Sustainability Roundtable 2009

Sustainable Water Resources Roundtable

Steven L. Stockton, P.E.
Director of Civil Works
U.S. Army Corps of Engineers

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Civil Works Value to the Nation

Recreation areas
353 M Visitors/yr
Generate $18 B in economic activity, 500,000 jobs

3% of Nation's Electricity: $800 M + in power sales

12,000 miles of Commercial Inland Waterways:
½ the cost of rail
1/10 the cost of trucks

299 Deep Draft Harbors

627 Shallow Draft Harbors

400 miles of Shore protection
Destination for 75% of U.S. Vacations

~11,750 Miles of Levees

12 Emergency Responses

Stewardship of 11.7 Million Acres Public Lands

Environmental Restoration

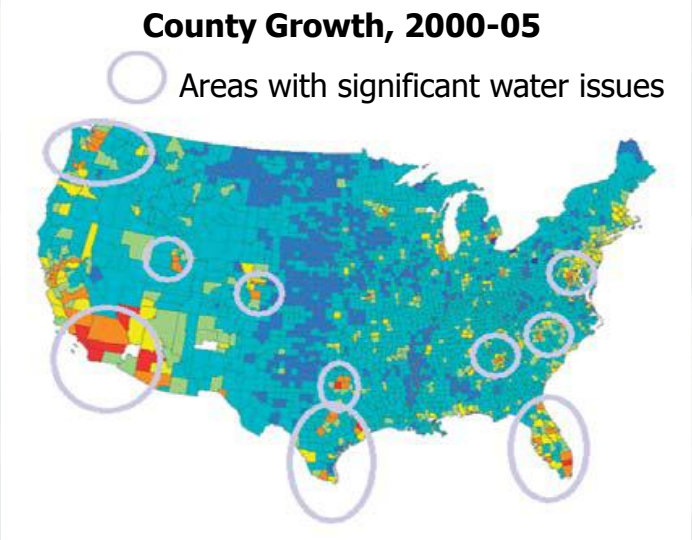
73,000 permits

- US Ports & Waterways convey > 2B Tons Commerce
- Foreign Trade alone creates > $160 B Tax Revenues

Water Resources Challenges

Demographic shifts

- World population to increase 2.2 billion by 2025
- U.S. population to reach 440 million by 2050
- Population more urbanized, concentrated in coastal communities at risk from severe weather and lack of fresh water



Persistent Conflict

- Population growth leads to increased demand for scarce water, environmental degradation
  - >900 million people without access to clean water, >2.5 billion without adequate sanitation
- Terrorist threat – need to protect infrastructure from attack
- U.S. role to promote regional stability

Water Resources Challenges

Aging Infrastructure

- ASCE overall grade of U.S. infrastructure in 2009: ***"D"*** Would need $2.2 trillion to fix
- Over half of Corps locks, many other facilities, beyond 50-year "design life, need extensive maintenance & rehabilitation
- Failure poses risk to populations, economy

Globalization

- Foreign trade is increasing share of U.S. economy – could reach 30% by 2010
- Inability of ports and inland waterways to handle greater cargoes could limit economy.

Energy

- Development of hydropower as clean source
- Role of waterways in transport of coal, petroleum and natural gas
- Volumes of water needed for new sources

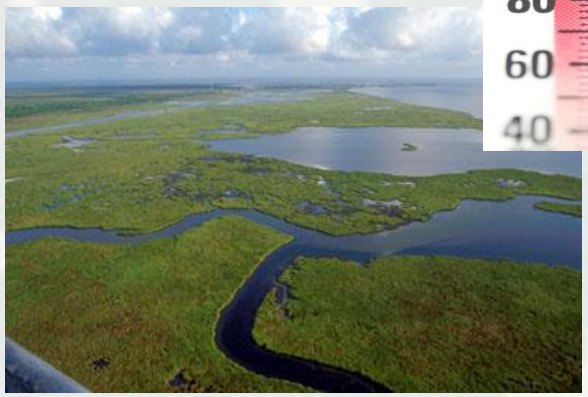
Water Resources Challenges

Environmental Values

- Pressure from increased development impacts natural environment
- Developing sustainable water resources will require cultural shift, lifestyle changes as well as technical innovation

