

U. S. Army Corps of Engineers Update

Presentation to
**California Marine Affairs and
Navigation Conference**

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U.S. Army Corps of Engineers
21 January 20016



U.S. ARMY



BUILDING STRONG®



U.S. Army Corps of Engineers

240 Years of Service to the Nation

Lincoln Memorial
Washington Monument
U.S. Capitol



Panama Canal



Bonneville Dam



Wankel T. Rex



The Pentagon



Aurora Medical Facility



Civil Works' Value to the Nation

(2010-2013 Average)

USACE has been working to characterize and document the Value to the Nation provided by the Civil Works program, based on economic return on investment as measured by NED benefits produced, and the financial measure of revenues that flow back to the U.S. Treasury.

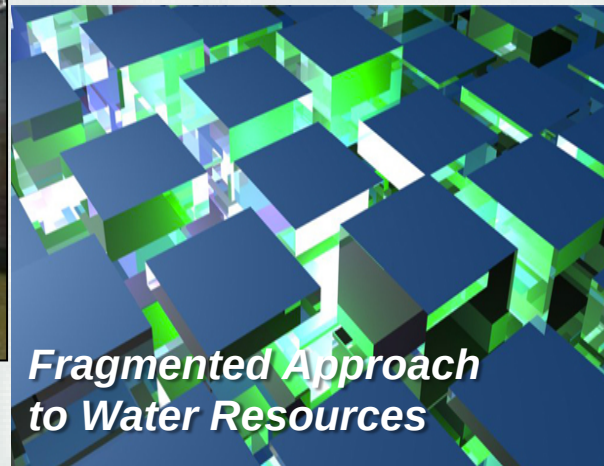
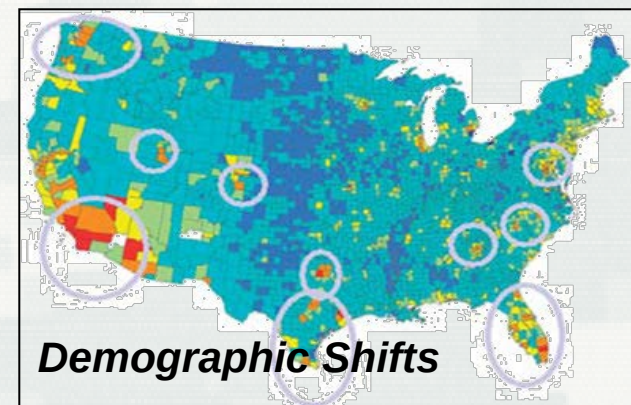
Program	NED Benefits (Billions of Dollars)	Net NED Benefits (Billions of Dollars)	U.S. Treasury Revenues (Billions of Dollars)
Flood Risk Management	\$79.83	\$79.19	\$25.30
Coastal Navigation	\$9.87	\$9.07	\$3.88
Inland Navigation	\$8.84	\$8.24	\$2.27
Water Supply	\$7.61	\$7.59	\$0.08
Hydropower	\$2.92	\$2.73	\$1.43
Recreation	\$3.31	\$3.01	\$1.17
Leases and Sales			\$0.03
Total Annual NED	\$112.38	\$109.83	\$34.16

Notes:

- (1) Net NED benefits are defined as NED benefits less the costs of operations, maintenance, and investigations. Since the costs associated with expenses and oversight by the Assistant Secretary of the Army (ASA) serve all Corps programs, including those we did not calculate benefits for in this report, this report does not account for those costs."
- (2) ~~The Benefits and Revenues numbers are not additive.~~



Challenges



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USACE, Risk, Resilience:

From Accepting Risk to Managing Risk and Resilience

Live with floods

- Individuals and small communities adapt to nature's rhythm.

Use the floodplain

- Fertile land in floodplain is drained for food production.
- Permanent communities develop on the floodplain.

Control floods

- Large scale structural approaches are implemented through organized governance

Reduce flood damages

- A recognition that engineering alone has limitations.
- Effort to increase the resilience of communities should a flood occur.

Manage risk

- Not all problems are equal.
- Risk management is an effective and efficient means to maximize the benefit of limited investment.

