Mission of the ACWI* Subcommittee on Ground Water (SOGW**)

By SOGW Co-Chairs
Robert Schreiber, CDM (and ASCE representative to ACWI)
and
William Cunningham, U.S. Geological Survey

*Advisory Committee on Water Information (ACWI)
**Subcommittee on Ground Water (SOGW)

Presented at the
NWQMC National
Water Monitoring
Conference
Session E2
May 20th, 2008

Purpose of Presentation

- Mission
- History
- Overall Accomplishments
- Schedule for Implementation

→ Foundation for Conference Track on Groundwater Monitoring

What SOGW Seeks

- Dissemination of information
- Sharing and learning
- Integration with similar coastal, riverine, lake, and ecological efforts
- Feedback and advice

History of SOGW

- Jan. 2006: Suggested formation of ACWI ground water subgroup

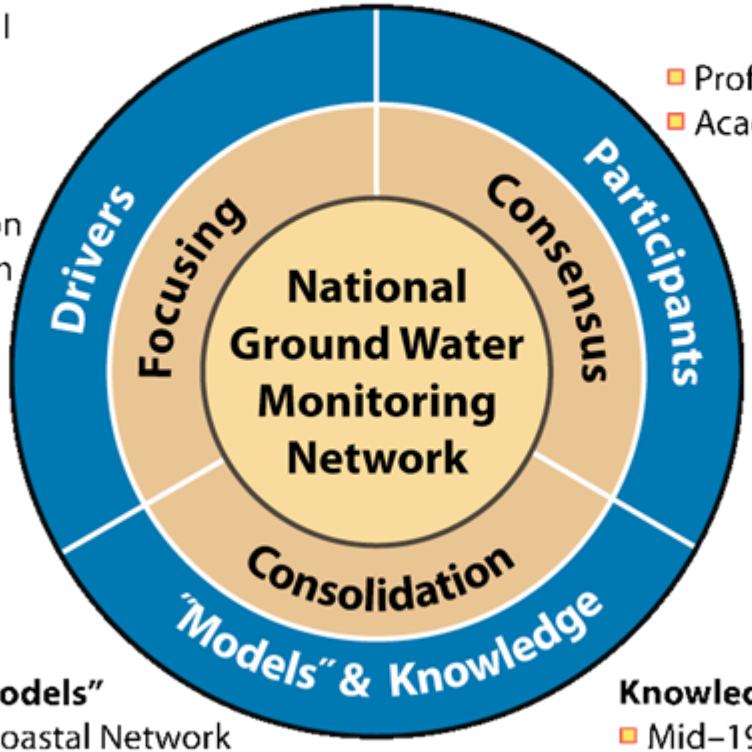
- May 2006: Discussed at NWQMC
- Aug. 2006: Formed Ad Hoc Steering Committee (SC)
- Sept. 2006: Began drafting Terms of Reference

- Jan. 2007: ACWI approved SOGW

ACWI – SOGW Overview

Drivers
- FACA
- White House - OSTP/NSTC
- National Water Census
- SECURE Water Bill
- Global Warming
- Droughts
- Sustainability
- Saltwater Intrusion
- CO2 Sequestration

Participants
- States
- USGS
- USFS
- USEPA
- Other Federal Agencies
- Professional Organizations
- Academia



"Models"
- Coastal Network
- EU/WFD
- USGS (NAWQA, Climate)
- State (FL, IL, MT, NJ, PA, etc.)
- Regional (Ogallala)

Knowledge
- Mid–1990s Committee
- ACWI/NWQMC Subcommittees & Products
- CUAHSI
- ASTM
- EDSC

