



US Army Corps
of Engineers.
Engineer Research and
Development Center

National Regional Sediment Management Program Vicksburg District (MVK):



Regional Sediment Approach to Watershed Studies with a SMART Planning Focus

Description (There is a substantial need throughout all of USACE for improved guidance, tools and techniques for the rapid planning assessment and conceptual design of river features with a regional sediment management approach. At the August 2016 USACE River Engineering Work Group meeting, river engineers from across the Nation noted the lack of guidance and training for regional sediment management approaches. By integrating modern technology, such as LiDAR and photogrammetry, and increasing USACE's knowledge base of Delta Headwaters Project (DHP) watershed and regional sediment management approaches this R&D effort will assist in the successful implementation of the SMART Planning paradigm



Figure 1. DHP Stream Example !



**Regional Sediment Approach to Watershed Studies
with a SMART Planning Focus**

**Issue/Challenge
To Address**

Integrating and further increasing USACE’s knowledge base of DHP watershed and regional sediment management approaches is vital to the successful implementation of SMART Planning paradigm. Watershed management, in this context, includes the evaluation of sediment sources, sinks and transport, and the impacts of various sediment management alternatives on channel stability throughout a watershed. It also includes the design of equilibrium channels and siting for grade control and bank stabilization measures. By utilizing findings from geomorphic assessments, in conjunction with selective surveying on degradational reaches to obtain general slope and cross sectional areas, watershed plans involving structure and bank stabilization placement can be developed more rapidly than existing measures. Establishing and applying this rapid assessment framework in a DHP watershed through this R&D effort will assist all Corps Districts by providing improved guidance for rapid watershed assessment for river engineering activities while adhering to the SMART Planning Principles.

**Successes
Lessons Learned**

Lessons learned will be compiled during the duration of this study.

**Estimated Benefits &
Cost Savings**

- Replicable effort that can be applied to other areas/districts
- Provide District Engineers, Planners, Regulators, Operations Managers, and Project Managers with scientifically sound rapid watershed assessment methods that are most beneficial to regional systems
- Collaborative efforts with other Federal Agencies; such as U.S. Fish and Wildlife and the NRCS

Expected Products

- Replicable methodology that can be applied throughout USACE
- Technical Report documenting methodology
- Final Report and Presentation

Stakeholders/Users

Stakeholder participation in this project includes the NRCS. Additional stakeholders such as U.S. Fish and Wildlife and state regulatory agencies may be included in the study once field sites are determined.

**Projected Benefits
Value Added**

This R&D should result in a methodology that is incorporated into Corps guidance. It is envisioned that this will be a three phase effort; (1) Assessment of existing regional sediment management approaches to develop an innovative approach that is compatible with the SMART Planning paradigm; (2) A watershed (or perhaps several watersheds) will be selected, and the new regional sediment management techniques will be applied to the watershed to demonstrate the utility of the approach; (3) A guidance document will be developed documenting the regional sediment management approach.



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Leveraging Opportunities

This project will fill a need of USACE Districts that can be replicated in watersheds nationwide. It also has the potential to provide future collaborative efforts with other Federal Agencies; such as U.S. Fish and Wildlife, NRCS, and other Districts.

Points of Contact

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Participating Partners

MVK and ERDC-CHL