Lessons learned about an EWA since the last Phase 2 report

DNCT conducted several gaming simulations to better understand how an Environmental Water Account (EWA) might have been operated under different scenarios. Each scenario had income, rights to facilities, and the ability to buy and sell water. It had the right to manipulate the operations of the state and federal Projects, provided that it could assure that the Projects would not be harmed by EWA activities. In these gaming simulations, the EWA controlled a network of high (and low) priority storage rights from Shasta Dam, to Delta Island storage, to the Kern Water Bank. The EWA controlled a series of contracts giving it the right to purchase water in any given year. It had the right to allow variances to the Export/Inflow standard in order to generate environmental water. Finally it had an income of $40 million per year for water purchase at the beginning of Stage 1 and $30 million per year at the end of Stage 1.

Using several scenarios with various collection of facilities, contracts, rights, and income, the DNCT demonstrated that it is possible to make major shifts in Project operations to protect fish and to improve habitat conditions without reducing water supplies to the water users.

As the games became more sophisticated more opportunities for multiple benefits came to light, such as upstream benefits to instream flows and temperature below reservoirs. The synergies of different actions were very beneficial to EWA in that it had a network of infrastructure/rights which added value greater than the sum of the individual parts.

It was discovered that it was very important to establish the right sharing formula for new facilities. Given the right hydrological circumstances giving the Projects unencumbered control over large increases in export capacity creates instability in the game and the EWA could be bankrupted, or fish protections compromised.

A simple credit approach did not work as well as water account approach in effectively balancing benefits to water quality, water supply, and the environment. Gallon-for-gallon water account approach provided more opportunities, more synergies, and more flexibility.

South of Delta and near the export pump storage provided a premium in allowing flexibility in EWA operations. Storage closest to the pumps allowed the most flexibility. Use of groundwater was limited for the EWA given the low recharge and extraction rates. EWA required large volumes of water in a relative short periods of time. Groundwater was mainly used as collateral with the water users for debt incurred by the EWA to the water users.

Because the water supply within and among years is so stochastic (unpredictable and

variable), an EWA approach provided a much needed buffering system not only for protection of the environment, but also for water quality and water supply. The EWA provided the collateral to take on risk. Sharing water supply generated by new facilities and the risks associated with water supply, along with a flexible management approach like EWA, provided for mutual incentives for long-term benefits for the environment, water quality, and water supply in the future.