

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



# Building Resilient Communities

## Managing Landscapes During Drought

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# PANELISTS



## WARM UP

- Name
- Background
- Most Exciting Thing You Are Working On?

# What is Resilience?

PIONEERED BY THE  
ROCKEFELLER FOUNDATION

100

RESILIENT

CITIES

**URBAN RESILIENCE IS THE CAPACITY OF INDIVIDUALS, COMMUNITIES, INSTITUTIONS, BUSINESSES, AND SYSTEMS WITHIN A CITY TO SURVIVE, ADAPT, AND GROW NO MATTER WHAT KINDS OF CHRONIC STRESSES AND ACUTE SHOCKS THEY EXPERIENCE.**



WALK



FALL



GET BACK UP





**REFLECTIVE**  
ABLE TO LEARN



**RESOURCEFUL**  
CAN EASILY REPURPOSE  
RESOURCES



**ROBUST**  
WELL CONCEIVED,  
CONSTRUCTED  
AND MANAGED



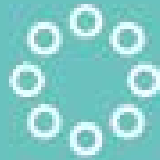
**REDUNDANT**  
HAS BACKUP  
CAPACITY OF FAILURE



**FLEXIBLE**  
HAS ALTERNATIVE  
STRATEGIES



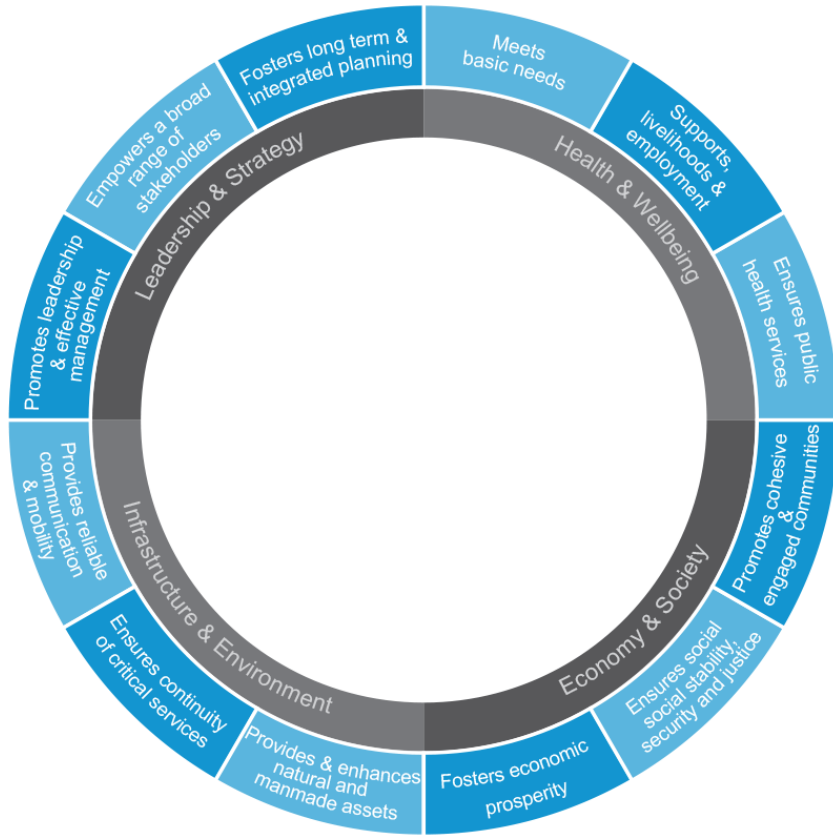
**INTEGRATED**  
BROAD CONSULTATION  
& COMMUNICATION



**INCLUSIVE**  
SYSTEMS WORK  
TOGETHER



