



# 21st Century Water – Risks and Opportunities

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# We are on a water scarcity trajectory



Cycles of drought and changing usage patterns are not new

But the difference today is...



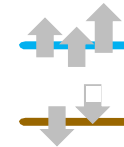
60% more food by 2050  
80% more energy by 2050  
55% more water by 2050



weather predictability



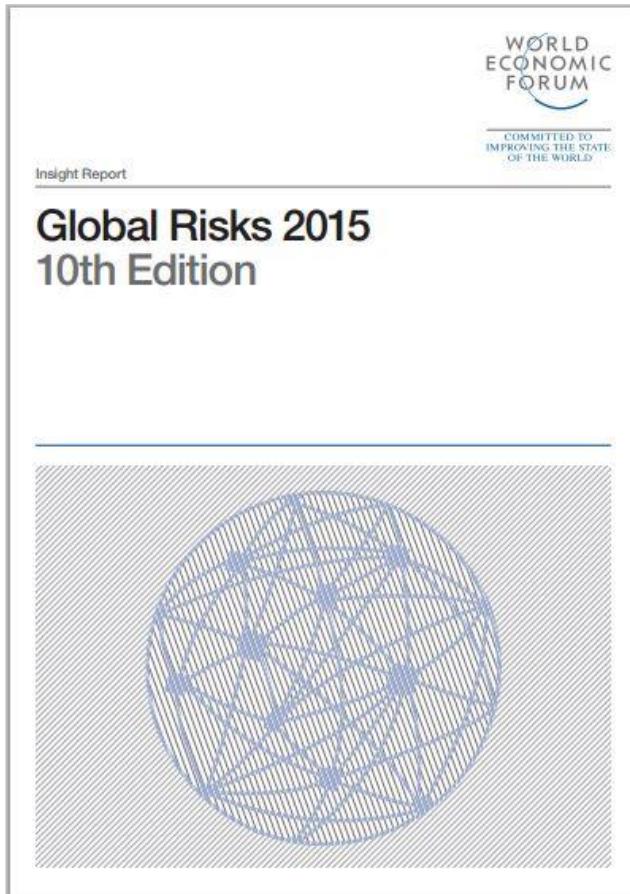
water rights



greater extraction

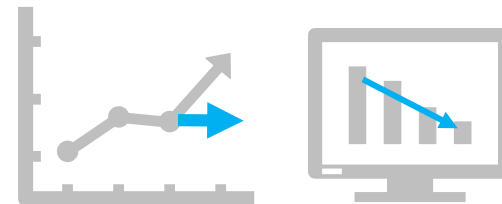
lower recharge

# Water scarcity is a current business risk



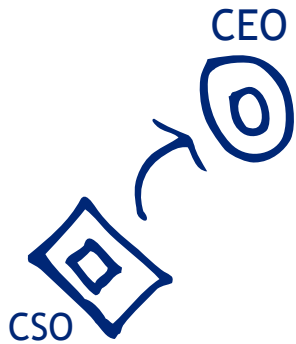
# 70%

of businesses believe they will face **substantive water risks** in the next five years