Climate Change

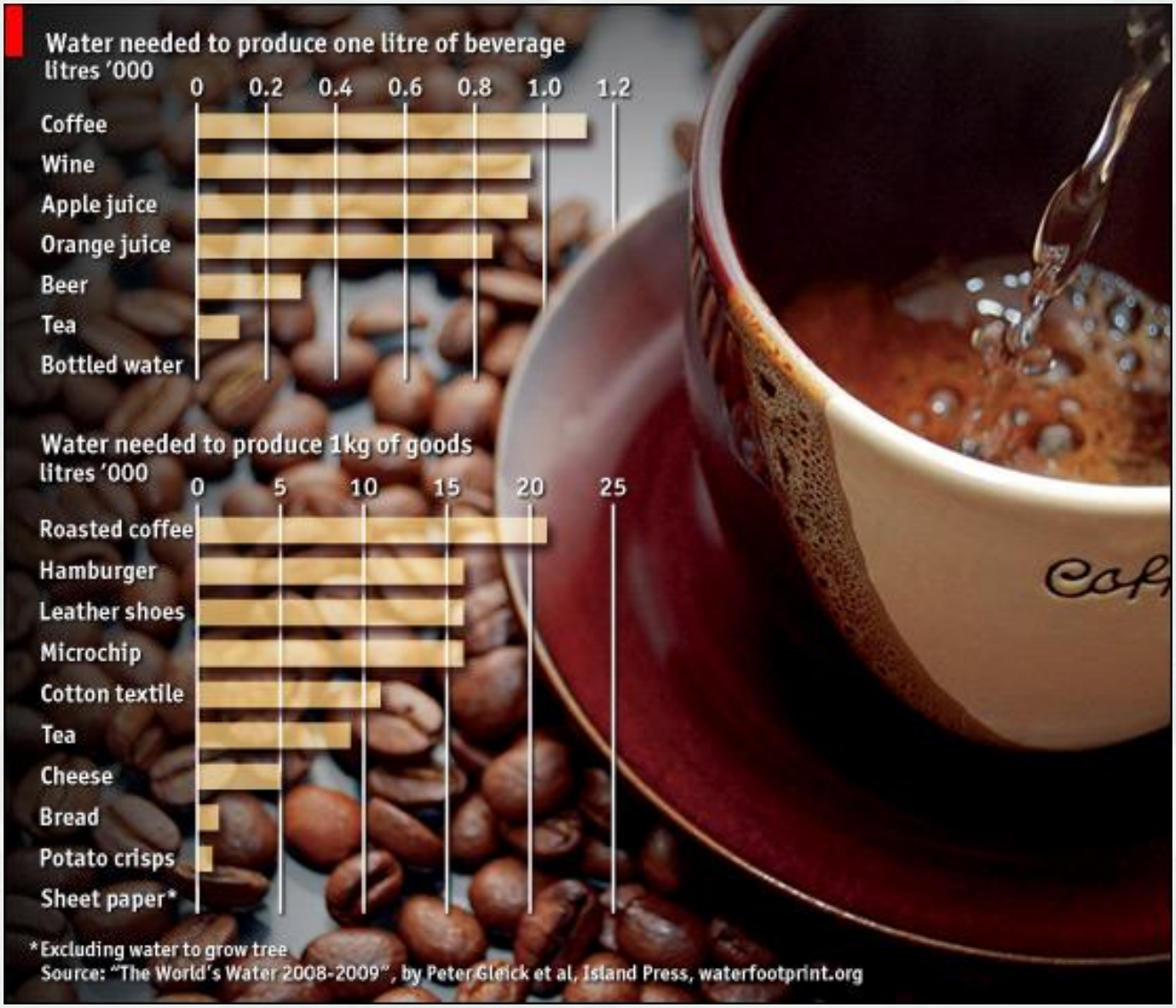
- Earlier spring snowmelts, river pulses seen in western U.S.
- Potential to affect all aspects of water resource management
- May exacerbate water scarcities, lead to increased conflict over uses.



Declining Biodiversity

- 3 times as many freshwater species as land species lost to extinction
- Need for habitat restoration

Water Resources Challenges



Increasing Demand for Water

Water Resources Challenges

Governance

- Determining proper roles for Federal, State, local and non-government entities
- Gaps in jurisdiction as watersheds cross political boundaries
- Perceived lack of national direction on water resource issues

Continued Pressure on Federal Budget

- More older people = more entitlement spending, less available for discretionary programs
- Rigorous analysis needed to ensure projects and programs are prioritized to ensure greatest value for taxpayer funds

New Operating Reality

Traditional USACE Role

Era of large federal, single-purpose water projects is over.