# Community Resilience

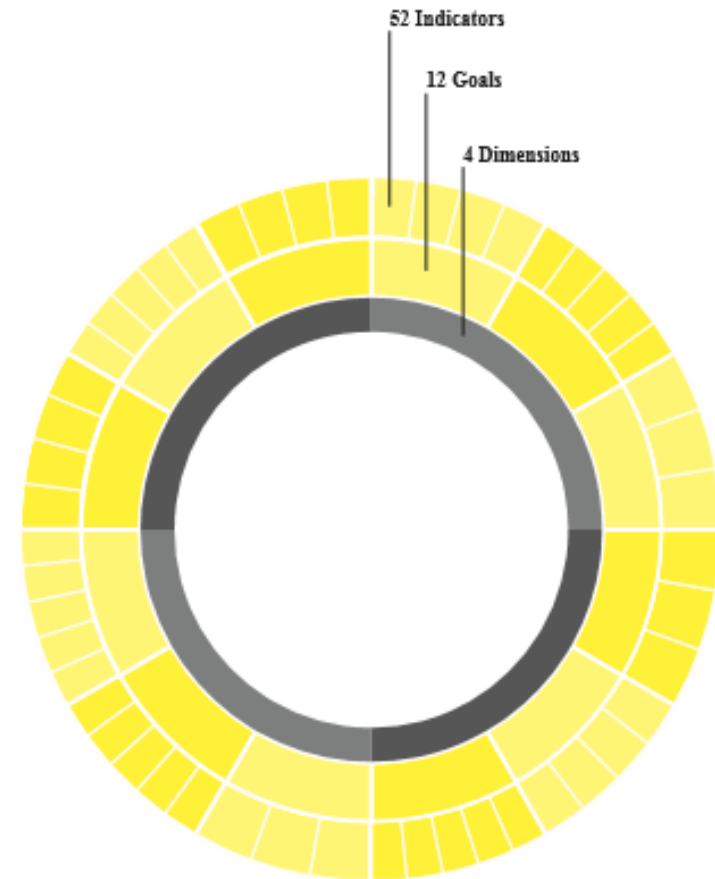


## City Resilience Index

December 2015



## Structure of the CRI



# HEALTH & WELL-BEING





Be Informed / Drought

## Drought

Nearly every part of our country experiences periods of reduced rainfall. If we plan for drought, then we can enjoy the benefits of normal or rainy years and not get caught unprepared in dry years.

### Related

[Emergency Alerts](#)

[Active Shooter](#)

[Bioterrorism](#)

[Chemical Emergencies](#)

[Cyber Security](#)

[Drought](#)

# Are we prepared for droughts?



# OUTDOOR IRRIGATION



## Outdoor Irrigation Inspections For Your HOA Or Business

Slow the Flow offers a quick and impactful way to evaluate the irrigation practices of your commercial property or HOA and makes simple suggestions for changes that will reduce waste and eliminate runoff. Slow the Flow's trained technicians perform a detailed analysis of your existing sprinkler system and will provide a comprehensive report detailing findings and recommendations to improve efficiency.

**HELP ME  
SAVE WATER!**

My water provider is:

Select... ▼


**GO**



**GARDEN IN A  
BOX**

## How do droughts affect jobs?

# Water wars: Are hundreds of residents going to go thirsty north of Phoenix?

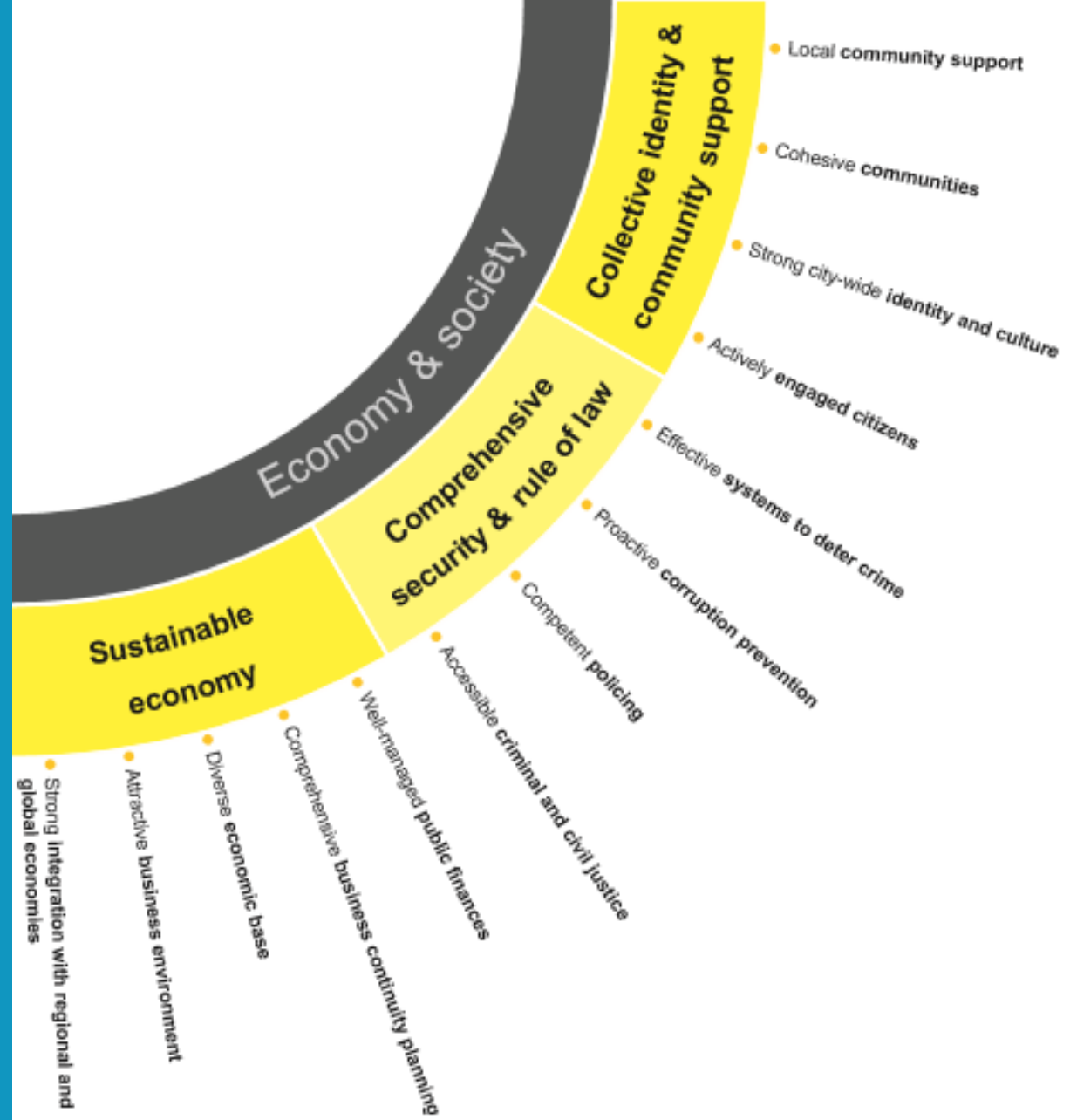
A photograph of a man wearing a dark baseball cap and sunglasses, holding a small bottle and testing water quality. He is standing next to a large blue water truck. The truck has "DRINKING WATER ONLY" and "4000 Gallons" written on its side. The background is a clear blue sky.

### Hauling water in New River

Damon Bruns of Dynamite Water tests water quality on Sept. 25, 2017, before filling his truck from a Phoenix hydrant at Interstate 17 and Pioneer Road.

