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## BOOK REVIEW

**Grover, V.I. and Krantzberg, G. (Eds). 2013.** *Water co-management*. CRC Press, Taylor and Francis Group. Print ISBN 978-1-4665-7843-2, vi + 364 pages, \$83.96.

(URL: [www.crcpress.com/water-co-management/grover-krantzberg/](http://www.crcpress.com/water-co-management/grover-krantzberg/))

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*Water Co-Management* is an edited casebook with 16 separately authored chapters. Though the editors do provide an introduction, about which more in a moment, there is no final overview chapter. The chapters are written from many different angles using many different perspectives. I had some problems with the book. But, in the end, it was well worth reading to get an overview of what the trendy 'adaptive co-management' (ACoM) concept might and might not mean, based on actual cases, not on literature reviews of concepts. Needless to say, I'm not going to try and describe all the chapters in one review.

I asked to review this book because, after a few years of working on water in our current era of climate change, ACoM sounded on the face of it like a useful concept to guide the thinking and action required by those changes. The concept, I should add, also appeals to an anthropological reviewer because it emphasises local knowledge and context as well.

Grover and Krantzberg point out that there is no one definition of ACoM, though they review several to foreground the addition of the critical 'co' element that makes this more than the decades-old notion of 'adaptive management'. 'Co' adds in vertical and horizontal power sharing, particularly between members of a community who use a resource and those outside the community who regulate its use. The editors then draw on Fikrit Berkes' foundational work to describe six different 'aspects' of ACoM. (For the interested reader, Berkes himself offers a nice summary description of his rationale for the concept in a video at [www.youtube.com/watch?v=Y\\_2yJ89QoZ8](http://www.youtube.com/watch?v=Y_2yJ89QoZ8)).

The first aspect the editors mention is on critical sharing of power. The next five, in order of appearance on their list, are: 1. Institution-building that crosses networks; 2. Building trust and social capital. (Single and double loop learning are included here, an 'aspect' that deserves its own position on the list); 3. A dynamic, constantly changing process; 4. Task orientation; and, 5. Emergent governance. Then they add social learning, along with a final line about how ACoM can also be seen as a web of networks, though it is not clear whether they refer only to *social* networks or include environment and technology.

For this reader, the introduction unloads a pretty heavy conceptual cluster worthy of more discussion. At this point I wondered if this book review shouldn't be an article. But my reaction coming out of the introduction did help me understand a couple of things. The first: ACoM is an easy concept to advocate but not so easy to work out in practice. There are complex social change and implementation demands lurking underneath the deceptively simple phrase. My second reaction: ACoM requires overturning many deeply ingrained water management habits, like hierarchy, command and control,

experts only, long-range fixed plans, economic value as privileged variable in decision-making, and inclusion of local traditions for water already in place.

The editors present their own list of the many challenges to ACoM. But they also emphasise that the approach makes sense, especially when there is conflict under conditions of uncertainty and complexity. It was just these conditions, brought about by the view that we're in a chaotic phase transition from Holocene to Anthropocene, that suggest that ACoM is the sanest management model to use during the transitional period.

Though the editors don't include a final concluding chapter, they do offer a quick summary of their experience with the cases in the book on page 6 of the introduction: "Lessons learnt from all the successful case studies show that bridging and knowledge co-production are two key characteristics of successful co-management systems". I decided to sample a few chapters with that conclusion as a pointer.

That summary was certainly the story line in Martin Walter's chapter on the Genevois aquifer that spans Switzerland and France. It was amazing, living in the U.S. where denial of environmental science is a common affliction, to hear of its prominent role in the evolution of ACoM. According to Walter, gradual scientific documentation of aquifer depletion resulted in broad agreement that a problem existed. It also clarified the interconnection of different users to the shared resource and showed everyone the overall game and their position in it. The problem of depletion was collectively defined and a common 'causal story' emerged. That's the 'knowledge co-production' part that the book editors mentioned. A joint commission was created—the 'bridging' institution, the second 'key' characteristic. The commission worked out a binational arrangement in spite of national government barriers. In fact, Walter notes that if anyone involved in the arrangement had formally complained, the courts would have had to declare it illegal. No wonder that he says that getting the joint commission up and running was "riddled with legal and administrative difficulties". Once it was officially launched in 1980 it developed an aquifer recharge system. The arrangement was renewed for 30 years in 2007. This is obviously a story with a happy ending, though at the end I wondered who exactly comprised the full list of 'political actors'.

