

Flood Risk Management: A View to the Future

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Conference***

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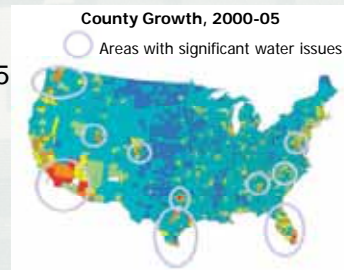
US Army Corps of Engineers
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Water Resources Challenges

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



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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



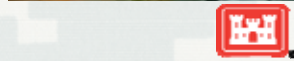
Globalization

- 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



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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

Legislative Changes

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




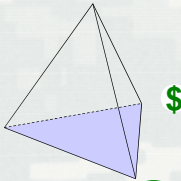
The World Has Changed So Has our Thinking

	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	

Governance

Legislative changes

Disaster Preparedness and Response

Continuing Pressure on Federal Budget, Partners, and / Stakeholders

Demographic Shifts

Aging Infrastructure

Persistent Conflict

Globalization


Global Climate Change

Energy

Environmental Values

Increasing Demand for Water

Declining Biodiversity



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Our Goals: Delivering Enduring, Essential Water Resources Solutions



How We Achieve Our Goals

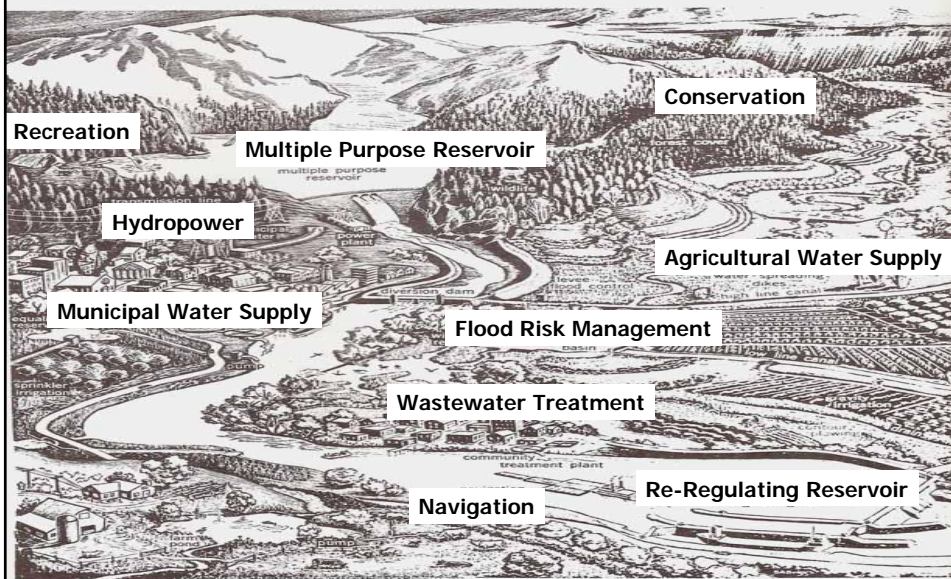


Integrated Water Resource Management

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



Back to the Future



(Reprinted from *A Water Policy for the American People*, The Report of the President's Water Resources Policy Commission, 1

"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



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 & talent
 - Efficiencies, given scarce resources
 - Sophisticated state and interstate organizations
 - Tribes, local governments, non-profit organizations
 - Partnering with profit-making organizations a next step



Building Strong Relationships for a Sustainable Water Resources Future

- Identify & leverage opportunities for collaborate 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



“Building Strong Relationships for a Sustainable Water Resources Future”: Project Goals

- Present critical national and regional water resources needs
- Present opportunities for improving efficiency and effectiveness of Federal water programs
- Raise awareness within the Administration of water resources challenges and opportunities
- Assess the need for a National Water Vision
- Recommend strategies for action
- Move the Nation toward Integrated Water Resources Management (IWRM).
- Highlight tools that are in, or could be included in, a Federal Support Toolbox to assist States in IWRM



