

# Water and Economic Development in Indiana

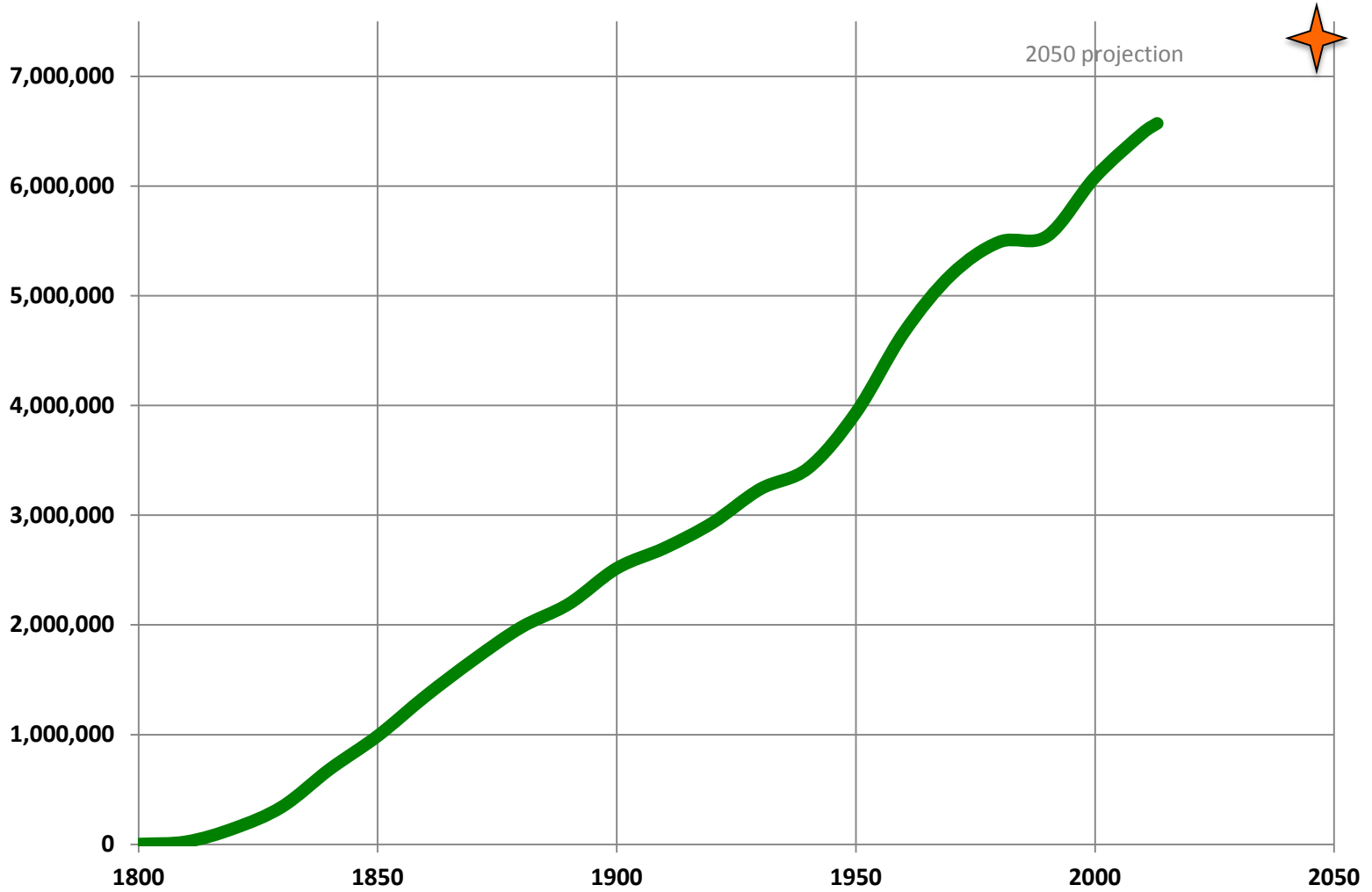
Northwestern Indiana Regional Planning  
Commission EMPC

October 2, 2014

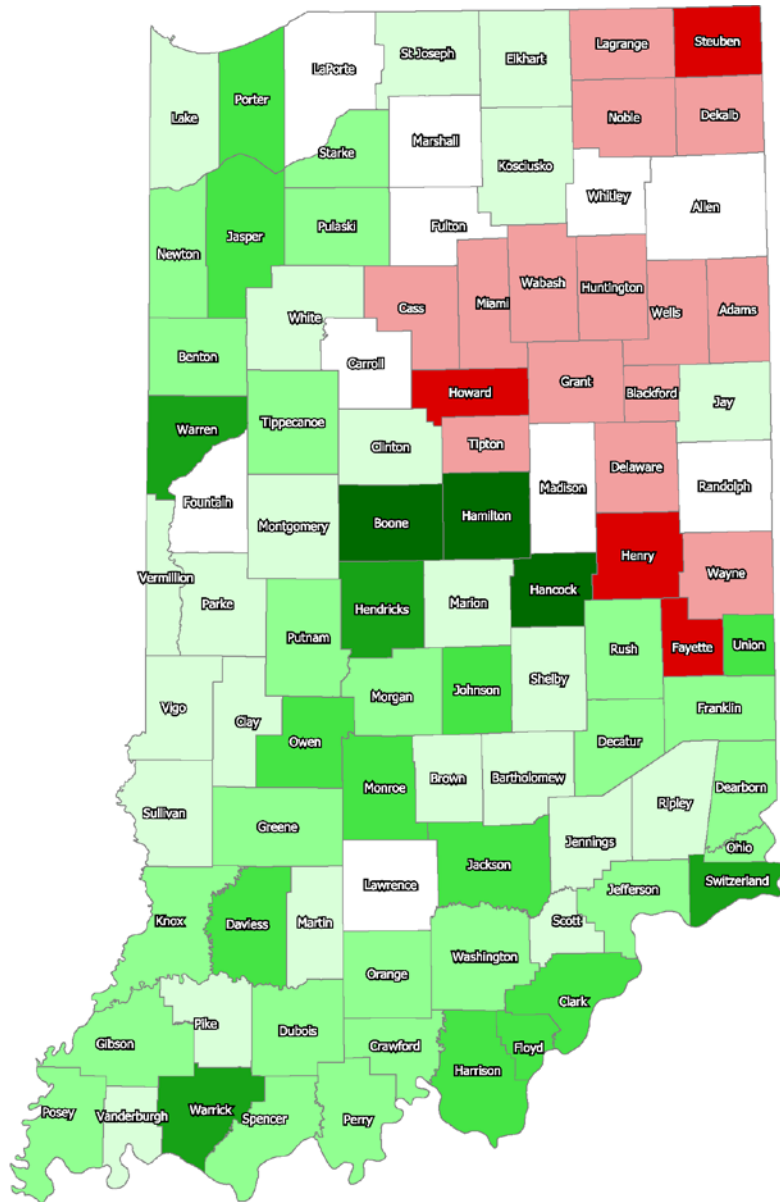
Jack Wittman, PhD  
Principal Geoscientist