Resilience

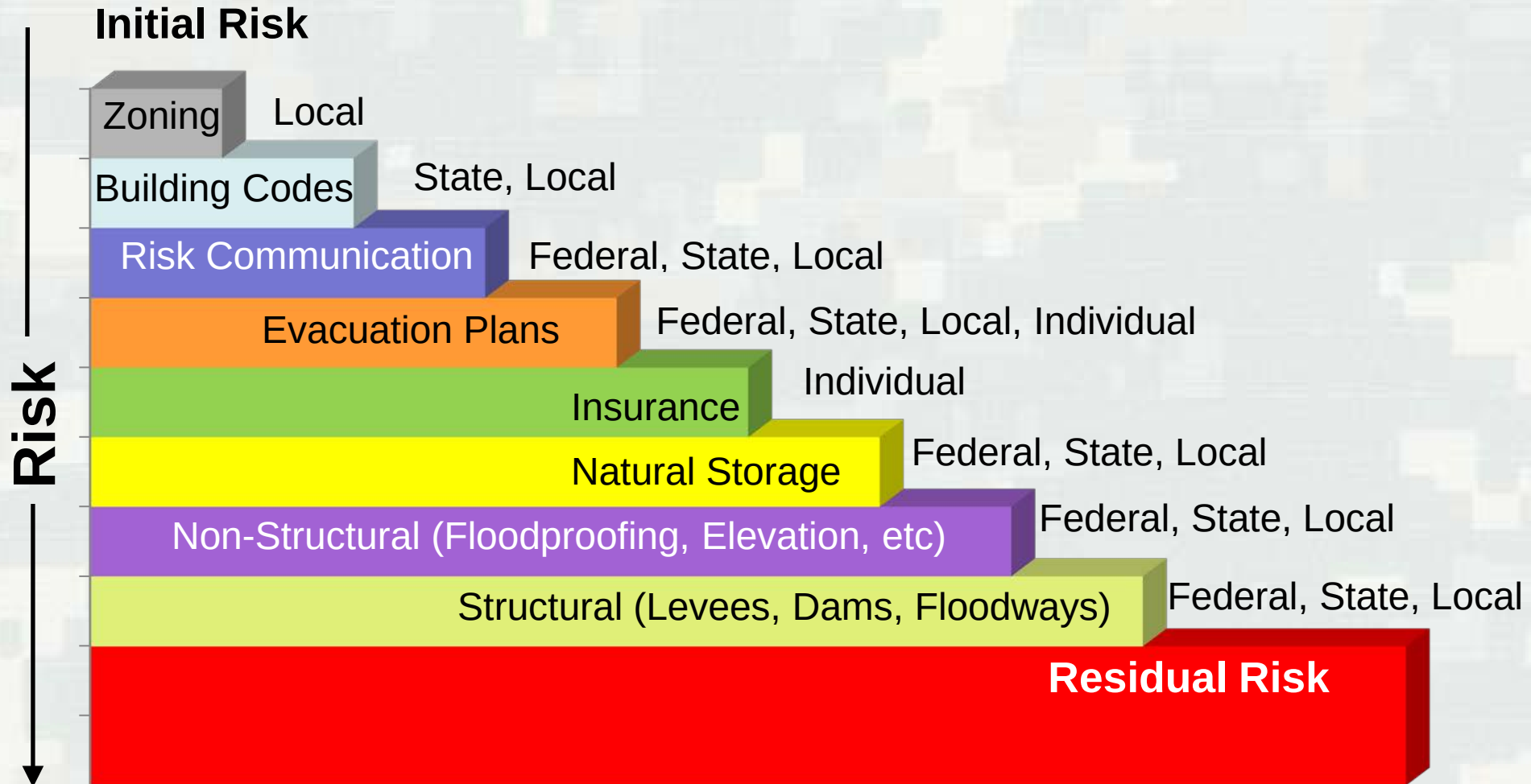
- Not all risks can be eliminated
- Systems approach & integration of communities is the key



From Sayers et al, 2012



Reducing Risk: A Shared Responsibility



Identify risks and make decisions based on relative risk – recognizing that not all will have the same results



