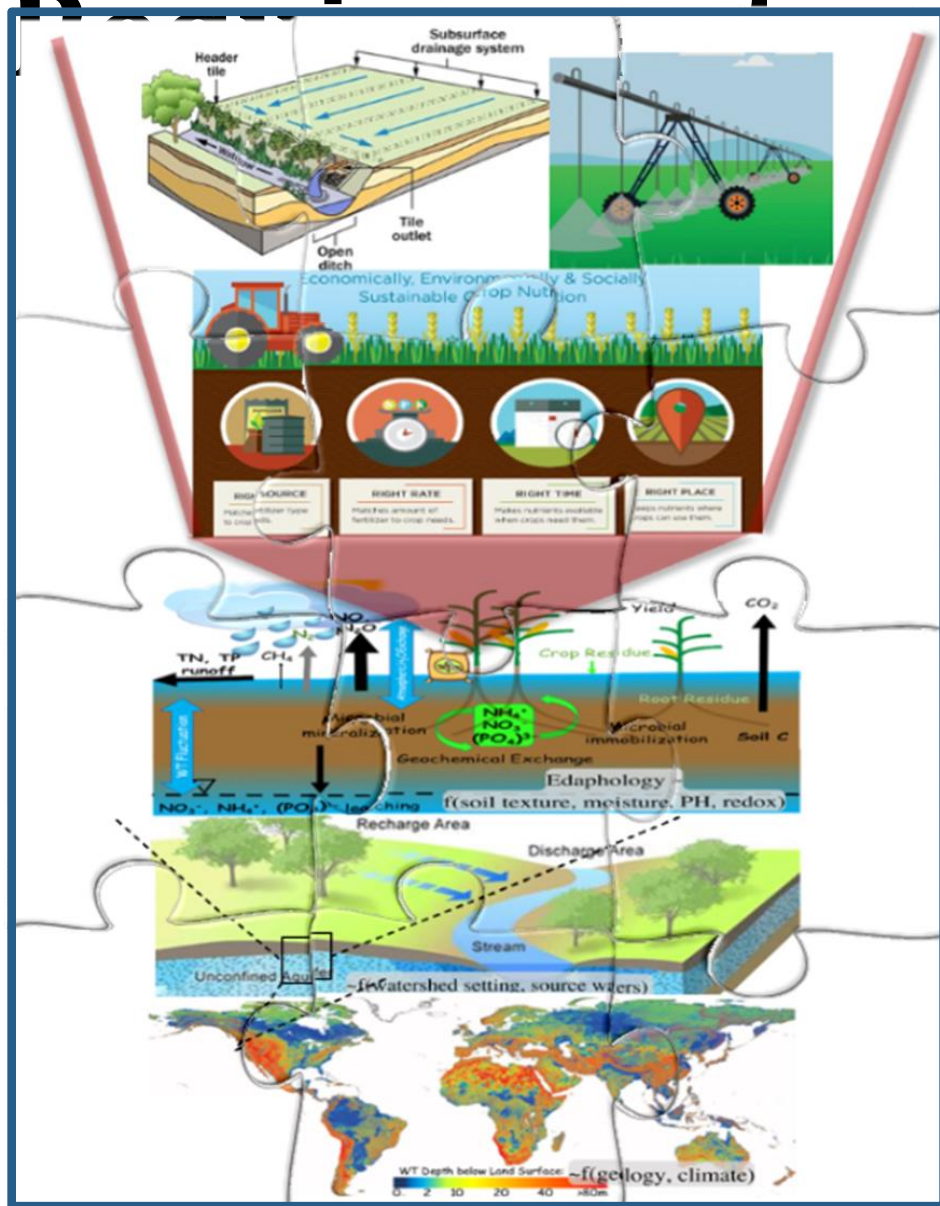
# Challenge: Low Adoption Rates



Modified from Table 7: Adoption of Conservation Actions in South Africa among trained and non-trained agricultural households.

	<b>Malawi</b> Non-Trained/ Trained	<b>Zambia</b> Non-Trained/ Trained	<b>Zimbabwe</b> Non-Trained/ Trained
Minimal Tillage	3/9%	24/60%	30/46%
Mulching	2/18%	24/67%	14/34%
Rotation	55/71%	76/85%	74/82%
Intercropping	63/69%	20/41%	30/58%

# System-Based Management



## ESSENTIALS:

- Reliably compares risk-based trade-offs of agroecosystem services for alternative management actions.
- Informs optimal management for given climate and landscape conditions based on location and climate - at a spatial and temporal scale relevant/operators.
- Estimates cumulative impacts/benefits/crop, soil, and watershed health within a project area.

# Decision Context:

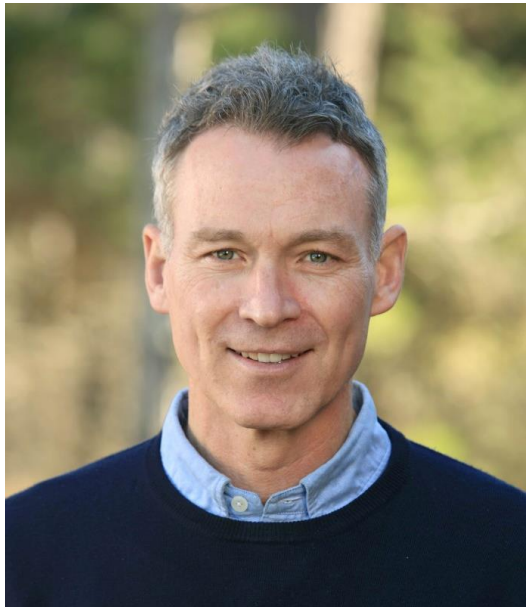


Success requires engaging producers and understanding the relative influence of industry, consumer demand, and policies on their decisions.

# Provocateur Panelists:



**Shama Perveen**  
Director, Water  
Ceres



**Tom Iseman**  
Global Freshwater  
Program for  
The Nature Conservancy



**Katalyn Voss**  
Director, Strategic Partnerships  
Ceres



**Charlotte de Fraiture**  
UN IHE Delft Institute

**Nora van Cauwenbergh**  
UN IHE Delft Institute



**Nick Brozovic**  
University of Nebraska

*Thank you!*

# Multi-stakeholder Collaboration in Agricultural Water Management: Solutions/Advance SDGs



- How do we frame the challenge to foster collaboration and investment?
  - Can we agree on the goals, objectives, and implementation strategies?
- What system frameworks have been most successful in engaging stakeholders and assessing success? Key components?
- What key challenges/uncertainties should we investigate as we work with partners to implement practices?

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# Response Panelists:



**Moshi Berenstein**  
Netafim, France



**Madhu Rejesh**  
The Coca-Cola Company



**Jessica Christiansen**  
Bayer Crop Science

*Thank you!*



# Multi-stakeholder Collaboration in Agricultural Water Management: Solutions/Advance SDGs



- What are some of the broader co-benefits of agricultural practices that promote more efficient water use in agriculture?
- What ideas from the first panel resonated with insights from your work? What might have been missed? What presents consternation or challenges to advancing our initiatives?