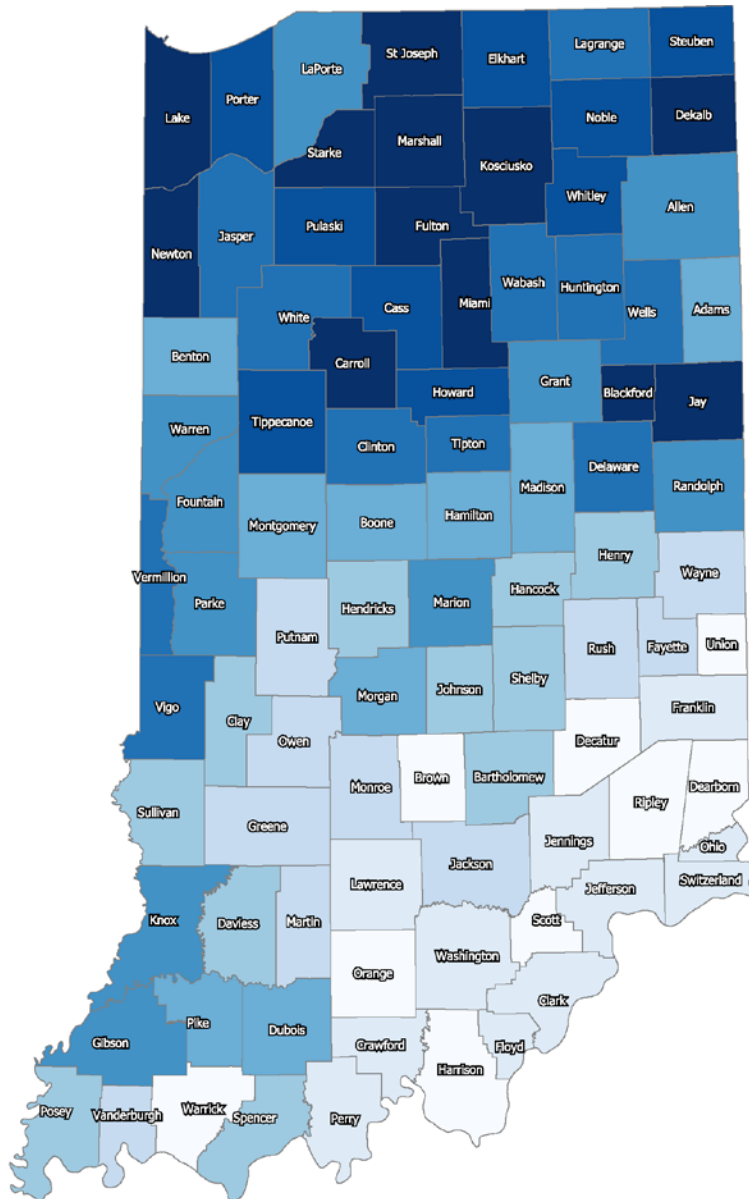
# Indiana Population 1800 - 2013



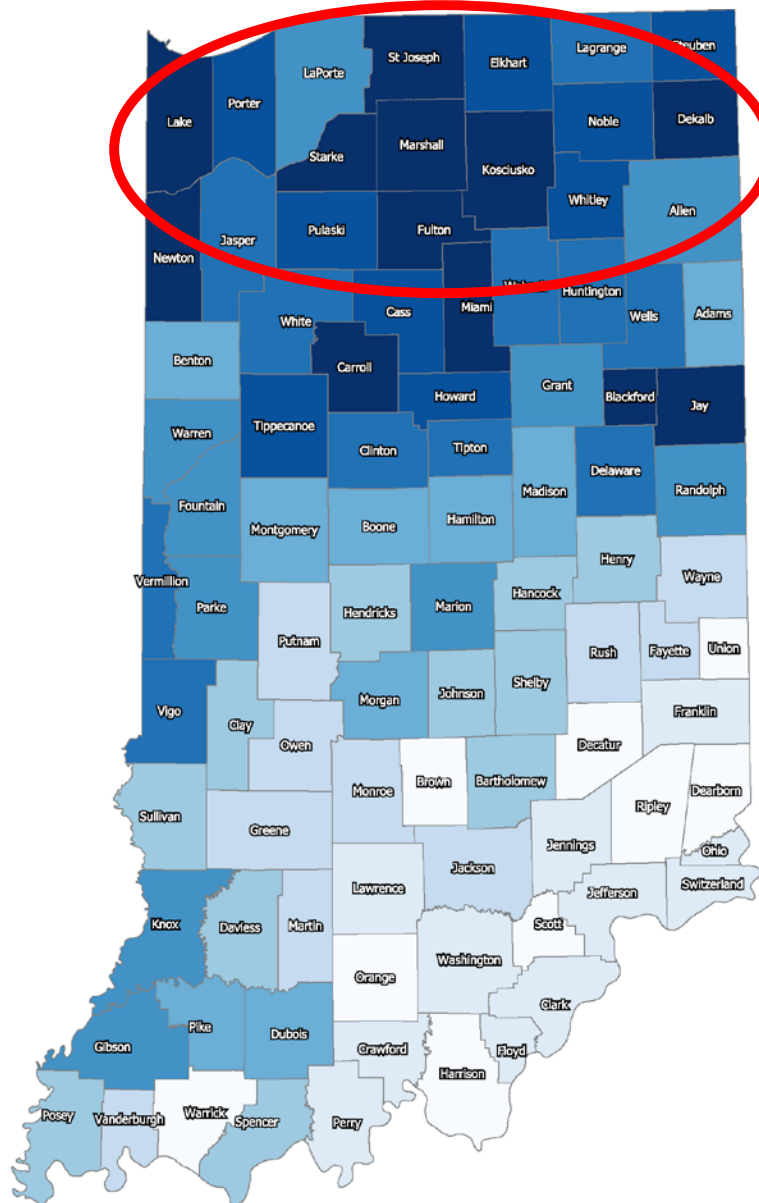
# Growth in the last decade



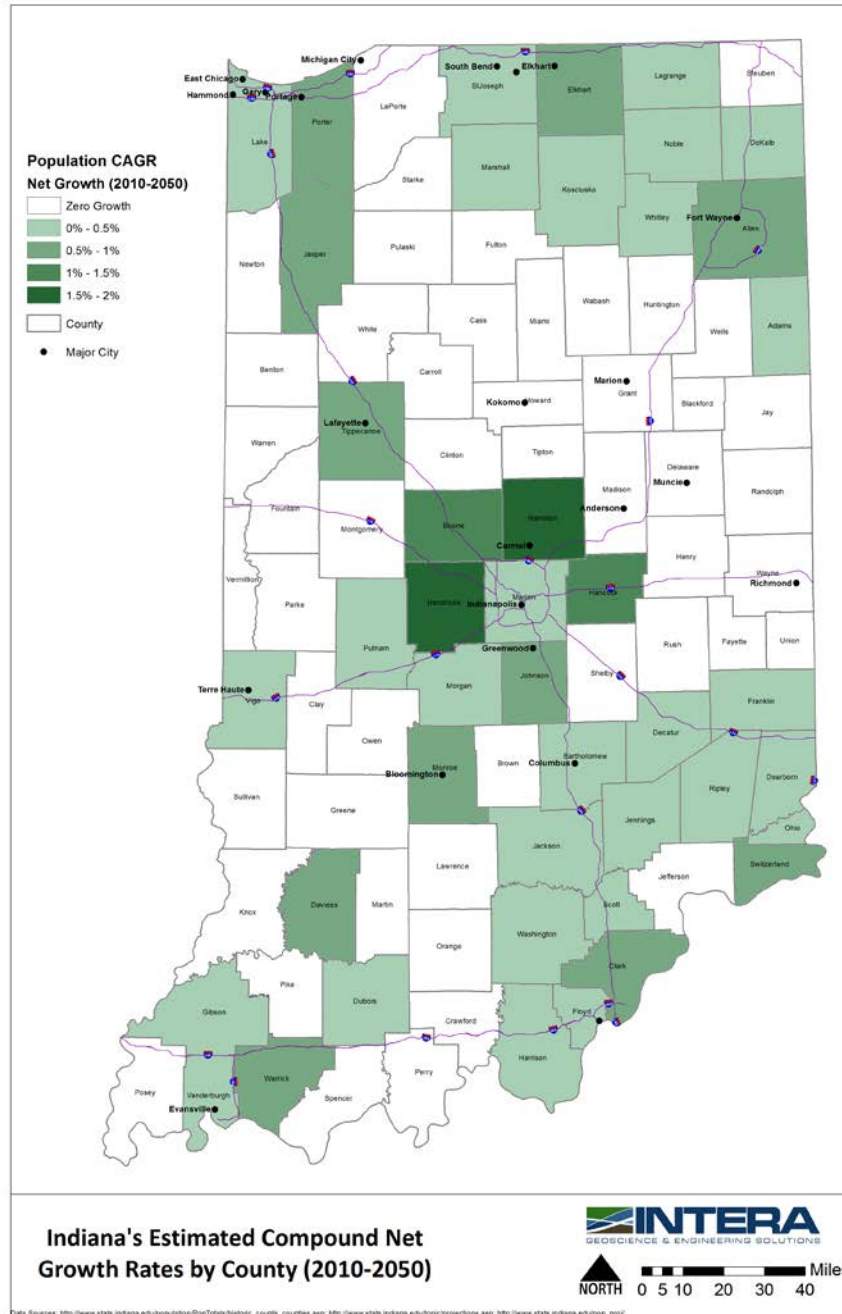
# Groundwater availability - (unconsolidated aquifers)



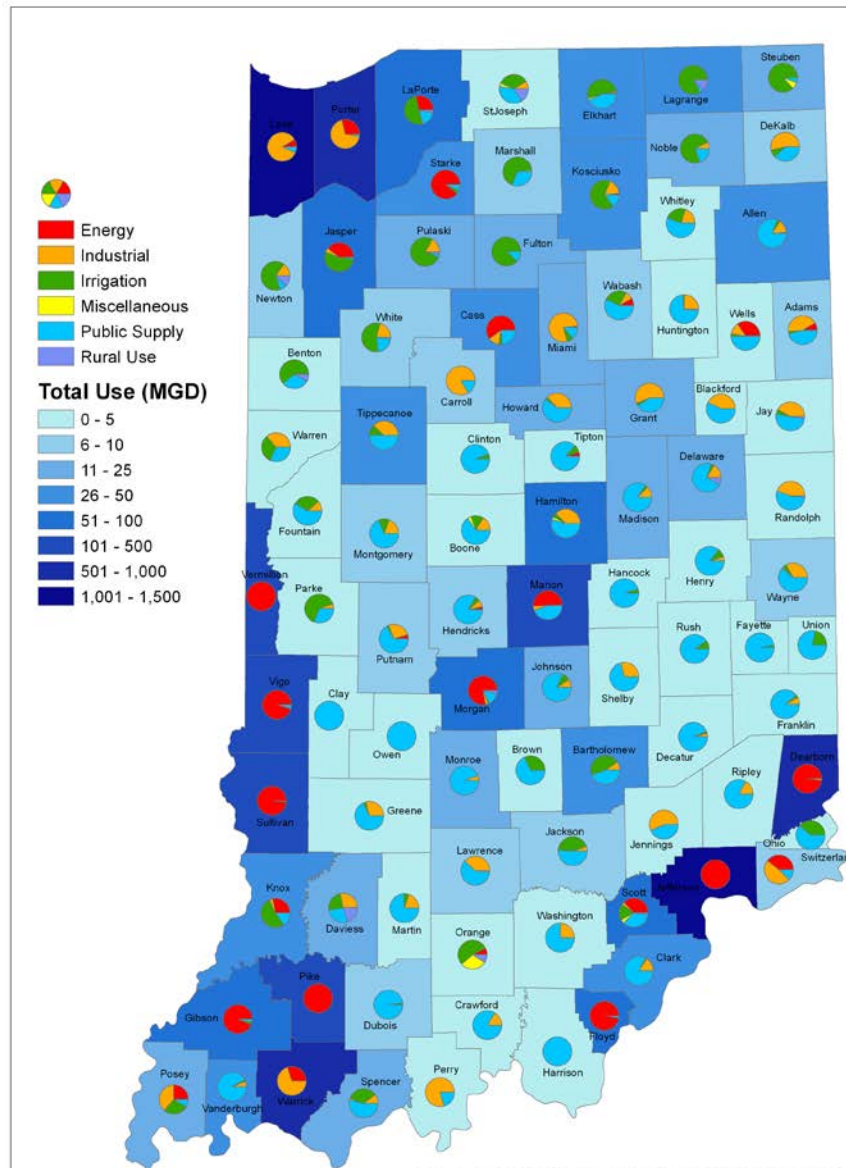
# Problem – high agricultural growth, basin management



# Population Growth 2010 - 2050



# Water Use by County

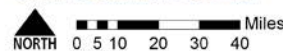


Data Source: Indiana Department of Natural Resources

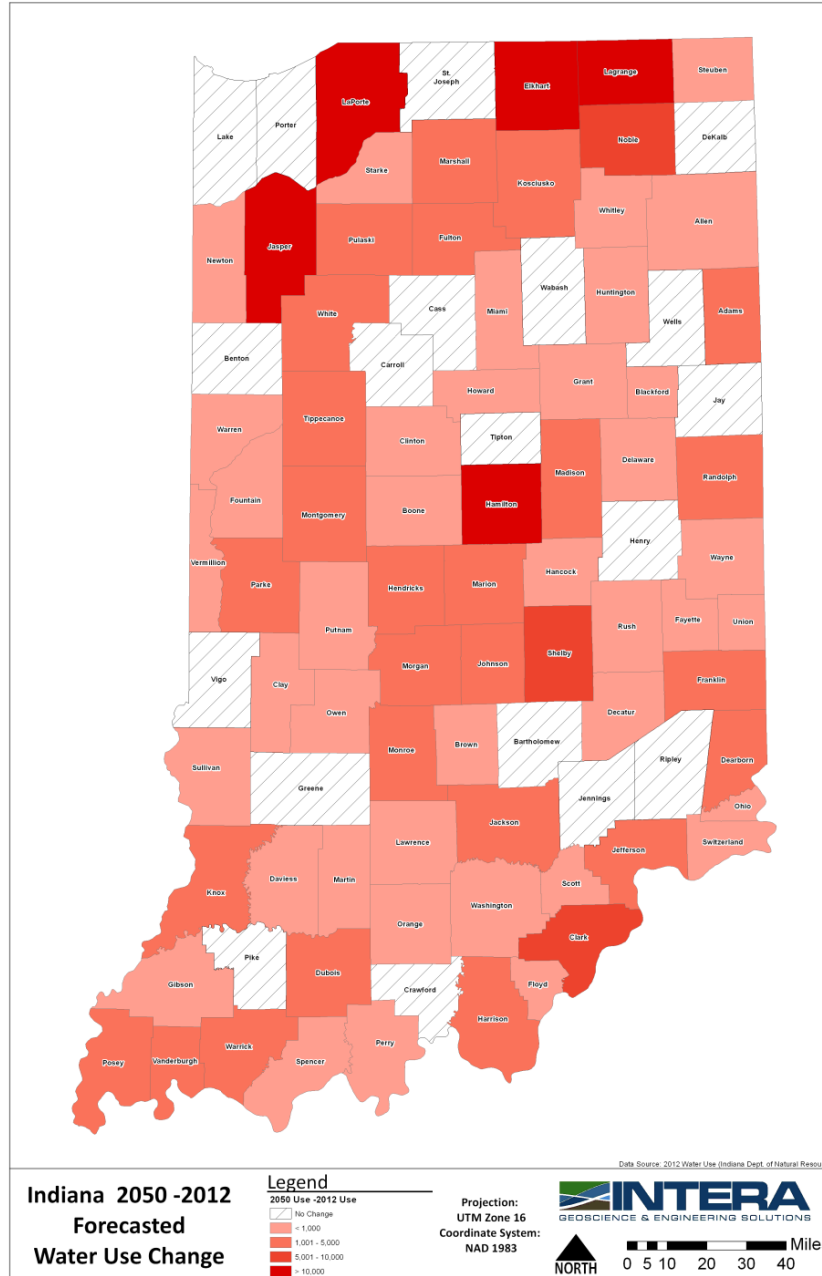
2012 Indiana Water Use  
By County and Sector

