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Regional

Water Management in California: Are Our State's Communities Sustainable?

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NEVADA CITY, Calif. Aug. 3, 2009 - "If we don't change the direction we're going, we'll end up where we're headed." For anyone concerned about sustainability in California, this axiom holds significant meaning for our state's economic, environmental, and social future.

Recently, a group of civil engineers came together in Sacramento with statewide community leaders, water experts, flood protection managers, elected officials, regulators and environmental advocates to discuss and debate the issue of how to balance competing needs for California's most valuable resource: water.

Organized by the Environmental & Water Resources Institute of the American Society of Civil Engineers (EWRI/ASCE), the ASCE Committee on Sustainability, and the Floodplain Management Association, the symposium served as a forum for exploring the potential for sustainability in California's communities and ecosystems.

"We want new ideas as a first step toward change," EWRI Vice Chair Robert Shibatani challenged those present. "With these, we will be preparing a white paper to put on the Governor's desk." Offering up the first comment on challenges to sustainability, Shibatani suggested that California is not devoting enough attention to population growth, especially over the next 50 years.

Keynote speaker Jim Branham, Executive Director of the Sierra Nevada Conservancy, agreed that population growth along with climate change, risk of catastrophic fire, and unemployment represent critical challenges to creating sustainable communities in the Sierra. "The link between economic well-being and the environment is inextricable," Branham noted. He also expressed the need to integrate economic viability with environmental protections. "The Sierra contributes so much to the state's economy. We need to protect it."

"Don't Steal From Your Kids"

For John Andrew, Executive Manager for Climate Change with the California Department of Water Resources, this quote represents his interpretation of sustainability. While he emphasized the need for educating people on the concept, Andrew observed that changing our habits regarding water usage will be difficult. "Sustainability is not part of our DNA," he suggested. "We have traditionally thought that we don't need to think beyond the 'tap' in the waterworks industry -- and this remains our failing. People need to be thinking about where their water comes from."

There was consensus among members of the plenary panel that water planning must become more integrated at a regional level. But panelist Ellen Hanak with the Public Policy Institute of California offered additional thoughts on integrated water management. "This does not just mean building dams. Sustainability is more of a portfolio approach," Hanak said. The group concurred with her remarks and concluded that California needs to aim for both sustainable systems and sustainable resources.

On the subject of challenges and impediments to sustainability, Fran Spivey-Weber, Vice Chair of the California Water Resources Control Board, pointed to the current budget crisis. "We can't look at the state of the budget and say we are on a sustainable path," Spivey-Weber acknowledged. But she did cite some instances where positive achievements have been made, like the Inland Empire's success with using recycled water to restore groundwater sources.

Still, in spite of efforts by some agencies and municipalities to reassess how they utilize and value their water sources, our current budget crisis highlights a growing issue: the way Californians pay for water investments -- both supply and ecosystem management -- has become an unsustainable path. Moreover, with the state's financing system in shambles, relying on bond funding has become far too risky.

On the subject of resource management, Kaymar Guivetchi, Manager of DWR's Division of Statewide Integrated Water Management, thinks the process is too decentralized in California. "As individual enclaves, we don't look at the issues holistically," Guivetchi noted. "And we bump up against other enclave resources."

More interagency communication is necessary, the panel agreed. Joan Clayburgh, Executive Director with the Sierra Nevada Alliance suggested that integrated planning should also include public input and participation. "We need a cultural shift for people to understand the impact of their lifestyles," Clayburgh said, prefacing her suggestion. "We need to work toward a 'collaborative' with people as a stakeholder group involved in the process."

Along with population growth, the uncertainty of climate change makes creating a statewide water plan difficult, the panel also agreed. It was also noted that creating good models for managing water resources is often challenging because of one critical unknown: water usage. "We don't really know how much water we use, especially in urban areas," Spivey-Weber pointed out. "We don't know how much we use between surface and groundwater sources."

While California Department of Conservation director Bridgett Luther advocated the need for resource conservation at the private sector level, Spivey-Weber cited the Mono Lake saga as an argument for regulation as a necessary tool for resource management. While financial incentives for conservation are important, in the absence of regulations, people will often resist change.

Joseph Grindstaff, Deputy Secretary for Water Policy and Director of the California Bay-

Delta Authority, agreed with Spivey-Weber on the subject of regulations. "We need legislation forcing California communities to be more efficient, more sustainable," Grindstaff maintained. "We particularly need to step up and deal with water rights," he added, stating the need for enforcement when entities exercise rights that do not exist or use more than a water right allows.

The concept of redistricting by watersheds was also discussed. By merging all of the districts in the Sierra together as one -- as a whole watershed -- all stakeholders would then be talking together.

