As is proper in this kind of work, I’ve spent a lot of time thinking about what was (or is) the question put to me. In fact I was tasked to comment “specifically on how CIAR might best explore, adopt and evaluate integrative socio-ecological research processes and multiple disciplines, expert and local knowledge into the program’s research”. I’m taking these “research process challenge” questions to refer to the conduct of this research project, not the character or content of the analysis within the project—that is, not relating to the processes studied by the project, but rather to the processes of the project. So my understanding is that I am asked to comment on how to ensure that this research project has as broad an interdisciplinary spread, with as substantially integrated a coverage of socio-ecological issues, as possible. [But I should note that the paper for this present meeting seems to drift back and forth a bit between processes of the research and the processes studied by the research when it comes to discussion of interdisciplinary and integrative activities.]

We should be clear on this—one might, for example, argue for civic science as a crucial part of the processes studied or recommended in decision-making, without suggesting a process of civic science for the research undertaking itself. Or argue for participatory democracy in the community without recommending it for the project. We may indeed want to do both, but we don’t want to be confused about the study process as distinct from the processes studied.

However, I’m really more interested in the substantive content of the research than its conduct, so my first move will be to argue that in order to assure adequate interdisciplinary involvement, and integrative socio-ecological research as part of the CIAR program, we really should first consider whether the topic should not be reoriented a bit, and the title changed.

Then I’ll try to suggest some research areas that should perhaps be central in the research design, in order to warrant and sustain this broader interdisciplinary and integrative involvement.

Then I will in fact come back to a few suggestions about the process of the work itself.

And since I have been allotted ten minutes and a firm warning about being cut off by the Chair, all of this will be in the form of very cryptic lists, but I’ll be happy to augment with references and all if there seems to be any interest.
1. Is it too late to change the title and the description of the topic a little?

What I have in mind is that ‘ecosystem management’, even at the new frontier where we confront profound uncertainty and limited controllability, sounds a mite technical and even carries a hint of hubris still. We don’t manage anything, let alone ecosystems: all we can hope is to identify interventions that might influence the behaviour of systems or the attitudes or actions of agents and entities in them.

And in this attempt, the bigger debates are about human rights—rights to claim a share, to have access, to participate in decisions, to dispose of titles conferring rights to exclude others from access. In these ‘claiming’ processes, resting on the support of the community for the right to exclude others, conflicting interests are inevitable. Principles of fairness, justice and legitimacy in the rules and procedures for resolving such conflicts are the central concerns in shaping human activities having impacts on ecosystems (and, ultimately, in the flow of science into policy, or the collective decisions informed by science).

So, more directly, one reason that the systems we study may display low controllability is that we lack any consensus, locally or globally, about how we ought to regulate human access to resources or to the services of ecological systems.

And so I’d be inclined to start from a couple of observations of Martin O’Connor in a recent collection edited by Daniel Bromley and Jouni Paavola, *Economics, Ethics and Environmental Policy: Contested Choices*. He starts with recognition that one cannot separate a normative allocation of rights from a positive analysis of resource use, and suggests that it is necessary to give up the search for perfect rules, and to look for what is reasonable under all the circumstances. He asserts that “if a reasoned basis for action is to be established, the forms of deliberative and regulatory procedure must be established that ‘relativize’ the contradictory positions while not seeking to dispose entirely of any of them. The challenge would be to work with a permanent ‘argumentation’ between the two—or more—contradictory positions.” [This sounds very much like ‘agonistic’ democracy (Mouffe) or the ‘tragic choices’ of public policy (Calabrese and Bobbitt).] In any case, I’d argue that we do need much more understanding of public policy processes—both the intercultural dynamics of policy formation and the individual challenges of interpretation of the sacred texts that capture collective intent but must be performed in particular situated places—not just policy as in government, but policy as collective intention emerging from a wide range of processes. And for this we need all the disciplines that can contribute to an integrative socio-ecological understanding. Particularly this probably means the humanists and ethicists who seem to have been less involved in the discussion thus far. (There are academic fields dealing with ‘law as literature’ and ‘law as performing art’ just as there is a growing literature on ‘post-modern public administration’ struggling with the justification of decisions if all facts are socially construed in societies of deep diversity sharing no common core of values.)
I wonder whether it is too late to think of some title along the lines of “Pursuing Human Flourishing in an Uncertain World: Research for Human Societies in Earthly Context” or something like.