Projection: UTM Zone 16  
Coordinate System: NAD 1983

**INTERA**  
GEOSCIENCE & ENGINEERING SOLUTIONS



# 2050 Estimated Increase in Demand [MG/yr]



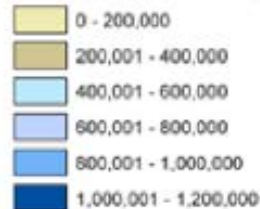




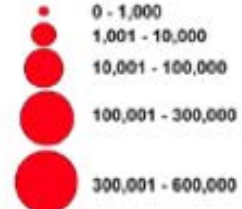
**7Q2 Streamflow**



**Sand & Gravel Storage (MG)**



**2050 Demand (MGY)**



# Findings - Hydrology

- Water resource availability and security is now a requirement of business and Industry.
- Central Indiana is vulnerable to drought because of limited groundwater storage.
- Existing local water supplies will not meet future needs in Central Indiana.
- Largest surface water users (power, industry) are not driving growth in demand.
- Agricultural water use is growing rapidly – mostly in areas with plenty of water.

# Findings - Planning

- No guidance or coordination of water use in a basin.
- Need rules and methods for inter-basin transfers.
- Modern water management requires adequate data on availability.
- We need to promote (require) conservation plans to protect our future. Rules?
- Many are beginning to develop plans already but regional plans need to roll up into a state plan.

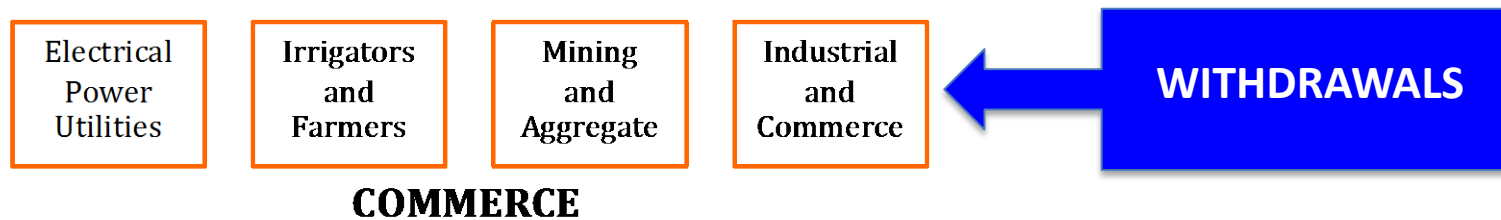
# Findings - Policy

- Previous statutes have not considered the new conditions (needs) and data.
- Existing agencies are all doing their (well defined) jobs. May need a new entity.
- Funding is needed to:
  - Collect more data
  - Consider impacts by modeling future use
  - Direct needed research
  - Perform regional planning

What about the institutional gaps?

# **ANALYSIS OF GOVERNMENT, WATER USERS, AND PLANNERS**

Water users withdraw from aquifers and streams to do work and create value.



Local government uses and affects aquifers and streams to serve the public.



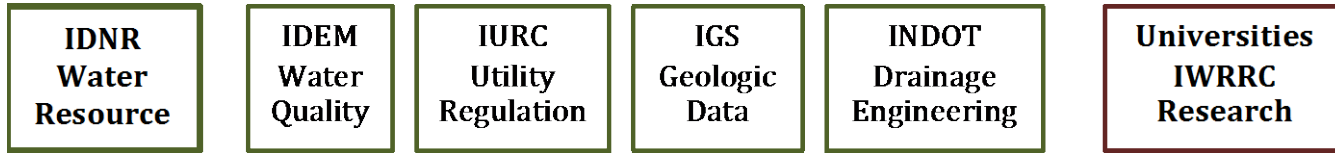
**LOCAL**



**COMMERCE**



State government collects data, regulates activity to protect the public.



**STATE**



**LOCAL**



**COMMERCE**





## FEDERAL

USGS  
water  
resource  
data

US Corps of  
Engineers  
flooding and  
storage

USDA  
water  
quality  
and land

Federal government collects data to protect and serve the public.

IDNR  
Water  
Resource

IDEM  
Water  
Quality

IURC  
Utility  
Regulation

IGS  
Geologic  
Data

INDOT  
Drainage  
Engineering

Universities  
IWRRRC  
Research

## STATE

Drinking  
Water  
Utilities

Storm  
Water  
Utilities

Waste  
Water  
Utilities

County  
Drainage  
Board

County  
Surveyor's  
Office

## LOCAL

Electrical  
Power  
Utilities

Irrigators  
and  
Farmers

Mining  
and  
Aggregate

Industrial  
and  
Commerce

## COMMERCE



## FEDERAL

USGS  
water  
resource  
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US Corps of  
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water  
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## How are they connected?

IDNR  
Water  
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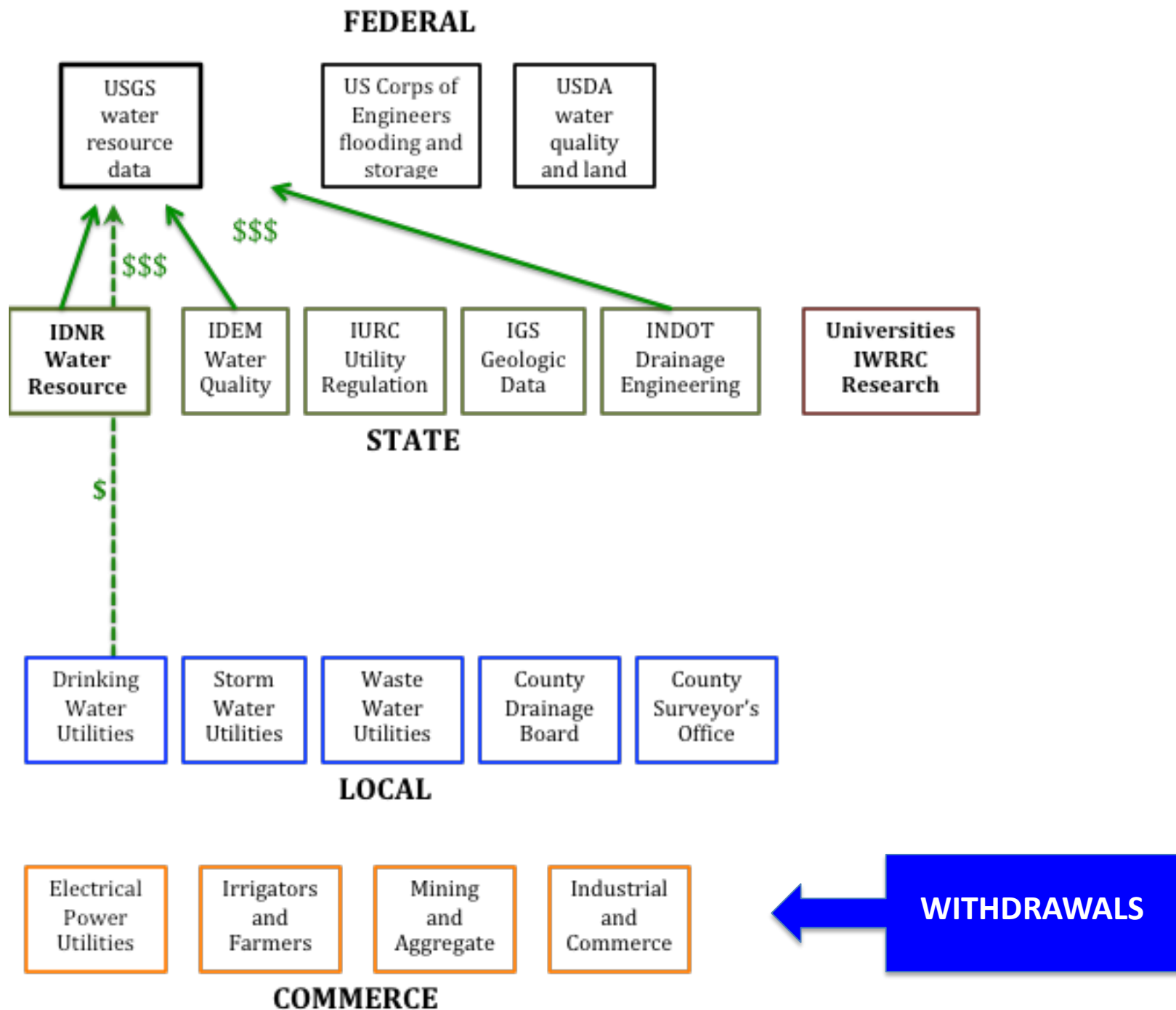
Irrigators  
and  
Farmers