A Sustainability Portfolio: Dealing With Aging Levees, Ensuring Sustainable Water Resources, and the Importance of Water Quality Management

Presuming that planned water resource sustainability is the best way to ensure the long-term viability of California's communities and its environment, the remaining panelists evaluated three case studies within a sustainability portfolio.

The financial risk of living in a floodplain

While many communities throughout California often face similar roadblocks to water management, certain communities such as those located in deep floodplains face uniquely difficult challenges to sustainability. For areas in northern California like Yuba County, trying to maintain adequate levels of flood protection through safe levee systems must be balanced with the associated costs to those living in these floodplain areas.

As a member of the Yuba County Board of Supervisors, Mary Jane Griego said that small farm communities in her county have difficulties funding levee improvement projects. Similarly, flood insurance is too high for many residents. "Here is our dilemma: can these communities afford to draw more people into floodplains as a means to increase the tax base for funding projects?" questioned Griego. "Or are we just inviting more people to be at risk."

Susan Tatayon of the Nature Conservancy and a resident of Hamilton City spoke from a similar position of concern. "We are a very small community that is always trying to get better flood protection," Tatayon echoed Griego's comments. "But because of economies of scale, levee improvement projects didn't pencil out for us." Tatayon explained that policy changes in 1998 allowed the Army Corps of Engineers to include flood protection and ecosystem restoration together under a single project. By combining the two goals, cost ratios were met and Hamilton City was able to achieve a 75-year level of protection on their levees.

But according to Rod Mayer with DWR's FloodSAFE program, even with these changes, money to fix floodplain problems is limited and the levels of protection vary. Bond improvements often apply only to areas with 10,000 people or more. "The Sacramento airport/Natomas area has a higher population, so it will get funds for levee restoration, while across the river at Elkhorn, they don't have enough people [to qualify for these

bonds]," Mayer pointed out. "The solution may be to do only partial restoration, to provide mid-level protection."

Bill Edgar with the Sutter-Butte Flood Control Agency offered some observations on sustainability and living in flood-prone areas. "Rural communities must grow to sustain themselves. To be sustainable they need increasing revenues," Edgar maintained, while adding that they also need to constrain their general plans to fulfill their respective visions of sustainability.

"IRWMPs (Integrated Regional Water Management Plan) should be included in general plans," he insisted. At the same time, he said that counties need to make sure that their general plans can be implemented in the face of floodplain issues, especially when a community ends up on a FEMA map. "The problem with some small communities is they upgrade their general plans which then conflict with constraints associated with FEMA maps," Edgar said, referring to development restrictions -- and higher flood insurance rates -- for those communities which are identified on FEMA maps.

According to Mayer, there is legislation in Congress to tie FEMA maps to risk-based flood insurance premiums.

Sustaining water resources: supply vs. demand

"We need actions to address climate change impacts." Robert Roscoe, General Manager with the Sacramento Suburban Water District, offered this statement with more than a clear understanding on how climate change is affecting available water sources for districts like SSWD. Panelist Jim Metropolis with Sierra Club California supported Roscoe's blunt observation, adding that legislation like AB 2572 (requires installation and use of water meters by 2025) is one way to directly address the impacts of climate change.

And when this group of panelists was asked what they should be doing today, the overwhelming response was conservation. "Conservation is the most cost-effective way to increase supply," responded Alan Zelenka, Energy Services Leader for consulting firm Kennedy-Jenks. "Water isn't priced at market value in most places. We need to create cost tiers to encourage conservation. In order for conservation to work, you must have price controls in place," Zelenka added.

According to Brian Thomas, Assistant Manager for the Metropolitan Water District, for every acre foot sold by MWD, the cost includes \$41 which goes toward conservation. "Two decades ago we were building infrastructure and our water supply. Now we are working on sustainability," Thomas observed, also adding that a "conveyance facility" -- a euphemism for the peripheral canal--is imperative. "We need to start early with actions in the Delta, especially land acquisitions for restoration projects."

Later in the discussion, moderator Roscoe echoed Zelenka's observations that water is a highly undervalued resource. Asking for more debate on this subject, Roscoe insisted we

should be paying more for water. He also observed there is a lack of price signals to increase public awareness on an issue facing many California communities: the price of water is too low.

MWD's Thomas agreed, saying as an advocate of higher prices, he sees the need to recover the cost of providing water service. He pointed to the importance of improved technology, but noted that upgrading to better systems is expensive. Jeffrey Beehler with the Santa Ana Watershed Project Authority added that there should be additional pricing for ecosystem services. "Wetlands provide benefits," he noted. "We need a handle on environmental issues and impacts."