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 more integrated and balanced water plans
- Unify visions for Administration and Congress to determine that water resources planning and infrastructure are national priorities



Intergovernmental Flood Risk Management Committee

- Core Members: USACE, FEMA, ASFPM, NAFSMA leadership
- Meet quarterly to discuss integration of programs and policies
- Current Focus Areas:
 - Interagency Cooperation/Collaboration
 - Risk Communication
 - Levee Inventory and Assessments
 - Mapping, Certification, and Accreditation
 - Legislative Impacts



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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/>

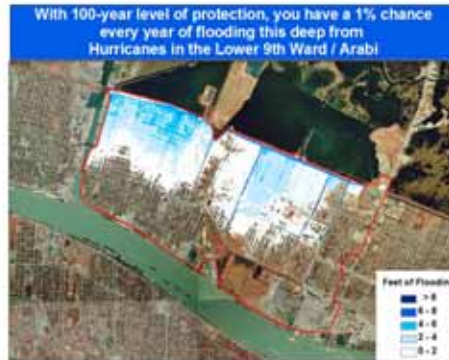


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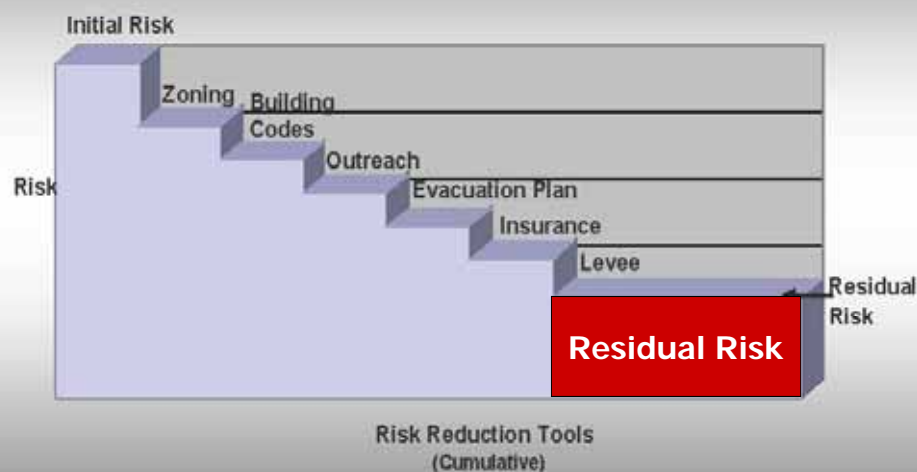
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Risk-Informed Decision Making & Communication

- 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



Shared Flood Risk Management: Buying Down Risk



All stakeholders contribute to reducing risk!

Adaptive Management

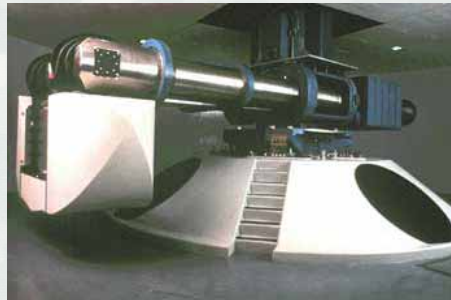


- Principle commonly used in ecosystem restoration
- Measure responses to interventions within systems to adjust planning, construction and operations in response to changing conditions.