Principles of Resilience



Adapt



Prepare



Recover

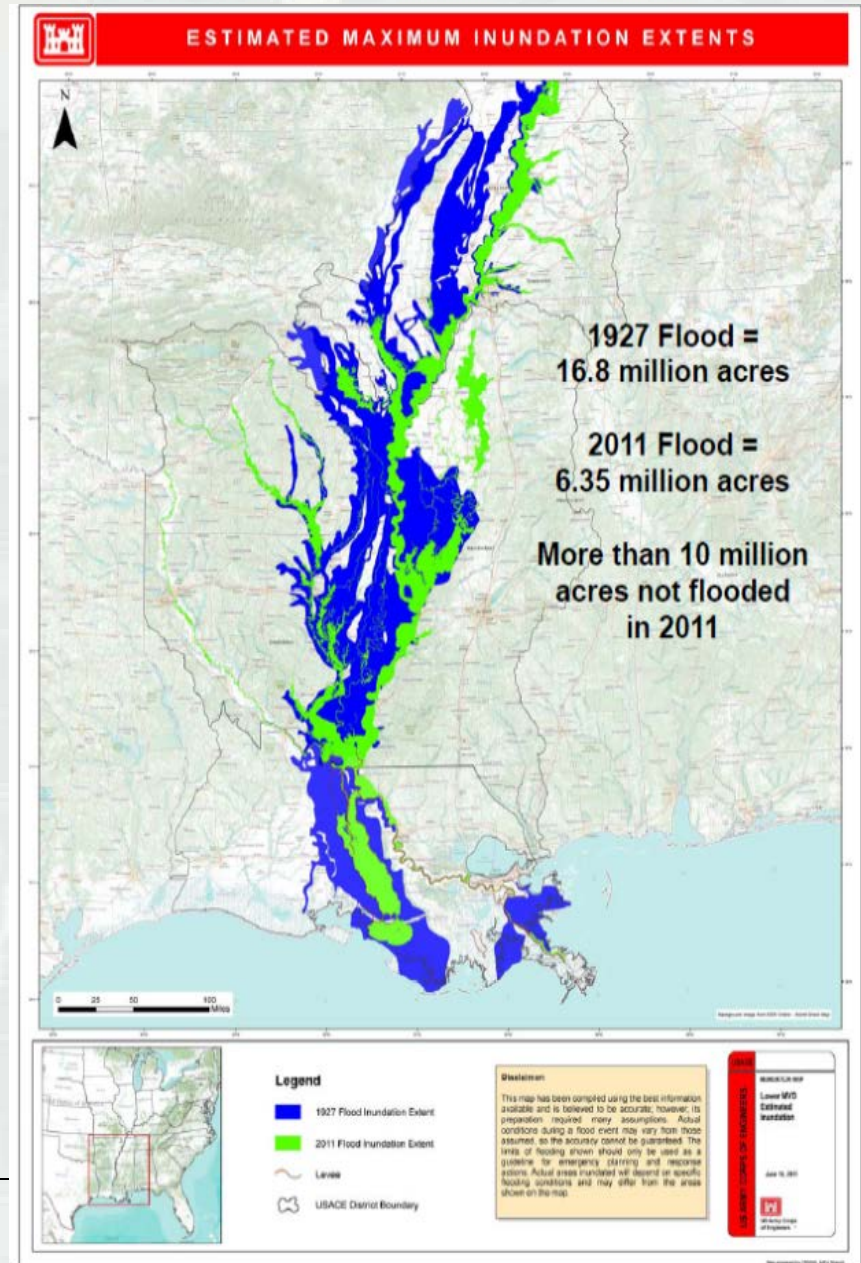


Absorb



Mississippi River and Tributaries System

- Authorized through the Flood Control Act of 1928
- Largest flood control project in the world, providing protection to 36,000 square-mile lower Mississippi Valley
- The four major elements of the MR&T project are:
 - ▶ Levees for containing flood flows
 - ▶ Floodways for the passage of excess flows
 - ▶ Channel improvement and stabilization
 - ▶ Tributary basin improvements for major drainage basins to include dams and reservoirs, pumping plants, auxiliary channels and pumping plants, auxiliary channels and pumping stations
- Since the initiation of the MR&T project in 1928, the nation has received a \$45 return for every dollar invested, not including positive environmental impacts
 - ▶ Flood of record occurred in 2011 and only flooded what was designed to be flooded.
 - ▶ Prevented approximately \$234B in flood damages



Hurricane Katrina: The Cost of Failure to Invest...

Pre-Katrina “System” 2005

- 50% complete after 40 years
- \$130 B in recovery costs
- 1500 lives lost



\$14B Post-Katrina System

- Designed and constructed in 6 years
- Successfully performed during Hurricane Isaac



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A nighttime photograph of Washington, D.C. featuring the Washington Monument, the U.S. Capitol, and the Lincoln Memorial, all illuminated and surrounded by a large display of red, white, and blue fireworks.

What's Happening in Washington?