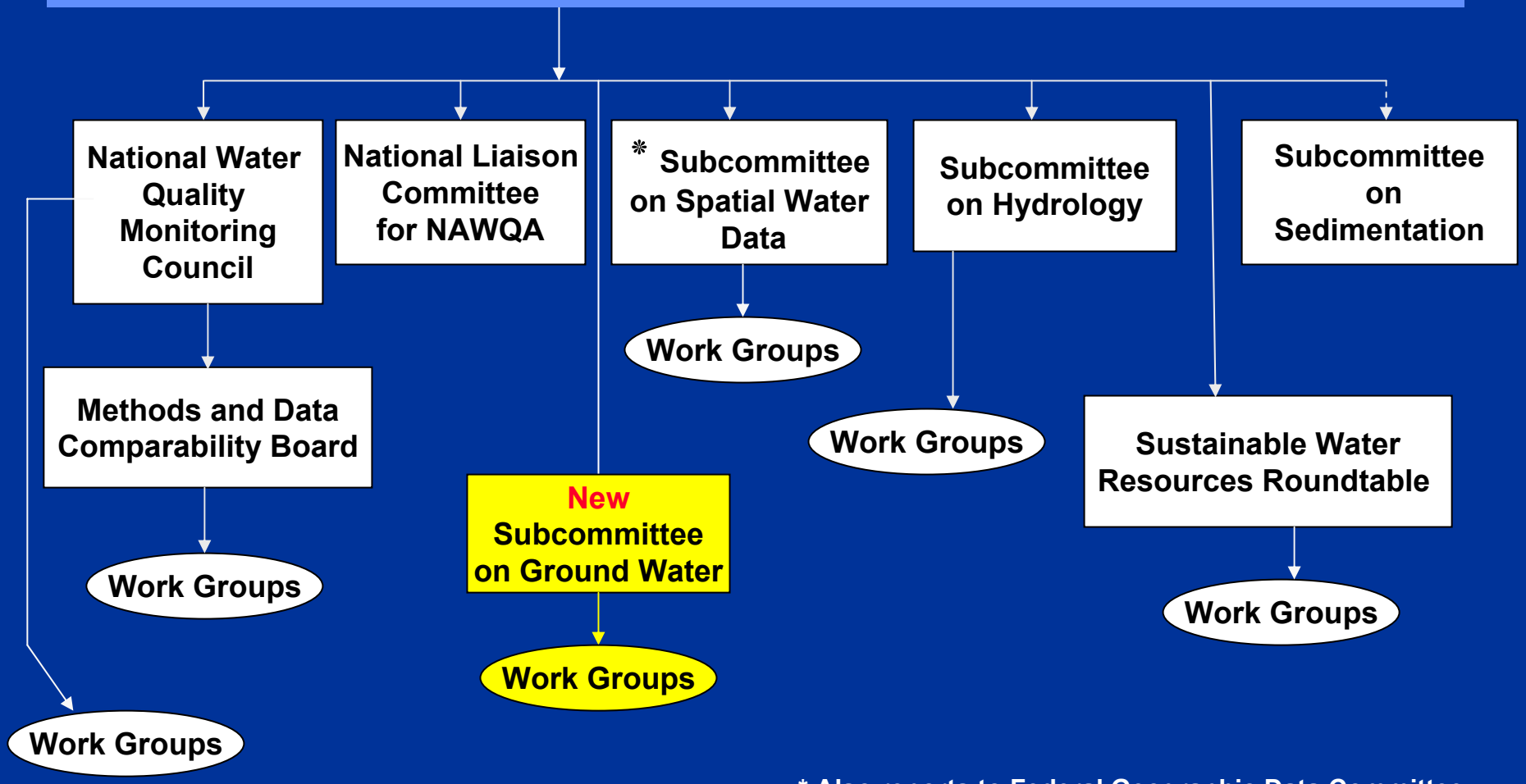
SOGW Purpose

The overall goal of the SOGW is to develop and encourage implementation of a nationwide, long-term ground-water quantity and quality monitoring framework that would provide information necessary for the planning, management, and development of ground water supplies to meet current and future water needs, and ecosystem requirements.

