

## **A Web-Based Regional Economic Simulation Tool for U.S. Army Corps of Engineers'™ Civil Works Program**

Topic: 809X IO Analysis for Policy-making (1)

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The U.S. Army Corps of Engineers (USACE) is one of the world's largest public engineering, design, and construction management agencies, and its civil works mission areas include navigation, flood risk management, hydropower, water supply, recreation, and environment. To be able fully capture the economic benefits of its water infrastructure and programs for policy and decision making purposes, USACE Institute for Water Resources (IWR) has developed the REgional ECONomic System (RECONS) that aims to provide accurate and defensible estimates of regional and national jobs and other economic measures such as income and sales associated with its civil works activities. Economic impacts and contributions are estimated for two types of economic activities associated with USACE programs: 1). Direct federal spending on infrastructures and operations and maintenances and 2). Other economic activities resulted from the primary users of infrastructure constructed and maintained by USACE. The full contribution of these activities to the economy is estimated using Input-Output modeling techniques, and includes linkages back to the industries, businesses, and households supplying the goods, services, as well as the household spending recalculated to the region's™ economy.

RECONS is a web-based dynamic simulation system, and is developed with PHP/MySQL applications with the server hosted on Cloud Computing Services. RECONS also utilizes mapping function which allows users to portray the areas benefited by USACE programs. There are currently more than 1200 built in regional I-O models that correspond to USACE's™ civil works mission areas. Multipliers and other economic ratios and factors are from IMPLAN, US Bureau of Economic Analysis, and Bureau of Labor Statistics. This tool is designed for easy accessibility while in a controlled environment. It also allows frequent modifications/updates and new add-ons to be made through the server and instantly distributed. This tool provides a more convenient and consistent way to estimate jobs and conduct economic impact analyses including the effects of either increased and decreased expenditures by the government, while enables users to conduct valid and reliable economic impact analyses, even those with little experience in Input-Output analysis required by IMPLAN or other comprehensive I-O models. The users can also simultaneously estimate economic impacts at different geographic scopes (e.g., local, state, national) and to aggregate those impacts across various political boundaries. It also increases rigor and consistency (e.g., spending profiles, identification of impact areas) in the manner in which economic impact analyses are conducted by the USACE. As a result, over 80 USACE economists from various mission areas across the country have used this simulation tool and conducted over 5,000 analyses for USACE related economic activities. This paper will describe the capabilities and applications of RECONS, and its implications for federal and local government funding and resourcing policies and decision making processes.