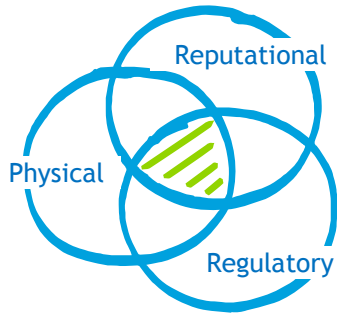


# 1 Global Risk in terms of Impact

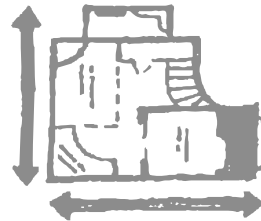
# The business response



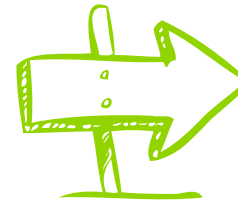
**Elevating the Conversation**



**Understanding Water Risk Exposure**



**Analyzing Data to Quantify Business Value at Risk**

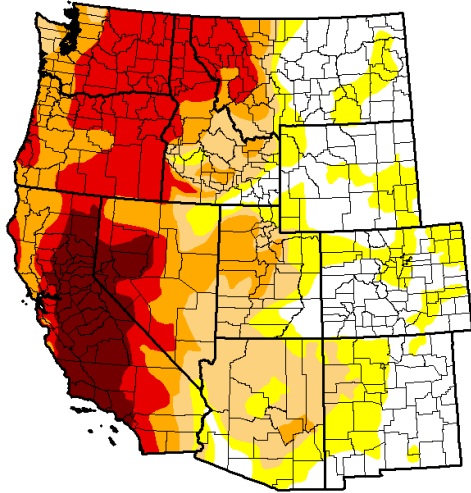


**Determining Options: "Fueling Growth"**

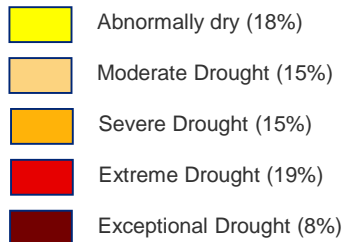


**Implementing Strategies**

# What have we learned?



October 13, 2015



<http://droughtmonitor.unl.edu/>

The past is **not a guide to the future**

Scarcity impacts **economic and business growth**

Public policy will align with the **“new normal”**

Scarcity drives innovation – **“business ecosystems” and technology**

***Data analytics are essential for a fact based dialog with stakeholders***

# Transparency - water data analytics and visualization



# Florida Department of Agriculture (FDACs)





# FDACs overview

Collected data from a variety of primary sources across Florida to develop a compelling set analytical dashboards

## Our approach



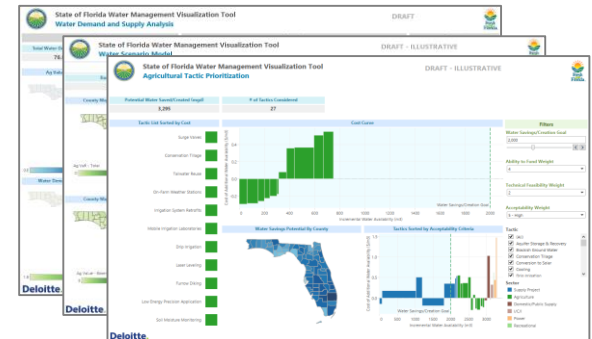
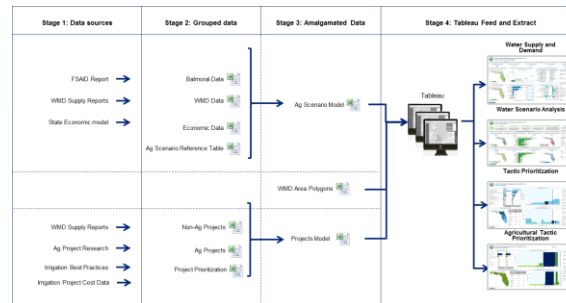
Collect data



