

# Variations and climate change: the policies and pipes of adaptation

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# Overview

1. We use economics to balance supply and demand
2. The impacts of climate change
3. Stop the stupid
4. Methods of adaptation
5. Question & Answer

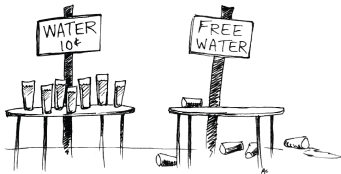
Download *this* PDF at <http://tinyurl.com/awra-zetland4>

# But wait! More in my (free) book and calendar

Most of this talk comes from Chapters 4, 5, 8 & 10.

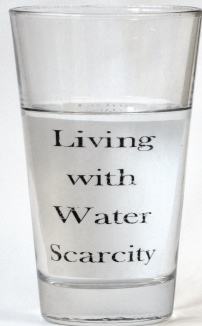
Download the PDFs at  
[www.livingwithwaterscarcity.com](http://www.livingwithwaterscarcity.com) and  
[www.watersmartscalendar.com](http://www.watersmartscalendar.com)

## 2015 Water Smarts Calendar



...because every day is a water day.

David Zetland



# Climate change

**Non-stationarity:** Weather patterns will change

**Temperatures:** Up and down with greater variation

**Precipitation:** Changing locations, timing and intensity

**Ecosystems:** Disruptions in “ecosystem services”

**Bottom Line:** Heavy costs from “exceptional events” in developed and developing countries. Disruptions in supply chains (e.g., food, transport, energy shortages) mean cancelled flights, food shortages, energy blackouts – life will get more expensive.

**NB:** Mitigation far cheaper than adaptation, but (hopeless) corruption (bribes from oil lobby) has blocked carbon taxes, etc.

# Dis-adaptation

- ▶ End subsidies to urban growth (and watering lawns)
- ▶ Look at supply *and* demand options, not just more cement
- ▶ End government distortions of insurance (e.g., USACE in flood plains and subsidized flood insurance)
- ▶ IWRM, now more than ever, compared to Balkanized management areas

# Adaptation

- ▶ Step back “from the margin,” i.e., increase buffers
- ▶ Switch from “hard” to “soft” and “green” infrastructure, e.g., more prices and aquifers; less dams and desal
- ▶ Increase use of insurance for crops and cities
- ▶ More markets for water and virtual water
- ▶ Reverse migration: Phoenix to Detroit

Now let's do the Q&A!

Blog: [aguanomics.com](http://aguanomics.com)

Book: [livingwithwaterscarcity.com](http://livingwithwaterscarcity.com) ← It's free!!

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