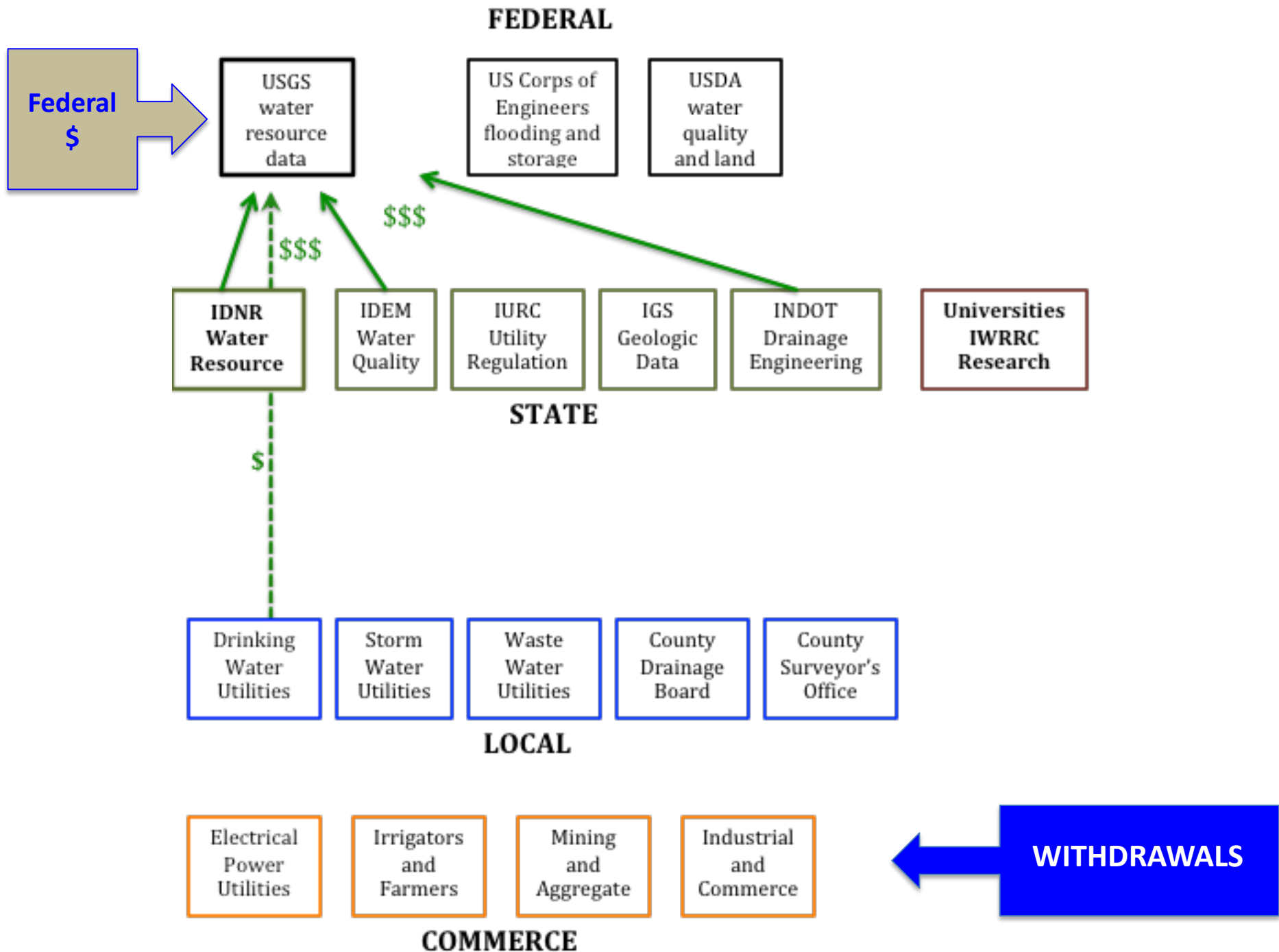
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and  
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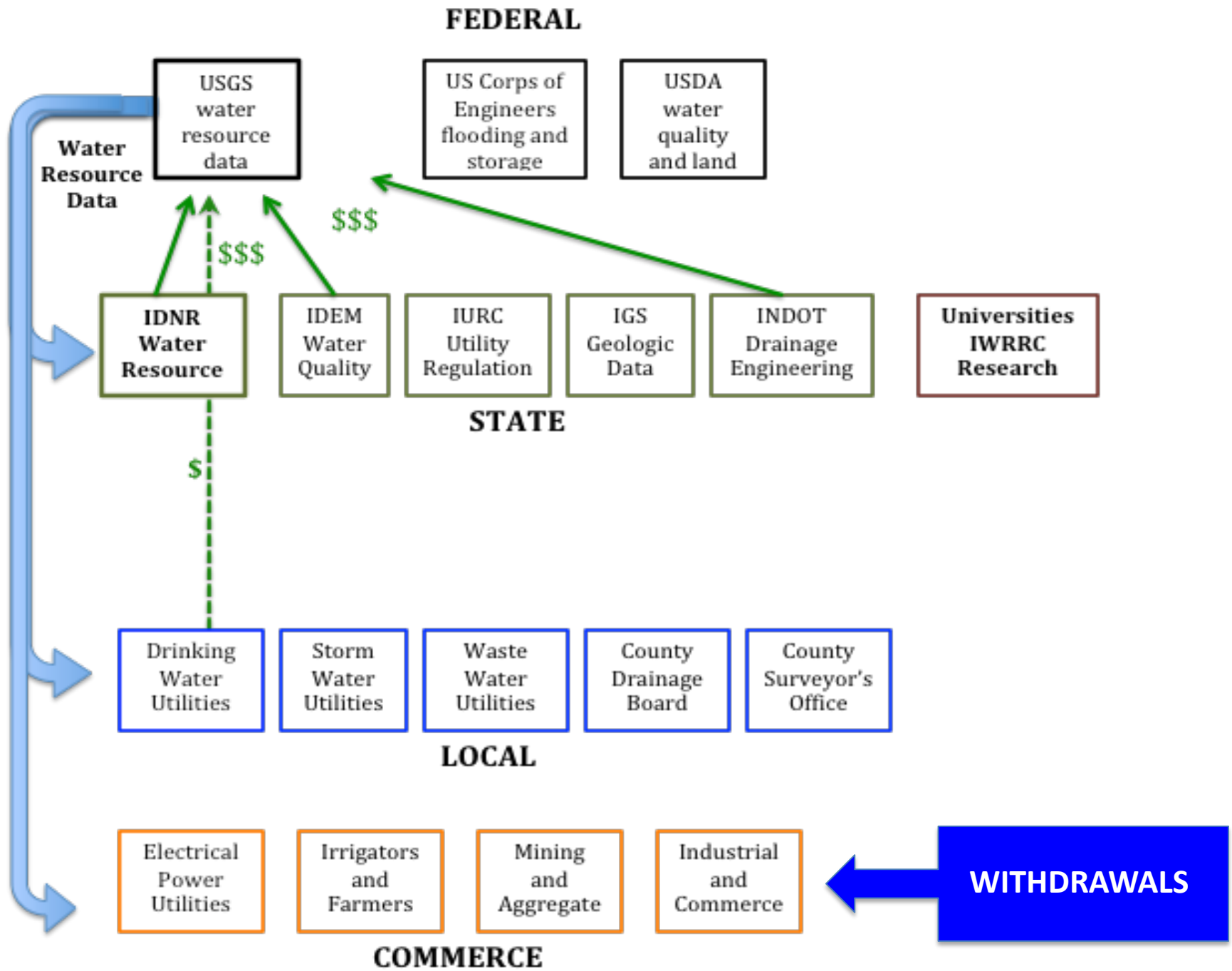
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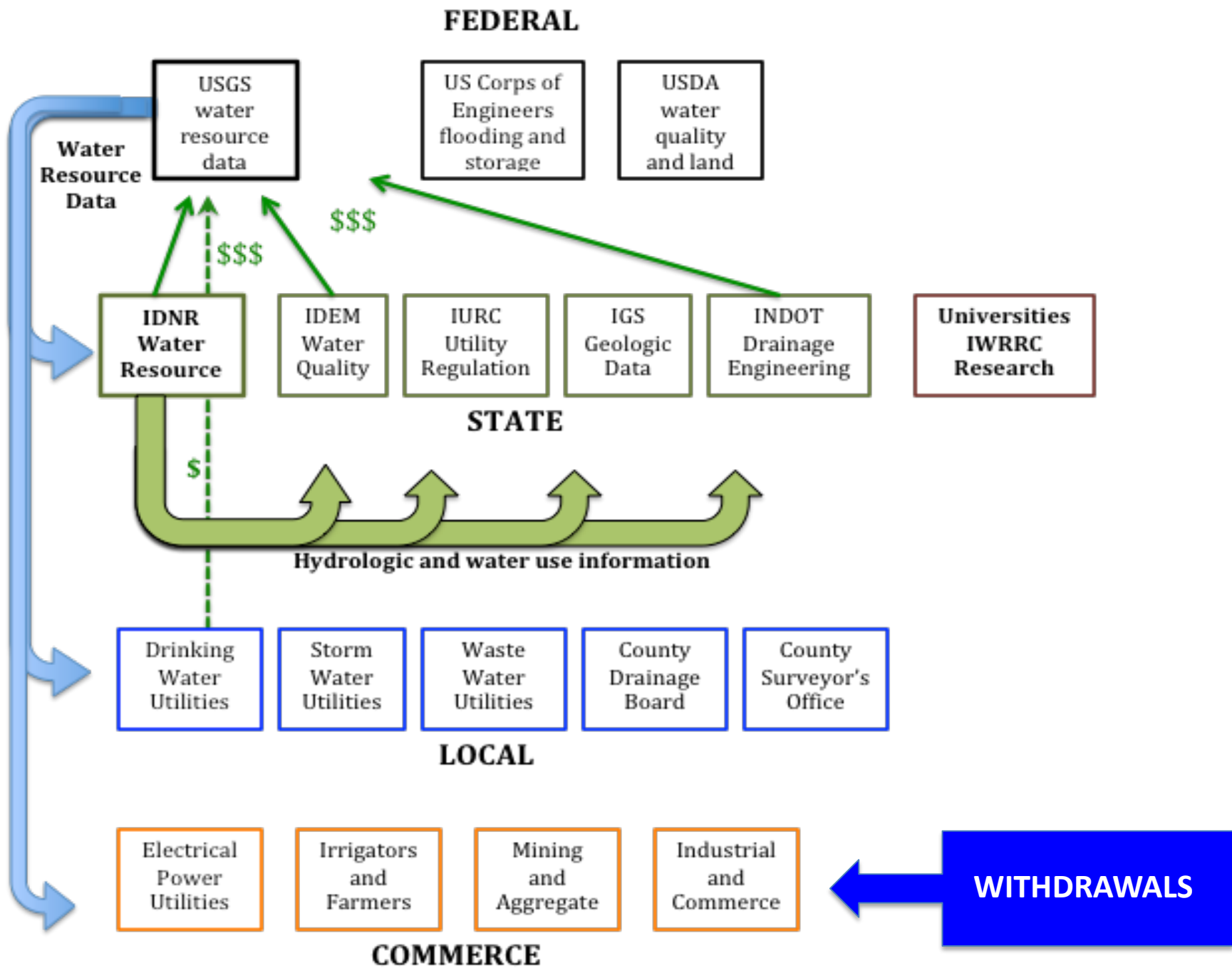
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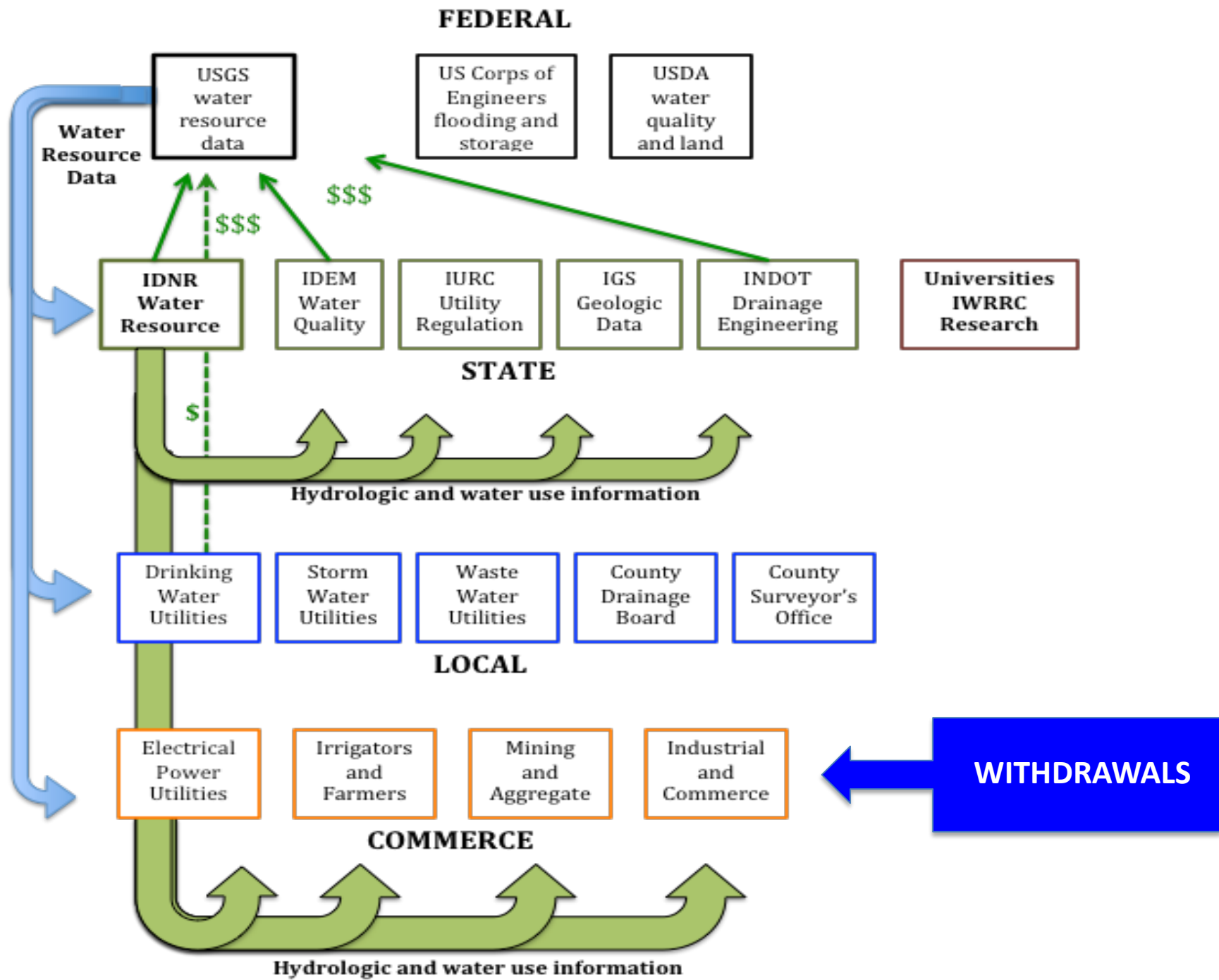


