



SUSTAINABLE SUPPLY & DEMAND IN FARMING

GEOFF TOWNSEND

SEPTEMBER 2017



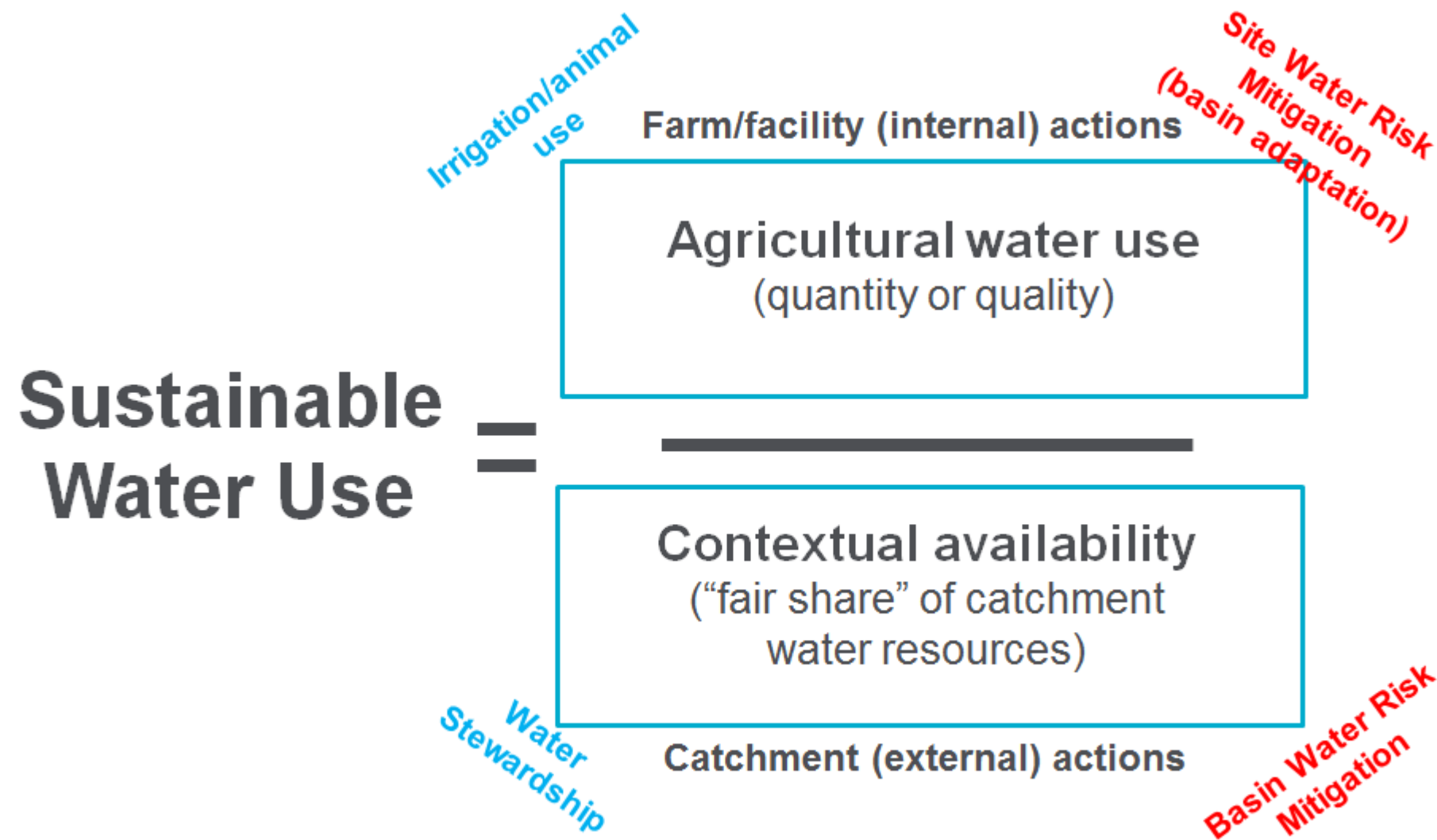
Sustainable Supply and Demand in Farming

How should we balance environmental, social, and economic factors with a transition to sustainable agricultural models – i.e., providing food security; adequate production capacities and resilient farming practices?

- Establishment of system boundaries/thresholds (geographical, water, ppm nutrients etc.)
- A move toward the local basin/catchment (key building block) as the basis of understanding:
 - The true value of water (natural capital perspective, risk premium, revenue at risk). WRM.
 - Production ecology and the rationale for precision technologies. ‘Digital – ‘Big Data’.
 - Resource protection – water and land-use (biodiversity).
 - Appropriate local food systems and technology for “regional” staples.
 - Adopt stakeholder inclusive strategies + strong civil sector action/engagement.
 - Understand the business impact, in economic terms, of both the *site-specific risks* and the investment needed to address those risks. With water the business case is very clear: no water, no longer produce!
 - Economic sustainability of farming practices and systems is sparse compared to research on env.

