Linking Drought Impacts Information to Decision Making: Identifying Gaps and a Framework for Moving Forward

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carolinas integrated sciences & assessments

Exhibit 3: Top 10 Global Economic Loss Events

Date(s)	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)	Insured Loss (USD)
Oct. 23-29	HU Sandy	U.S., Caribbean, Bahamas	254	1,800,000	65.00 billion[1]	28.20 billion[1,2]
Jan. 1-Dec. 31	Drought/Heatwave	United States	123	Unknown	35.00 billion[1]	20.00 billion[1,2]
May 20 & 29	Earthquake	Italy		10,000	15.80 billion	1.30 billion
Sept.7-13	Flooding	China	21	100,000	4.92 billion	148.00 million
July 20-24	Flooding		147	175,000	4.80 billion	234.00 million
Aug. 28-30	Flooding	China		35,000	4.63 billion	144.00 million
Apr. 28-29	Severe Weather	United States	1	355,000	4.25 billion	2.40 billion
Mar. 2-3	Severe Weather	United States	40	280,000	4.25 billion	2.40 billion
June 28-July 2	Severe Weather	United States	28	430,000	3.75 billion	2.00 billion
Aug. 1-3	TY Damrey	China	14	300,000	3.28 billion	104.00 million
				All Other Events	55.30 billion	15.20 billion
				Totals	**200 billion**[1]	**72 billion**[1,2]

Unknown

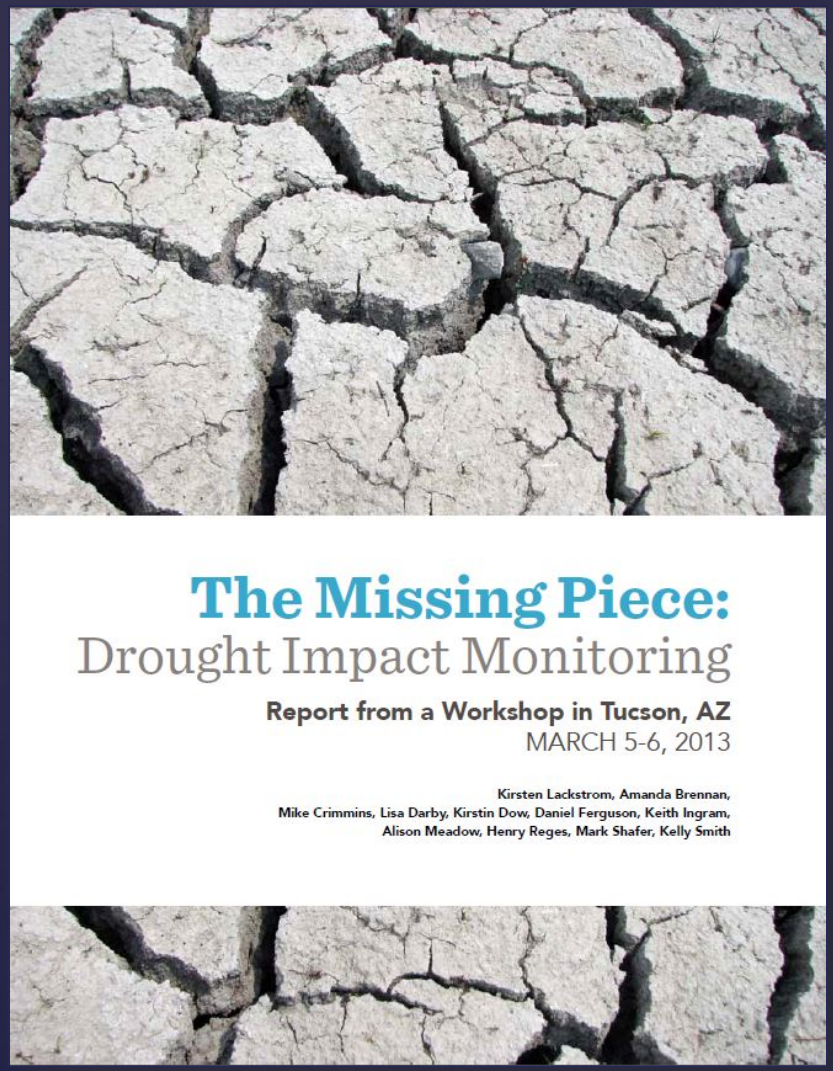
[1] Subject to change as loss estimates are further developed
[2] Includes losses sustained by private insurers and government-sponsored programs

