

Social Learning, Social Capital and Adaptive Management  
in the  
Clayoquot Sound UNESCO Biosphere Reserve\*

Notes for Comments  
By

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Thanks for the introduction. It is a great pleasure to participate in this very interesting session, and my thanks go to the organizers for the opportunity to be here. This topic—experience with institutional innovation for participatory deliberation and risk management in coastal communities—is one that goes back a couple of years in the planning, and will, I hope, extend forward into regional workshops and a full discussion at the coming National Policy Research Conference next year.

#### Plan for remarks

In the ten minutes allocated for opening remarks in this session, it is impossible to do more than locate the topic and identify a couple of key questions for research. There is certainly no time to trace a very rich institutional evolution as background to those research questions, but I have photocopied a short glossary and list of websites that, for those interested, will provide much of that background.

In that glossary can be found references to the development of an Interim Measures Agreement to provide a framework for relationships and resource use in advance of modern treaties with the Nuu-chah-nulth First Nations; empanelling of the Scientific Panel for Sustainable Forestry in Clayoquot Sound, articulating principles for sustainable forestry based on a synthesis of traditional and local ecological knowledge with conventional science; creation of the Central Region Board, a community-based consensus-seeking body for review of land-use in the region; development of a Regional Aquatic Management Society into the mutual involvement of four orders of government and community representatives in an area-based ecosystem-oriented Regional Aquatic Management Board; formation of a joint venture for sustainable forestry in the region, to be based on the principles set out by the Scientific Panel; and, in the face of two decades of community conflict and civil dissent, development of unanimous support for the successful nomination of the region as a UNESCO Biosphere Reserve.

I find it a fascinating story of new institutions emerging spontaneously on the ground, in response to dramatic change in circumstances and in mindsets or worldviews. Whether it is a success story remains to be seen. But that it represents an extraordinary effort by those famous ordinary Canadians and ordinary communities is clear.

I will try briefly to locate the topic geographically and analytically, and then try to describe a few elements of a research agenda.

Geographically is easy. I have here a transparency, which also appears at the back of the glossary in the handout. The Clayoquot Sound region, and more specifically the Clayoquot Sound UNESCO Biosphere Reserve, sits on the very far Western fringe of Canada, on the central West Coast of Vancouver Island, as far west as you can go in Canada without getting very wet.

The region has been the traditional territory and home for the Nuu-chah-nulth First Nations for as long as anyone can remember. Nuu-chah-nulth people make up about 50% of the population of the region. Unfortunately Roman Frank, a leader and resource

manager from one of the Central Region tribes of the Nuu-chah-nulth Nation could not be with us today to speak directly about the role played by the traditional knowledge and contemporary ambitions of the Nuu-chah-nulth in all the developments I will mention. So I should probably note before going further that much of the evolution I'll describe directly reflects the philosophical vision and political pressures brought to bear by the Central Region Chiefs and First Nations people in the region. The imperatives of the treaty negotiations process created leverage for inter-governmental institutional change that would not otherwise have been there.

To locate this paper analytically is not so easy, but it has been made a bit easier by the organization of the two surrounding plenary sessions. The plenary you've just heard, with Buzz Holling, was concerned with complex natural and social systems, and the interface between human institutions and the ecological systems in which they're embedded. The talk was of complex adaptive systems and ecosystem dynamics more than of social capital. The plenary coming up will be devoted to social capital, but constraints and vulnerabilities arising from ecosystem dynamics will play no significant role there.

I'd like to bring the two together, to look at the significance of social capital in ecological context.

I have been trying to make the case that the fact of the 'full world' generates particular questions about social capital—questions that take us beyond the dense networks of civic engagement that Bob Putnam addresses. (The 'full world' is of course Herman Daly's expression for the world in which ecological services are scarce and the scale of human activity may increasingly be constrained by the realities of ecosystem dynamics.) In that world we are increasingly concerned about the margins of human settlements and scale, the boundaries with the surrounding environment. More particularly, we are concerned about the management of human activities with significant impact on the surrounding ecosystems and supporting ecological services.

We are also concerned about other boundaries and borderlands, particularly the problems of small regions caught in complex institutional and jurisdictional structures of tiered governance, open to the uncertainties and shocks of an integrated global economy, and vulnerable to the changing worldviews and values not just of residents but of many communities outside, again up to global scale. And of course these jurisdictional boundaries bear little relation to any of the relevant bioregional or ecosystem boundaries.

I don't need to tell this group the story of the way in which changing global economic conditions and changing views about appropriate modes of stewardship of resources have combined over the last few decades to create devastating pressures on small, resource-dependent coastal communities, forcing transition to some new ways of resource harvesting, but more particularly forcing adjustment to wholly new visions of community goals, community ambitions, community health. The goal of sustainable community, or at least transition to a path toward sustainability, has developed a strong following, even if we're not very clear what it means.

