Introduction to Cumulative Effects and CEAs

CEA ?????

- **Understanding CEA well is:**
  - **95% understanding EIA well**
  - **95% understanding environmental problem-solving well**
- **At CEA's technical heart: how might the effects of development *A* interact with the effects that relevant past/present/future developments have caused/are causing/might cause?**
- **Technical challenge: how do we tease out the relative contributions of each development, when the reality is that the developments and VECs are all part of a large integrated system?**

CEA is:

- VEC-centred EIA!
- Why?
  - All ecological responses are multiply determined
  - VECs are always responding to several forces (cause variables) at once
  - When two or more of the cause variables are human activities, then there are cumulative effects

Distinction between a Normal EIA and CEA

- Proponent in EIA simply asks: what might MY project do to selected VECs?
  - fragmented
  - project-centred
- Proponent in CEA asks: what contribution might MY project make to the effects of the overall suite of stresses on selected VECs?
  - integrated
  - VEC-centred

Definitions of Cumulative Effects

- the Guide: Cumulative Effects are changes to the environment that are caused by an action in combination with other past, present and future actions
- from the draft EA standard of CSA: AEEs that may result from a project, in combination with other existing projects or others certain to proceed

(note: desirable changes are CEs, too, not only undesirable ones!)

Legal Requirements

- **It started in U.S…NEPA again…in 1978 and included in EA legislation of many states such as California**
- **In Canada, with implementation of CEAA in 1995, also BC and Alberta provincial EA processes**
- **European Commission has directive for consideration of cumulative impacts adapted in part by member countries**
- **audit results (Office of Commissioner on SD and E) suggest cumulative assessment is still shaky - an "add on" if conducted at all**

The legal wording

NEPA

"…the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions"

CEAA

"…any cumulative environmental effects that are likely to result from a proposed project in combination with other projects and activities that have been or will be carried out"

California Example

- **EA hinges on whether effects are** cumulatively considerable **- the incremental effects of an individual project are *considerable* when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects**

- **A project's contribution is less than cumulatively considerable if the project is required to implement or fund its *fair share* of a mitigation measure or measures designed to alleviate the cumulative effect.**

Characteristics of Good CEA

- **Contextual - puts *single* impacts into proper multiple-impact perspective**
- **Comparative - compares *single* impacts with other *single* impacts on VECs**
- **Integrative - models integration of stresses on VECs the way VECs might experience them**
- **Collaborative - works across disciplines, not within them**
- **Characterized by quantitative impact forecasts**

When does a project have Cumulative Effects?

- **The key criterion in deciding whether a project will result in cumulative effects is whether the project has any detectable effects of its own**
- **If there are no detectable effects, then there are no cumulative effects *resulting* from the proposed project**
- **This does not mean that a VEC in the vicinity of the project is not being affected by cumulative effects of other projects and activities; only that the *proposed project* does not contribute to the CEs.**

Example of a CEA: Cheviot Mine and Grizzly Bears

- **assessment looked at habitat quality and effectiveness - habitat that was truly available to grizzlies taking into account human activities - made inferences to population**
- **used grizzly as "umbrella species"**
- **good spatial dimension to problem solving (using modelling) but limited consideration of future scenarios (e.g. forestry, other mining, recreation)**
- **EA recognized that grizzly population and habitat was declining in region and limits**

Grizzly and Cheviot

- **project could not avoid or minimize all impacts (habitat loss/fragmentation, increased risk of mortalities) and would be contributing to cumulative impact**
- **introduced compensation plan concept premised on regional scale solution to problem through investment in science, education and management**
- **accepted by Panel and governments but challenged in Federal court**
- **court decided that assessment was "flawed" on three points including failure to conduct full cumulative impact assessment that considered other future projects/activities (mining/forestry)**

Conclusions

- Cumulative effects assessment looks at how effects of one project or set of actions
  - interact
  - combine
  - cumulate

  with those of other projects/actions.
- Not all cumulative effects are bad - if they compensate or mask each other, that can be good
- The only way to find out what is really going on in a cumulative effects situation is through sharp systems analysis

Is Project EA the BEST tool for the job?

- **back to the one project and one proponent problem and issue of fairness**
- **in the face of cumulative impacts which are ultimately the responsibilty of many proponents, sectors, countries…maybe**
  - **regional EA (land use planning)**
  - **sectoral EA (e.g., the mining sector)**
  - **strategic EA (policies and programs)**