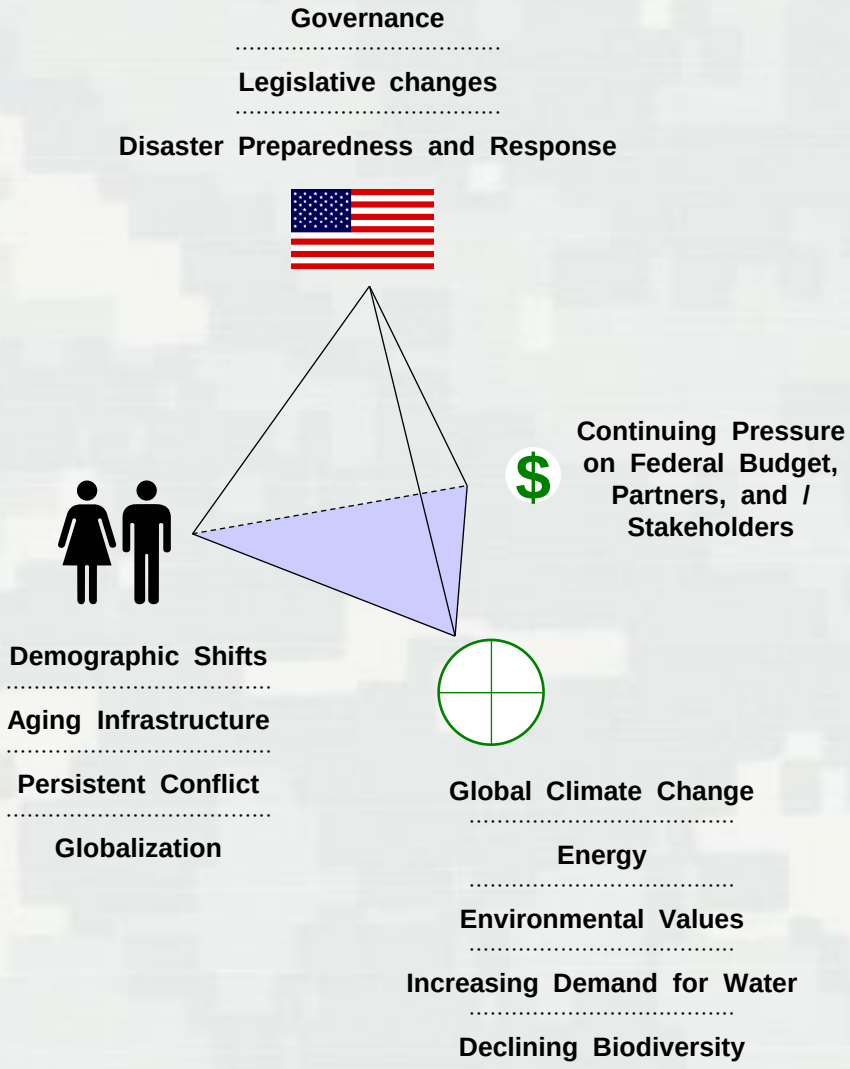
Role of USACE as sole decision maker and technical expert for water solutions is changing

Water resources community recognizes need for more transparency and engagement in water resources Planning

There is a need and more desire for collaborative regional planning

New / Renewed USACE Role

Goal 2 New Operating Framework



Focus	From	To
" Success "	Projects	Comprehensive Plans
Criteria	NED benefits 1st	More balanced NED, RED, EQ, OSE benefits
Work	Stay in your functional lane	Seek horizontal integration
Knowledge	Knowledge is power	Share knowledge
Style	Follow SOPs as recipes	Think creatively, consider risks, think systems
Money	Save Federal $	Leverage resources
Life Cycle	Plan and build	Plan / fund / monitor for full project life cycle

USACE's Campaign Plan

Goal 1:
Deliver USACE support to combat, stability and disaster operations through forward deployed and reach back capabilities.

Objective 1a:
USACE is ready, responsive and reliable in delivering high performance, all-hazard, contingency mission execution in a world-wide theater of operations.

Objective 1b:
Prepare Theater Engineer Commands (TEC) to support Combatant Cdr's throughout the spectrum of operations.

Objective 1c:
Establish human resources and family support programs that promote readiness and quality of life.

