





U.S. Army Civil Works Program





Lock and Dam 15 (Mississippi River)



Flood Wall (Williamson, KY)



Everglades

Deliver enduring, comprehensive, sustainable, and integrated solutions to the Nation's water resources and related challenges through collaboration with our stakeholders

(Regions, States, localities, Tribes, other Federal agencies)

Navigation (40%)

Flood Risk Management (28%)

Ecosystem Restoration (11%)

Hydropower (7%)

Recreation & Natural Resources Management (6%)

Regulatory Program: Wetlands and Waterways (4%)

Disaster Preparedness and Response (1%)

Water Supply (< 1%)

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Dredge ESSAYONS (Coos Bay, OR)



Lake Seminole (Mobile District)



Bonneville II Powerhouse (Washington)



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

County Growth, 2000-05

○ Areas with significant water issues



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



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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



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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

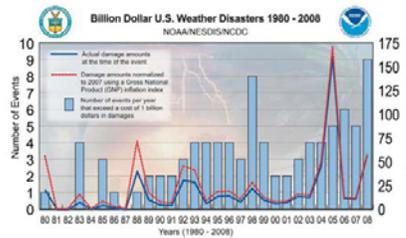


Disaster Preparedness & Response



- Support FEMA
 - *Emergency Support Function (ESF) #3 Public Works & Engineering
- Support the Department of Defense
- Accomplish USACE missions

Faster & Better Information & Communication Technology



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Disaster Amounts in Billion of Dollars



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

Legislative Changes

- Changes in legislation and appropriations have major effect on how soon goals can be achieved. Uncertainty requires flexibility.



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The U.S. Army Corps of Engineers



- **Our Vision:** A great engineering force of highly disciplined people, working with our partners ... to deliver innovative, sustainable solutions to the Nation's engineering challenges
- **Our Purpose:** Provide vital engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters.



USACE's Campaign Plan Delivering Enduring, Essential Water Resources Solutions



 <p>Goal 1: Deliver USACE support to combat, stability and disaster operations through forward deployed and reach back capabilities.</p> <p>Objective 1a: USACE is ready, responsive and reliable in delivering high performance, all-hazard, contingency mission executions in a world-wide theater of operations.</p> <p>Objective 1b: Prepare Theater Engineer Commands (TEC) to support Combatant Cdr's throughout the spectrum of operations.</p> <p>Objective 1c: Establish human resources and family support programs that promote readiness and quality of life.</p> <p>Objective 1d: Institutionalize USACE capabilities in interagency policy and doctrine.</p>	 <p>Goal 2: Deliver enduring and essential water resource solutions through collaboration with partners and stakeholders.</p> <p>Objective 2a: Deliver integrated, sustainable, water resources solutions.</p> <p>Objective 2b: Implement collaborative approaches to effectively solve water resource problems.</p> <p>Objective 2c: Implement Streamlined and Transparent Regulatory Processes to Sustain Aquatic Resources</p> <p>Objective 2d: Enable Gulf Coast Recovery.</p>	 <p>Goal 3: Deliver innovative, resilient, sustainable solutions to the Armed Forces and the Nation.</p> <p>Objective 3a: Deliver sustainable infrastructure via consistent and effective military construction & real estate support to customers.</p> <p>Objective 3b: Improve resilience and lifecycle investment in critical infrastructure.</p> <p>Objective 3c: Deliver reliable infrastructure using a risk-informed asset management strategy.</p> <p>Objective 3d: Develop and apply innovative approaches to delivering quality infrastructure.</p>	 <p>Goal 4: Build and cultivate a competent, disciplined, and resilient team equipped to deliver high quality solutions.</p> <p>Objective 4a: Identify, develop, maintain, and strengthen technical competencies in selected Communities of Practice.</p> <p>Objective 4b: Communicate strategically and transparently.</p> <p>Objective 4c: Standardize business processes.</p> <p>Objective 4d: Establish tools and systems to get the right people in the right jobs, then develop and retain this highly skilled workforce.</p>
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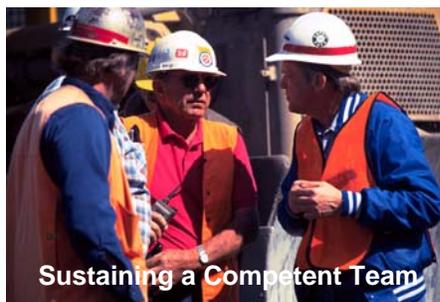
Goal 2 Objectives