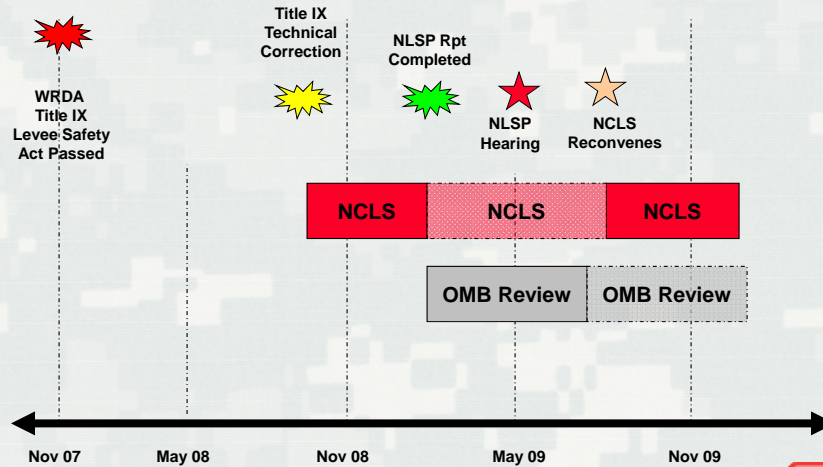


State-of-the Art Technology

- 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



National Committee on Levee Safety Milestones



National Committee on Levee Safety

- Recommendations sent by ASA(CW) to OMB in May
- OMB planning to submit formal response

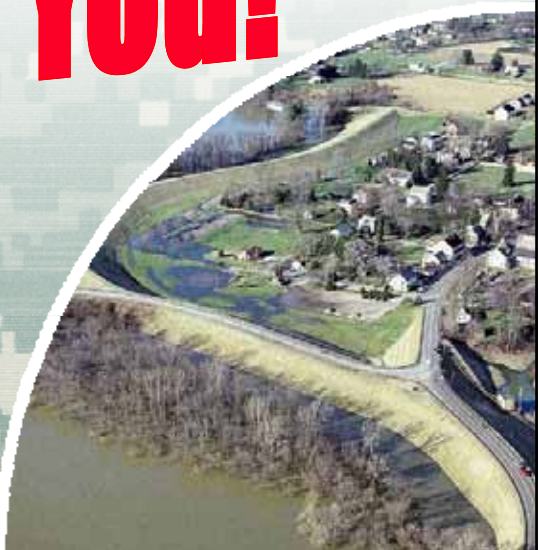


Levee Vegetation

- System Wide PL84-99 Guidance issued in Jan 2009
- Research and develop effort to be completed in 2010
- ETL for Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures issued in May
- Evaluate modification of guidance end of Fiscal Year 2010



Thank You!

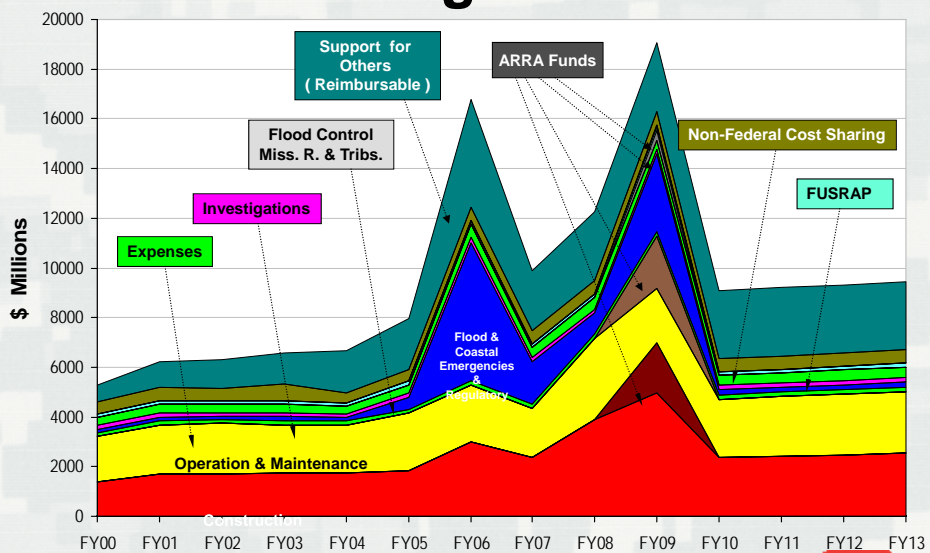


Levee Certification/Compliance

- Draft ETL of will be issued as an EC
 - Comments have been resolved
- Continue working with FEMA on mapping issues
- Vegetation Variance Process is being clarified



Civil Works Program Overview



IHNC Surge Barrier



IHNC Surge Barrier