Hot Topics

National Infrastructure Strategy



Civil Works Transformation



Waters of the US Rule Making

One Hundred Thirteenth Congress
of the
United States of America
AT THE SECOND SESSION
*Began and held at the City of Washington on Friday,
the third day of January, two thousand and fourteen*

An Act
To provide for improvements to the rivers and harbors of the United States, to provide for the conservation and development of water and related resources, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “Water Resources Reform and Development Act of 2014”.

(b) TABLE OF CONTENTS.—

Sec. 1. Short title; table of contents.

Sec. 2. Definition of Secretary.

TITLE I—PROGRAM REFORMS AND STREAMLINING

Sec. 1001. Vertical integration and acceleration of studies.

Sec. 1002. Consolidation of studies.

Sec. 1003. Expedited completion of reports.

Sec. 1004. Removal of duplicative analyses.

Sec. 1005. Project acceleration.

Sec. 1006. Expediting the evaluation and processing of permits.

Sec. 1007. Expediting approval of modifications and alterations of projects by non-Federal interests.

Sec. 1008. Expediting hydropower at Corps of Engineers facilities.

Sec. 1009. Enhanced use of electronic commerce in Federal procurement.

Sec. 1010. Determination of project completion.

Sec. 1011. Prioritization.

Sec. 1012. Transparency.

Sec. 1013. Evaluation of.

Sec. 1014. Study and con

Federal inter

Sec. 1015. Contributions

Sec. 1016. Operation and

WRRDA 2014



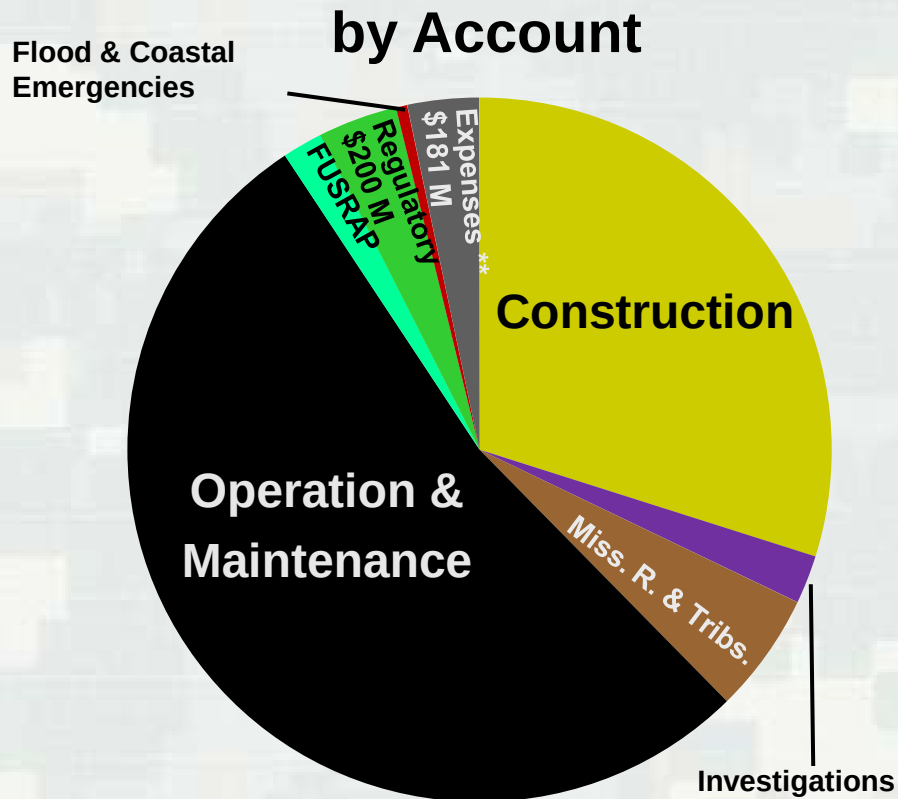
Flood Risk Management & Levee Safety



Water Supply

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FY 2016 Appropriations



- \$6B
- \$1.25B more the FY-16 Presidents Budget
- FY-16 Work Plan and FY-17 Budget to be released 9 February



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Sec. 1009. Enhanced use of electronic commerce in Federal procurement.

Sec. 1010. Determination of project completion.

Sec. 1011. Prioritization.

Sec. 1012. Transparency in accounting and administrative expenses.

Sec. 1013. Evaluation of project Partnership Agreements.

Sec. 1014. Study and construction of water resources development projects by non-Federal interests.

Sec. 1015. Contributions by non-Federal interests.

