

Meeting Summary

Statewide Water Analysis Network Workshop Case Studies in Implementing Scenarios for Regional Planning

Monday, September 17th, 2007
3:00 PM – 6:00 PM
Marriot Ontario Airport Hotel
2200 East Holt Blvd
Ontario, CA 91761

Meeting Objectives

1. Describe Statewide Water Analysis Network (SWAN) and its roles in California Water Plan Update 2009
2. Describe use of scenarios in the California Water Plan
3. Present case studies in implementing scenarios for regional planning
4. Solicit feedback for implementing scenarios in California Water Plan Update 2009

Summary of Discussion

1. Rich Juricich of DWR welcomed everyone to the workshop. He described the Statewide Water Analysis Network (SWAN) and their intended role as technical advisors to the upcoming California Water Plan Update. During Update 2009, SWAN will present results of completed pilot projects, implement new pilot studies, develop a comprehensive strategy and scope out long term analytical improvements for the Water Plan.
2. Rich Juricich described the use of scenarios in the California Water Plan. He reviewed the 3 scenarios as presented in Update 2005 and presented next steps for 2009. SWAN will use Shared Vision Planning (SVP) principles to develop a scenarios proposal for DWR. A draft proposal is due in December 2007, and the final proposal is due on March 2008.
3. David Purkey, Stockholm Environment Institute, explained the importance and relevance for enhancing the scenario approach in the California Water Plan Update as a decision-making tool. He described the framework diagram from Update 2005 (see Figure 1). He offered the following observations:
 - A higher level of integration needs to be achieved.
 - Climate change suggests that some of the underlying geophysical parameters used for water planning need to be reconsidered.
 - An appropriate representation of the water management system must be defined.
 - The link between scenarios and decision making needs to be strengthened

4. David Groves, RAND Corporation, presented methodology and findings of simple water demand and supply scenario in Southern California using an Analytica-based water balance accounting model. The project was conducted in 2006 by David Groves and Robert Wilkinson, UC Santa Barbara. The study focused on Southern California, though the tools and approaches are applicable elsewhere. The project employed a scenario approach along with a computer model to consider and quantify the performance of alternative water management options in numerous scenarios of future water management conditions. The scenarios and model were based, in part, on those developed for the California Water Plan Update 2005. The report is available at www.bren.ucsb.edu/academics/WaterPolicyProgram.htm
5. David Yates, National Center for Atmospheric Research (NCAR), with David Purkey, gave a presentation on integrated water management scenarios for the Sacramento Hydrologic Region (SHR) using the WEAP modeling platform and the California Water Plan Update 2005 scenario framework. They described the physically-based model of the SHR and how it was subdivided into numerous catchments; groundwater basins; irrigated areas; urban/export demands; environmental requirements; and canals, diversions, and reservoirs in an attempt to adequately characterize the forces that act on water throughout the basin, but whose results could be aggregated up to the region consistent with what is reported in the Water Plan Update.
6. David Groves gave a presentation on integrated water management scenarios for the Inland Empire area using the WEAP modeling platform. The project was conducted by David Groves and Robert Lempert, RAND with David Yates and Claudia Tebaldi (NCAR). They developed a WEAP model to assess performance of Inland Empire Utilities Agency plans under different assumptions regarding future climate change and projections of water supply, demand, & reliability. The model explored multiple combinations of adaptive IEUA management plans and evaluated how uncertainties (including those due to climate change) would affect the performance of each plan. Materials related to this project will be made available in the coming weeks at the project website: www.rand.org/ise/projects/improvingdecisions.
7. David Purkey discussed lessons learned from these case studies for future applications. He presented a matrix table comparing the California Water Plan Update 2005 scenarios framework and the regional case studies. (see Figure 2)
8. Participants were curious as to how long it took to run scenarios on the models. Length of time depended on the application. For the Southern California study, each run took only seconds with the simple Analytica model. For the IEUA application, it took 2.5 minutes for a 35-year simulation. For the Sacramento application, it took 1 hour for a 30 year simulation. However, it requires many runs in order to evaluate impacts; a minimum of 200 runs for each strategy. For the IEUA study, it took about 200 hours to run nine different policies through 500 different scenarios reflecting climate change and other water management conditions.

9. In a report-out following group discussion, participants said it was appropriate for the State to analyze water supply impacts based on many different scenarios. They suggested that scenarios include climate change, drought, “if delta fix” and “if not delta fix” scenarios. They also suggested that investment decisions should be at the local and subregional level (such as IRWM regions) because it is the local agencies that will analyze the impacts on the state’s supply and locally decide which management strategy to invest in at what time at what level.
10. For temporal scale, participants suggested to have the California Water Plan’s planning horizon look to the year 2040, or even 2100. They would like information for every 5 year increment after the base year 2030. Another participant suggested having looking at years 2010, 2015, 2020, 2030, and 2050.
11. Participants suggested that DWR’s scenarios actively track variations to various drivers of water supply, as opposed to a fixed level of development (which was the approach in previous Water Plan Updates).

