



Policy Research and Future Directions of Applying Engineering With Nature® in USACE Programs

Challenge

U.S. Army Corps of Engineers (USACE) Engineering With Nature® Initiative works toward better integration and alignment of traditional “grey” infrastructure approaches with nature-based infrastructure approaches. Currently, the benefit-cost analysis (BCA) places a substantial emphasis on the dollar value of the properties a proposed project would protect. However, the science of quantifying the environmental and social costs and benefits of nature-based solutions has drastically improved over the years, and if applied, could provide a more complete assessment of how such nature-based solutions complement and enhance traditional infrastructure projects.

This applied policy research project will consider how to best quantify, and potentially monetize, the full range of economic, environmental, and social costs and benefits that nature-based solutions provide. Specific consideration will be given to instances in which nature-based solutions are strategically designed to work with conventional approaches using rock, concrete, and steel.

Approach

The USACE EWN® Initiative has selected The Water Institute of the Gulf to analyze existing policies and provide guidance on improving federal practice around the country to better consider the economic, environmental, and social benefits of nature infrastructure and nature-based solutions.

The Water Institute team will work with the USACE to identify and evaluate a number of completed Chief’s Reports to determine if there is an opportunity to further quantify the environmental and social costs and benefits of proposed nature-based solutions, including factors that may have contributed to prioritization of conventional over natural infrastructure as well as benefits that may not have been fully captured by the current approach.

Based on insights gathered in reanalyzing the selected Chief’s Reports, the Water Institute will perform a policy analysis of the social, environmental, and other costs and benefits that could have been included to determine how that would have impacted the benefit-cost ratio.

Based on insights gathered in analyzing the selected Chief’s Reports, the Water Institute will perform a policy analysis of the environmental and social costs and benefits that might have been further quantified and determine how that would have impacted the BCA. As part of this effort, the Water Institute will organize an Engineering With Nature Technical Review Summit in Washington, D.C. to bring together government, nonprofit, academic and private sector collaborators to contribute to the effort.

Outcomes

USACE's EWN® Initiative emphasizes that current infrastructure project evaluations can be more robust and potentially more protective if costs and benefits of these projects can be fully evaluated for the cumulative economic, environmental, and social benefits.

EWN® does not replace the need for fully engineered concrete infrastructure, but it recognizes that fully engineering nature-based infrastructure can work hand in hand with traditional methods for an outcome that is greater than its parts.

To that end, the "Policy Research and Future Directions of Applying Engineering With Nature® in USACE Programs," project will provide USACE a baseline to identify how nature-based projects have been evaluated in the past, potential obstacles to further implementation, and an outline of how a more integrated BCA process could provide additional value to infrastructure projects in the future.

Points of Contact

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Examples of EWN®



Pierce Marsh Restoration, Galveston, Texas.



Sediment Distribution Pipe demo on Sturgeon Island March 2020 as part of the Innovative Sediment Distribution Pipe for Targeted Placement project in Philadelphia District's Seven Mile Island Innovation Lab in New Jersey.



Wisconsin Point Bird Sanctuary, designed and constructed by USACE in 2019, improved habitat along the St. Louis River shoreline.