Comments on the Lower Churchill River Hydroelectric Project
Economics, Sustainability, and Environmental Concerns

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Outline

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- Principle Concerns with Project EIS
- Recommendations
- DeLong Mountain Terminal/Red Dog Mine EIS

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Introduction

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- Past:
  - Senior Lecturer in Economics, Kinship Conservation Fellows, Bellingham, WA
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Past Experience with Benefit Cost Analysis/EIS

- US Army Corps of Engineers proposed DeLong Mtn Terminal Project in Kivalina AK
- US Forest Service critical habitat designations in New Mexico
- US Forest Service Santa Fe, NM municipal watershed fire prevention plan
- Valuation of cultural heritage issues in New Mexico
- All lacked serious consideration of non-market effects

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Principle Concerns with Project EIS

Overview

- Drawing mainly from Rudd and Raheem (2009)
- Appropriateness of accounting method
  - Impacts v costs/benefits
  - Estimation of Ecosystem Service values
  - Sustainability issues

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Improper instrument: Impact Analysis (Input/Output model) vs Benefit Cost Analysis

Publicly funded project with potentially Canada-wide welfare effects should be assessed via Benefit Cost Analysis

CBA focused on changes in human well-being due to changes in provision of goods or services.

All these changes are measured in monetary terms.

All costs and benefits can be compared to...
Improper instrument: impact analysis is essential, but only one component of a proper analysis for a project of this scale.

Impact analysis should be broader than I/O and involve social accounting matrix or be embedded in a computable general equilibrium model.

Need to take account of effects and distribution in a transparent manner.
The US Army Corps of Engineers and AK Ind Development Agency (AIDEA) proposed a major expansion project to the port facilities at the Red Dog Mine in Alaska. Corps is required by National Economic Development Accounting to conduct a Benefit Cost Analysis as part of the EIS. EIS guidelines fall under multiple federal regulations, but NEPA dominates.
Example from a large infrastructure proposal in boreal regions with native populations: DeLong Mountain Terminal AK

- Corps ignored the following in its accounting:
- Potential Ecosystem Service impacts to marine mammal populations which would affect local Inupiat Eskimo populations
- Non-market values held by non-local Alaskan residents
- Multiple components of the analysis were insufficient

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Example from a large infrastructure proposal in boreal regions with native populations: DeLong Mountain Terminal AK

- Talberth and Raheem (2006) critiques benefit cost analysis by the Corps
- Conducted two original studies to ascertain possible impacts to local (annualized value approx. $250,000) and non-local populations (approx. $3 million/yr)
- We recalculated the benefit cost ratio
  - Original BCR: 1.2/1
  - Range of BCR after re-analysis 0.19-0.73 (do...
Example from a large infrastructure proposal in boreal regions with native populations: DeLong Mountain Terminal AK

- The Corps failed to incorporate relevant ecosystem service values, local indigenous effects, other non-market values, opportunity cost values of other investments of the money
- The project was shelved after several iterations of the EIS
- Insufficient economic justification
Issues with current economic analysis

Ecosystem Service Values

- “Failure to include some measure of the value of ES in benefit-cost calculations will implicitly assign them a value of zero” (Heal et al. 2004: 5).

- Legally acceptable but irresponsible to not include a discussion of the ecosystem service values affected by the project.

- Project EIS contains extensive biological and ecological analyses of the effects, but these effects are incomparable to other project...
Internationally accepted standards of sustainability require accounting for social preferences and effects over time.

Requires consideration of biophysical, socioeconomic, and geopolitical effects: at minimum a ‘triple bottom line’ approach.

This requires

- Discounting at some rate for future values to ascertain effects on future generations
- In a cost benefit framework

Current EIS legally acceptable but insufficient under known best standards of considering sustainability.

Major Concerns with Project EIS Recommendations

- Canadian law does not compel proponent to conduct a benefit-cost analysis.
- In order to capture all the relevant economic effects of the project, the appropriate accounting tool is Benefit Cost Analysis.
- This analysis should include thorough consideration of ecosystem service values affected, distributional issues, uncertainty, the no-action alternative, and should consider the project in totality, including all transmission alternatives.
- Needs to use an appropriate discount rate to ascertain effects into the future to consider sustainability from a welfare perspective.
One option is to use the tool developed by Brown et al. (2009): Integrated Dam Assessment Model (IDAM).

Visual dam impact assessment tool linked to three impact categories: biophysical, socioeconomic, and geopolitical.

These are the three “pillars” of sustainability (UN 1993).

Designed with a cost benefit approach.

Currently being used to examine effects of dam in [X].

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