"if you can't measure it, you can't manage it"

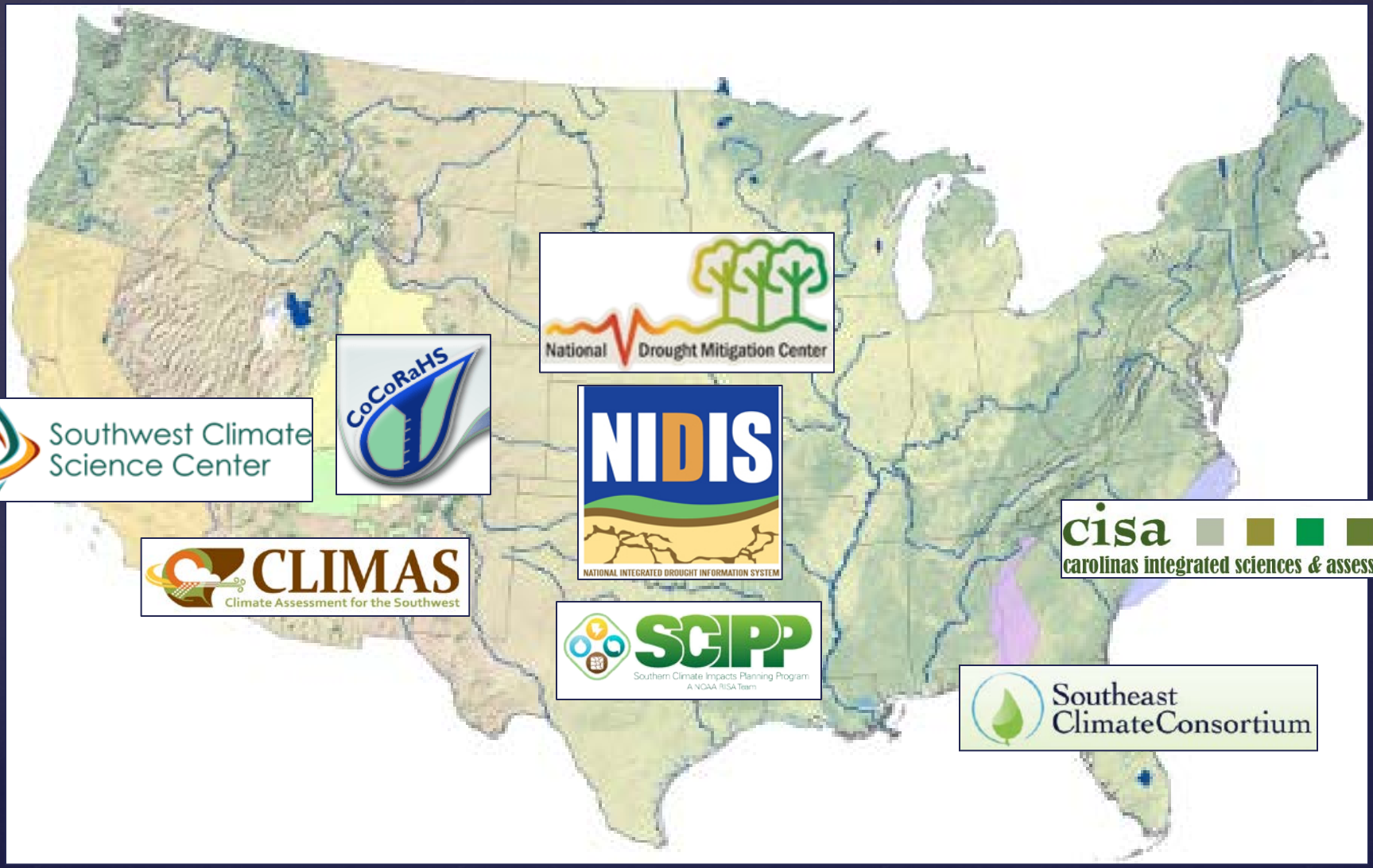
Aon Benfield 2012 Annual Global Climate and Catastrophe Report

What is Missing?

