Planning Associates 2013 Critical Think Piece: Planning Resilient Solutions

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Executive Summary

Purpose: The objective of this Critical Think Piece (CTP) is to outline recommendations to incorporate the concept of resilience into the planning process and recommend resilient solutions within the Corps' Civil Works Mission areas.

The Problem: Current disaster management strategies focus on post-event response and recovery. Fatalities due to natural disasters have decreased with better forecasting and early warning systems; however, the economic costs have continued to rise. Statistics indicate economic damages from natural disasters in the United States exceeded $55 billion in 2011 may approach $90 billion for 2012. This is a problem because our nation cannot afford to continue operating in a reactive mode; the current approach is reactive, costly, and lacks resiliency. Because many of the worst disasters in recent history are tied to our water resources, the Corps must take an active role in addressing this problem and lead the nation to increased disaster resilience, and reduced economic costs and risks to life safety.

The Approach: Approaches to incorporate the concept of resilience into the planning process: 1) Qualitatively incorporate the concept of engineering resilience into development of planning objectives; evaluate resiliency of alternatives using the four Principles & Guidelines (P&G) criteria; 2) Integrate engineering, ecological & community resilience to outline larger, system-wide considerations for a more holistic and quantitative incorporation of resilience.

Results: The first approach to incorporate resilience into the planning process is to develop at least one planning objective for each feasibility study that is founded on the two direct indicators of engineering resilience: robustness and rapidity. During the alternatives evaluation step of the planning process, quantitative and qualitative criteria are used to evaluate plans against the P&G criteria. Qualitative metrics to determine the robustness or rapidity of an alternative can be used to determine how these resilient properties relate to the P&G criteria. The result of this basic, qualitative analysis informs the evaluation and comparison of alternatives with respect to the P&G criteria by illustrating how complete, effective, efficient, or acceptable alternatives are with respect to engineering resilience.

Plan formulators must also understand functional relationships between dimensions of a system in order to recognize impacts if stressors are introduced to the system. Understanding and quantifying these functional relationships in the planning phase of a project will influence the decision making process and facilitate wiser investment decisions based on systems resilience. A holistic framework is needed to assess systems resilience using a combination of qualitative and quantitative data sources at various temporal and spatial scales.

Recommendations: Our nation cannot afford to continue operating in a reactive mode. The Corps must take a leadership role in enhancing the nation's hazard resilience. These actions are recommended:

1. Develop and release a **planning guidance letter** (PGL) that calls for integration of resiliency concepts into the planning process.

2. Leverage existing research to **further develop a holistic and flexible resiliency framework.**

3. Conduct a **pilot study** to integrate a more holistic resiliency framework into our studies.