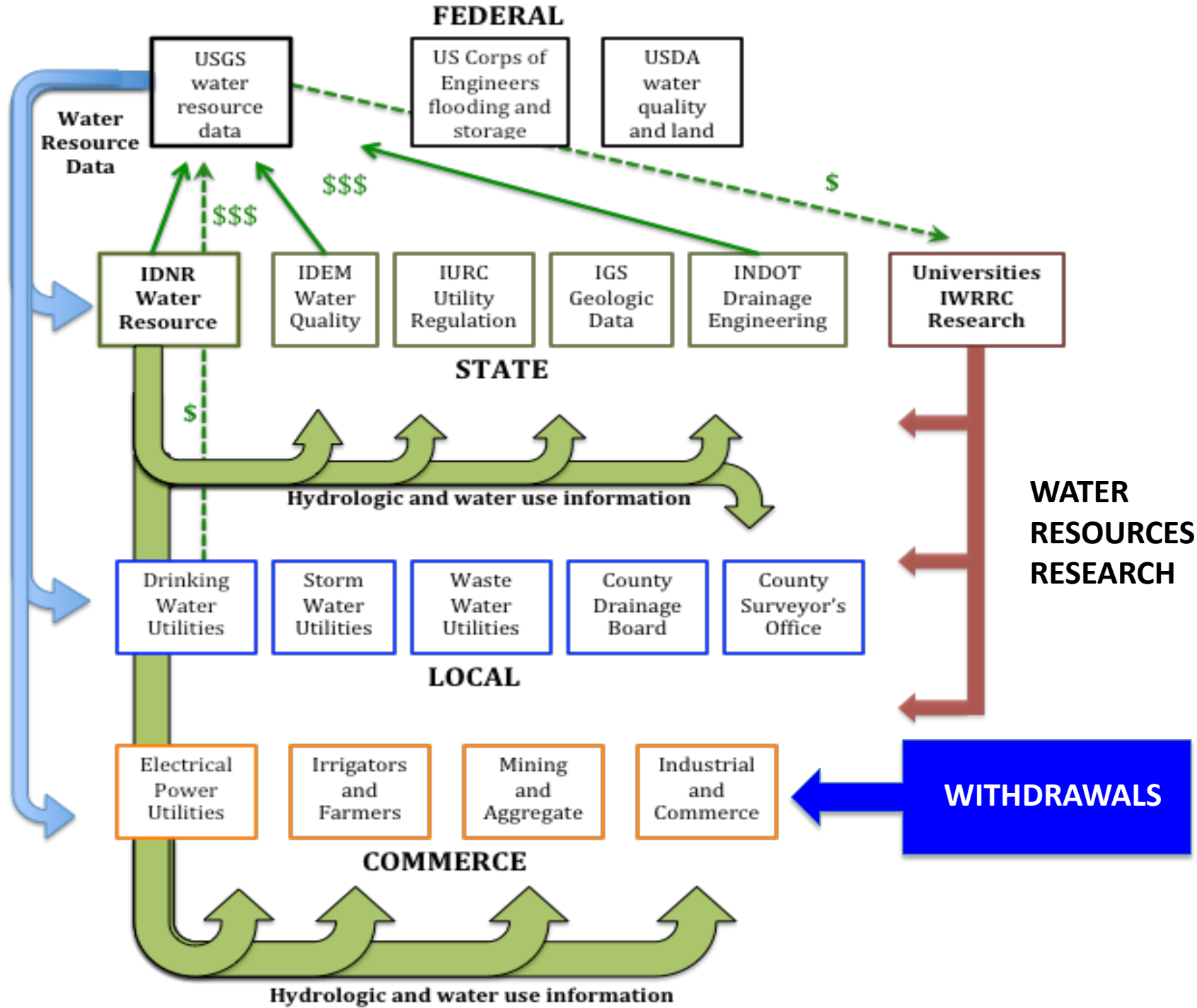










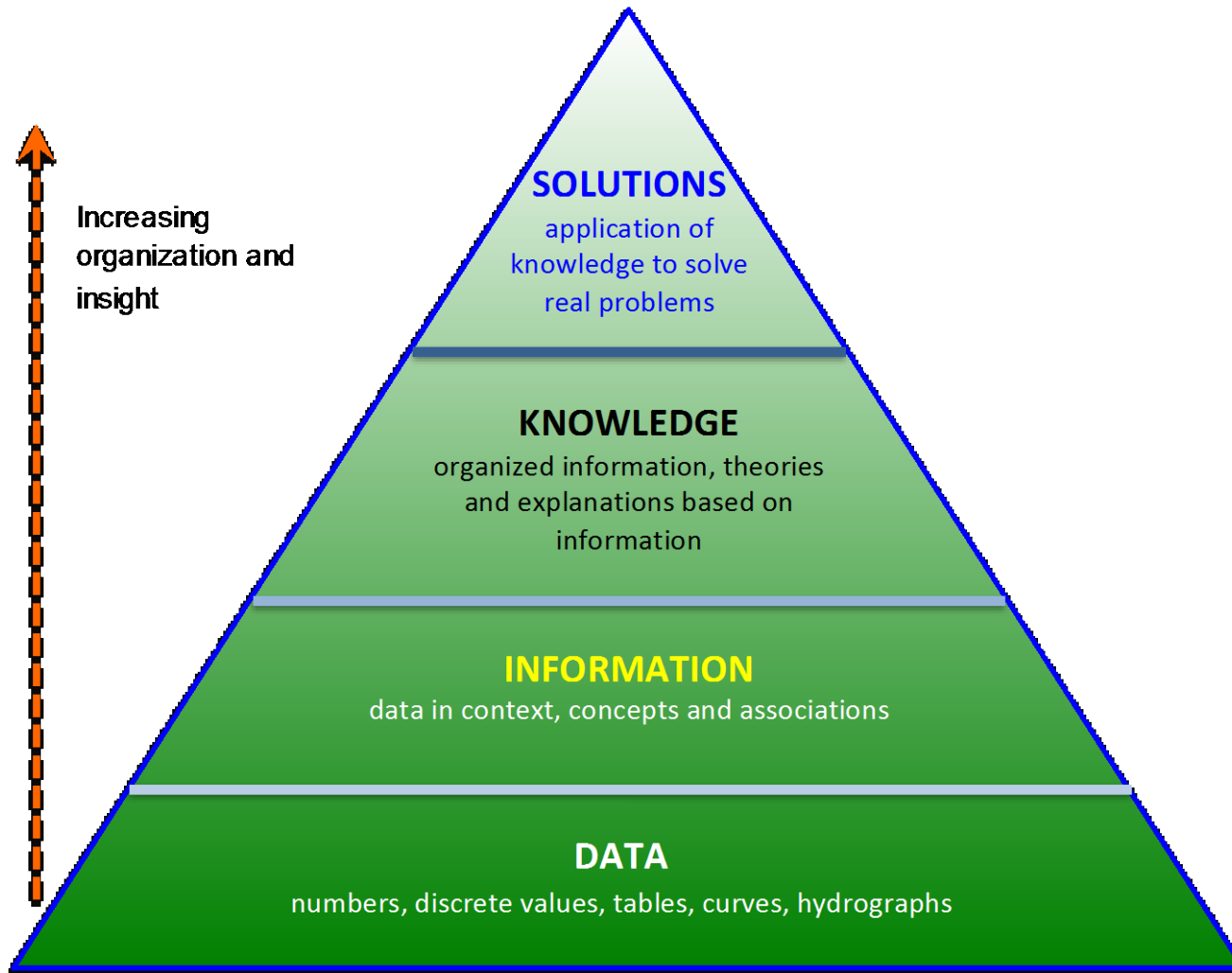




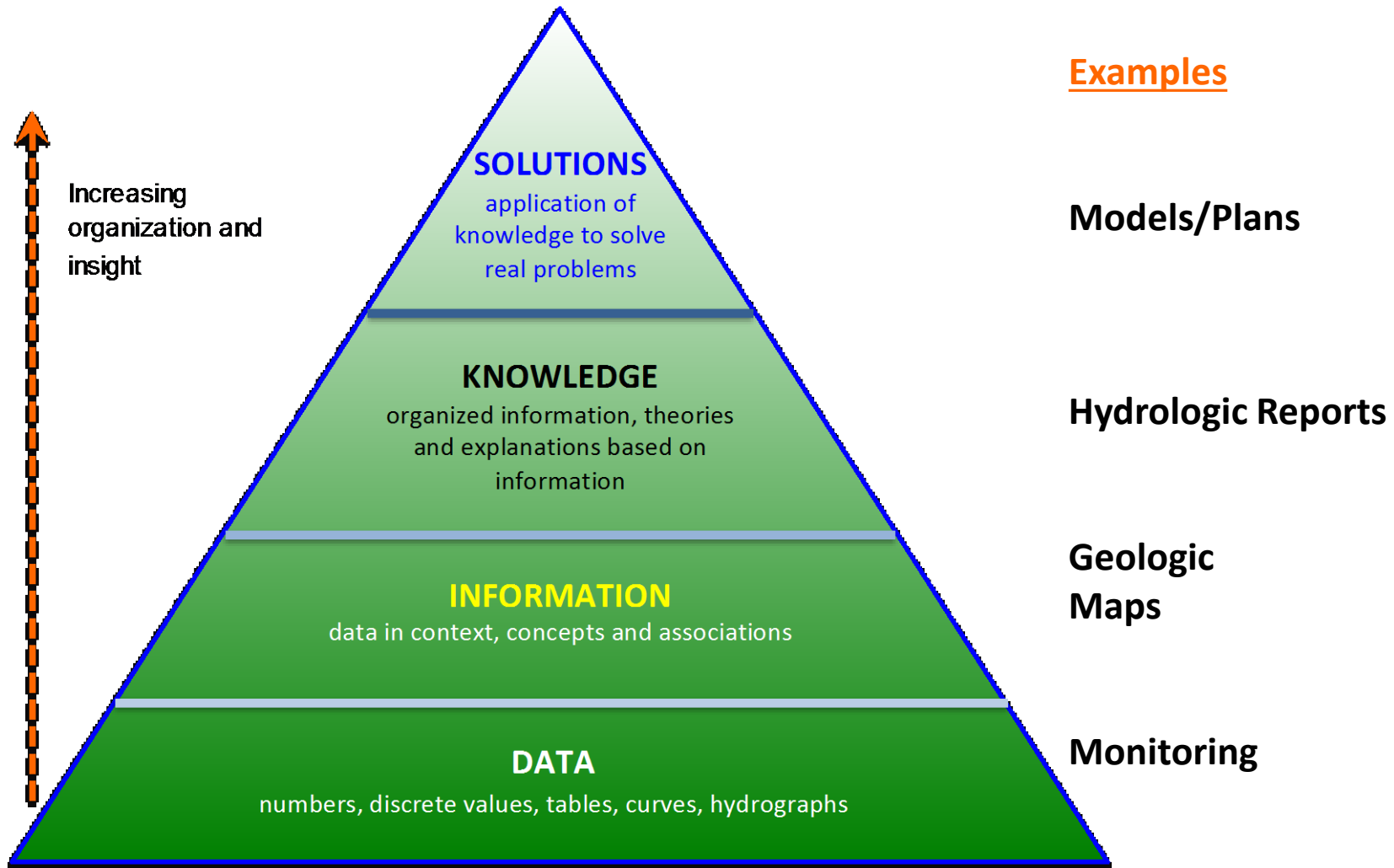
What is wrong with that picture?