WICP Water Information Coordination Program

ACWI Advisory Committee on Water Information

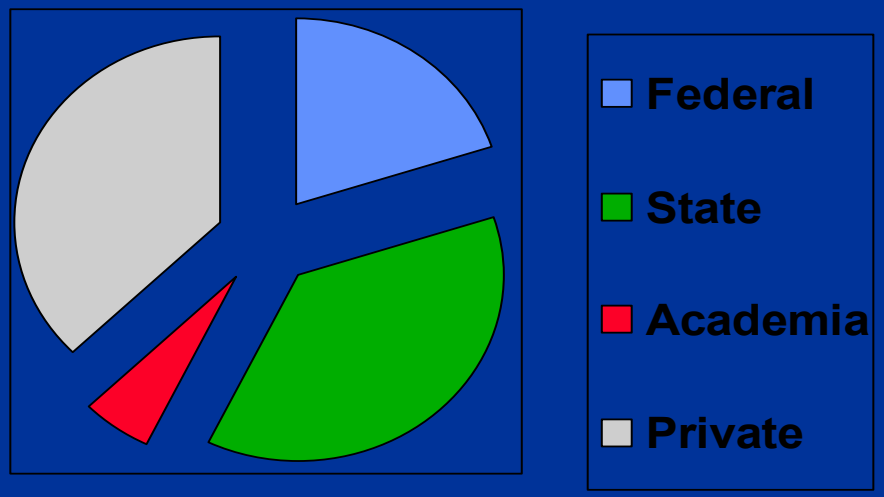
ACWI GROUPS



* Also reports to Federal Geographic Data Committee

Subcommittee and Work Group Membership*

Federal	14
State/local	26
Academia	4
Private sector	26
Total	70



*As of 01/30/08

SOGW Scope

This national framework for ground water monitoring and collaboration will be developed to assist in assessments of the quantity of U.S. ground water reserves, as constrained by ground water quality. The SOGW will also consider ground water quality monitoring in order to help determine water quality related constraints on supply and use, and for helping assess potential ecological impacts caused by changes in ground water quantity and quality.

Benefits of National Network

Natural and Man-Made Drivers:

- Drought
- Climate change
- Population increases
- Eco-habitat loss
- Energy development
- Agricultural demand

Network Benefits, continued

- Important questions being asked on:
  - Resource sustainability
  - Water quality trends / constraints
- Difficulties answering:
  - Very few nationwide programs
  - Variety of State/Regional networks
  - Significant data gaps
  - No nationwide directives

Work Groups

Subcommittee on Ground Water (13)
Bob Schreiber, ACWI – ASCE
Bill Cunningham, USGS

Executive Secretary
Chris Reimer, NGWA

GW Monitoring Inventory Work Group (14)
Bill Cunningham, USGS
Mike Wireman, USEPA
Emery Cleaves, AASG

- Quantity
- Quality

GW Data Standards and Data Management Work Group (13)
Chuck Job, USEPA
Scott Andres,
DE Geological Survey

GW Field Practices Work Group (10)
Rod Sheets, USGS
Mike Nickolaus, GWPC

- Quantity
- Quality

GW Monitoring Design Work Group (21)
Bob Schreiber,
ACWI- ASCE
Kevin Frederick
WY DEQ