- Drought impacts are under-reported
- Met to share experience with
  - opportunities and challenges in drought impact reporting
  - best practices
- Consider path(s) forward
- Establish a Community of Practice



Participants



Key themes

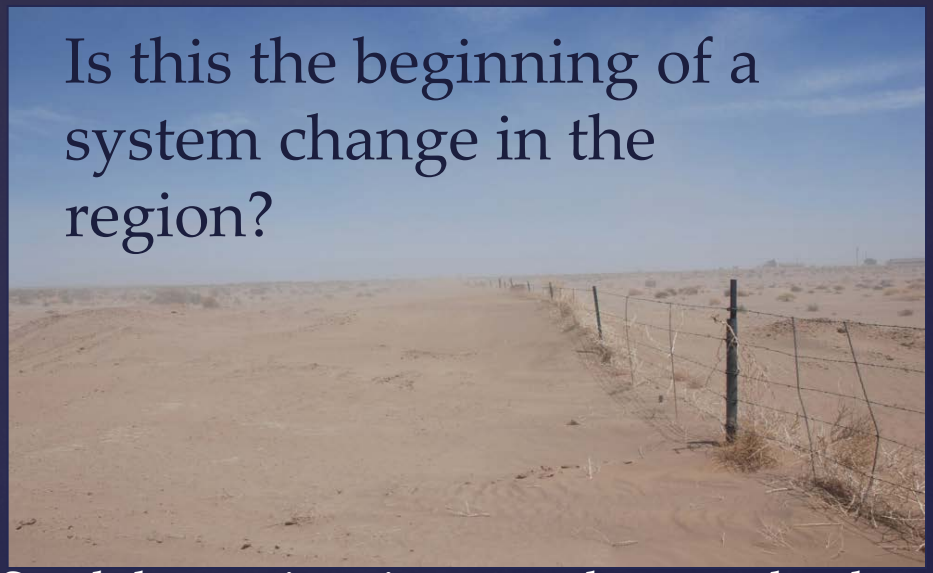
- Challenges to reporting and monitoring drought impacts
- Recommendations for advancing drought impact reporting and monitoring

Challenges: understanding the full range of impacts and regional differences

How do we attribute drought and what are the secondary and more distant impacts?

A home falls into a large sinkhole in Florida

Is this the beginning of a system change in the region?



Sand dune migration onto the rangelands of the Hopi Tribe in northeast Arizona

What are the implications of drought in a swamp?