Develop integrated database



Create visualizations



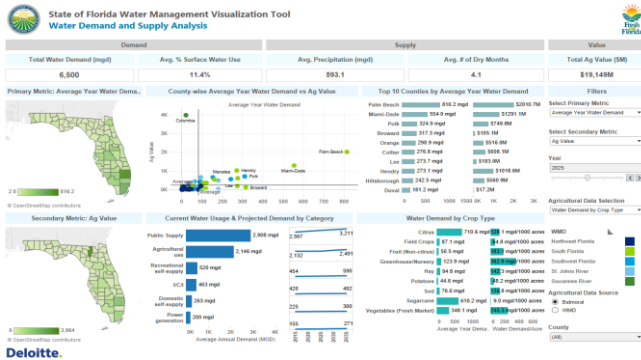
- Florida Statewide Agricultural Irrigation Demand Report and Geodatabases (2015) and supporting technical memos
- Water Management District (WMD) Regional Water Supply Plans
- Water Withdrawals, Use, and Trends in Florida
- NOAA National Climatic Data Center precipitation data
- USGS Statewide Evapotranspiration Data
- Combined data from a variety of datasets into a single, integrated database
- Required reformatting and moving data from a pdf, excel, and text files into a single, readable format
- Allows data to be queried at a variety of levels (state, WMD, and county), sectors, and timeframes (2015 – 2035)
- View projected water demand metrics at the state, water management district, and county level by year and usage category
- Create alternative scenarios specific to agricultural water demand based on changes in crop type acreage, irrigation efficiency
- View and prioritize water conservation and supply projects based on estimated costs, benefits and other criteria



# Dashboards created for FDACS

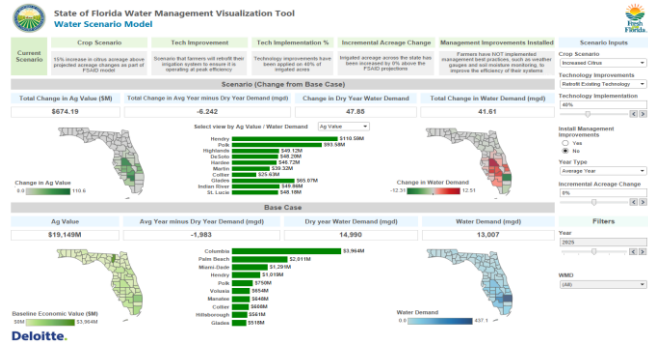
Developed four dashboards that allow FDACS to understand current and projected scenarios, run scenario analysis, and prioritize efficiency tactics

## Water Demand and Supply



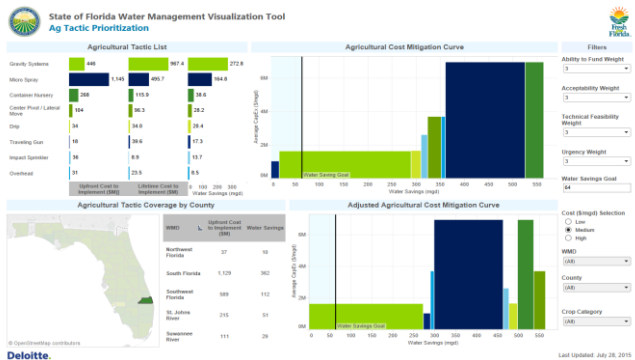
Allows slicing and dicing of WMD, FSAID and Regional Water Supply data to analyse current and future water supply vs demand metrics by county and WMD

## Water Scenario Analysis



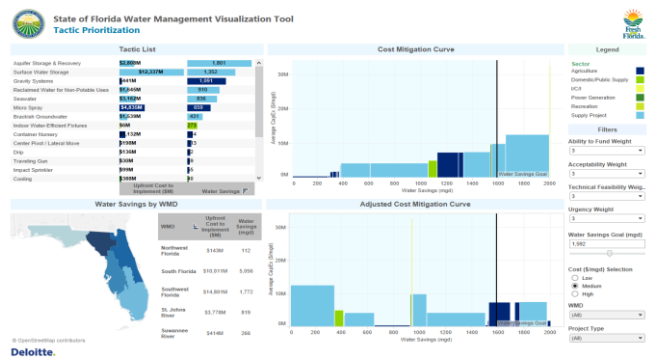
Enables users to build out an optimum water supply and demand scenario using external factors and observe their effects across a 20 year time horizon