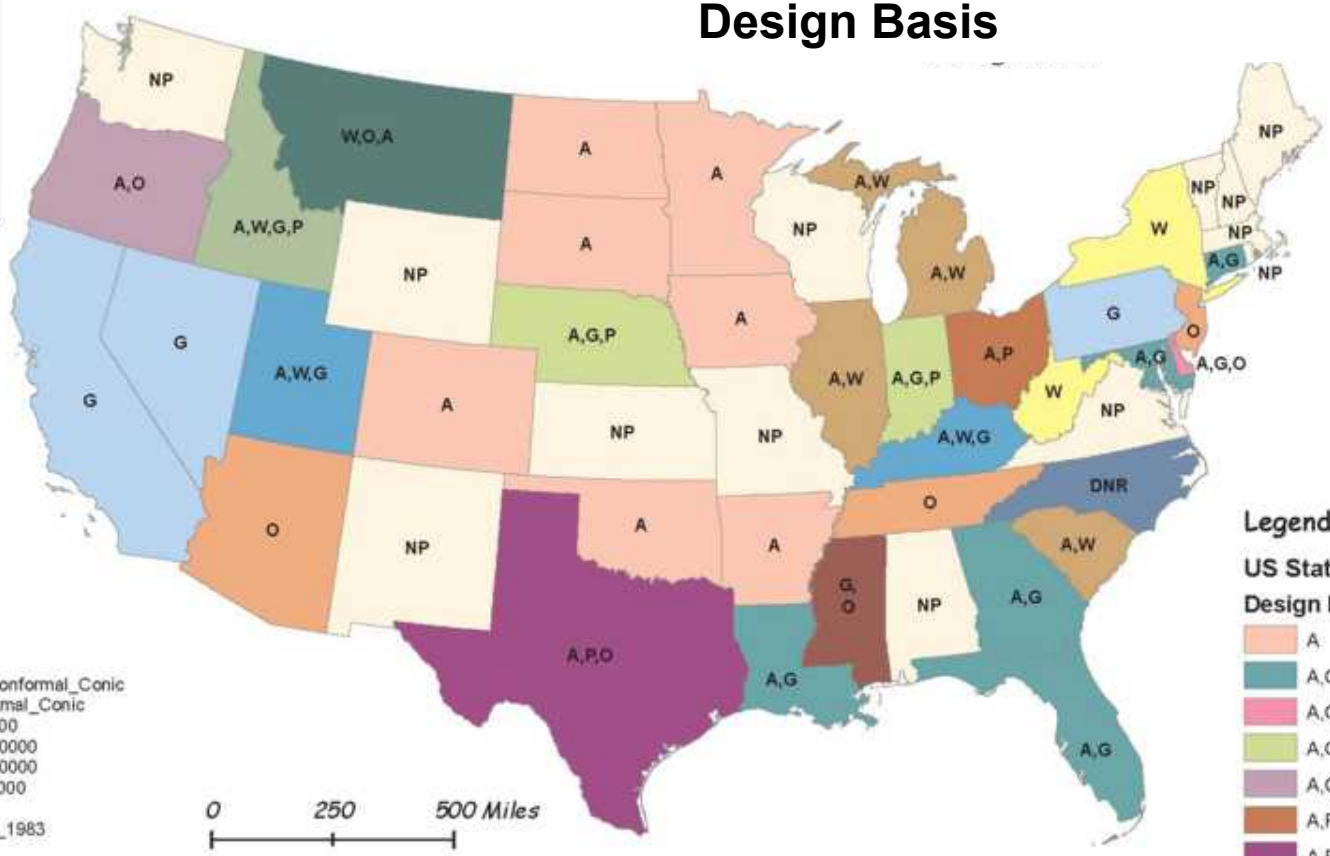
- ENN

Inventory Work Group

Goal: Develop picture of current ground-water level and ground-water quality monitoring

- Federal and State / Regional
- Research completed
- Analysis & reporting nearly complete

Summary of State Water Quality Networks Design Basis



North_America_Lambert_Conformal_Conic
Projection: Lambert_Conformal_Conic
Central_Meridian: -96.000000
Standard_Parallel_1: 20.000000
Standard_Parallel_2: 60.000000
Latitude_Of_Origin: 40.000000
Linear Unit: Meter
Datum: D_North_American_1983

Design Basis	Explanation
A	Aquifer
W	Watershed
G	Physiographic/geographic areas
P	Political subdivisions
O	Other
DNR	Did not respond
NP	No program

Legend

US States

Design Basis

- A
- A,G
- A,G,O
- A,G,P
- A,O
- A,P
- A,P,O
- A,W
- A,W,G
- A,W,G,P
- DNR
- G
- G,O
- NP
- O
- W
- W,O,A

Summary: Inventory Work Group

- Many networks already
- But significant “gaps”
- Many agencies
- Multiple agencies in some states

→ National Network will provide basis for consistent approach to help fill data gaps

Ground Water Monitoring Design Work Group

Goal - Develop draft design

- Identified questions
- Researched designs
- Defined important discriminators

Design

1. Basis: “Network of Networks”
2. Scope: “Questions to Answer”
3. Model: EU / Water Framework
4. Lessons Learned: FL System, and many other examples drawn from SOGW and Design Work Group

