

# *Balancing Dynamic Trade-offs Across Food, Energy, Environment and Water*

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## Overview

- The 9.6 billion and nexus trends to 2050
- Shocks and resilience
- Additional question for consideration
- Drought and the Dak Mi 4 hydropower dam
- The FE<sup>2</sup>W Network

## Nexus Trends to 2050

- Projected 9.6 bill global population 2050
- Larger and wealthier population

60% ↑



Food

40% ↑



Energy

10% ↓



Environment

50% ↑



Water

# Shocks and Resilience

Conflict and  
political  
instability

Macro-  
economic  
shocks

Household-  
level shocks



Extreme  
weather  
events

Climate  
variability

Fuel  
price  
shocks

## Additional question for consideration

- Shocks affect the linkages between food, energy, environment, water
- The costs and benefits of allocation decisions shift, so.....
- “Which policy instruments are flexible and durable enough to efficiently balance dynamic nexus trade-offs?”

# 2013 Drought in Vietnam Central Highlands and the Dak Mi 4 (190MW) hydropower dam



Source: RFA (2013)

- Diversion of water from Vu Gia River
- 1.7 million people living downstream

## Dak Mi 4 and drought

- Hydropower: Reservoir close to dead level
- Agriculture: Lack of rain increases value of irrigation water from river
- Urban water supply: Salinity due to low river levels
- 25 m<sup>3</sup>/s sluice gate but no required use
- Ignored directives and lack of clarity of institutional oversight

## Managing trade-offs between hydropower and other users of water during drought

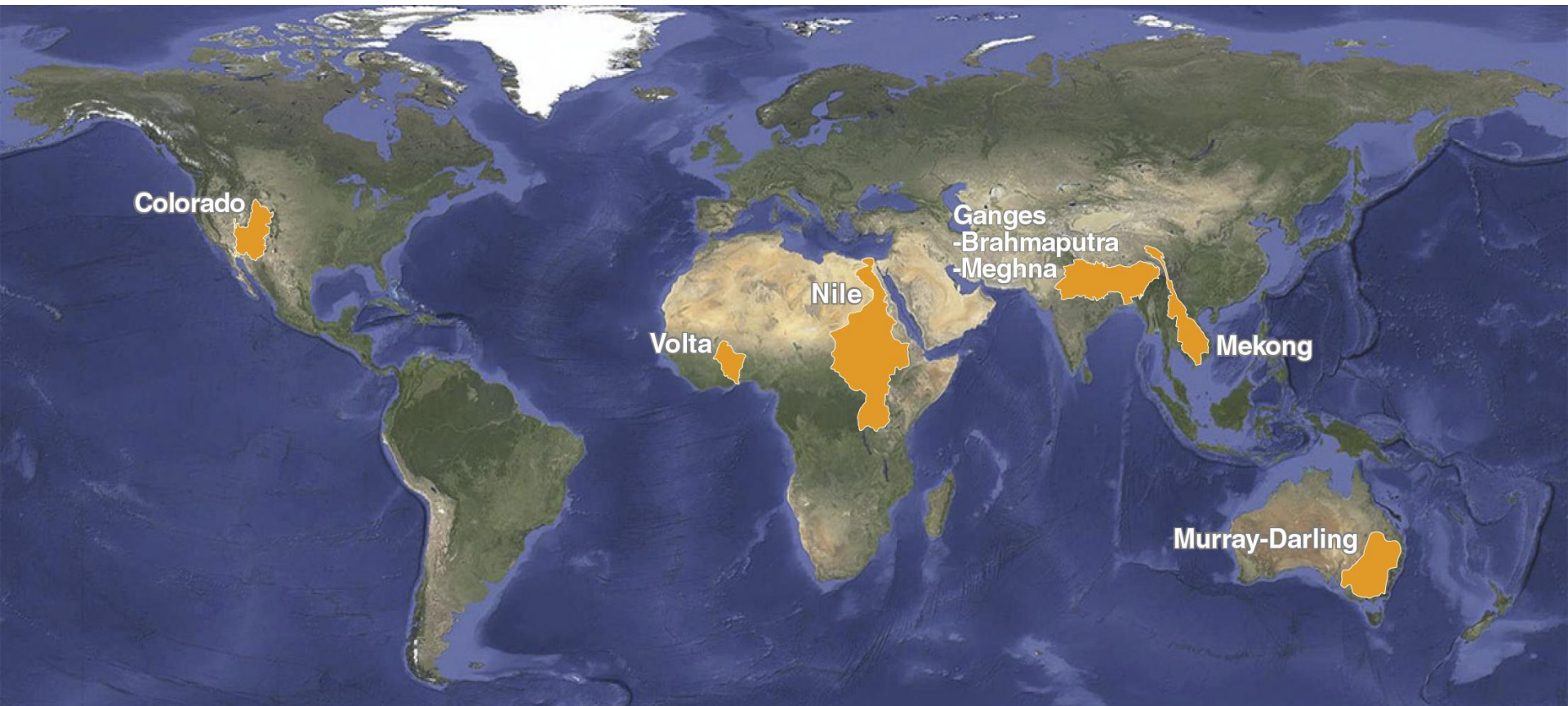
- Which policy instruments are flexible and durable enough to efficiently balance dynamic nexus trade-offs?
  - Operating rules? Periodic re-licensing?
  - Subsidising economic losses of hydropower operators? Tradeable permits?
  - and many more...
- Stakeholder-driven solutions
- Pre-emptive of shocks not reactionary



## The FE<sup>2</sup>W Network

- Providing decision-makers with the knowledge and frameworks to balance nexus trade-offs
- Launch Nov. 26 at UNESCO, Paris.
- 40 individual members from
  - Multilaterals (OECD, World Bank, UNESCO, CGIAR, IWMI)
  - NGOs (TNC, GWP, WWF International)
  - Universities (ANU, Oxford, UCL, UEA and more)

# The FE<sup>2</sup>W Network – 6 focus basins



## The FE<sup>2</sup>W Network

1. UNDERSTAND RISKS to the security of food, energy, environment and water
2. ENGAGE DECISION-MAKERS on developing and implementing scalable, integrated resilience frameworks
3. ENABLE ACTION at all scales that results in sustainable long-term outcomes



Find out more at [fe2wnetwork.org](http://fe2wnetwork.org)  
from 26 Nov. 2014

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