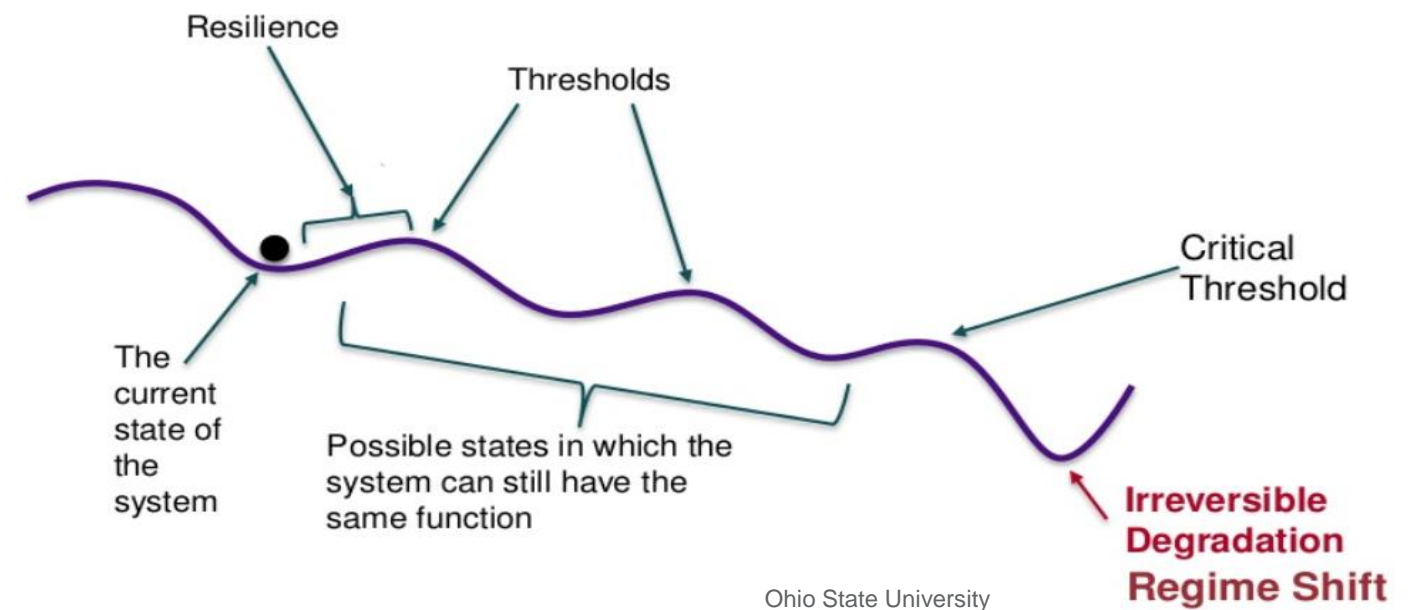
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Context-based targeting:



NB: Adapted from McElroy & van Engelen (2012)

Resilience = 1/Risk



$$= \frac{\text{Threshold} - \text{Current State}}{\text{Threshold}}$$

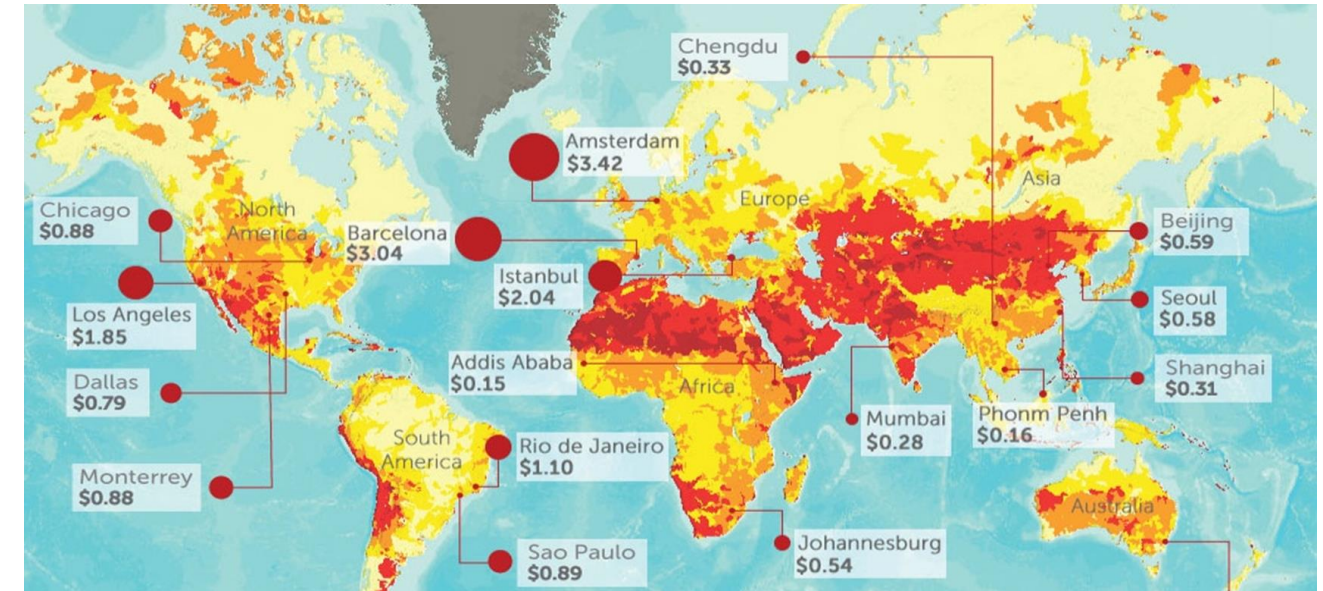
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What is the state of public and private awareness of and support for sustainable agriculture?