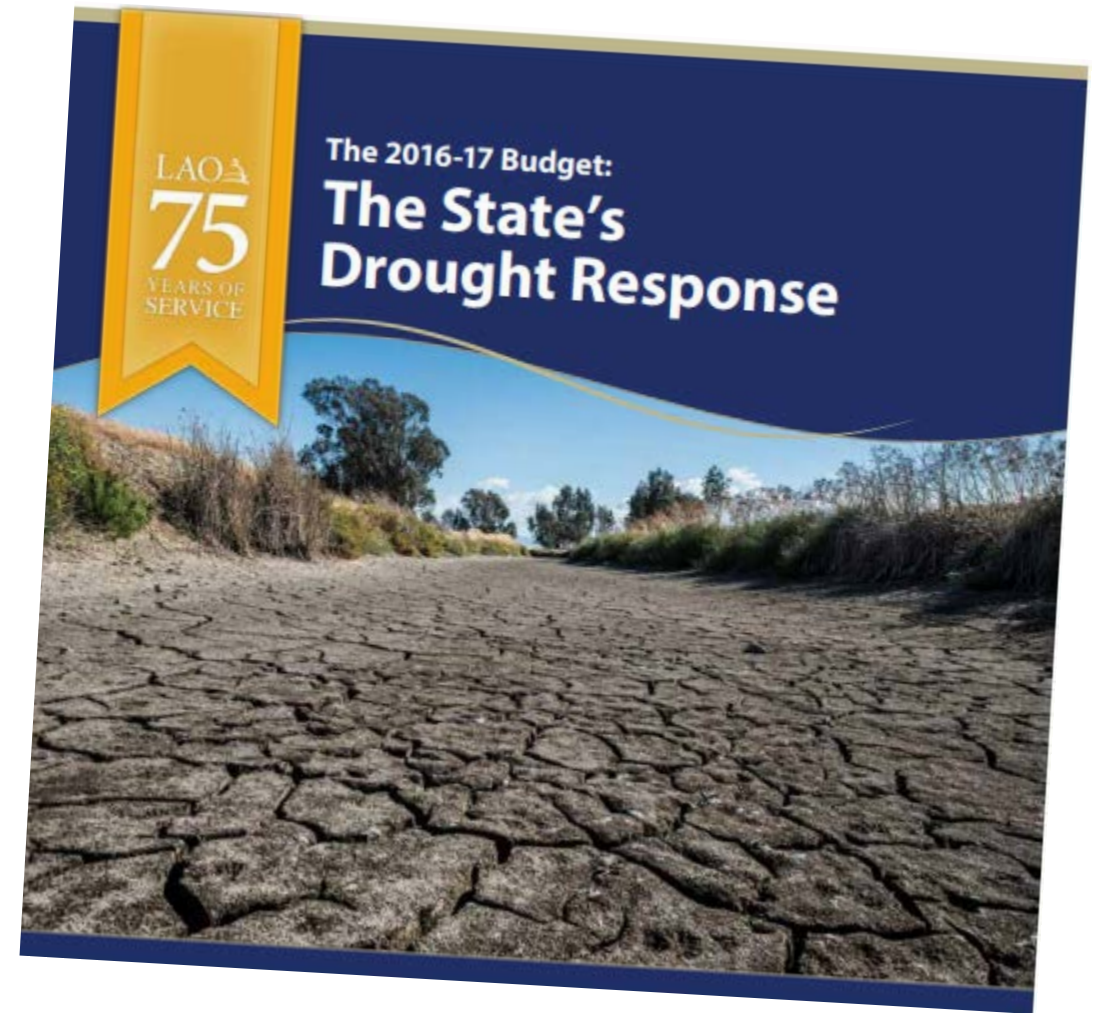
How does drought effect health?

# ECONOMY & SOCIETY





- California Drought Spending
- State Funded Both Short– and Long–Term Drought Response Activities.
- This includes appropriating \$3 billion to 13 different state departments between 2013–14 and 2015–16.