**ANALYSIS**

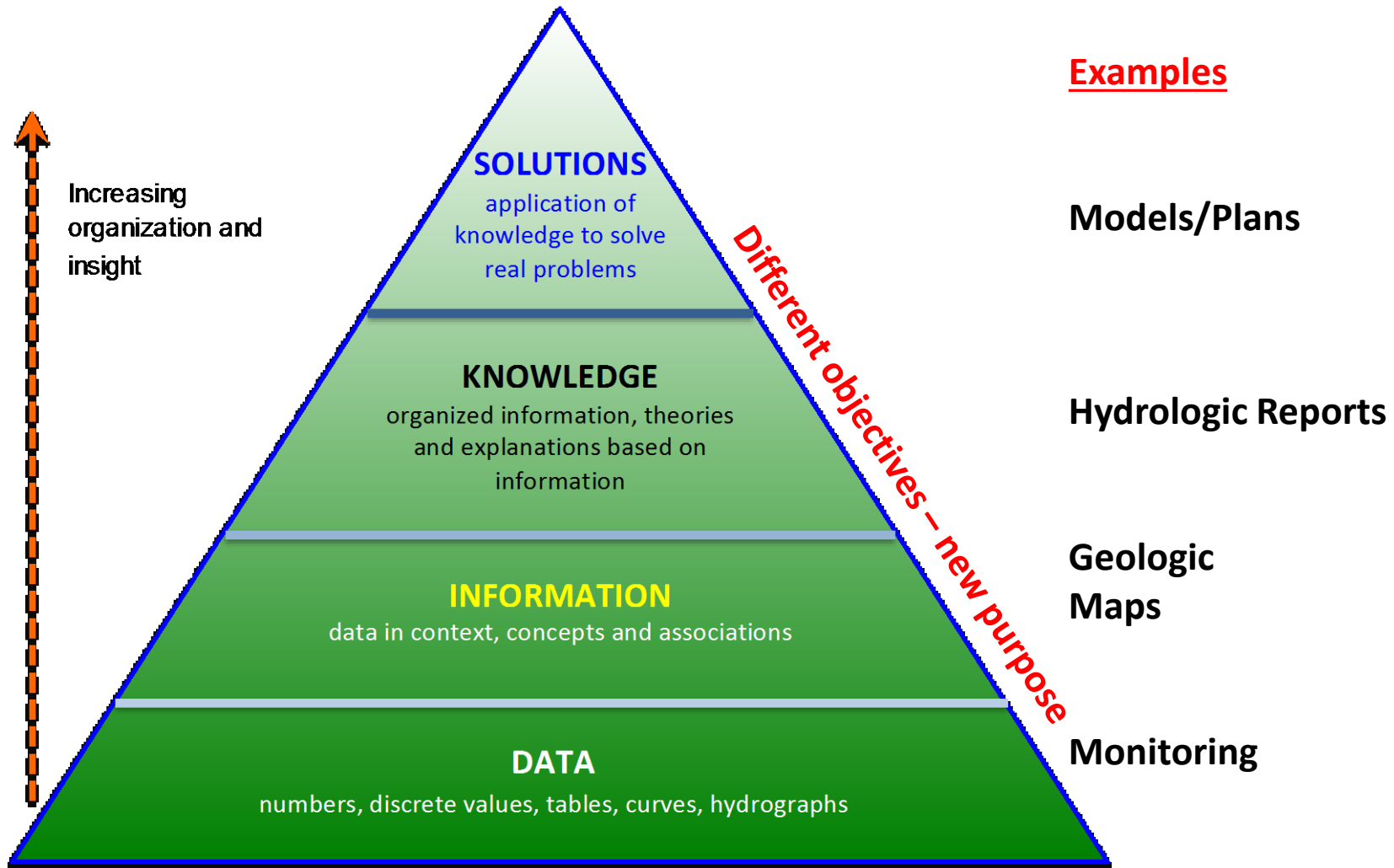
# Paradigm of Technical Progress



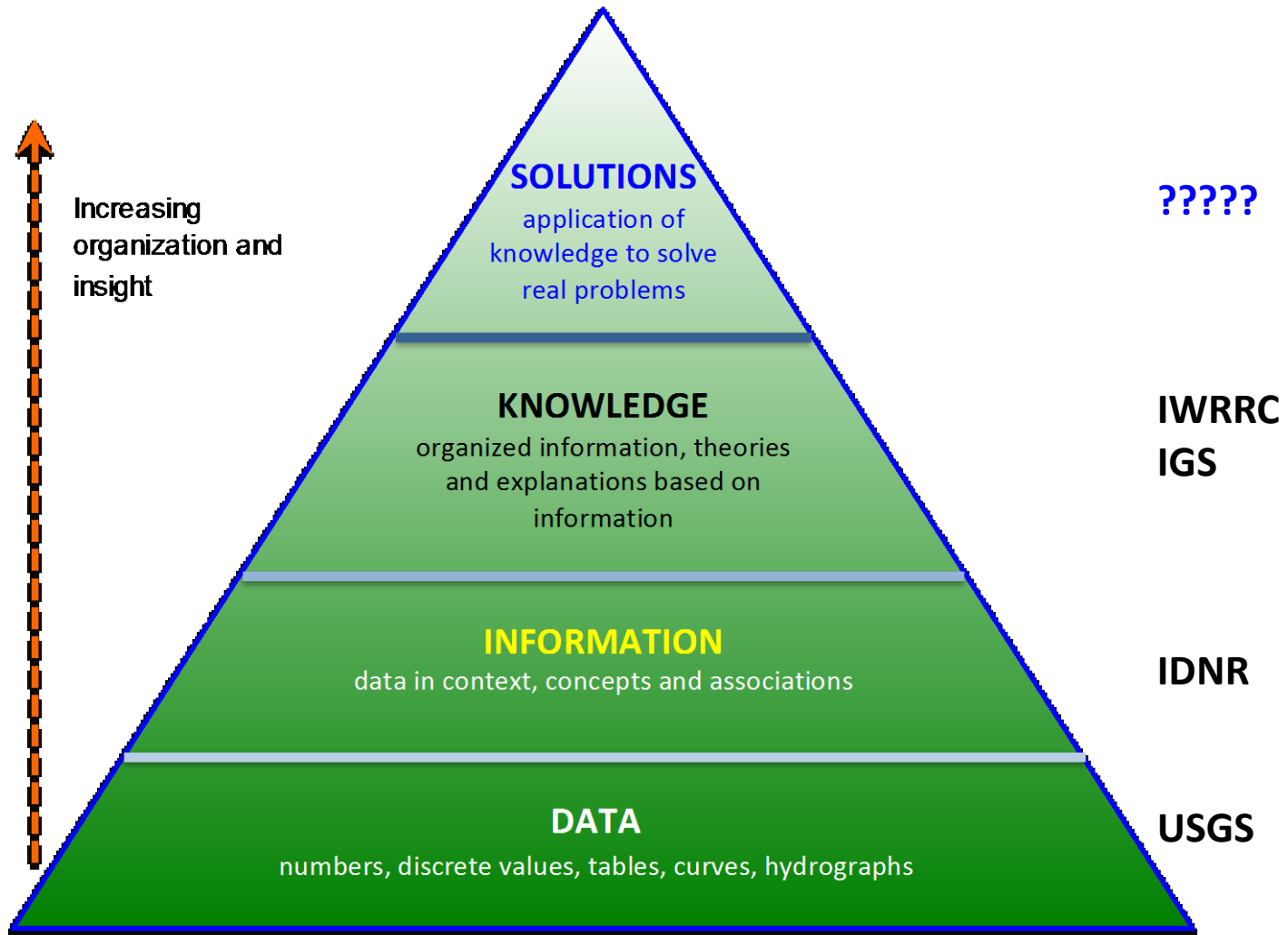
# Application to Water Supply Planning