Objective 1d:
Institutionalize USACE capabilities in interagency policy and doctrine.

Goal 2:
Deliver enduring and essential water resource solutions through collaboration with partners and stakeholders.

Objective 2a:
Deliver integrated, sustainable, water resources solutions.

Objective 2b:
Implement collaborative approaches to effectively solve water resource problems

Objective 2c:
Implement Streamlined and Transparent Regulatory Processes to Sustain Aquatic Resources

Objective 2d:
Enable Gulf Coast Recovery.

Goal 3:
Deliver innovative, resilient, sustainable solutions to the Armed Forces and the Nation.

Objective 3a:
Deliver sustainable infrastructure via consistent and effective military construction & real estate support to customers.

Objective 3b:
Improve resilience and lifecycle investment in critical infrastructure.

Objective 3c:
Deliver reliable infrastructure using a risk-informed asset management strategy.

Objective 3d:
Develop and apply innovative approaches to delivering quality infrastructure.

Goal 4:
Build and cultivate a competent, disciplined, and resilient team equipped to deliver high quality solutions.

Objective 4a:
Identify, develop, maintain, and strengthen technical competencies in selected Communities of Practice.

Objective 4b:
Communicate strategically and transparently.

Objective 4c:
Standardize business processes.

Objective 4d:
Establish tools and systems to get the right people in the right jobs, then develop and retain this highly skilled workforce.

Goal 2

Engineering Sustainable Water Resources Solutions

Deliver essential and enduring water resource solutions through collaboration with partners and stakeholders

Champion

Steven L. Stockton

Director of Civil Works, U.S Army Corps of Engineers

Objective **2a**

Deliver integrated, sustainable water resource solutions

Objective **2b**

Implement collaborative approaches to effectively solve water resource problems

Objective **2c**

Implement streamlined and transparent regulatory processes to sustain aquatic resources