Cypress bay during 2008 drought, Brunswick County, North Carolina

Challenges: defining drought impacts

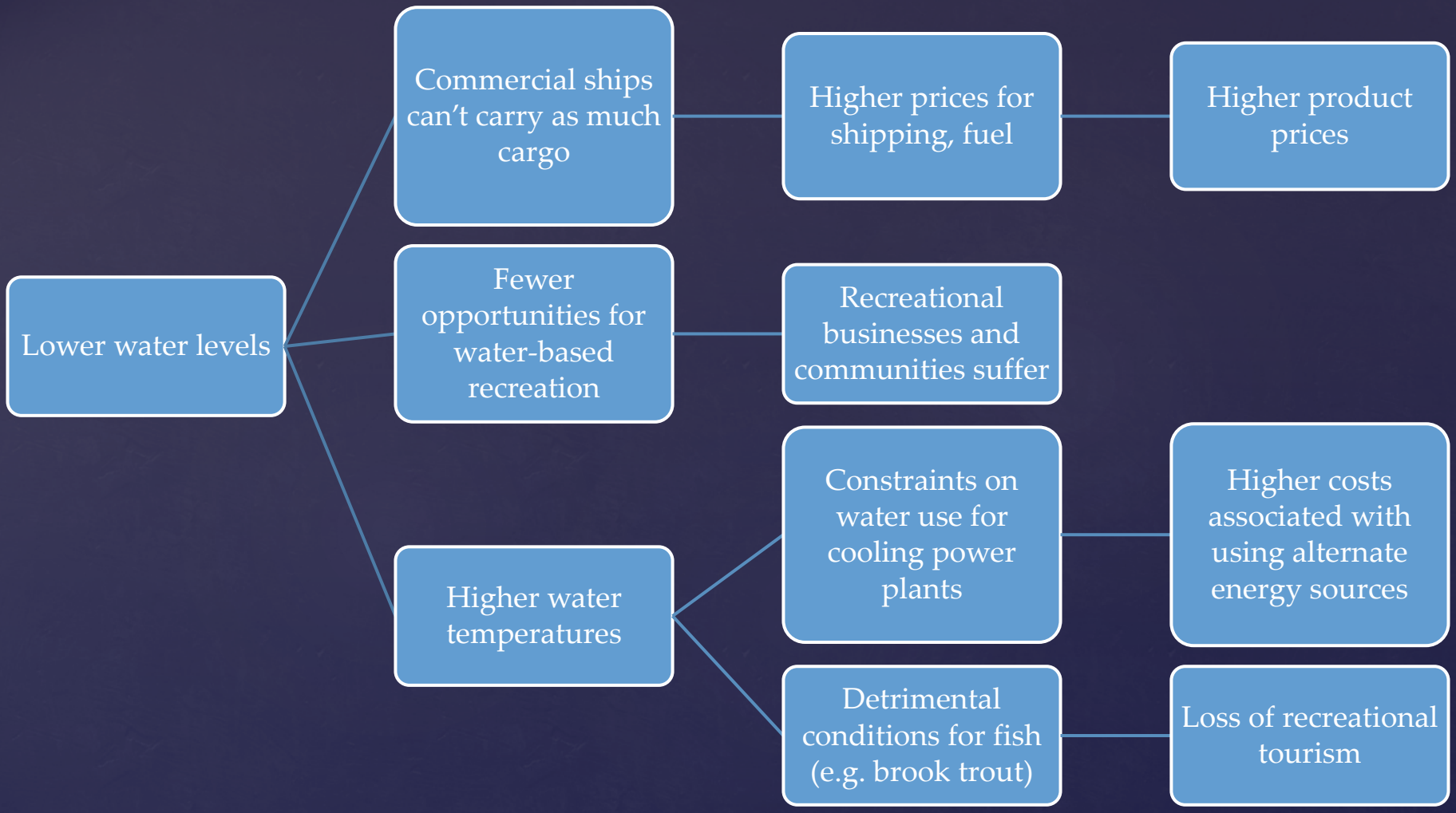
- onset and recovery
- 'less obvious' impacts
- secondary and more distant impacts
- multiple stressors
- system change

"flash drought" in Arkansas, 2012

Drought, Aging infrastructure?

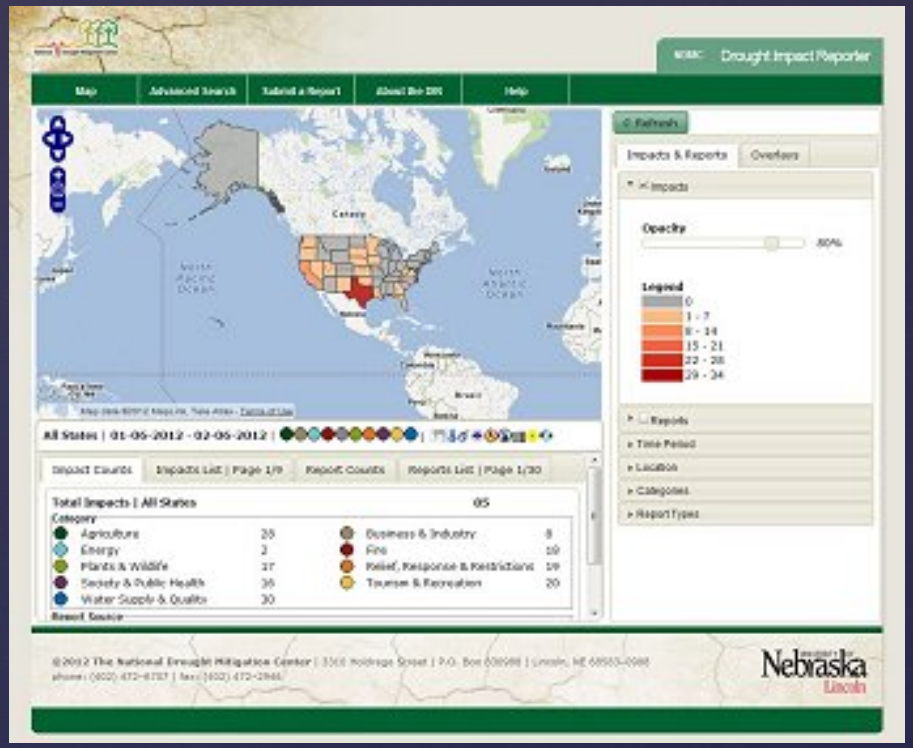
In 2011, Houston allocated $7 million in emergency water line repairs and incurred further costs for street repairs

http://photoblog.statesman.com/dry-season-the-texas-drought-of-2011



Challenges: cascading effects (example)

