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Collaborative networks and new ways of knowing

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ABSTRACT

To move beyond legal and regulatory gridlock around water issues in the California Bay-Delta, a new inter-agency initiative, commonly known as CALFED, was created in 1994. CALFED has been an ongoing experiment in policy innovation. Part of the change in management practice has involved constructing new arenas that engage multiple perspectives and transform regulatory impasse into provisional steps forward. We examine the construction of so-called boundary objects, which are forums and policy instruments that cross group boundaries and foster integrative deliberation. We compare the design and action of two boundary objects created by CALFED, namely the Environmental Water Account (EWA) and the Water Use Efficiency (WUE) program. We find that the presence of the boundary object, in itself, does little to explain the success of each policy experiment. Rather, the answer lies in the types of network interactions that result, along with the way meaning is coproduced. In fact, rather than create new patterns of interrelationship (e.g., between fish habitat advocates and pump station operators), the boundary object might further embed institutionalized routines. To more deeply understand what makes the new institution an integrative one, we introduce the concept of Ways of Knowing which explains how new knowledge emerges from the network of new relationships.

1. Introduction

Water management in California Bay-Delta presents an archetypal case of resource dilemma in that it is characterized by interconnectedness, complexity, uncertainty, conflict, multiplicity of perspective, and the ever-present threat of deadlock. On the one hand, reliable supplies of clean, affordable water for traditional claimants like cities, industries, and agriculture are dwindling. On the other, water managers are beset by rising claims for fish and wildlife habitat and other environmental purposes. And looming over all of these factors is the specter of climate change, dangling a giant question mark over water policy like a Damocles' sword. Structural solutions to augment water supplies through trans-basin diversions are financially and politically very difficult. Increasing storage capacity is no longer California's panacea for water, and we cannot assume that the solution lies in the elusive promise of desalination, which, given the direction of energy prices, seems increasingly infeasible. By now, most everyone in water policy recognizes that solutions will come from mixed strategies combining hard supply-side and soft demand-side approaches and from innovations in water management including not just new institutional forms but also new ways of knowing that forge coherence among multiple claimants.

Underscoring this discussion is the crucial nature of the Bay-Delta system (short for the San Francisco Bay/Sacramento-San Joaquin Delta estuary), which is the largest estuary

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on the United States' West Coast and also California's major water supply, providing two-thirds of California's drinking water and irrigation for 7 million acres of agricultural land. It is here where conflicting claims over the water take place in rather dramatic fashion.

2. Background

For water interests around the California Bay-Delta, 1982 dealt a major setback. Voters decisively defeated the peripheral canal, designed to move water around rather than directly through the Bay-Delta. Residents in Northern California opposed the loss of what they considered their water to the South. Environmentalists questioned the small number of environmentally friendly add-ons to the legislation. Agricultural interests in the San Joaquin Valley believed the deal included too many environmental restrictions. Through a process of ''benefit-spreading'', the policy package was designed to add numerous beneficiaries (who in the end did not support the legislation) and became so expensive that voters suffered from sticker shock (Nawi and Brandt, 2002).

Not only did water development come to a standstill, long dominant interests lost some of their previous gains through unfavorable court decisions and other events. First the courts in 1986, and then the Environmental Protection Agency (EPA) in 1990, disapproved of the state's water quality standards in the Delta as not meeting the requirements of the Clean Water Act. As a result, water entitlements of Central Valley farmers were cut. Even more ominous to dominant interests, the Sacramento River Winter-Run Salmon and the Delta Smelt were listed as endangered species. Because pumps serving the State Water Project and the Central Valley Project suck in fish despite precautionary measures, and fisheries agencies are empowered by the Endangered Species Act (ESA) to shut down the pumps if the ''take'' of endangered fish becomes too large, the reliability of water supply to cities and agricultural contractors was threatened.

Matters reached a head in what was widely referred to as the ''smeltdown.'' In June 1999, a story in the Sacramento Bee under the headline ''Protection of Fish Puts Farm [and] Bay Area Water at Risk'' quoted a high ranking local water official as saying ''what has emerged in the last 48–72 h is a real water supply crisis''. Numbers of endangered smelt had lingered around the pumping plants for weeks beyond normal, forcing operators to pump less than half what was normal.

The issues raised were more fundamental than aberrant fish behavior. Environmental and Wildlife agencies have missions that fundamentally conflict with the water community, making it impossible to accommodate everyone using the traditional pluralist politics of mutual accommodation and benefit-spreading strategies, as we will describe below (Lach et al., 2006). Further, the geopolitical underpinnings of water were drawn into question. Urban water utilities claimed that water for people trumped fish and crops and that there were growing cities south of the Delta than needed more water.

Why is innovation so imperative? Simply, because the simple allocative model that has ruled water supply management in California for a century is failing. The ''smeltdown'' debacle, where one water use (habitat maintenance) completely shut down another use (water supply) was a great reminder of this. The allocative model consists of divvying up a finite pie, consisting of so many acre-feet of reliable water that agencies expect to be available each year, across the constellation of users, each demanding so many acre-feet of water. Mathematically, the total acre-feet of water demanded has begun to exceed the acre-feet of water available, as has been experienced during dry years but, more recently, even in normal years. But this zero-sum formulation is being questioned. Increasingly, stakeholders are beginning to talk about overlapping uses, where the same acre-foot of water might actually be used to meet multiple demands simultaneously—this is reflected in industry terms like ''conjunctive use'' and ''integrated water management.'' The complexities of supply and demand need to be better understood and addressed. Given the current inability to expand storage, water supply has a diurnal, seasonal, and climatological ebb and flow that is ill expressed in gross terms like acre-footage. Demand has its own ebb and flow, also. The question, now, is whether a fine-tuned regime of supply and demand management might meet increasingly conflicting needs.

Innovation should emerge from the recognition that the system, both supply and demand, is more complex than the current water management regime can accommodate. As Innes and Booher suggest, there is a need for new institutional designs, most likely affording new venues for participatory system management, that can respond to complexity (Innes and Booher, 2005). They and others point to the idea of adaptive management as such a response, where learning occurs in real time from the interaction of multiple knowledge bases, scientific and non-technical.

CALFED is the inter-agency initiative that grew from the resolve to get past regulatory gridlock, and the California Bay-Delta Agency (CBDA) was the new organization charged with implementing it. Established as a consortium of 8 State and 10 Federal agencies in 1994, CALFED drew up a long-term plan of action formalized in a Record of Decision (ROD) in 2000, the idea being that solutions would likely come only when piecemeal, unilateral actions were replaced by concerted, comprehensive planning and action.

3. Conceptual and methodological approach

We begin by recognizing the multiple ways that water management is understood.

First of all, experts and citizens alike are beginning to confront water as a social–ecological system. In the Bay-Delta region, advances in the ecological sciences offer a deeper understanding of the meaning of water and suggest some important insights into how ecosystems might be better managed (Blatter et al., 2001). From this perspective, water is viewed as inseparable from other environmental elements that make up a particular watershed or bioregion. The characteristics of water, including quantities, chemical composition, temperature, and turbidity are suited to the habitats in which it is found. Small variations in stream temperatures caused by impoundments and return flows from irrigation can make a stream an unsuitable fish habitat. According to the lessons taught by taking this perspective in contemporary