**What are the real costs of drought?**



A ruling Monday said penalties for high water use, instead of one based on provider costs, violate Proposition 218 limits on government. **Randall Benton** - Sacramento Bee file

WATER & DROUGHT

## California cities fret over tiered water rates after court decision



BY CHRISTOPHER CADELAGO  
ccadelago@sacbee.com

How are rules and regulations changing things?

“During periods of mandatory restrictions, savings measured in expected use per capita ranged from 18 to 56 percent, compared to just 4 to 12 percent savings during periods of voluntary restrictions. “



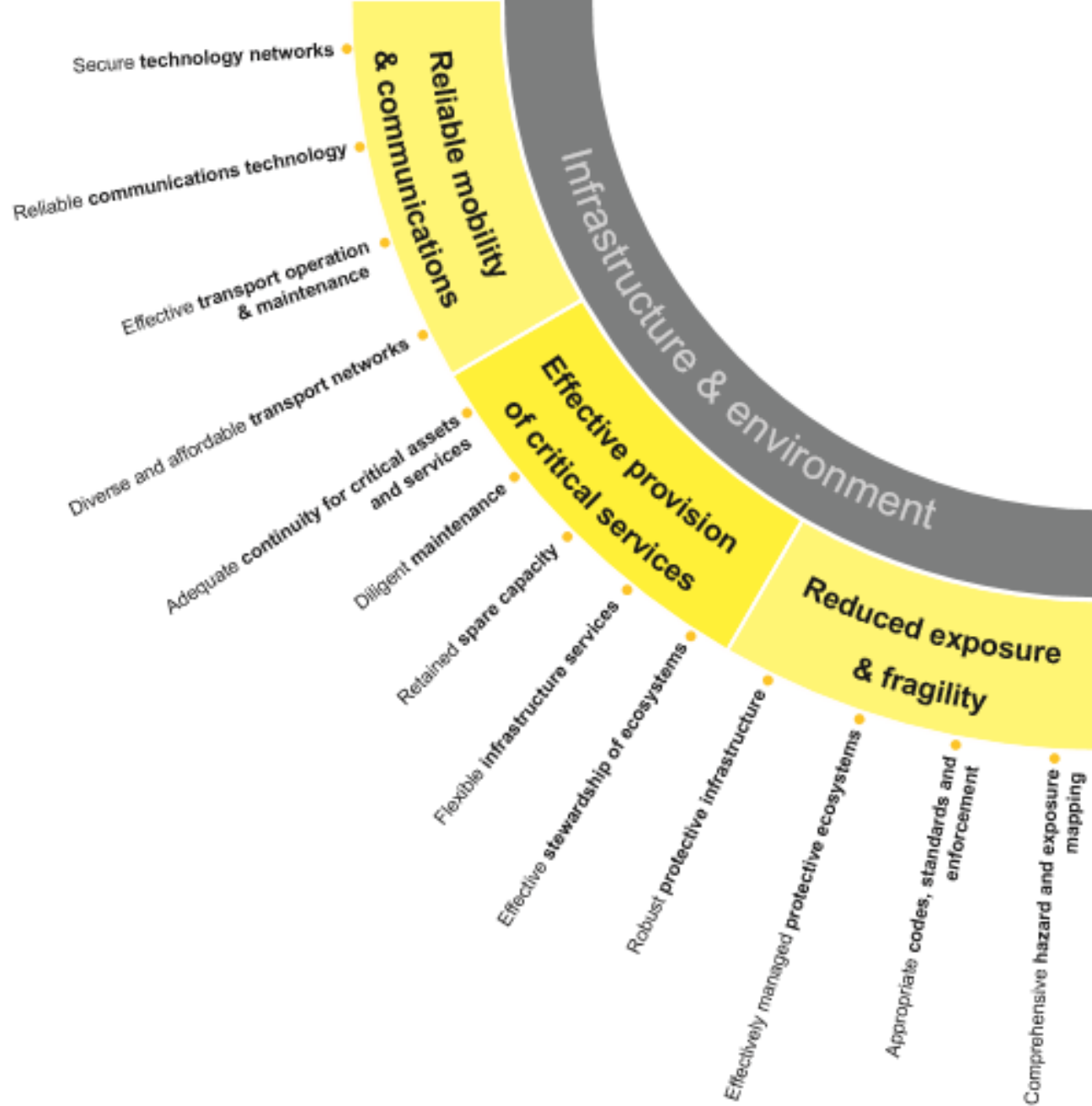
## Voluntary of mandatory restrictions?