So to locate the story analytically let me turn to my second—and final—transparency.

We are concerned first with complex systems of social and economic institutions and dynamics, set within complex ecosystems. We're concerned particularly with the margins and interactions across the boundaries. [Biosphere reserves are themselves created to explore the interactions of human settlements and economies with the surrounding natural environment. Biosphere reserves are intended to embrace core areas where the integrity of natural ecosystems is the key objective, buffer areas or zones of transition where both ecosystem values and human industrial activities are to be accommodated and balanced, and, then, in effect, industrially-zoned areas where human settlement and production activities are given priority in order to meet material human needs.]

However, the point I have been trying to insist upon is that we need a more nuanced view of the human subsystem, with a very clear distinction between informal civil society and formal civil society organizations. Moreover, we need to recognize that one might view civil society from a perspective that emphasizes an aggregation of individuals, or one that focuses on organizational structures. (There are of course deep methodological questions here that we can't possibly explore now.)

If we are looking at the community challenge as one of managing a transition from resource dependency based on an industrial model of resource exploitation and management to some other yet to be defined ecosystem-based and more sustainable structure of integrated management, then we have to explore human interactions in a variety of these formal institutional settings as well as in informal networks and informal civil society.

Before I speak specifically about Clayoquot Sound, let me just comment on one possibly puzzling aspect of adaptive management in this setting. As I understand the idea, and as Art Hanson has just described, adaptive management was developed as a way of creating a learning situation by consciously structuring policy interventions in the management of resource harvesting activities as small experiments, not irreversible lurches. By setting up such experiments, and engaging in conscientious monitoring activities, one could hope to reduce uncertainties in our understanding of the state and structure of the complex natural systems in which resource harvesting takes place.

But now we are talking about adaptive management also in the context of complex economic and social systems, and institutional dynamics. The policy interventions we are considering are those which alter the structures and purposes in those human institutional arrangements. We are hoping that those policy initiatives can be seen as experimental interventions from which we also can learn, which will help us to reduce the uncertainties in our knowledge of the complex dynamics of our social and economic systems and indeed, our ignorance of the actual state of the social and cultural stocks that make up those systems.

So we have a couple or three decades of experience with the idea of adaptive management as policy interventions structured for learning about complex natural systems like aquatic resource systems. [Actually, Roman Frank would argue that we have millennia of experience, because the principles of adaptive management are essentially the traditional principles of resource stewardship as they have evolved within at least his own cultural setting.]

Now we're coming to think about adaptive management as policy interventions or institutional changes structured to help us learn about the dynamics of complex human systems.

[And note that at least we have sometimes had the wit to call these 'pilot projects' or 'interim arrangements' as Etzioni recommended as one ploy to avoid the problem of attempting to pursue learning within the 'culture of blame' that Chaviva mentioned yesterday morning.]

More specifically, then, what we are seeing in Clayoquot Sound opens the opportunity to explore such innovations. Working with the community in order to exploit academic resources for community purposes, a number of hypotheses about the form and function of social capital in shaping the community reaction to vulnerability and response to shocks can be examined. The obvious hypothesis would be that with substantial stocks of social capital, the formulation of an agreed collective response to shocks is eased, consensus around collective intention or policy is more readily achieved, implementation of collective intention is more readily realized, and compliance in individual action with the collective intention is more reliably achieved on a continuing basis, in response to continuing shocks. In sum, with greater social capital the community may display greater resilience.

What this says is that with greater social capital, the human social, economic, institutional system within its ecosystem surroundings, is more likely to achieve a quicker and more positive response to changing circumstances or a more constructive adaptation to new practices. Such a responsive adaptation to shocks and change while preserving the capacity of the system to maintain its fundamental dynamic integrity—persistence in its underlying structure—is what I understand constitutes resilience.

But the social capital involved here is more structured than the usual notions of building stronger networks of personal relations, greater bonding within informal communities somehow defined, through civic engagement and interaction.

It has been proposed that one distinguish three forms of social capital—bonding, bridging and linking. I argue that we can make good use of this distinction in exploring and understanding the institutional innovations at community level in Clayoquot Sound.

There is of course the development of social capital in the sense that Bob Putnam has pioneered—networks of norms and reciprocity that facilitate interaction and individual

transactions, and can be built up or destroyed depending upon the way in which the community surmounts or is fractured by the strains of adjustment.

But there is a different kind of social capital—which might usefully be called bridging social capital—that builds relationships across groups, and is built up as representatives of separate communities within the community meet continually, persistently, in ongoing, fatiguing, multi-partite consensus-seeking processes around land-use planning, aquatic management, forest practices, health services. One might perhaps think of this sort of social capital as bonding social capital within epistemic communities which have to develop their own bonds of trust and reciprocity, as well as shared values and agreed understandings or belief systems, within an ongoing negotiation or consensus-seeking process.