- 2a. Deliver integrated, sustainable, water resources solutions
- 2b. Implement collaborative approaches to effectively solve water resource problems
- 2c. Implement streamlined and transparent regulatory processes to sustain aquatic resources
- 2d. Enable Gulf Coast recovery



Our Goals: Delivering Enduring, Essential Water Resources Solutions



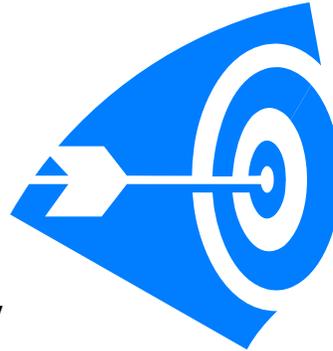


How We Achieve Our Goals



Integrated Water Resource Management

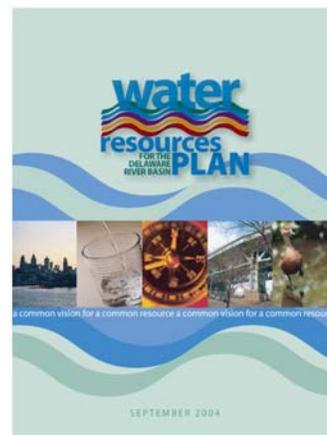
- Systems Approach
- Collaboration & Partnering
- Risk-Informed Decision Making & Communication
- Adaptive Management
- Asset Management
- State-of-the Art Technology



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





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
 - Partnering with profit-making organizations a next step



Examples of Collaborative Partnerships

- Building Strong Collaborative Relationships for a Sustainable Water Resources Future
- Climate Change (USGS Circular 1331)
- Flood Risk Management (FEMA, USACE, NAFSMA, ASFPM)
- Focused collaboration efforts – NRCS, USBR, USGS, NOA

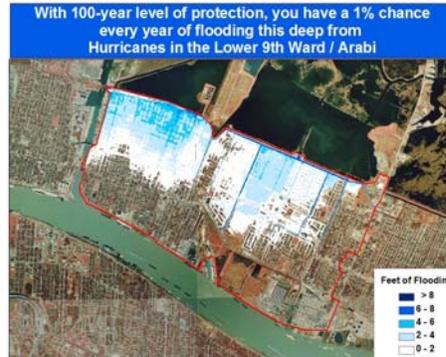




Risk-Informed Decision Making & Communication



- Consequence analysis, especially risks to populations
- Forestall possible failure mechanisms
- Quantify and 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



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.



Asset Management



- Presidential Executive Order #13327 applies to all Federal infrastructure
- Identify "low use" facilities that may be subject to removal from inventory as savings objective;
- Manage their assets in a sustainable manner.
- OMB now grades each agency quarterly on two areas (progress and performance) in PMI (Presidential Management Initiatives).



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 End Result: A Federal Family Toolbox



- Leverage existing toolbox of current resources across Federal agencies
- Enhance the Federal family toolbox with regional interstate organizations, NGOs and other Federal agencies
- Develop the Nation's "will" to offer the States a more robust assistance through collaborative alliances and relationships
- Work with States for a more integrated and balanced water plan
- Unify visions for Administration and Congress to determine that water resources planning and infrastructure are national priorities





Investing in the Future

- Provide integrated water management through a watershed approach and integrated life-cycle infrastructure management
- Employ smarter regional planning
- Ensure public safety through risk assessment and vigilance of our water infrastructure
- Seek innovative financing
- Invest in science, technology, and information management
- Improve intergovernmental, inter-organizational cooperation
- Develop stronger partnerships for collaborative problem solving
- Plan for hiring, training and retaining to maintain a competitive edge



Thank You!