## Agricultural Tactic Prioritization



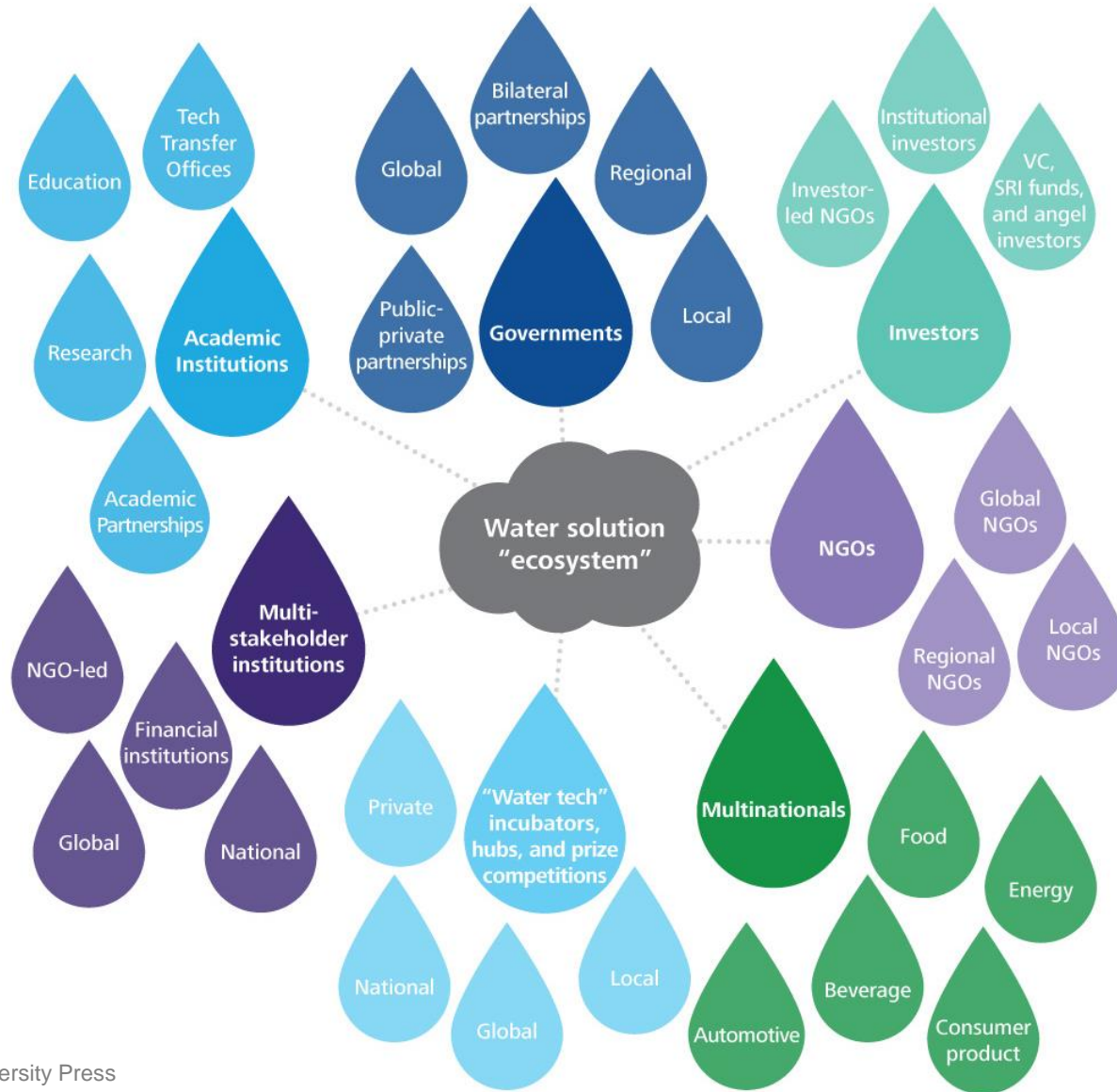
Helps users to further understand Water Saving Tactics needed in the Agricultural sector by County in order to achieve Water Saving goals

## Tactic Prioritization



Allows users to visualize cross-sector tactics to reach water saving goals based on multiple metrics such as Feasibility, Urgency, Capex

# The water ecosystem



Graphic: Deloitte University Press



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