Meeting Outcomes

1. The participants expressed interest in obtaining access to the WEAP model. David Purkey said that demo copies of WEAP executable software can be downloaded for free from the SEI website (<http://www.weap21.org>). SEI is interested in collaboration with DWR and stakeholders. SEI has recently entered into a relationship with State of Massachusetts. In Massachusetts, WEAP is made available free of charge for all cities and districts in the state. DWR is considering WEAP as one of several possible tools for quantifying deliverables for the Water Plan.
2. The participants indicated interest in obtaining training in use of model software (i.e. WEAP).
3. As a topic for future SWAN scenario discussion, a proposal was made have a discussion about how to represent state-level processes at different levels using the types of scenarios tools showed today and the Water Plan’s scenario framework.

Next Steps

1. Post meeting materials to the California Water Plan website.
2. DWR will work with SWAN to draft proposal on quantitative deliverables for Update 2009 by December 2007. A final proposal is needed by March of 2008 to make it into the public review draft.
3. DWR will work with the Advisory Committee to develop narrative descriptions of the scenarios for the Assumption and Estimates Report by December 2007.

Figure 1: California Water Plan Update 2005 Scenario Framework

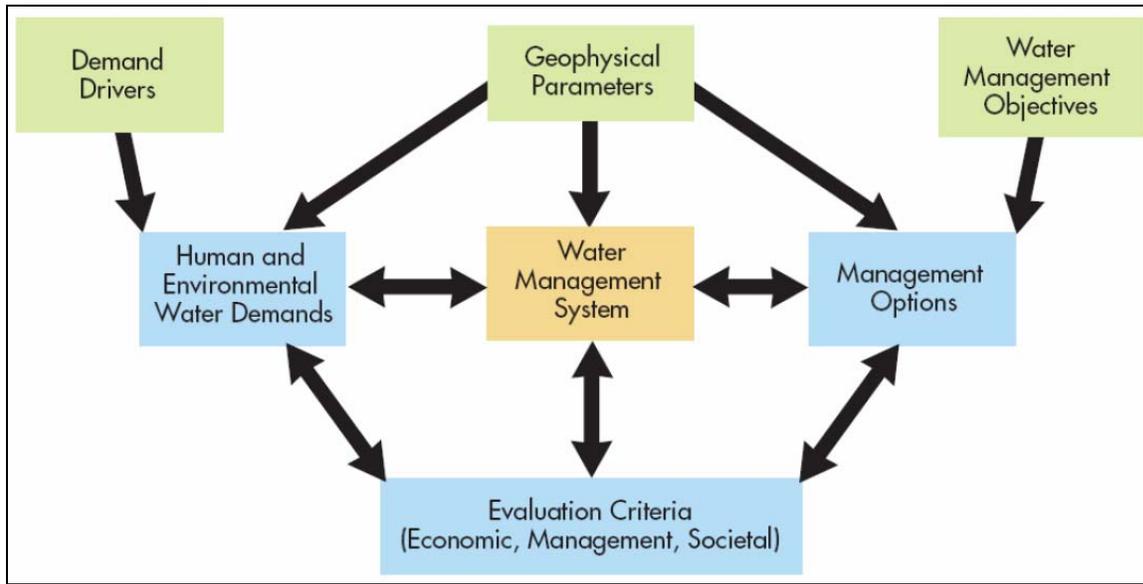


Figure 2: Scenarios Matrix - Lessons Learned

	Scenario Framework	Geographic domain	Level of integration	Level of System detail	Climate/hydrology
2005 CWP		Statewide, by Hydrologic Region	No integration between demand scenarios and management options	Coarse demand factor representation. Management options derived from other studies	Annual data for past hydrology (water portfolios), no climate or hydrologic signal in scenarios
Simple Scenarios for Southern California		Southern California. Demand by county, supply by region	Arithmetic combination of supply and demand. Factor changes to baseline estimates	Coarse demand factor representation. Management options derived from other studies and related to supply and demand projections	Annual projections of supply and demand. No interannual variability. No climate signal.
Sacramento WEAP application		Sacramento Basin, including Bay-Delta and Trinity Diversion	Full integration with demand and supply elements interacting dynamically during simulation	Full system detail with all critical system components represented explicitly	Monthly precipitation, temperature, RH and wind. Rainfall/snowmelt simulation->runoff. Water quality simulation.
Robust management strategies for IEUA		Inland Empire Utilities Agency service area.	Integrated supply and demand and long-term water management plans	Aggregated representation of large system components.	Monthly precipitation, temperature, RH and wind. Rainfall/snowmelt simulation->runoff. Parameterizations of effects on imports.
2009 CWP	???	???	???	???	???