Towards increasing the utility of 'follow-up' in Canadian EA

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Follow-up: Background

- **Feedback accepted as essential**
  - ***improve predictive capabilities***
  - ***improve management capabilities***
- **Rarely done**
  - ***need increasingly recognized***
- **Rarely done comprehensively**
  - ***typically focuses on bio-physical environment***
- **Rarely done well**
  - ***particularly socio-economic monitoring***

Follow-up in Canada

- **CEAA 1992 -- Preamble**
  - ***Sustainable development…encouraging and promoting economic development that conserves an enhances environmental quality***
- **CEAA Follow-up requirements (Article 18):**
  - ***verify the accuracy of the environmental assessment***
  - ***determine the effectiveness of mitigative measures taken to avoid adverse effects***

Follow-up in Canada: Needs

- Rethink objectives and scope of follow-up if EA goals to be achieved
- Broader more comprehensive perspective
  - *inclusion of socio-economic follow-up*
- Separate 'science' from 'management' functions
  - *accuracy - improve modeling/predictive capabilities*
  - *management - allow early warning/ 'comfort' benefits*

Accuracy

- **How accurate is accurate?**
  - ***Greater the vagueness, less the utility, but greater th accuracy***
  - ***Greater the specificity, greater the potential utility, but greater the likelihood of inaccuracy***
  - ***No guidance/agreement as to what constitutes "accuracy"; what is an acceptable margin of error?***

Accuracy

- **Difficulties with accuracy determination**
  - *EIS statements about potential outcomes*
    - *vague, imprecise, un-testable*
  - *monitoring data – pre-project baseline and follow-up*
    - *non-existent, insufficient, inadequate*
  - *one-time, static EIS predictions no longer relevant*
    - *design changes*
    - *changes in environmental conditions*

Accuracy

Experience with accuracy determination

Author(s)	Year	Projects	Predictions	Testable Predictions
Bisset and Tomlinson	1988	4	791	94 (12%)
Bernard et al.	1993	11	2073	601 (29%)
Locke and Storey	1997	6	86	7 (8%)

Many of the testable predictions inaccurate

Accuracy

- **How is this information used?**
  - ***'nice to know'***
  - ***few monitoring reports that actually measure 'accuracy' as required***
  - ***monitoring reports focused on adverse impact limitation through management***
  - ***determining accuracy could help improve predictive techniques -- little evidence that it has***

Follow-up in Canada: Needs

- **If sustainability underlies EA, can't treat outcomes in an abstract manner**
  - ***need to be goal-oriented***
  - ***need explicit consideration of what we <u>want</u> outcomes to be***
  - ***environmental condition changes:***
    - ***within acceptable limits (sub-optimal)***
    - ***no-change (status quo)***
    - ***improvements (optimal)***

Predicted versus 'Intended' Effects

Case	Predictive accuracy	Effective Management
Rabbit Lake	?	?
Sizewell "B"	x	x
Hibernia (BEEM)	+	+
Hibernia (SEEM)	x	+

Conclusion

- Positive that follow-up is a requirement
- Focus on accuracy inappropriate, ineffective, inefficient
- If sustainability the goal, EA needs to become more pro-active and goal-oriented
- Follow-up can add significant value to EA
- Primary objective of follow-up -- ensure that what was intended was what is realized