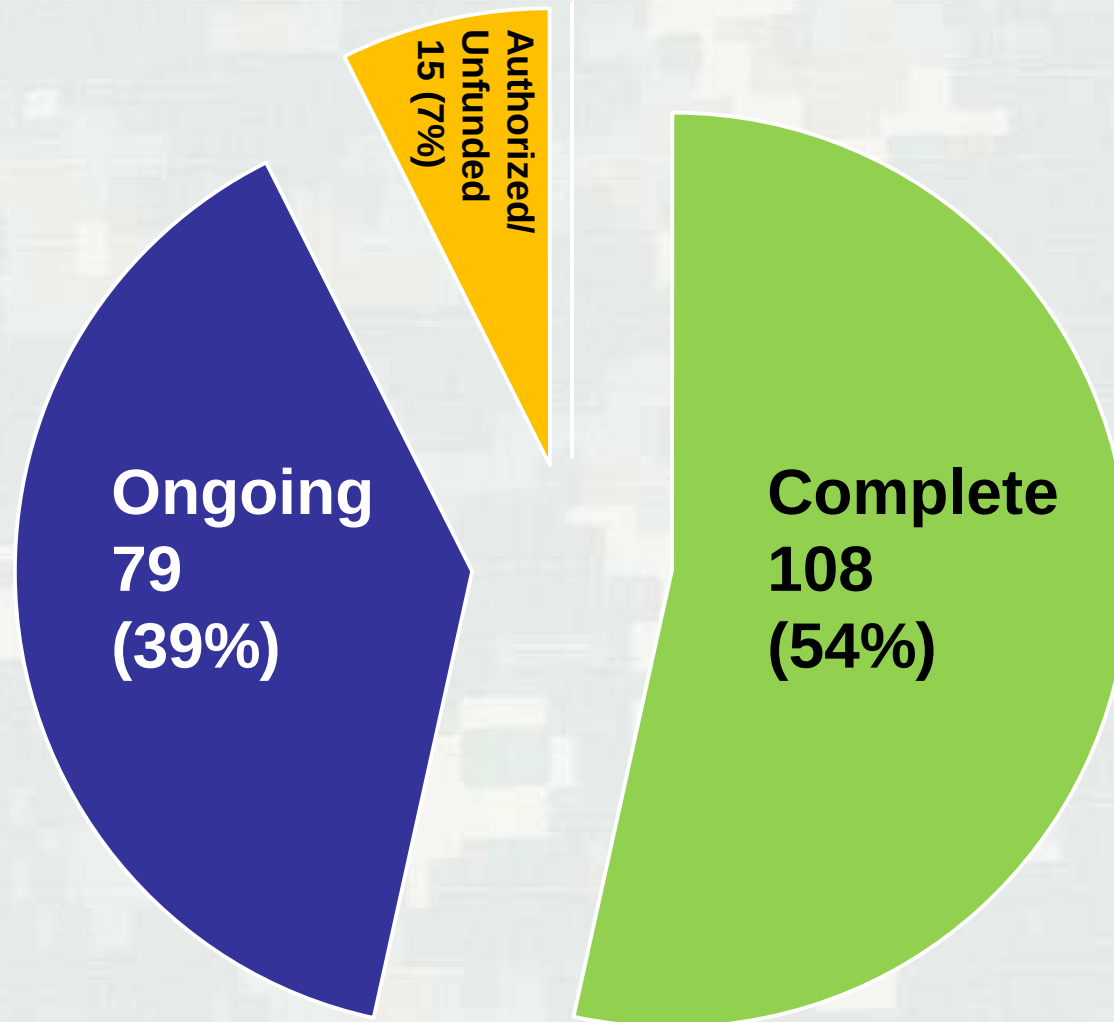
Sec. 1016. Operation and maintenance of certain projects.

**WRRDA
2014**

**WRDA
2016?**



WRRDA Implementation Guidance Status



Principles, Requirements & Guidelines

**Congress says don't spend \$
on this; stick with '83 P&G**



“Waters of the U.S.” Rulemaking

IN COURT



Water Supply Rule- making



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Federal Flood Risk Management Standard (FFRMS)



- EO 13690, which amended EO 11988 on Floodplain Management, was signed by the President on January 30, 2015.
- A revised draft of the EO 11988 interagency Implementing Guidelines, revised to incorporate requirements of

EO 13690, was released for a 90-day public comment period.