In their case study of the Raccoon River Watershed in Iowa, Cornelia Butler Flora and Michael Delaney tell a story that is more about *becoming* a political actor in a contested river basin where agricultural/industrial pollutants are the issue. This chapter reads more like a tale of adaptive *contra*-management rather than *co*-management, a tale of organising to represent neglected environmental, recreational and esthetic interests in political decisions about a river basin. The resulting organisation succeeded in becoming a political force, and the authors' Community Capitals Framework is an interesting guide to action. But, in the end, they still struggle with money problems and biases on the part of the general population against government intervention. The river, they say, continues to be degraded. This chapter describes a political struggle to become a 'co' on the part of what sounds like established environmentalists and political leaders against equally established and financially powerful agricultural/industrial interests.

A Canadian case study also shows knowledge co-production and bridging, though it sounds like results are more mixed. Tom Williams, Cliff Meness and Ed Desson describe a collaboration called the Anishinabek/Ontario Fisheries Resource Centre. Their definition of ACoM, like many of the others, leaves out the private sector. I understand the reasoning but don't think it makes sense. The Iowa case shows that agriculture has to be part of the 'co' solution. The Centre, like the Genevois aquifer case, follows the collaborative knowledge and bridging institution theme, but in this case it is a collaboration between science and TEK, or 'traditional ecological knowledge', represented by indigenous communities. The authors insist that the bridging institution has to be apolitical, a place where people can talk without feeling obligated to wear their interests on their sleeves. While the Centre has become,

in general, a "widely respected authority on freshwater fisheries", it still tends towards the academic, with influence on policy and financial support 'on the edge', as they summarise it.

In other chapters, the settings change so that the ACoM question can shift-shape in ways that complicate the search for a single framework. In their chapter on the Limarí River Basin in Chile, Alejandro León Stewart and Rodrigo Fuster Gómez describe a different kind of history. During the Reagan/Thatcher/World Bank 1980s, water markets were created in developing countries where many locals sold off their rights and then sank into poverty after they had spent the proceeds. That 1980s trend was called 'privatisation', which meant shifting traditional government services to 'private' actors. But here's the twist: The national water law in Chile allowed local Water User Organisations to form, WUOs, among any group of users who shared water from the same source. The new law also granted those organisations the power to resolve conflicts among their members. Several WUOs did organise, though problems with funding and the lack of a higher-level organisation to enforce the rules hampered their development. After 30 years, though, according to the authors, there is no evidence that WUOs have been either more or less effective managers compared with those basins without them.

I have only described five of the 16 book chapters in this review. Many of the others have to do with cases where ACoM failed, or where conditions show that ACoM would make sense, or where it's just too early to tell how it's going. I selected the five chapters described here because they seemed to link more directly to the characteristics of successful ACoM as described by the editors in their introduction. I wanted to get a sense of what the fundamentals of this approach might be.

So what are those fundamentals? As everyone says, the 'co' stands out as the major distinguishing characteristic, 'co' as in 'cooperation'. Management becomes a social process, a network of equals with at least one common purpose, namely, to ensure that a common pool resource on which they all depend for their different reasons, continues to be available. The local network will exhibit high density and sharp boundaries, though there will be bridging links to other networks, sometimes via network members operating at higher levels of scale, sometimes because of trans-basin social connections, or sometimes just because some network members will be more outwardly oriented than others, those types playing an important role in how ideas and objects diffuse through a society.

How can such networks be formed? The thread I've taken through the book shows the importance of a collective sense of the problem and an urgent need to take action, the ability to undertake shared tasks around knowledge co-production, and the development of a bridging institution. The background to the cases shows that strong resistance can be expected from institutions and interests already in place. But this is still a far piece from a clear schema of principles and processes to guide ACoM development.

In fact, there is an overwhelming amount of potentially useful information available in the history of human social science. The literature on cooperation alone would challenge a reader with a review job that could knock the enthusiasm out of a lottery winner. A book that blends ACoM case study meta-analysis with a judicious selection of the relevant behavioural/social science material might help, not only to explain why ACoM is difficult, but also to show how it might be made less so. The way things are going now with water and environment more generally, it's clear to me in the end that Adaptive Co-Management may well be the most effective way for humans to ride the transition into our uncertain planetary future.

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