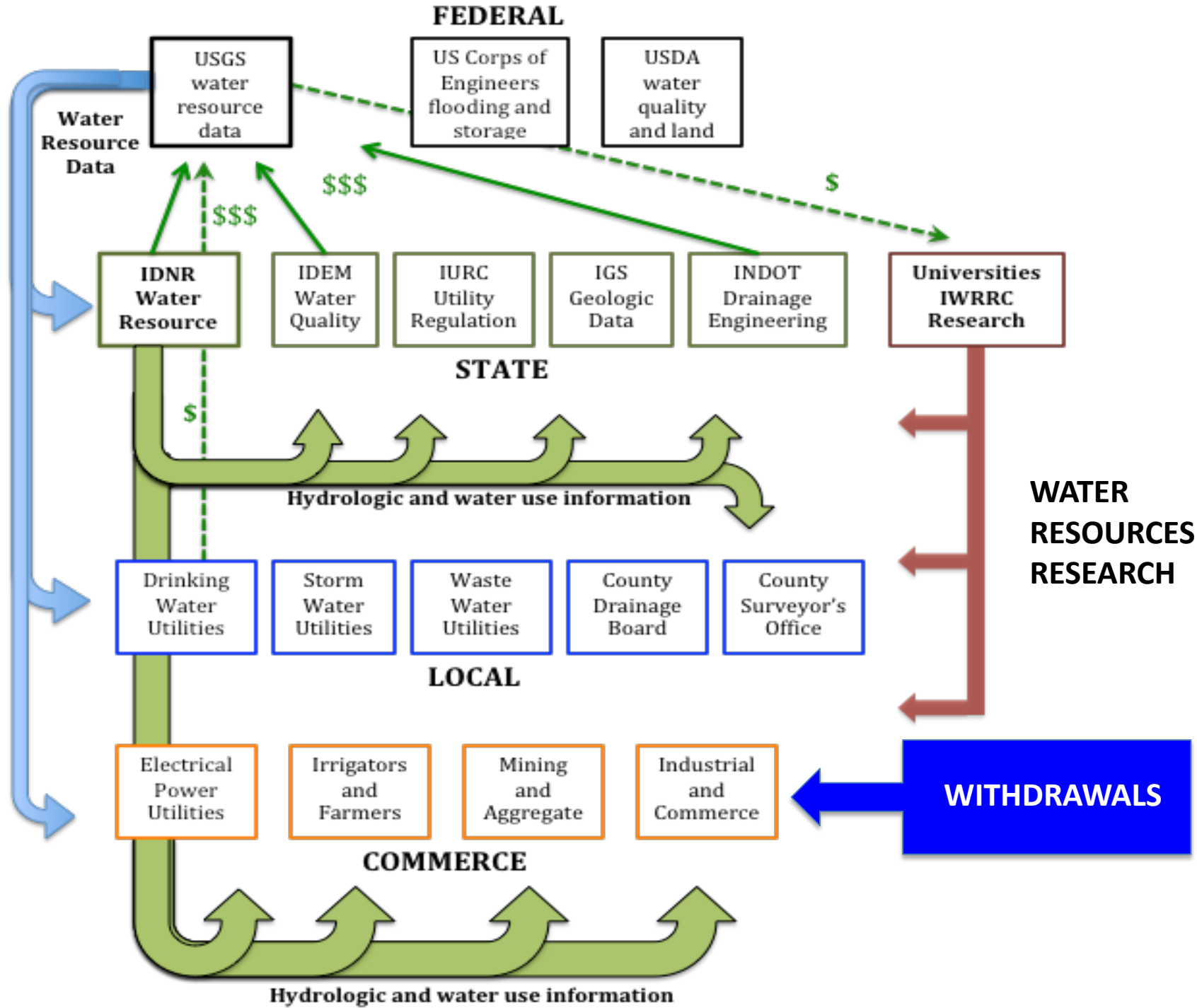


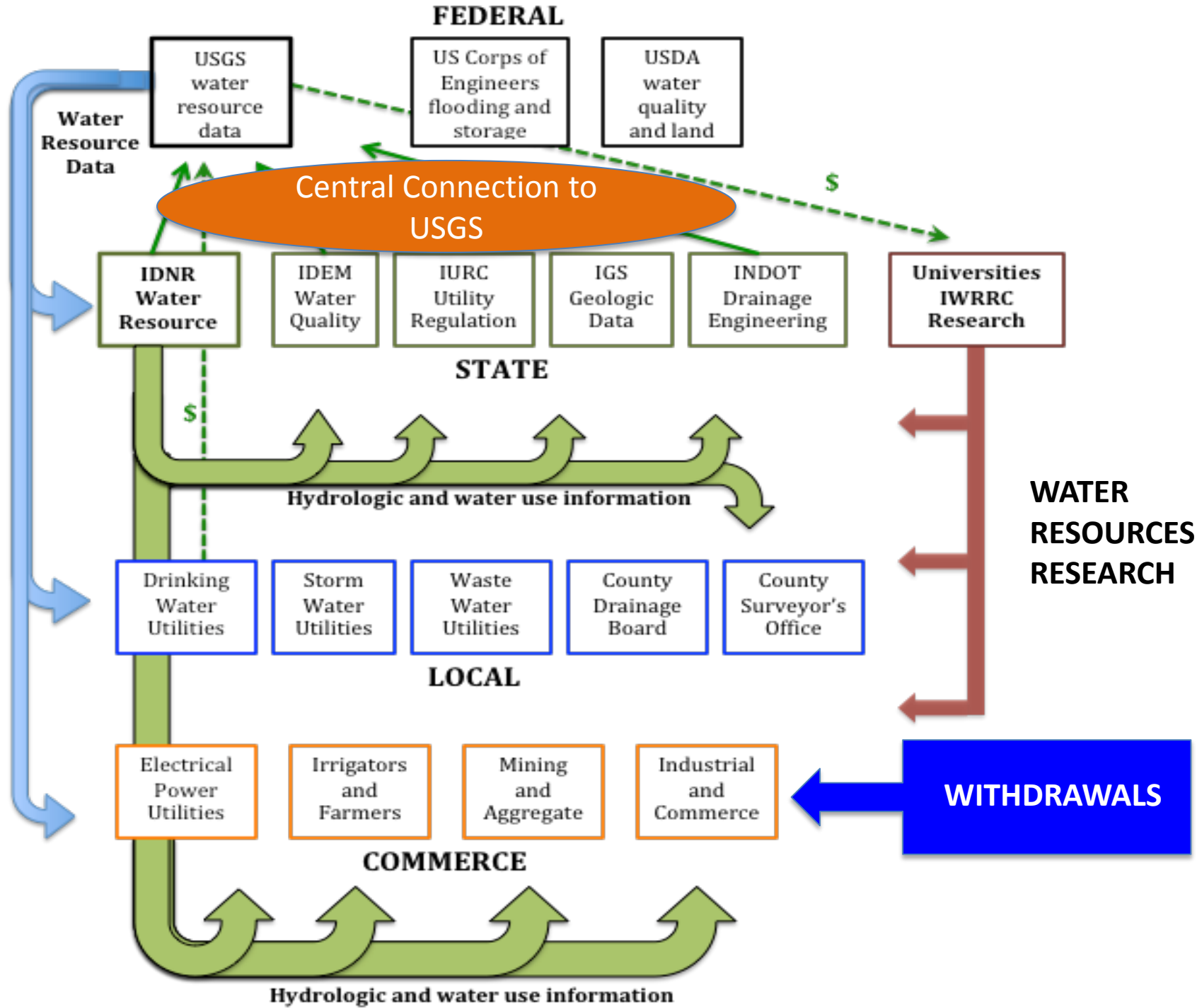
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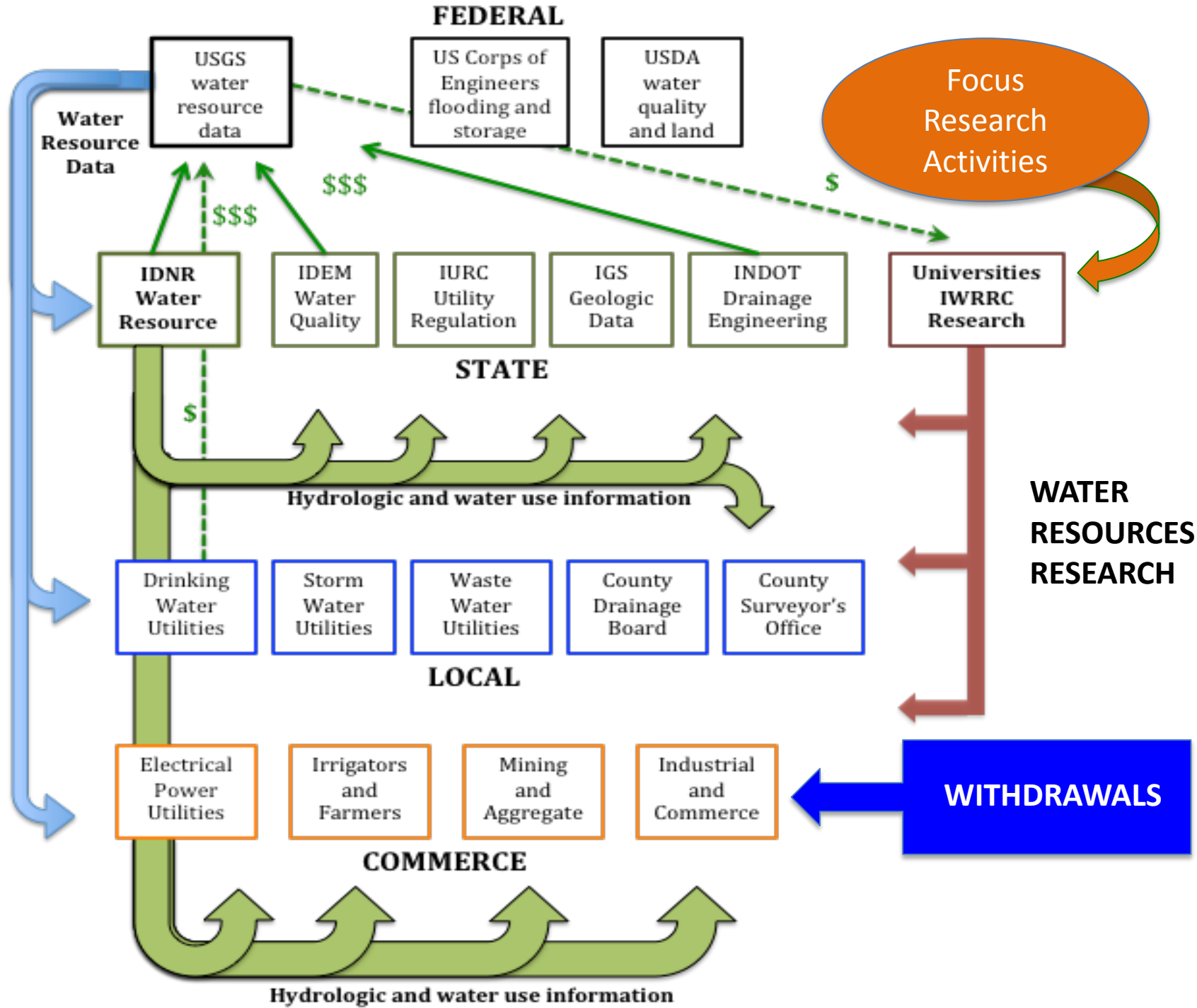