**How can communities change to be more prepared?**





# INFRASTRUCTURE & ENVIRONMENT

Those who are most at risk  
can least afford to be resilient



What are the equity issues with drought response?

An aerial photograph showing a vast, arid landscape. A network of dry, cracked riverbeds and canyons, colored in shades of brown and tan, winds across the terrain. In the upper portion of the image, a bright blue ocean with white-capped waves meets the shore. The contrast between the parched land and the distant water emphasizes the theme of water scarcity.

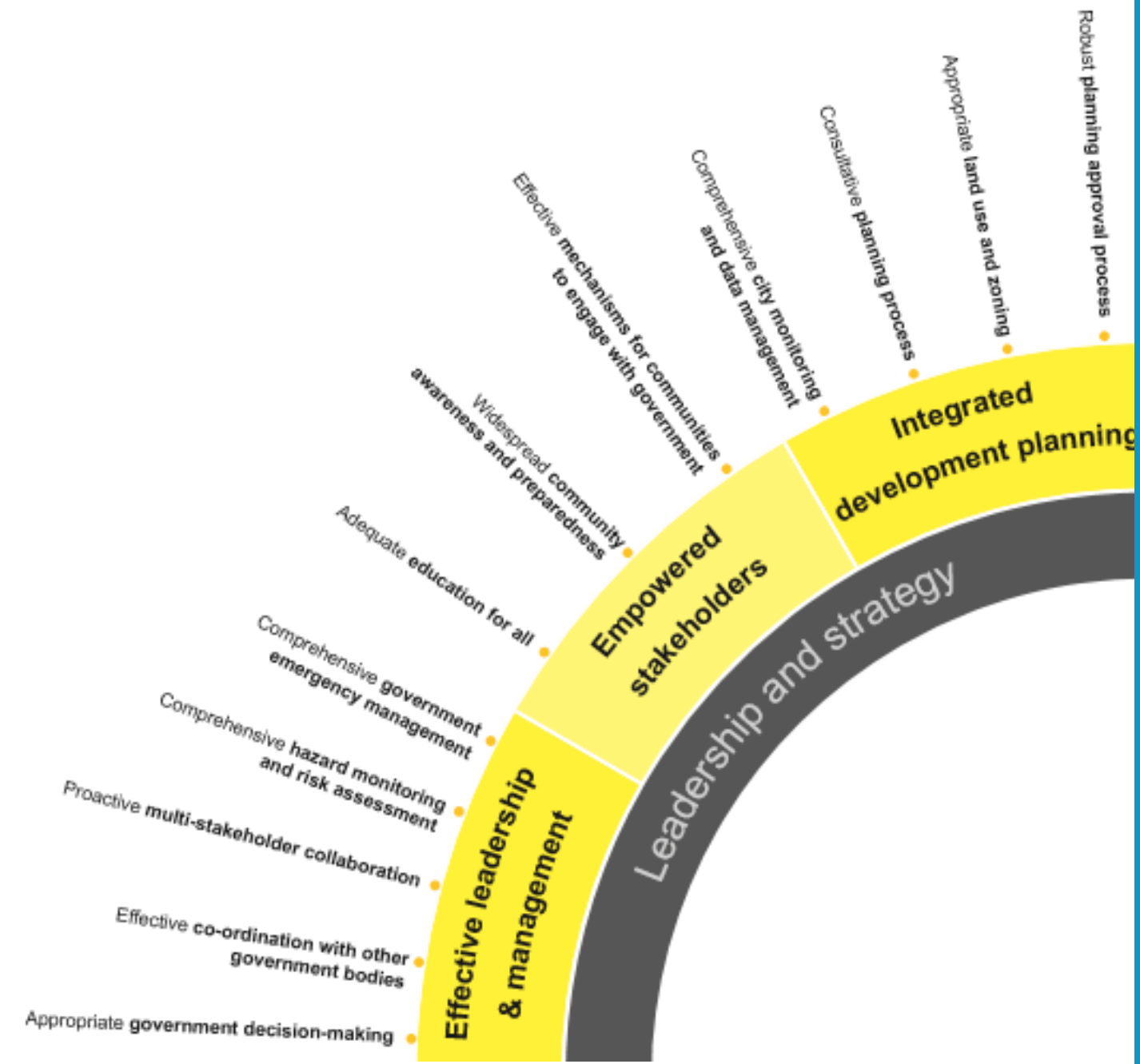
“All climate change is water change”  
-Brad Udall