Objective **2d**

Enable Gulf Coast Recovery

Our Goals: Delivering Enduring, Essential Water Resources Solutions

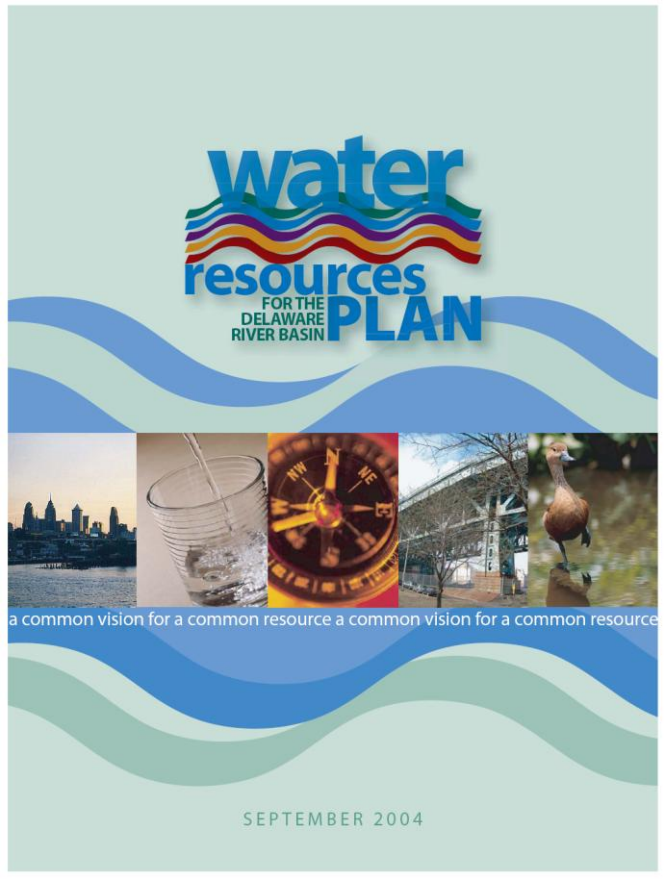
Strategies to Achieve Our Goals

Integrated Water Resource Management

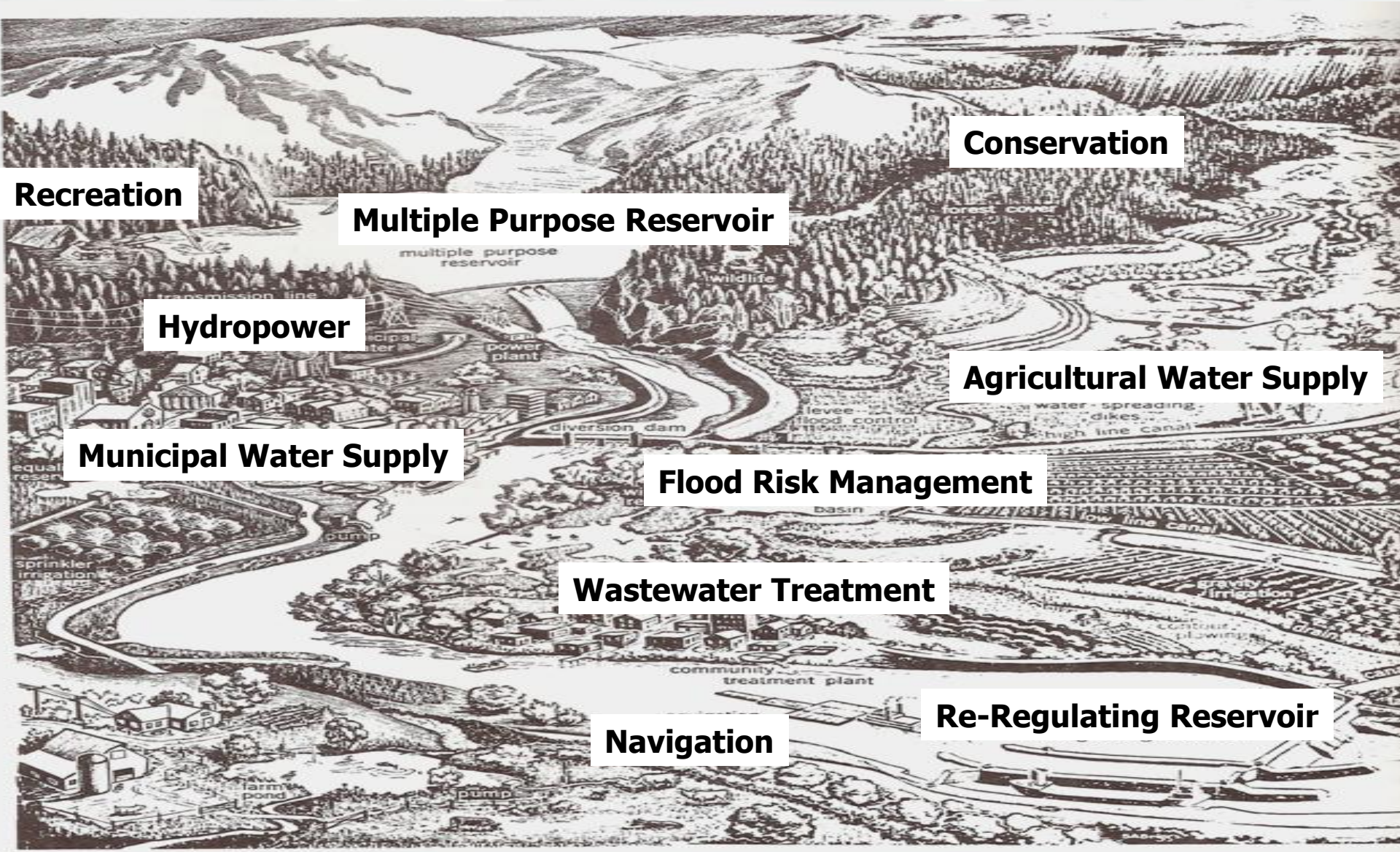
- Systems Approach
- Collaboration & Partnering
- Risk-Informed Decision Making & Communication
- Adaptive Management
- State-of-the Art Technology

Systems Approach

- Look at river basins, watersheds and coastal zones as a whole
- Shift focus from individual projects to interdependent system
- Shift from immediate to long-term solutions
- Recognize that any single action triggers one or more responses and reactions in other parts of the system