# Institutional Analysis

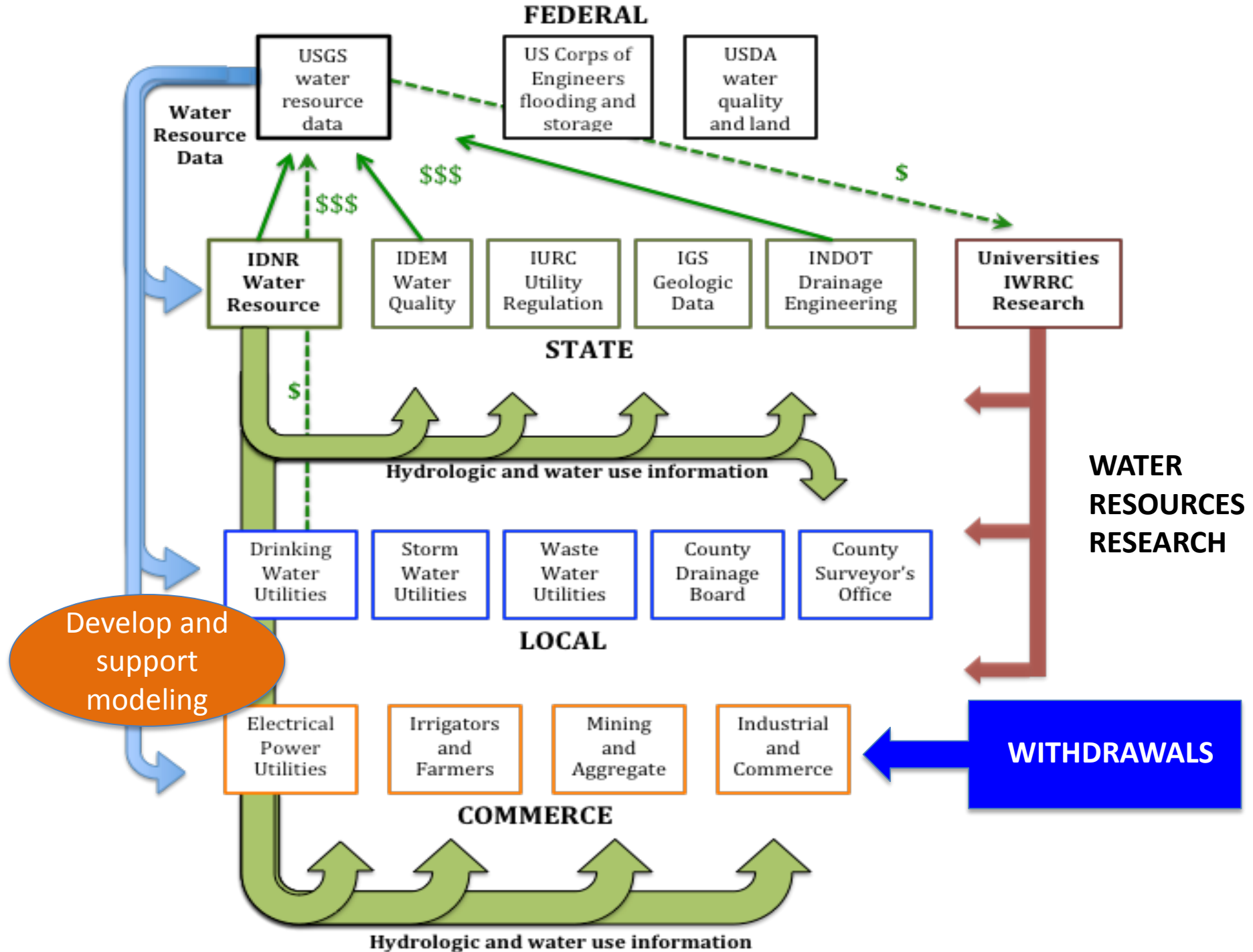


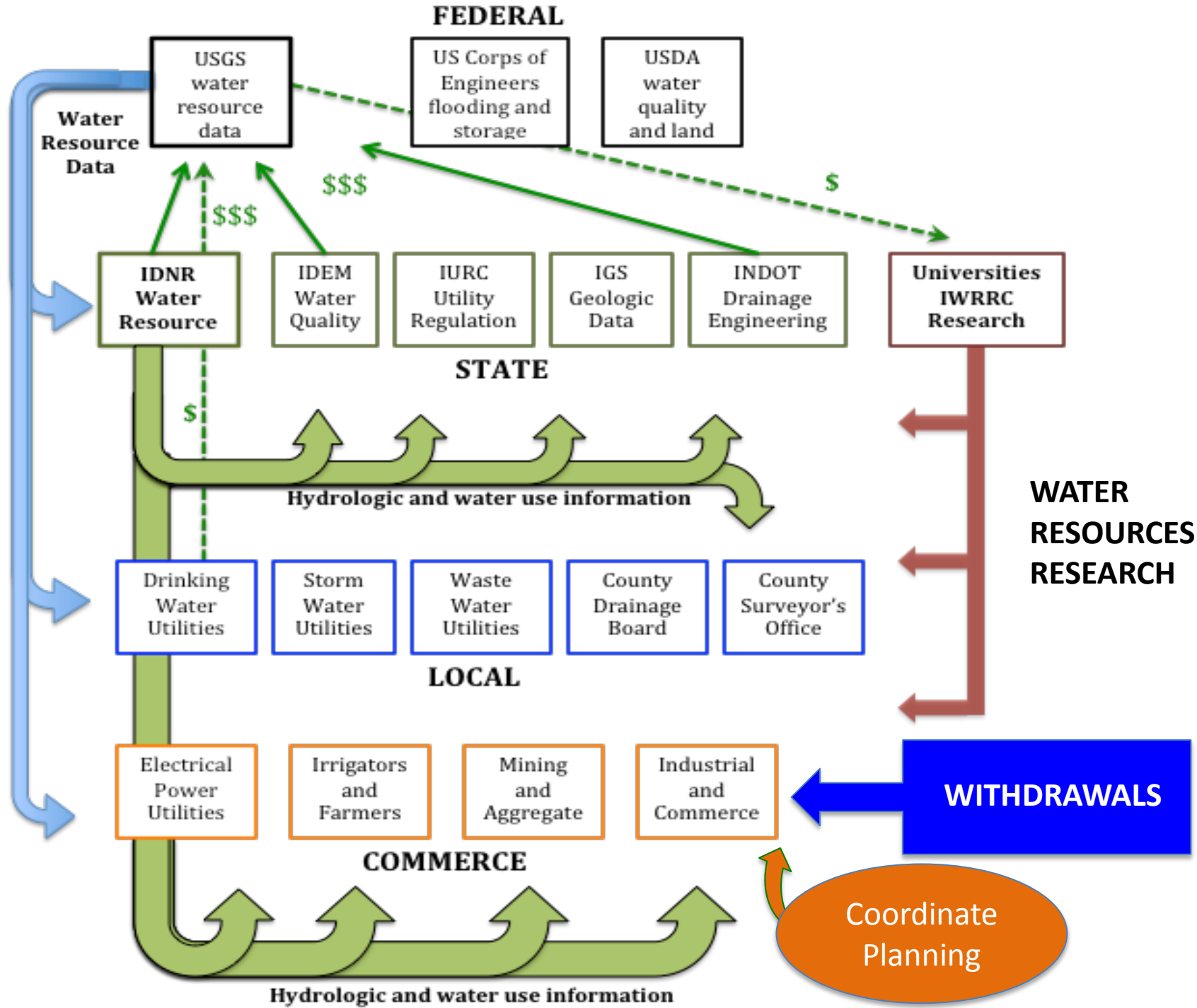


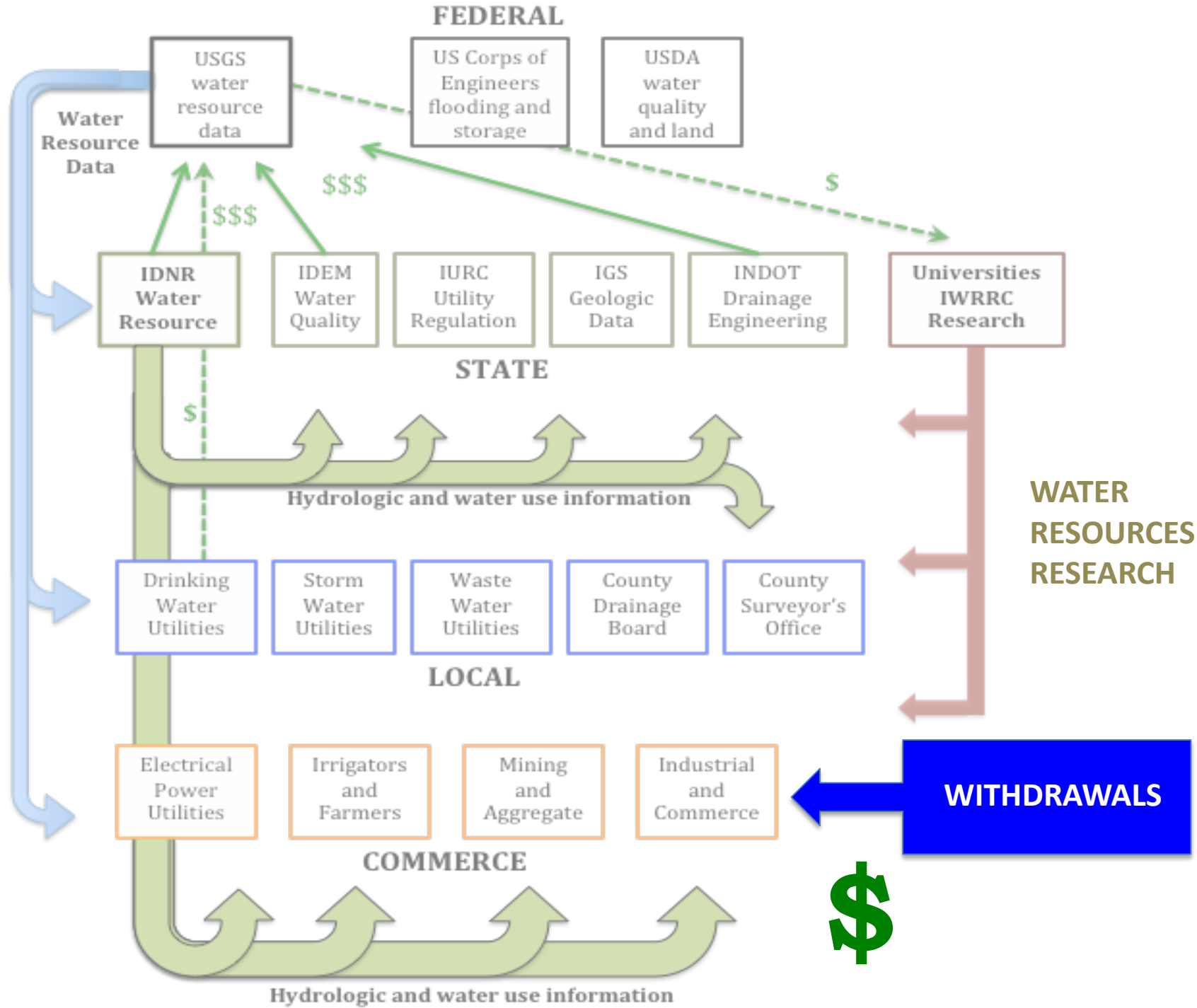












How are other states doing this work?

# **COMPARISON OF STATES**

	<b>2013 Population</b>	<b>2012 GDP</b>	<b>Funding Source and Amount</b>	<b>Responsibility</b>	<b>GDP growth</b>
<b>Texas</b>  <u>drought</u>	26,060,000	\$1.397 T	<ul style="list-style-type: none"> <li>• <b>\$539 M</b></li> <li>• Conservation fees</li> <li>• Bottled water tax</li> <li>• Utility water sales tax</li> <li>• Water rights fees</li> <li>• New development impact fee</li> </ul>	TWDB	4.8%

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<b>West Virginia</b> <u>quality</u>	1,850,000	\$69 B	<ul style="list-style-type: none"> <li>• <b>\$200 K</b></li> <li>• no state funding anticipated</li> <li>• (~5 people federally funded)</li> </ul>	WV DEP	3.3 %
<b>Virginia</b> <u>impacts</u>	8,185,000	\$446 B	<ul style="list-style-type: none"> <li>• <b>\$2 M</b></li> <li>• federal funding</li> <li>• state appropriations</li> <li>• (~15 employees)</li> </ul>	VA DEQ	1.1%
<b>Indiana</b>	6,570,000	\$298 B	<ul style="list-style-type: none"> <li>• none</li> </ul>		3.3%



# Big Questions

- How do we fund this new work?
- Should this be a new entity?
- How do we prepare the state - outreach?
- Time frame?
- Reporting – scope and frequency?
- Regions need to be defined. By whom?
- When do we have the first discussions?
- Who writes the rules?

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Group 2

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Group 3

# CONTACT

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812-219-6447