- The Mitigation Framework Leadership Group (MitFLG) stood up an interagency working group to review the comments received and revise the interagency Implementing Guidelines.
- As an active member of the MitFLG, USACE was heavily involved



CEQ Memo M 16-01

“Incorporating Environmental Services into Federal Decision Making”



Incorporating Ecosystem Services into Federal Decision Making

- Memo issued 7 October 2015
- Directs agencies to:
 - ▶ Develop policies to promote consideration of EGS
 - ▶ Within existing frameworks
 - ▶ In accordance with statutory authorities and consistent with agency missions
- Agency response due 30 Mar '16
- Implementation Guidance due 30 Nov 16



Importance of Ecosystem Services

The pursuit of integrated water resources management require much broader thinking than has been applied in the past.

It requires thinking about systems and how they affect or are affected by one another, the services each system provide, and the sustainability of those systems and their reliable delivery of services needed by society.



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Ecosystem Restoration

Priority Ecosystems:

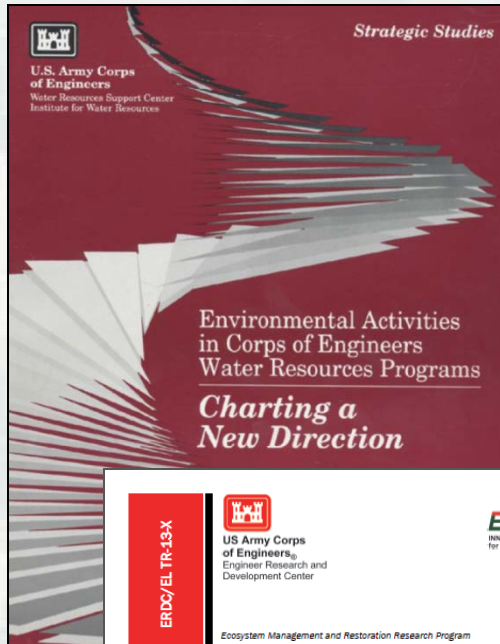
California Bay-Delta
Chesapeake Bay
Everglades
Great Lakes
Gulf Coast

Key Watersheds:

Columbia River
Puget Sound
Upper Mississippi
Missouri Rivers



Ecosystem Services Research



The Corps has been focusing research on how to “capture” the value of ecosystems and the services they provide since the 1990s.



Ecosystem goods and services are socially valued aspects or outputs of ecosystems that depend on self-regulating or managed ecosystem structures and processes.



SAGE – Systems Approach to Geomorphic Engineering

- Collaborative:
 - ▶ USACE, NOAA, FEMA, The Nature Conservancy, The Conservation Fund, Virginia Institute for Marine Sciences, University of New Orleans, University of Rhode Island
 - ▶ Additional experts from states, academia, NGOs, private sector
- Focuses on innovative approaches to coastal landscape transformation
 - ▶ Comprehensive view of shoreline change
 - ▶ Integrate hybrid approaches in coastal communities and shorelines to slow, prevent, mitigate, and adapt to the impacts and consequences of changing weather and climate patterns



Federal Standard for Disposal of Dredged Material

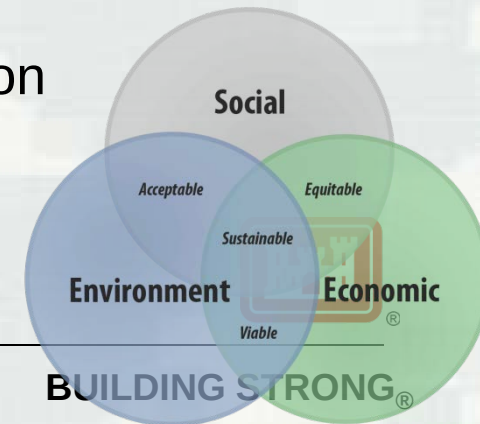
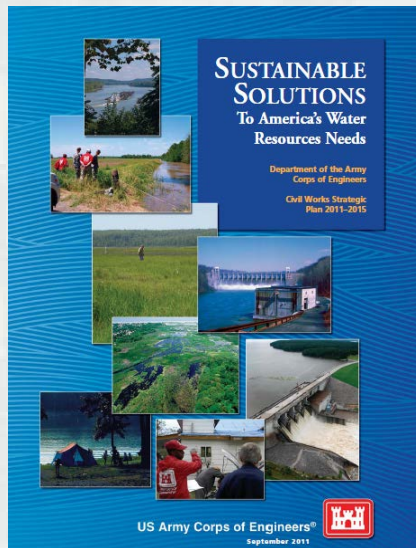


Engineering With Nature



...the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes.