Back to the Future



A Multiple-Purpose River Basin Development

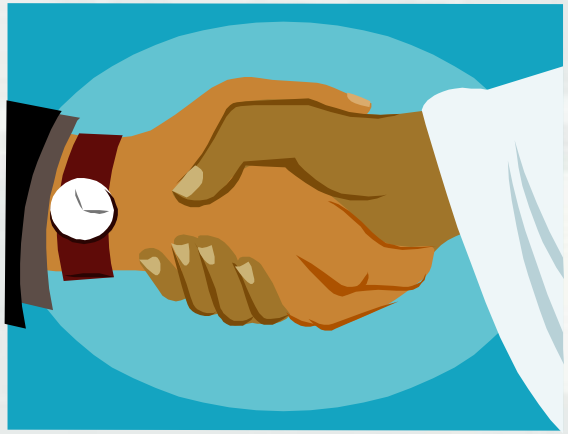
(Reprinted from *A Water Policy for the American People*, The Report of the President's Water Resources Policy Commission, 19

"Finally, I urge the Congress to develop more satisfactory procedures for considering and authorizing basin-wide development programs. We are a long way still, both in the Executive and Legislative Branches, from the kind of comprehensive planning and action that is required if we are to conserve, develop and use our natural resources so that they will be increasingly useful as the years go by. We need to make sure that each legislative authorization and each administrative action, takes us toward -- and not away from -- this goal."

Harry S. Truman, 1950

Collaboration & Partnering

- Allow multiple organizations to contribute to problem-solving
- Leverage funding, data and talent
  - Efficiencies, given scarce resources
  - Sophisticated state and interstate organizations
  - Tribes, local governments, non-profit organizations
  - Public-Private Partnerships



Building Strong Relationships for a Sustainable Water Resources Future

- Identify & leverage opportunities for collaborative efforts
- Identify roles and opportunities where roles can be leveraged
- Create a joint national dialogue for water priorities
- Leverage Federal resources to assist states in their water resources planning and management

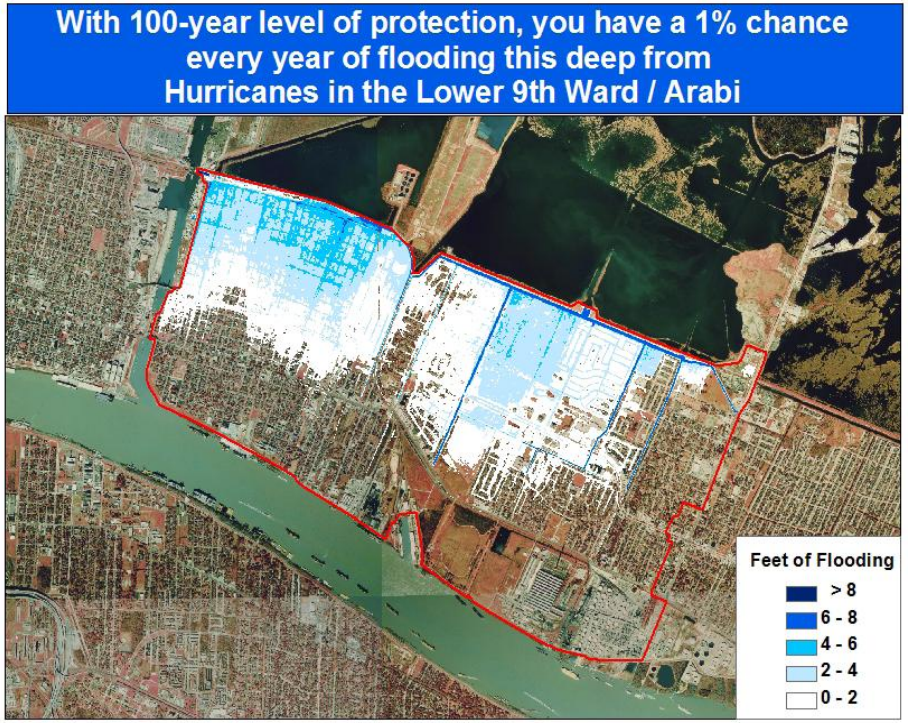
Interagency Levee Task Force: Regional Flood Risk Management

- Identification of regional partners
- Facilitated comprehensive regional approach to flood risk management and recovery
- Establishment of interagency partnerships (Federal / State)
- Explore non-structural solutions and other flood risk management opportunities

http://www.iwr.usace.army.mil/ILTF/

Risk-Informed Decision Making & Communication

- Consequence analysis, especially risks to populations
- Forestall possible failure mechanisms
- Quantify & communicate residual risk
- Ask which projects will fail to perform as designed, the likelihood of failure, and the consequences
- Recognize limits in disaster prediction
- Recognize limits in protection provided by structural means



