

Mackenzie Basin Impact Study Final Workshop
Notes for introductory remarks
by A. R. Dobell
for the Roundtable on Sustaining Infrastructure
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We come this morning to the final day of this final workshop for the Mackenzie Basin Impact Study (MBIS). This roundtable will deal with infrastructure, and concerns arising around the maintenance of infrastructure in the face of risks associated with global warming.

But before we talk specifically about what that means, let me take a couple of minutes to remind you of some background.

The last couple of days have reminded all of us that we live in a complex, changing world. Unknown geological cycles are working themselves out. Climate processes may be stationary, but they are never constant. Climates are always changing. We may be seeing a warming trend of a few centuries on the back of a slide of a few millenia into an ice age. All of this geological and climatic activity is changing the features of the land. People have been adjusting to those changes over many millenia in the Mackenzie Basin.

Traditional knowledge also helps us understand that while all this is going on, complex cycles in wildlife and habitat are also working themselves out. And the peoples of this region have of course been adjusting their activities and their institutions to these changes, too.

It's against the background of all that on-going change that human activities also begin to alter the use of land and the features of the landscape. Industrial activities begin to discharge effluents into waterways and oceans. Transportation and domestic activities, as well as industry, begin to discharge significant amounts of greenhouse gases into the air. The scale of population and economic activity have now, as has been noted, reached geological proportions, with impacts large enough to alter the processes of the biosphere themselves.

In this complex of human activities, we also observe trends to integrate traditional societies into mainstream economies, and to integrate all economies within one global market structure and congested global village. (We also observe, perhaps, the breakdown of some of this economic complex, and fragmentation back into informal social structures--and now without the special relationship with the land that has always sustained traditional societies in the past. But that is another story, for another time.)

So now we begin to see more changes in weather patterns and natural features of the region, changes that seem to lie well outside any recorded or remembered experience. Extreme events seem to be increasing in frequency.

Again, wildlife patterns and habits respond, and traditional societies dependent on their relation with the land and other species respond in turn.

Within all this complex of change, we, as reasoning entities with a responsibility for stewardship of the Earth we inherited, have two tasks:

- a) We have to try to separate the signals of human impact on this complex moving system from all the other cycles of on-going activity, change and response just described.
- b) We have to respond to these signals by adjusting human activity somehow, in order both to reduce the extent of human-induced change, and to adapt the system to the remaining impacts of that change.

And the point is that we do have both the discretion and responsibility to carry out that task. We have levers or instruments to influence human activity and human discretion, both directly and indirectly. Our economy is a social construct. Our social institutions are human constructs. It was discretionary decisions that gave us Syncrude and Hibernia and ALPAC. And it was individual decisions that determined that the Kemano Completion Project would not be completed--apparently in response to a shift in social values that began to place more weight on fish over power.

Despite what was said yesterday, you in this region and we in Canada can do something about the possible causes of global warming. Human behaviour can adjust over quite short horizons, and human institutions can adapt rapidly, even if human genetic codes cannot. We can adapt human activity to reduce emissions and human pressure on the biosphere, and we can adjust activity also in anticipation of the need to absorb changing or increasing stresses on the natural and built environment.

There is a whole spectrum of possible responses to our increasing awareness of the consequences of increasing human pressure on ecological systems, and in particular the consequences of global warming. These responses span the range from controls to reduce emissions and discharges, to action to prevent activities which generate such discharges, to action to anticipate and absorb the consequences of changes driven by the discharges which slip by and remain.

So we have the discretion and we have the responsibility to do something.

But the problem is, what?

We've heard over the past two days about how signals of the future setting for water, forestry, wildlife and oceans might be read, and how water, forest and wildlife management might respond to those signals.

These are, in a sense, the responses of individual operators and harvesters, or individual sectors, to changing circumstances and changing signals about future consequences which might matter directly to them.

But now, this morning, we want to go on a further step, to deal with a different set of responses, the adjustment of collective institutions or infrastructure networks which support all those individual activities.

We can think of infrastructure as including:
transportation networks--marine, terrestrial, air;
communications networks;
waste disposal systems;
the built environment of community structures,

But also, more generally,
emergency response systems--road repair, firefighting, marine rescue,...,
Insurance mechanisms and other pooling of risks and costs ;
monitoring and regulatory networks;
education, health and social support systems.

And more generally still,
social and cultural infrastructure--institutions that pools risks and support people in times of stress and change, or govern harvesting and land use activities in a sustainable manner.

The discussions of the last few days, and the poster sessions, have suggested some of the new risks or stresses that might be imposed on such infrastructure now that we seem clearly to have entered the regime of global warming and embarked down this path of rising temperatures and changing climate to and beyond the conditions associated with the benchmark of doubled CO₂ equivalent concentrations in the atmosphere. These include:

permafrost thaw and landslides;
changes in ice regimes and flooding patterns;
changes in wildlife habitation, habits and migration;
storms and coastal erosion;
increased precipitation and falling water levels.

Possible responses are also controversial, but might include:
changing design and construction standards;
species conversion in forestry (for greater fire resistance or productivity), fisheries, or wildlife (including in any of these cases the possibility of plantation forests or aquaculture commercialization of wildlife?--i.e. conversion from natural to cultivated stocks?);
More restrictive regulations governing land use and the location of activity.

No doubt many other risks remain to be identified, and many other responses to be considered.

So I am asking the members of the panel, with respect to stresses on infrastructure,

a) Having considered the MBIS study, how do you read all this evidence and these signals as to the future, and is that future acceptable and manageable?

b) Given your appraisal of the seriousness of the risks identified, what do you see as feasible and appropriate responses to these features of the outlook for the Basin?