- Science and engineering that produces operational efficiencies
- Using natural process to maximum benefit
- Expanding the benefits provided by projects
- Science-based collaboration



Natural & Nature-Based Infrastructure

GENERAL COASTAL RISK REDUCTION PERFORMANCE FACTORS:
STORM INTENSITY, TRACK, AND FORWARD SPEED; SURROUNDING LOCAL BATHYMETRY AND TOPOGRAPHY



Dunes and Beaches

Benefits/Processes

Breaking of offshore waves

Attenuation of wave energy

Slow inland water transfer

Performance Factors

Berm height and width

Beach slope

Sediment grain size and supply

Dune height, crest, and width

Presence of vegetation



Vegetated Features

Benefits/Processes

Breaking of offshore waves

Attenuation of wave energy

Slow inland water transfer

Increased infiltration

Performance Factors

Marsh, wetland, or SAV elevation and continuity

Vegetation type and density



Oyster and Coral Reefs

Benefits/Processes

Breaking of offshore waves

Attenuation of wave energy

Slow inland water transfer

Performance Factors

Reef width, elevation, and roughness



Barrier Islands

Benefits/Processes

Wave attenuation and/or dissipation

Sediment stabilization

Performance Factors

Island elevation, length, and width

Land cover

Breach susceptibility

Proximity to mainland shore



Maritime Forests/Shrub Communities

Benefits/Processes

Wave attenuation and/or dissipation

Shoreline erosion stabilization

Soil retention

Performance Factors

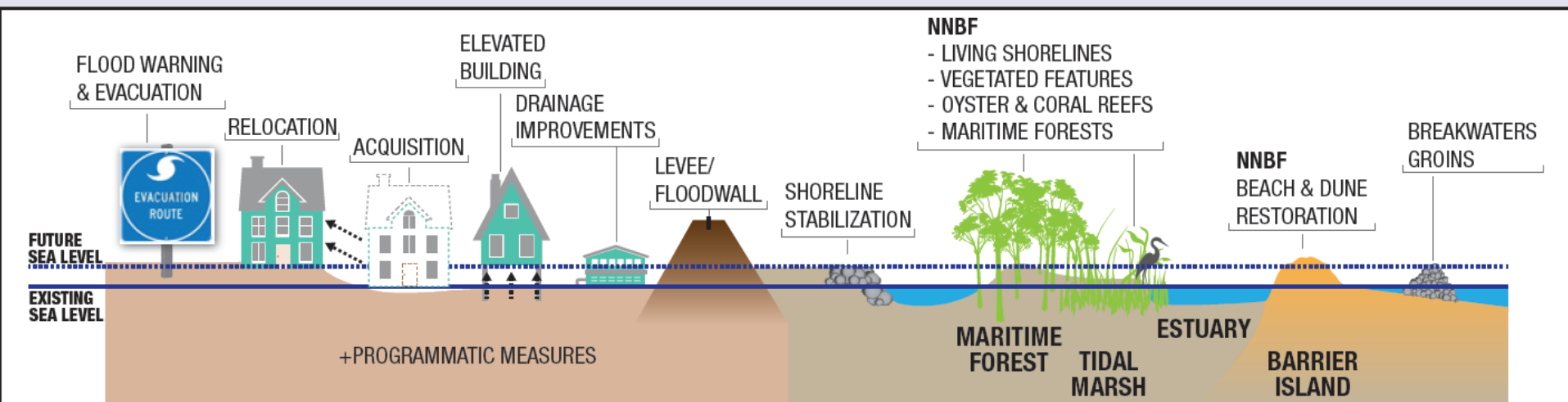
Vegetation height and density

Forest dimension

Sediment composition

Platform elevation

Full Portfolio of Measures



- Multiple lines of defense and combinations of measures to improve resilience and further drive down risk
- Resilience includes adapting, which might be shifting between measures over time as conditions change