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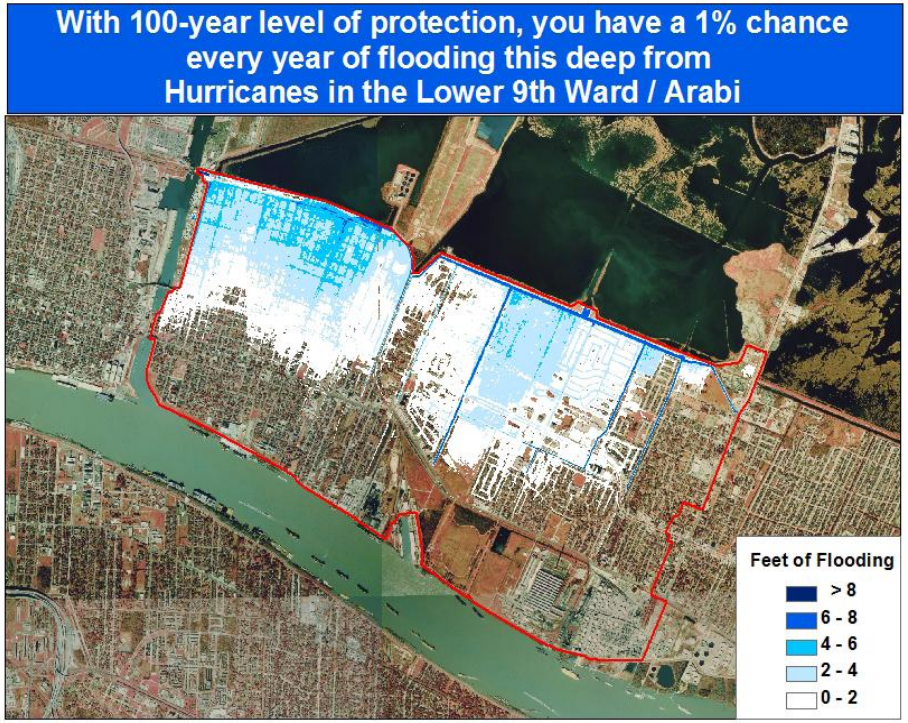
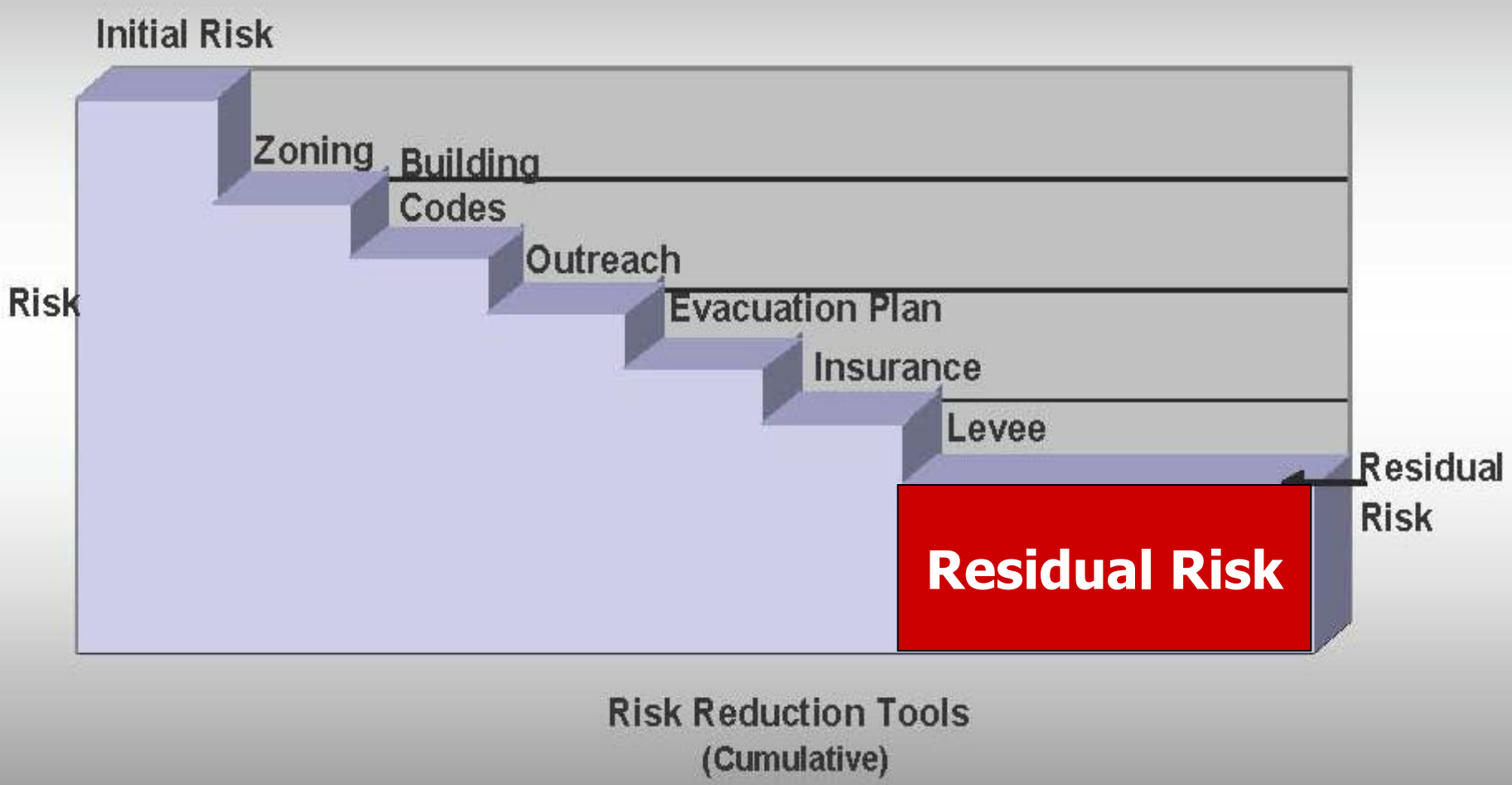