Challenges: fragmented, diverse investments and efforts



CoCoRaHS

ARIZONA'S DROUGHT IMPACT REPORTING SYSTEM
AZDROUGHT WATCH

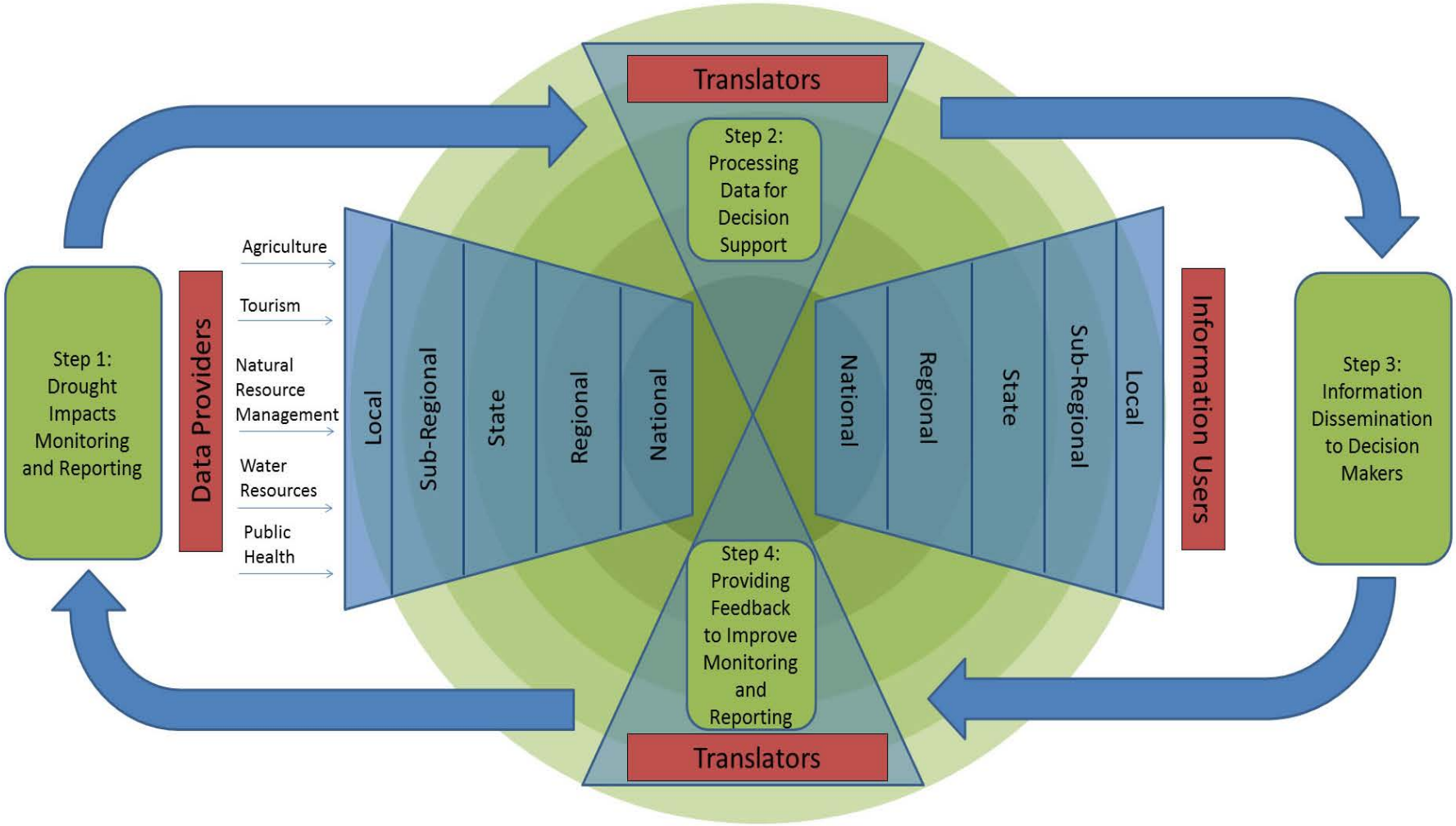
USDA United States Department of Agriculture
National Agricultural Statistics Service