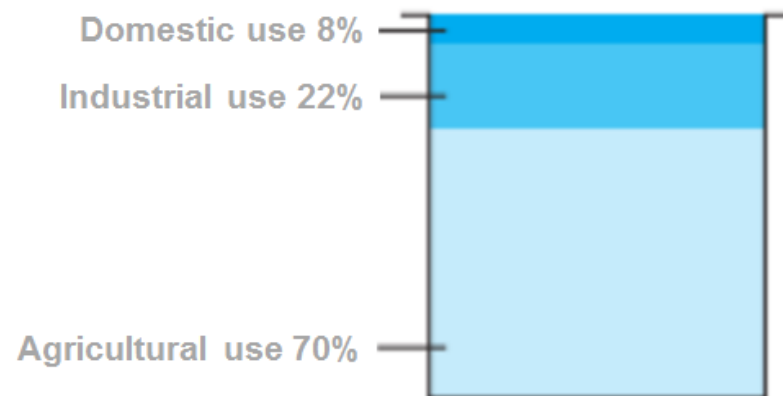
- What does “sustainable agriculture” mean in context of consumer acceptance and confidence?
 - Customer expectations on quality and value are well understood but the sustainability dimension is an order of magnitude in complexity. SC’s are expanding, becoming less transparent and harder to control.
 - Build consumer safety with water reuse e.g. minimum quality requirements in agricultural irrigation as EC intends to propose.
 - Building trust in food is one of the most complex problems that business and society must solve. Food waste reduction.
- Awareness in the private sector is growing (WEF/CDP: 2/3 of European companies identified water risk as substantive business risk).
- A move away beyond resource management at the plant level to a more holistic view of the entire SC, hence the importance for the food industry of being as water efficient in farms as in factories.
- Need the help of governments to provide the right incentivizing framework, not only to be aware of the issues, but to address the issues. Investments associated with free movement of agricultural products.

Opportunities

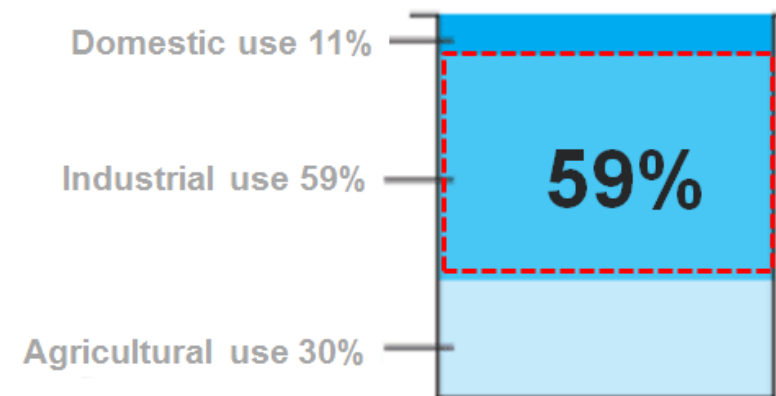
- Address the disconnects between the way challenges are presented and the way farms/corporations make business decisions.
- Understand the value of water – it typically far exceeds its price.
- Industrial water reuse in agriculture –
 - Industry is main water user in high-income countries
- Value IN water - circular economy
 - Selective removal of nutrients; energy/heat
- ‘Digital water’ and precision farming



World



High-income Countries



Low- and Middle-income Countries