Shared Flood Risk Management: Buying Down Risk



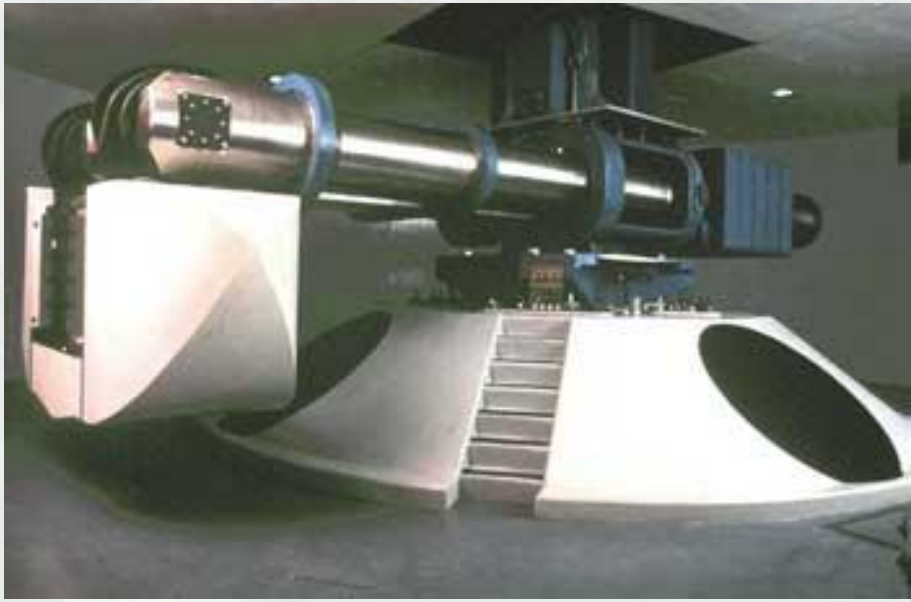
All stakeholders contribute to reducing risk!

Adaptive Management

- **Principle commonly used in ecosystem restoration**
- **Measure responses to interventions within systems to adjust planning, construction and operations in response to changing conditions.**

State-of-the Art Technology

- Research that improves resiliency of structures
- Updated design criteria
- Improved approaches to planning & design
- Take advantage of advances in communication, information access, remote sensing, GIS's & nanotechnology
- Coastal & River Information System



THE NATION BEHAVES WELL IF IT TREATS
THE NATURAL RESOURCES AS ASSETS
WHICH IT MUST TURN OVER
TO THE NEXT GENERATION
INCREASED AND NOT IMPAIRED IN VALUE

THEODORE ROOSEVELT 1910

Discussion