UW Extension
University of Wisconsin–Extension

National Weather Service Forecast Office

And more challenges…

- Lessons learned from Meadow et al. (2013)
  - Field of Dreams, or Dream Team? Evaluation of AZ Drought Watch
- Motivating reporting
  - Complexity of drought
  - Reliance on volunteers
  - Disparate incentives and disincentives
- Spot reports



Moving forward: components of a drought impacts monitoring system

Moving forward: evaluate

http://www.offervault.com/scoop/2012/02/22/5-ways-to-evaluate-offer-performance/

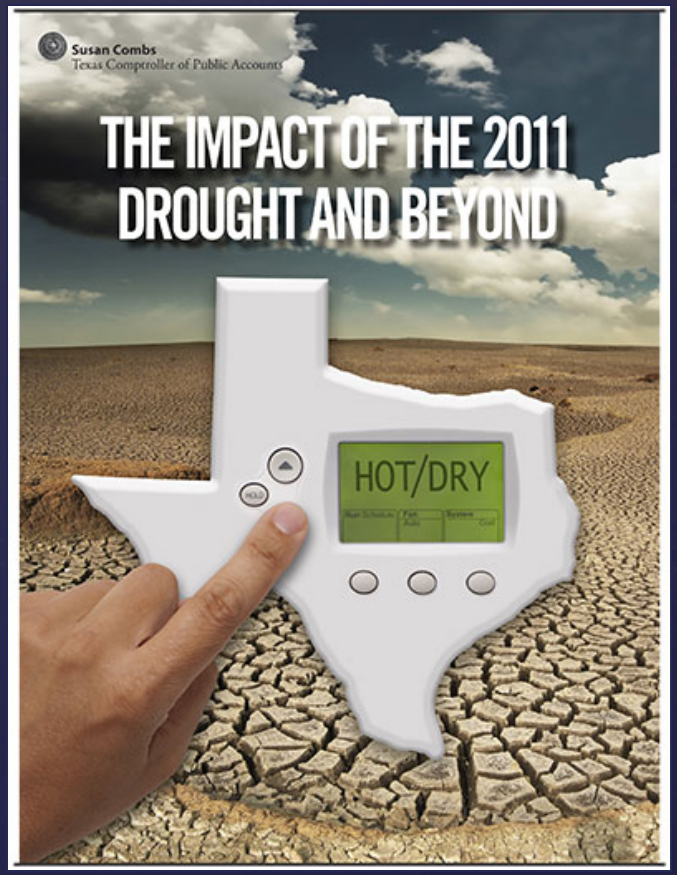
Moving forward: foster connections

- Establish and foster effective ***connections***

Moving forward: new tools and methods

- Develop ***new tools and methods*** to motivate reporting, facilitate the collection of impacts data, and improve the communication of drought impacts information

http://smthree.wordpress.com/2011/11/15/why-do-we-use-social-media/



http://www.window.state.tx.us/specialrpt/drought/

Moving forward: mainstreaming

Agriculture
US Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA)

Forestry and land management
US Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS)

Health
Center for Disease Control (CDC), Environmental Protection Agency (EPA)

Environmental resources, fish and wildlife
US Fish and Wildlife Service (US FWS), National Estuarine Research Reserve System (NERRS), National Phenology Network

Water
US Army Corps of Engineers, EPA

Weather and climate
National Weather Service (NWS) Weather Forecasting Offices (WFO), State Climate Offices, Regional Climate Centers

Moving forward: professionalize and institutionalize

- Investigate and pursue opportunities to "*professionalize*" or "*institutionalize*" drought impacts reporting

http://roshen.biz/Professional-Services.html

- Drought translators needed!

http://www.bls.gov/ooh/Media-and-Communication/Interpreters-and-translators.htm

Questions?

Full Report available at

http://www.cisa.sc.edu/PDFs/Drought_Impacts_Report_June2013_final.pdf

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