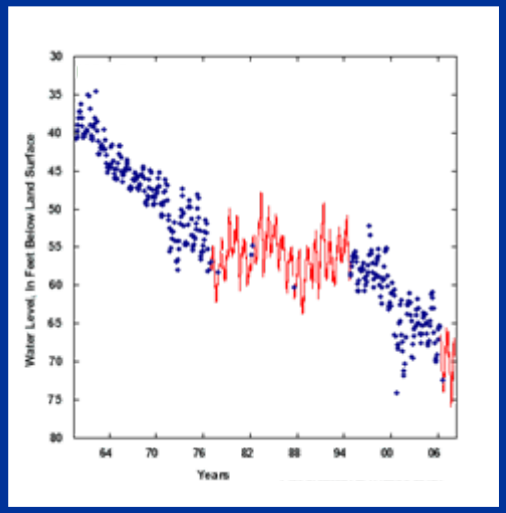
Foundation of Network Design

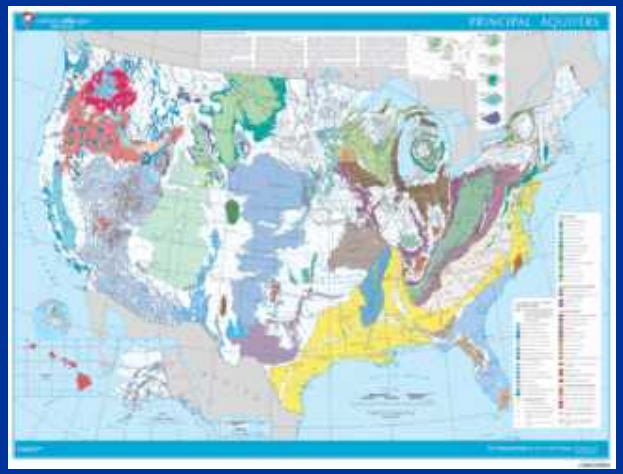
- Questions to be answered:
  - Level I – Required
  - Level II – Encouraged
- Basic Network Categories:
  → "Background" and "Targeted"
- Types of Monitoring:
  → "Baseline", "Surveillance", "Trend", and "Special"

Well Type	Monitoring Type	Relative Sampling Frequency
Background Network	Baseline	Variable Over an initial time period
	Surveillance	Low
	Trend	Higher than surveillance
	Special	Variable as needed
Targeted Network	Baseline	Variable, Over an initial time period
	Surveillance	Low
	Trend	Higher than surveillance
	Special	Variable as needed

Design

- What is monitored?
- What indicators?
- Where? How Often?





Field Practices Work Group

Goal – data collection to ensure data comparability across the network

Two focus areas:

- Ground water quantity (levels)
- Ground water quality (sample collection)

- Level and quality combined in one field practices document
  - →Based on ASTM, USEPA, USGS and other published standards

Data Standards & Data Management (DSDM) Work Group Charge

Goal - Recommend methods to archive and access ground water data on a national scale

- Review related products and activities
- Address consistency of data management
- Identify data retrieval approaches

DSDM Work Group Primary Recommendations

- “Core” Data Elements
- Multiple data models or standards
- “Portal” Concept
- Common or Translatable Aquifer ID
- Other similar consensus items

