

CE 597D Water Resources Seminar
Friday March 19, 2004
Stavely Conference Room —202 Hammond Building
12:00-12:15 REFRESHMENTS
12:15-1:15 SEMINAR PRESENTATION

A Framework for Sustainability Analysis in River Basin Planning and Management

DR. XIMING CAI, Assistant Professor of Civil Engineering

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

ABSTRACT: Sustainable water management attempts to ensure a long-term, stable and flexible water supply to meet agricultural, municipal, and industrial water demands, while mitigating negative environmental consequences. To achieve this delicate balance, new models are needed which can use indicators of sustainability to guide decision making. This talk presents a new long-term modeling framework in the context of river basins, which translates broad sustainability guidance into operational concepts that can be applied to specific systems. The modeling framework incorporates quantified sustainability criteria in a long-term optimization model of a basin, ensuring risk minimization in water supply, environmental conservation, equity in water allocation, and economic efficiency in water infrastructure development. “Current” and “future” water supply and demand are combined into a coherent system which takes account of the cumulative effects of short-term water use decisions, and the tradeoffs between the benefits of current and future generations are derived from the modeling outputs. The modeling approach is demonstrated with an application to the Syr Darya river basin of Central Asia. Model results show the effectiveness of this tool for policy analysis in the context of the river basin. This talk will demonstrate that moving to a new generation of water resource planning and management tools in light of sustainability is now reinforced by requirements from policy communities and supported by knowledge and technique updates in water resources through multidisciplinary research.

Moderator: Dr. Patrick Reed

Refreshments: Karthik Shankaran

Suggested reading is available on the ANGEL seminar site.