Transforming Civil Works

Four Focus Areas



Transforming our Planning Process

4 P's



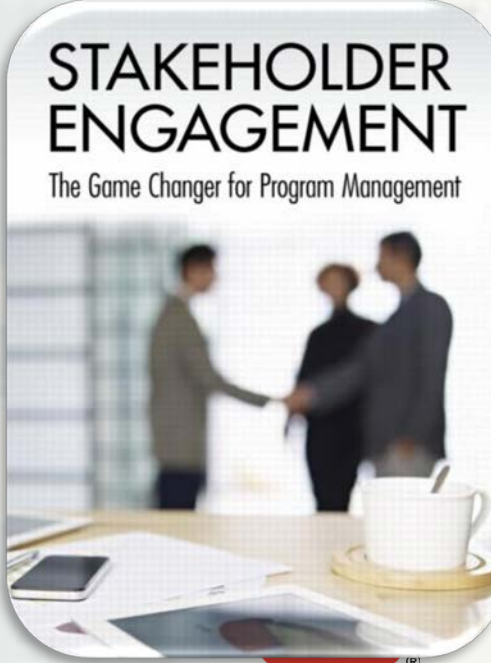
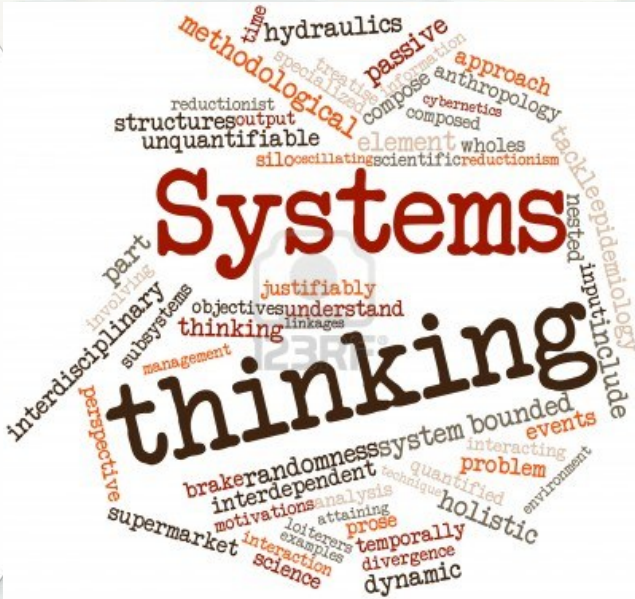
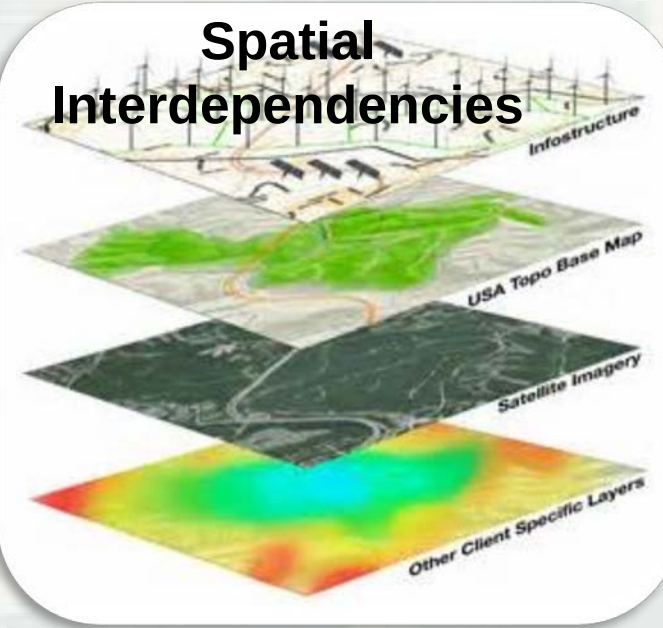
Chief of Engineers Reports



- Awaiting Congressional action: 18
 - ▶ Estimated total cost \$4.931 billion
- In State & Agency or Final Policy review: 8
 - ▶ Estimated total cost \$1.828 billion
- Civil Works Review Boards scheduled: 5



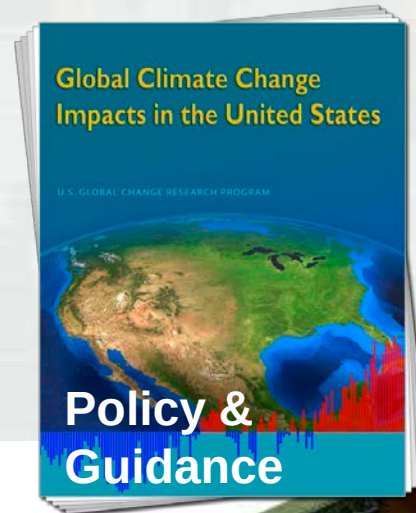
Budget Development Transformation



Infrastructure Strategy



Delivering Quality Solutions & Services



It's All About Relevance

- Everything we do matters...
- It's about interconnectivity
- You have more influence than you think
- We must do it together-it's a call to action



Questions



US Army Corps of Engineers
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