Carpe Diem
WESTERN WATER & CLIMATE CHANGE
A PROJECT OF EXLOCO – PATHFINDING IN THE NEW WEST

Climate Change & Western Water: Field Analysis Synopsis

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"Water will be the delivery mechanism for the impacts of climate change."
- **Kathy Jacobs**, Director, Water Institute, University of Arizona

"Mitigation has got all the attention, but we cannot mitigate out of this problem. We now have a choice between a future with a damaged world or a severely damaged world."
- **Dr. Martin Perry**, co-chair, Inter-governmental Panel on Climate Change

The **Carpe Diem** project is building on and connecting current work to develop a pragmatic, common ground, West-wide framework to address climate change impacts on western water supply and ecosystems, developing joint strategies, projects and best practices. The goal is to, by 2010, create an initial shared platform and action plan among key stakeholders and decision makers for sustainable and equitable adaptation strategies.

Over the past year, the **Carpe Diem – Western Water & Climate Change** project, through its convenings, stakeholder interviews and field surveys, has been scoping and assessing trend lines, system disconnects, and 'tipping points' - identifying a rapidly evolving set of challenges and opportunities. A brief synopsis of key findings:

- **Adaptation & Mitigation**: Substantial progress - in framework and direction - has been made on climate change mitigation but not on climate change adaptation. However, the field is changing rapidly as decision makers are starting to assess the needs and responses for addressing climate change impacts. A better understanding of vulnerability assessment and risk management is critical, along with the need to integrate adaptation and mitigation strategies.
- **Adaptation vs**. **Mitigation**: Adaptation has been generally been seen as a separate issue from mitigation. Developing field analysis points to the need,

and opportunity, to develop joint responses, especially in the area of energy and water use (transportation and use of water in energy development) as well as end use water measures such as conservation, recycling, grey water and efficiency.

- **Federal Response**: In the past year, the Bush Administration has formally acknowledged that climate change is a reality, and it is likely that significant federal climate change legislation will pass next year. Most of this response remains focused on mitigation, not adaptation; on energy-sector, not water-sector, reforms.
- **Shrinking Time Frame**: Climate change impacts are accelerating - and many changes will come abruptly, not gradually. The impacts on water resources and supply are directly tied to economic prosperity, wildfires, agricultural production, community viability, human health, ecosystem health, and energy development.
- **More Effective Science & Modeling:** Scientists are becoming increasingly skilled at translating forecast data for decision makers and developing more sophisticated prediction models. There are only a few examples of water managers using this information to develop sustainable "loading priorities" – e.g. start with the options that make the most sense economically and environmentally.
- **Searching for Common Ground**: There is a significant level of agreement among stakeholders on the "problem set" (e.g. climate change will bring severe impacts on western water) but little agreement on the "problem statement" (i.e. what the responses should be.)
- **Limitations of "Silo" Management**: The West's water is linked across regions and states - by watersheds and infrastructure - it is also fractured by management from a myriad of public agencies, compacts, federal and state laws. Most decision makers and water managers remain stuck working within these legal, statutory, and institutional 'silos'. Total watershed management at the regional level is difficult to impossible within these limitations.
- **Moving From Denial to Reality:** In the past two years, many lead western water managers and agencies responses have shifted from denial (e.g. "its only drought") to acceptance that climate change is a reality and will have significant, potentially devastating impacts, on their ability to provide certain water supply. There is also a growing understanding among water managers and decision makers that relying on historic flow information will not work under climate change, and that flexible water systems need to be developed to meet the predicated supply uncertainty.
- **Changing Emphasis of New Infrastructure:** Up until recently, many lead western water agencies looked at new water infrastructure as a way to

increase supply. Now, many of these water agencies see new infrastructure (e.g. above ground storage) as a way to ensure better certainty in supply and to meet ecosystem protection needs. At the same time, some urban water agencies are still developing plans for new infrastructure to increase supply, including desalination which is increasingly being seen as a new supply option for many regions.

- **Impact on the most vulnerable:** Climate change impacts will not affect everyone equally, and as competition for water increases, the vulnerable human populations and ecosystems will most immediately experience a disproportionate burden.
- **Public health:** There is a growing understanding about the impact that climate change – increasing temperatures, variability in water quality and supply, potential food supply disruption – will have on human populations.
- **Emerging Potential of Ecosystem Services:** Resilient ecosystems could possibly play a critical role in helping to off-set climate change impacts on water supply and flow through storage (ground water) and better absorption of flash-floods. Rising temperatures will mean more rapid evaporation from reservoirs and, in many cases, lower water quality – storing water further upstream in healthy ecosystems could be a better alternative.
- **The Water and Land Use Disconnect**: New developments continue to be built in areas where long-term water supply is uncertain at best; new homes continue to be built in flood plains. Piecemeal regulations and laws are being passed, or under consideration in many parts in the West, but overall there continues to be a huge disconnect between water and land use planning.
- **Private sector investment:** Historically, private investors have not considered new water projects economically viable because water rates are so inexpensive, and because of the long-time frame needed to move through the regulatory and political hurdles. However, long-term trends indicate that urban water supply costs will increase dramatically, and water and region managers are looking for options to scarce public infrastructure dollars. There is little understanding to what will be the social, economic and environmental consequences of increased private investment.
- **Energy, Water and Climate Change:** There is a growing understanding of the relationship between energy generation and water use as it affects both supply and quality. Increased energy development will severely impact water resources. There is little information, or examples of how decision makers can develop integrated energy and water resource planning and decision making tools; nor is there a comprehensive analysis of the impact that water-intensive energy generation will have on long-term water supply.

- **Demand Side Management Limitations:** Potential savings from comprehensive demand side management have not yet been realized. A number of western water agencies have implemented excellent water conservation and efficiency plans, resulting in lower per capita water use. However, many water agencies are at the limit of their regulatory and political mandate to implement a new level of water conservation and efficiency. In addition, many regions have ineffective – or in some cases non-existent – conservation programs. A systems approach and broader policy mandate, along with a de-coupling of revenues from water sales and other incentives, is needed to fully implement water conservation.
- **NGO Capacity:** Capacity in the NGO community remains, at best limited, with little philanthropic support. Historically, western water NGO work has been limited to specific watershed protection, litigation and policy, or stopping new infrastructure projects, and as a result few NGOs have the capacity, skills or leadership to effectively address climate change impacts.
- **Sector Leadership:** The remains a fundamental and core need for leadership at the local, state, federal and international levels in all sectors.

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