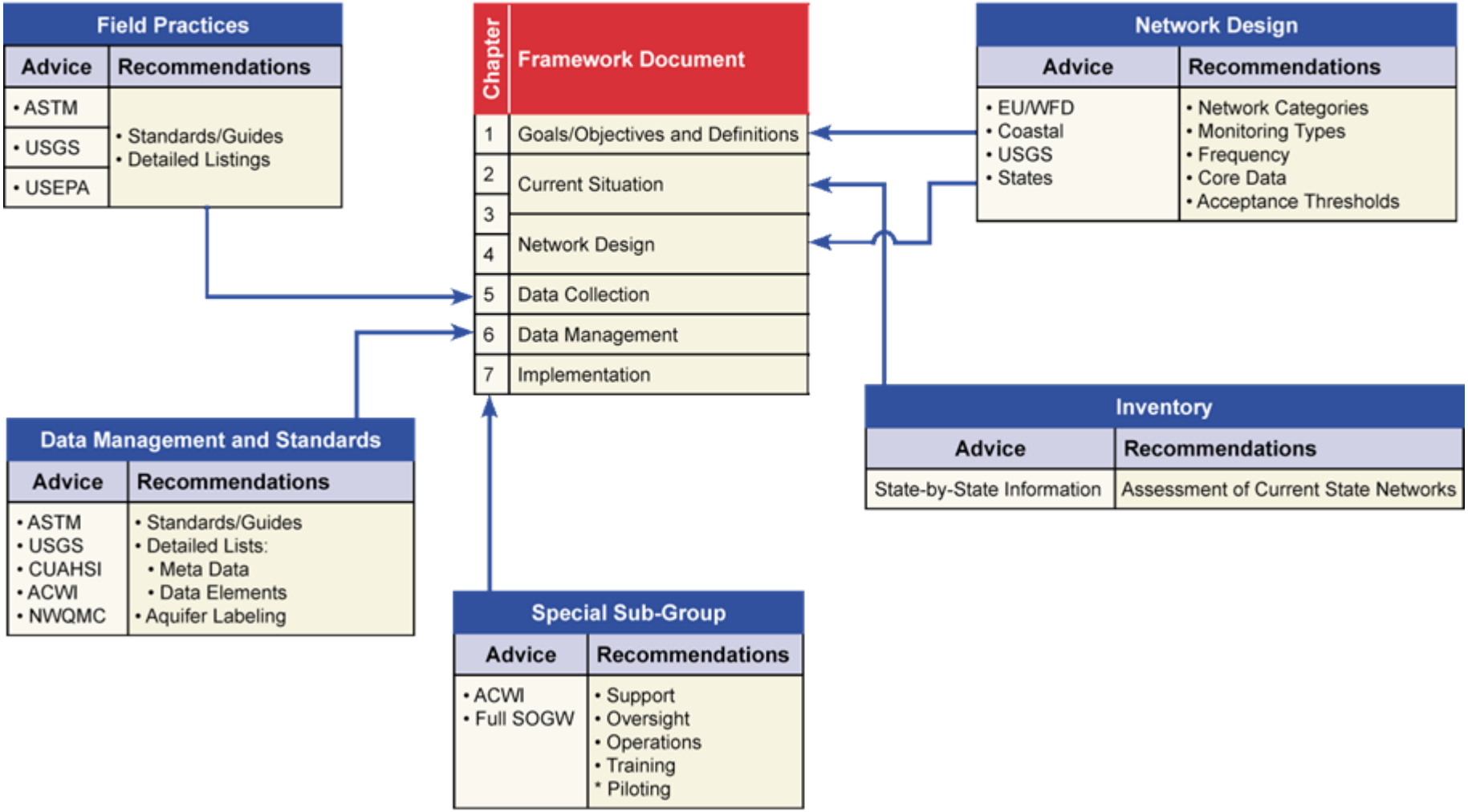
Implementation and Consensus—Some Challenges Facing SOGW

1. What are the principal challenges to participation by federal and state agencies?
2. How to incorporate existing data collection efforts?
3. What are the core or minimum requirements for comparability?
4. How to provide flexibility for advancements in science and technology?
5. What ongoing functions are needed to establish, operate and maintain such a network?

Implementation – Preliminary Recommendations

- Blend of Federal-State
- Components:
  - Oversight – ACWI & SOGW
  - Portal Mgt & Ops – USGS Group
  - Interface – “Regional Boards”
- Evaluation & Synthesis:
  - National scale – USGS
  - Other scales – Various Entities

ACWI – SOGW Framework Document



Next Steps:

- Discussion & Advice (ongoing)
  - This conference (including subsequent presentations, and display booth)
  - Other conferences and meetings
- Framework Document
  - Draft to ACWI (Summer 2008)
  - Public Release (Fall 2008)
- Pilot Testing (2009-10?) ?

→ Funding Support

Questions and Discussion

→ Your input and advice is needed