I don’t know whether it would be fruitful to attempt a research agenda aspiring to so much interdisciplinarity at such a level of generality. But I was invited to provoke discussion, so I’ll start by suggesting that I don’t see much substantial role for the humanities, the philosophers, the critical theorists and so on in the characterization of the research agenda just presented.

And there should be such a role, because these fields of study are actually crucial to exploration of the key concerns underlying the agenda just set out, namely how humans collectively understand their claims and those of others on the resources that represent the common heritage of humankind. How they understand the values, rules and principles that should govern the distribution of impacts, risks, wealth and wellbeing as these resources are used. How they understand expressions of collective intent, interpret their obligations to comply with such expressions of collective intent, to respect the interpretations of others, and to negotiate reinterpretation of such general intentions in the particular circumstances of any one place when the general understanding of the dynamics of enveloping ecosystems changes.

More specifically, although many of the background papers that people have circulated make mention many of these more general questions, the research agenda set out here for discussion does not really identify these questions relating to the purpose for which we attempt to manage the human activities that represent interventions into (that is, alter the dynamics of) ecosystems. There are many dilemmas of collective action and of performance practice involved in pursuing human wellbeing and ecosystem integrity, and these involve issues of wealth distribution and redistribution, representations of intra-and inter-generational equity, and understandings of social roles much more substantially than comes through in the present discussion. The background paper focuses more on the technical problem of limited controllability than on the underlying social problem of lack of consensus on relevant rules, norms and values to guide, in the face of uncertainty, conflicting perspectives and differing attitudes toward risk, the decisions that would enhance legitimacy and hence increase controllability. The normative dilemmas are not sufficiently recognized.

It seems to me the project needs much more attention to issues of cross-cultural communication and understanding, epistemological concerns, discourse ethics, and so on. It also needs more attention to the practical dilemmas that ought to be faced in advocating participatory democracy or deliberative inquiry at provincial, national or international scale, in the face of the deep diversity that increasingly characterizes our communities. So we probably need to keep the political philosophers and the ethicists intrinsically involved in this interdisciplinary work. (We need to know more about how people in local communities might respond to attempts to import external values emphasizing ecosystem integrity at the expense of jobs, for example, or market-oriented imperatives
emphasizing jobs at the expense of a way of life: how might legitimacy be conferred on
decisions purporting to resolve such tensions?)
2. If one accepts this general proposition, what kinds of specific issues would be involved in the integrative socio-economic research structure?

a) Cultural norms trump scientific analysis of resource allocation or efficiency in collective decisions—from where do these norms emerge? Fairness, reciprocity, generalized reciprocity, empathy, altruism are concepts that need explanation. More fundamentally, from where spring the concepts of the Other, the Stranger, that seem to lend justification to exclusion from access to resources? From where derive the basic concepts of property that contend with formal issues of jurisdiction in determining who decides how the decisions will be made? Can consequential approaches based on calculation come to mean more in decisions that are intended to be ‘evidence-based’?

How do we explain:
Evolution of cooperation—iterated prisoners’ dilemma (Axelrod and all)
Characteristics of successful strategies
Simulation, cellular automata, rules for successful agents, successful poplns
Fairness—Ultimatum games
Experimental economics
Norms from social comparisons
Generalized reciprocity
Rule utilitarianism—revised perceptions of enlightened self-interest (do these flow from learned revisions to values, or ‘merely’ an improved perception of long-term self-interest arising from a better appreciation of the consequences of one’s actions taking into account the responses of other agents in highly interdependent systems?)
Folk wisdom and categorical imperatives
Norms and bounded rationality (Gigerenzer)

Research question: Under what circumstances can a population of fairness-motivated cooperators successfully invade a population of maximization-motivated competitors? Can the models that address this question somehow be extended to include some representations of resource systems on which the agents depend?