**How does climate change increase risk?**





**What are the infrastructure concerns?**



# LEADERSHIP & STRATEGY

## Urban Development

### Water flows through development – big ideas from World Water Week



SUBMITTED BY GUANGZHE CHEN ON THU, 09/14/2017



Are we planning for growth with water in mind?





Arizona Water Resources director joins U.S. & Mexico in finalizing epic CO River agreement

Published: September 27, 2017



With an eye to long-term, binational cooperation and to managing a more stable Colorado River System, representatives of the United States, Mexico and the Colorado River Basin States of the U.S. on Wednesday celebrated the "entry into force" of an agreement deemed essential to the System's future.

The American signing, conducted at an "entry into force" ceremony in Santa Fe, N.M., applies the final



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Are we planning for growth with water in mind?





**Behavior change and the communities Role?**

# Final Thoughts

## What's Next

- Big Innovation?
- Big Idea?
- Big Data?

# Photo Credits & References

Rockefeller Foundation, ARUP, 100 Resilient Cities Community Resilience Index

- <https://assets.rockefellerfoundation.org/app/uploads/20160201132303/CRI-Revised-Booklet1.pdf>

Ready.gov website

- <https://www.ready.gov/drought>
- [http://www.azcentral.com/story/news/local/arizona-investigations/2017/09/28/phoenix-cracks-down-water-haulers-new-river/691673001/#\\_](http://www.azcentral.com/story/news/local/arizona-investigations/2017/09/28/phoenix-cracks-down-water-haulers-new-river/691673001/#_)

California drought spending

- <https://conservationcenter.org/slow-the-flow-business/outdoor-irrigation-assessment/>

Xeriscape House

- <https://www.pinterest.com/pin/498984833690780813/>

California drought spending

- <http://www.lao.ca.gov/Publications/Report/3343>

Prop 218 News Story and Image

- <http://www.sacbee.com/news/state/california/water-and-drought/article19194072.html>

Colorado River Basin

- <http://discovermagazine.com/2015/jan-feb/14-a-river-resurrected>

Climate Change is Water Change

- [https://www.washingtonpost.com/news/energy-environment/wp/2016/08/19/climate-change-is-water-change-why-the-colorado-river-system-is-headed-for-trouble/?utm\\_term=.afc11875283f](https://www.washingtonpost.com/news/energy-environment/wp/2016/08/19/climate-change-is-water-change-why-the-colorado-river-system-is-headed-for-trouble/?utm_term=.afc11875283f)

Drought & Inequality

- <http://www.fresnobee.com/news/local/water-and-drought/article85424992.html>

Lake Oroville Dam

- <http://www.sfgate.com/news/article/Lake-Oroville-discharging-water-over-dam-s-10926950.php>

Piggy Bank

- <http://www.amwua.org/what-you-can-do/diy>