The question of groundwater supplies -- including their reliability and issues of pollution -- was also raised. It was suggested that California needs a statewide groundwater monitoring program which would include taking a closer look at polluted groundwater basins. And while desalination was also discussed -- and some viewed it as part of the solution to sustainability -- several concerns were voiced about cost and potential environmental impacts.

Ensuring economic, social and environmental benefits: the importance of water quality

Moderated by Pamela Creedon, Executive Officer with the Central Valley Regional Water Quality Control Board, the final panel debated ways to ensure statewide water quality. She pointed out that California does not have one agency that manages all aspects of water and questioned how this might be resolved as a means of protecting all components of water quality.

Discussion began around the subject of IRWMPs and why it would be important for communities to integrate these into their overall planning process. Sargeant Green with the California Water Institute at CSU Fresno insisted that addressing groundwater quality is an important component of an IRWMP. He also said that local planning must be integrated with addressing water supply. "We need good local planning," Green noted. "We can't keep paving over good recharge areas or locating facilities in places where they will impact water resources."

Judy Corbett, Executive Director of the Local Government Commission, believes planning should be inclusive of regional models. She also noted that in planning and development, there are conflicting rules in the bureaucratic system. Creedon later visited the subject of land-use issues and how sustainable projects can be achieved without major environmental tradeoffs. She pointed to where communities object to regulations that require environmentally low-impact housing developments. Corbett offered a real-case scenario where low-impact construction is feasible. Citing her highly-acclaimed Village Homes project, a sustainable development in Davis, Calif., Corbett said the underground catchment system designed to accept runoff cost less than a regular storm drainage system. "You don't always have to have tradeoffs for a sustainable system," Corbett added.

But California Water Institute's Green was not convinced that low-impact is the best way to go. "Who is going to pay for services?" he asked. "Low-impact works better on a smaller scale, but when you talk about people demanding more services. These require energy and then as you begin scaling up a community, you eventually bump into tradeoffs."

Focusing directly on water quality, the panel emphasized the need for viewing reclaimed water as a community resource. But as Jeffrey Rupp of the consulting firm David Evans and Associates observed, the current public mindset usually views recycled water as "waste." "We need to reuse water," Rupp insisted, further adding that recycled water can provide additional revenue streams. Michael Bryan with consultants Robertson-Bryan agreed, taking the subject one step further to address the need for "purple pipe" infrastructure. "If we have the infrastructure [for recycled water] in place, we should use recycled water first," Bryan observed. "We need to make sure the pipe is in, even if it's ahead of time."

Acknowledging that water quality has become an expensive mandate, especially as it relates to wastewater operations, Bryan added that state policies should not create hurdles to recycled use. At the same time, it was also noted that storage of recycled water can be problematic because of high saline levels. "The issue is where do you put this kind of recycled water," Rupp noted. "You can't put it back in groundwater and you can't use it for agriculture. We can possibly store it in lands where there are old salt regimes," he added.

On stormwater runoff, Creedon asked the panel about its specific role in IRWMPs. For Green, dealing with service water is all about location. While discharging into a stream can be problematic, releasing service water into the soil is an option -- as long as land is available.

It was also noted that urban runoff has its own set of issues, such as pyrethroid insecticides. "We keep finding problems with these," Bryan said. He later added that trading off environmental values is not an option when developing communities. Still, he sees problems with the state's current toxic rules. Bryan emphasized that site-specific objectives for receiving water upstream may not be as protective of downstream users. "Right now, they [CTR/California Toxics Rule] apply generally throughout the state and not for individual water bodies. Some standards should be adjusted for site-specific objectives," Bryan suggested. "We should adjust the basin plans to more site-specific objectives. One size does not always fit all."

For Green, one of the real issues is communication, particularly as it relates to how water agencies, regulators, and managers communicate with the public. He also emphasized the need for training and education. "Anyone working on the state water board should be properly trained," Green said. "Everyone involved in water governance should be better educated on why we can or can't do things with and to our water. I'd like to see a school for water districts."

Corbett echoed Green's priority on communication, stating that charettes, for example, are an often successful means of engaging and involving communities in the process of making good policy decisions.

The American Society of Civil Engineers is a professional organization representing more than 146,000 civil engineers. Created in 1999, the Environmental & Water Resources Institute (EWRI) is a specialty institute of ASCE with over 22,000 members nationally. It was intended to bridge the gap between engineering and the other key disciplines that manage, study, and govern our valuable water resources. The mission of EWRI is to provide for the technical, educational and professional needs of its members; promote the sustainable use, conservation, and protection of natural resources and; promote human well-being. The Sacramento section of the EWRI was winner of the 2008 Award for Outstanding EWRI/ASCE Chapter. The chapter plans on holding its September meeting in the Nevada City/Grass Valley area. For more information, contact Robert Shibatani at robert@theshibatangroup.com.

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