



U.S. Army Corps of Engineers Institute for Water Resources

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USACE IWR Director Delivers Keynote Address at Northern Virginia Post of the Society of American Military Engineers (SAME)

ALEXANDRIA, VIRGINIA. On 25 March 2015, the Institute for Water Resources (IWR) Director Bob Pietrowsky delivered the keynote address at the Northern Virginia SAME Post meeting at the Ft. Belvoir's Officers Club. The presentation, entitled "*A New Century in Water Resources Development*", highlighted the domestic and global challenges and opportunities facing the Nation's water resources and USACE's future CW's program. He characterized these challenges as representing confluence of wicked problems which constitute "*A Perfect Storm*" that will set the context of water resources development and management in 21st Century.

Mr. Pietrowsky's presentation outlined the USACE's application of a scenario-based strategic planning approach in the development of the Corps Civil Works Strategic Plan, which manifested the identification of key driving factors with potential to shape the future of the nation's water resources over the next 10-20 years. A universe of 124 such factors was identified, covering the gamut of social, technological, economic, environmental, climatologically, political and security. The factors were then ranked in terms of their importance to the CW program and assessed in terms of their predictability (i.e., level of uncertainty).

Factors which were found to be high in both importance & predictability – were identified as *Trends*. Factors with high importance, but low predictability were classified as *Uncertainties*, and factors ranked low in importance were screened out.

The polarities of the *Uncertainties* were articulated as four (modular) future scenarios against which potential USACE actions (responses) were evaluated. And, evaluating the trends and uncertainties across the four scenarios guided the development a concise set of USACE Civil Works goals & objectives, along with very useful implementation strategies, designated as "cross-cutting strategies".

Key factors/trends included:

- U.S. population continues to grow, become increasingly urbanized and concentrated in large megalopolises.
- Responsibilities for water development and management in US will remain fragmented.
- Gradual and steady increase in global temperatures, with effects of climate change continuing.
- Water resources mgt will remain institutionally complex and driven by increasing competition.
- Cost of water and wastewater service will continue to increase.
- Biodiversity is declining; with single greatest threat to species survival is the loss of their habitat.
- Environmental values and preferences within the U.S. will continue to evolve, with resilience and sustainability becoming important development factors.
- Energy production in the U.S. will continue to diversify and expand.
- There is continued discovery and application of scientific knowledge.
 - Biotechnology, and nano-technology will reshape society

- Computer power and connectivity will increase exponentially
- Water scarcity, climate change and population growth will challenge international water security in emerging and developing countries.
- Despite increasing political pressure to balance the budget, the Federal debt and the deficit will continue to be high.

The resulting “cross-cutting strategies” include:

- Systems Approach
- Collaboration and Partnering
- Risk-Informed Decision Making & Communications
- Innovative Financing
- Adaptive Management
- State-of-the-Art Technology

In assessing the impact of these trends and uncertainties on the USACE CW program, ten thematic challenges were identified, which Mr. Pietrowsky characterized as collectively representing this “*Perfect Storm*” that USACE and the Nation’s water resources will be facing in the future. These include:

- 1) Increased Competition for Water – Population Growth & Demographic Changes
- 2) Aging Civil Works Infrastructure and Implications to Resilience
- 3) Increasing Demand - Mega Nexus Drivers – i.e. Water Supply, Domestic Hydrocarbon Production, Agricultural Needs
- 4) Non-Stationarity and Adaptation to Climate Change
- 5) Paradigm Shift to IWRM /Systems Perspective
- 6) Continuing Increased Focus on Sustainability
- 7) Technological Advancement and Knowledge Management
- 8) Global Economy & Increased Importance of U.S. Maritime Transportation System
- 9) As the “World Shrinks”, Increasing Concerns Over International Water Security
- 10) US Debt Pandemic & Constrained Federal Budgets

Pietrowsky closed by discussing the strategic framework for addressing the U.S.’s changing needs in the 21st Century, including how the CW program’s priorities in flood risk management, navigation and aquatic ecosystem restoration contribute to the President’s overarching goals of global competitiveness; energy independence, environmental sustainability, and the enhancing the quality of life of the American people.

"Sustainable Solutions to America's Water Resources Needs: Civil Works Strategic Plan 2014-2018", which articulates the Corps five goals that will guide the Civil Works program into the future, was released on 2 February 2015. "This strategic plan presents USACE's commitment to responsibly develop the Nation's water resources, while protecting, restoring and sustaining environmental quality. USACE is dedicated to learning from the past and adapting the organization to ensure the U.S. enjoys a prosperous and sustainable future," said Steven L. Stockton, HQUSACE Director of Civil Works.

Learn More

For more information, visit IWR www.iwr.usace.army.mil or

Sustainable Solutions to the Nation’s Water Resources Problems: [Civil Works Strategic Plan, 2014-2018](#)

Northern Virginia Post of the Society of American Military Engineers: <http://www.novasame.org/>