Such a question may have relevance in studying the potential use of economic instruments or social mechanisms in promoting compliance with consensus decisions on resource management.

b) Visioning/imaging/perceptions/brain science (existing CIAR projects)
   Binocular rivalry sounds like ‘agonistic democracy’
   Dual level visual control (UWO) and federalism or subsidiarity
   Propagation of memes and cultural evolution; subsidiarity again.

c) Governance and successful societies; Problems of legitimacy, authority and accountability in deliberative processes, especially those resting on participatory integrated assessment (PIA); CIAR project on successful societies might link here;

d) Discourse ethics and performance practice in the formation and implementation of strategies for sustainability;
e) Property concepts, management rules, memberships and rights to participation at
different scales, within different communities; the nesting of collective rights within a
common framework of fundamental human rights: what does this mean for individual
transferable quotas or comparable trading rights as compared to community quotas and
non-transferable rights binding decisions to communities of place?

f) Boundary objects and boundary organizations—how do the PIA efforts discussed here
serve to build a body of post normal science and support deliberative democratic
governance in a complex world? Can computer-supported deliberation lead to more
substantial reframing of conflicting stances?

g) Robust policies and resilient systems:
“To take account of uncertainty…Eventually our concern must turn from a concern with
exact optimality to a concern with the identification of policies that lead to satisfactory
values of the criterion function and that are robust against shocks or possible
misspecification…methods that yield good results for a whole class of problems, but not
necessarily optimal results for any one problem in that class…fuzzy algorithms which
may permit approximate solution of imperfectly specified problems…seek…a rule that is
robust against shocks…sacrifice some utility in order to gain some assurance of stability
in an uncertain world.” (Dobell, from Burmeister and Dobell (1973, pp 416,417).)

“This study proposes four key elements of successful Long-Term Policy Analysis:
• Consider large ensembles of scenarios
• Seek robust, not optimal, strategies
• Achieve robustness with adaptivity
• Design analysis for interactive exploration of the multiplicity of plausible
futures.”
(Lempert, Popper and Bankes, *Shaping the Next One Hundred Years: New Methods for
Quantitative Long-Term Policy Analysis* (RAND, 2003).)

So we have robustness as a characteristic or property of a policy or strategy—a
consciously chosen course of action (which constitutes an intervention in a system)

And

We have resilience as a characteristic or property of a system evolving according to given
rules within given structures or institutions.

But

what happens when institutional design is itself endogenous—when the rules of the
system can themselves be changed within the system by purposive agents pursuing a
consciously-chosen course of action (for example, if we create an institution like a
Regional Aquatic Management Board as a pilot project or social experiment—can we
consider this as adaptive mgt at a higher order level of experiment)?
3. If one accepts these proposed re-orientations within the research agenda as a necessary step towards an adequately interdisciplinary approach to an integrative socio-economic compass, are there other process steps that might be considered?
   a) Give full recognition to the inter-cultural and cross-cultural aspects of the interdisciplinary challenge—don’t imagine these can be easily overcome in the research process;
   b) Perhaps consider this project as in some ways an overarching synthesis, building in the understandings emerging from other CIAR projects (as noted occasionally above);
   c) Consider an initial (and perhaps subsequent occasional) summer institute—longer than the usual workshop, and with an insistence on continuity; perhaps this could be part of prototype field-school initiative); these might be built around case studies;
   d) Is there a feasible selection of a suitable boundary object to serve as the vehicle around which interdisciplinary interpretation might occur? QUEST as a straw dog? Should the project undertake its own consensus conference program around some illustrative problem? Or undertake a specific case study? (Perhaps the Clayoquot Sound region is indeed a suitable candidate—a bit of groundwork has been done.)
   e) Think seriously about stories, narratives, pictures, scenarios in examining how imaging and visualization might figure in multi-stakeholder processes at two levels: in the search for consensus given existing perspectives, mental maps, frames, belief systems; but more importantly, as ways to promote reflection on and reframing of all these.

Revised
16/3/04