And these processes themselves must work within a system of substantial subsidiarity, with devolution of responsibilities and cascading of authorities in complex power-sharing arrangements in systems of tiered governance, often reaching to global level. The effectiveness of these structures might be seen to rest substantially on yet another form of social capital, linking social capital which reflects a capacity to reach effectively into higher orders of formal organizations, whether civil society or formal government. One might perhaps think of this as a kind of bridging social capital in a virtual global village, a vertical rather than a horizontal bridging.

This is all perhaps highly speculative, and not yet very fully grounded in evidence, let alone numbers. But it does reflect the possibility that there is a different, potentially very fruitful, wave of research into social capital that is necessary now, one based not on surveys of trust or values, but on case studies of decision processes and participatory deliberation.

So let me leave you with two lines of research that would link this exploration of social capital to other topics. First there are interesting questions about the way in which evolving capacities and characteristics of information and communications technologies (ICT) affect the processes of visioning and deliberation in these various settings. How does computer-aided deliberation alter processes of collective purpose building and individual agency?

Second, I can't resist drawing your attention to an even more speculative notion. Among the sources of vulnerability and shocks for communities are the shifting global intellectual contexts—the swings in fashions to which the virtual global village seems prone—the waves of change in attitudes or mindsets that sweep over groups, it seems, with regularity.

In August of this year, in a letter to the journal *Nature*, Hugh Wilson and colleagues at York University reported on their work on dominance waves—sweeping waves that occur when the brain attempts to reconcile two contradictory images, in their case achieved experimentally through the binocular rivalry that occurs when the two eyes view different and irreconcilable images. As the brain attempts to make sense of

differing perceptions of the same world, wave-like successions occur. “On first experiencing binocular rivalry, people often comment not only on the remarkable disappearance of one monocular stimulus [for extended time] but also on the highly ordered transitions in dominance as one stimulus [mindset] sweeps the other out of conscious awareness.”

One way of seeing the world gives way periodically to another, incompatible, perspective. The brain accommodates itself to the unresolvable contradiction before it not by some merging process, but by giving credence or legitimacy to the one perception for a while, and then permitting a wave of change to confer a similar credence and legitimacy on the alternative perception and interpretation. (When not all equally valued kids can be accommodated at once, we have to take turns.)

It’s intriguing to consider possible connections with the way in which governance waves seem to attempt to accommodate what Lindblom long ago identified as two very different ways to view policy formation, or what Calabrezzi and Bobbitt, in their profound study of Tragic Choices in public administration came to see as the underlying genius of a democracy in which loyalty to conflicting underlying values must be maintained, despite their incompatible character, or indeed as what Chantal Mouffe sees as the basic feature of continuing struggle within agonistic democracy.

As Chaviva Hosek hinted yesterday morning, at very small scale, as with the communities of Clayoquot Sound, it is possible to deal with such things through mutual respect and taking turns. But when these waves occur in global institutions and large formal structures of tiered governance, they too create shocks to which perhaps only a highly resilient community structure can respond with some hope of survival.

So, in summary:

I’ve drawn your attention to a fascinating and rich experience of institutional innovation on the ground, in the communities of Clayoquot Sound;  
I’ve suggested in passing that they raise all kinds of challenging questions of governance;  
That a key feature is the global-to-local structure of subsidiarity that emerges;  
That within the formal structures for participation and consensus-seeking designed to reconcile human activities with ecological realities in the full world, it seems useful to explore alternative conceptions of social capital—indeed to attempt to interpret the three conventional forms of social capital in quite specific ways.  
These forms of social capital contribute to more effective convergence on collective intentions in the face of uncertainty and in response to shocks; they thus give rise to the development of policy robust against shocks, and in turn the embedding of robust policy to channel the intentionality that is unique to the human subsystem in the overall ecosystem contributes to the realization of an overall structure that is resilient in the pursuit of purpose in the face of shocks and surprise. That purpose might even be the pursuit of sustainability, if we knew what that was.

Thus the complex interaction of complex human systems with complex natural systems may be managed in ways that result in a resilient system on a path to a sustainable

community future, despite uncertainty, shocks, surprise and unpredictable dominance waves sweeping over a bemused bureaucracy.

For insights on some of this very abstract juggling with words, I'm convinced we can learn from the concrete experience of communities like those in the Clayoquot Sound region, and from experiments like the creation of the Clayoquot Sound UNESCO Biosphere Reserve.

I commend the experience to your attention, and I hope we might come back to the topic next year.

Thanks