Characterizing Uncertainty and Precaution in Decision Making:
Draft TAC Advice Principles & Recommendations for Guidance

TAC's advice provided during and following September 2022, November 2022, and January 2023 meetings has been summarized into several principles and recommendations for future guidance below. The TAC's advice could help inform future updates/enhancements to the Agency's Tailored Impact Statement Guidelines template, other guidance documents such as 'Describing Effects and Characterizing Extent of Significance' and 'Proponent Guidance on Developing Adaptive Management Plans', the Agency's policy on External Technical Reviews, and/or other tools/templates related to uncertainty and precaution and decision making.

Principles

- The level of effort given towards addressing uncertainty should correspond with the extent and likelihood of potential consequences and relevance to decision-making. Focus on the consequences of the uncertainty and how the consequences would affect the public interest test outcome.
- In cases where there is high uncertainty and high risk, the project should not go ahead, unless the proponent adopts alternative project design options and mitigation or enhancement measures to reduce the level of uncertainty and risk to more acceptable levels. It should also be explained how the project will be in the public interest with the outstanding uncertainties.
- Early recognition of uncertainties and ongoing engagement and collaboration is necessary to understand the issues and find solutions. It is also important to communicate uncertainties in a way that is understandable and practical for decision makers and participants in the IA process.
- Uncertainty should be considered in the same way as predicted effects and be tested by FAs or equivalent expert bodies.
- Areas of uncertainty should be linked to mitigation or enhancement, follow-up, and adaptive management as well as monitoring, and be communicated as such in the reasons for decisions. Another important aspect of uncertainty is in methodology related to field work timing, location, focus, and analysis.
- A definition of the precautionary principle focused on scientific uncertainty is almost certain to miss other elements of knowledge. Indigenous knowledge and scientific knowledge both need to be considered.
- It is important to consider opportunities for innovation and contributing to positive effects, while also describing associated uncertainty of positive effects, such as those related to socio-economic effects. These are often discussed by proponents and are of interest to participants. Positive effects can also contribute to sustainability and to the public interest determination.
- Uncertainty is contextual and depends very much on where the project is – recognizing the importance of context is key.

Recommendations for future guidance

- The Agency should consider developing a process or guidance on how to identify uncertainties of greatest importance to the public interest determination to ensure that due attention is paid to the most critical uncertainties. This should include a focus on whether the uncertainty could lead to a different public interest decision outcome.

- There could be general guidelines around how to characterize uncertainty for specific topics. For example, there was an extensive review of how proponents conduct habitat modeling in Alberta compared to what is done in scientific literature. This led to more robust methods being included in the Guide for Preparing EIAs in Alberta.
- It would be helpful if the Tailored Impact Statement Guidelines had more direction on how to evaluate uncertainty related to the effectiveness of mitigation or enhancement measures. Such guidance should include incorporating different perspectives on uncertainties.
- The Agency should consider what happens when there are differences in opinion around how to qualify uncertainty and the proponent chooses an approach that is not acceptable to all parties.
- The current work of the joint TAC-IAC subcommittee on considering Indigenous knowledge and western science in decision making, should be considered as the Agency further develops its approach/guidance on uncertainty.

Annex – Context on Development of Advice

The Agency President identified implementation of the decision-making phase under the *Impact Assessment Act* (IAA) as a priority area for TAC advice in 2022-23. Specific areas of focus under this priority include how to effectively characterize and communicate uncertainty and precaution for decision-makers, Indigenous peoples, and the public.

Uncertainty and precaution have been identified as issues that weigh heavily in the minds of decision-makers and as communications challenges in conveying scientific information publicly. While "uncertainty in EA/IA is to be expected, particularly when predicting outcomes in complex physical, biological and human systems… and sources of uncertainty need to be reduced where possible, [where it] cannot be reduced it needs to be described such that it can be considered in decision-making."[1]

To help guide the discussion, the Agency provided background information on requirements and existing guidance related to uncertainty and precaution under the IAA, including: Tailored Impact Statement Guidelines (TISGs) Template, the Agency's draft Guidance on Describing Effects and Extent of Significance, the Agency's guidance on Considering the Extent to which a Project Contributes to Sustainability. Relevant guidance from other jurisdictions was also reviewed, including: British Columbia Environmental Assessment Office – Effects Assessment Policy, Mackenzie Valley Review Board – Environmental Impact Assessment (EIA) Guidelines.

Project examples were also provided for consideration, including: Bay du Nord Development Project – Environmental Assessment Report (CEAA 2012; Agency Analysis and Conclusion – Effects on Atlantic Salmon); Mackenzie Valley Review Board: Tłı̨chǫ All-Season Road Project – Report of Environmental Assessment and Reasons for Decision (Section 4.4: Precautionary approach).The Agency provided several considerations for discussion:

- What is important to know about project-related uncertainties and how they were considered in impact assessments?
- How can information on uncertainty be effectively considered and presented in impact assessments, particularly within the Impact Assessment Report?
- How can the precautionary principle be effectively considered and presented in impact assessments?
- Are there opportunities to help clarify expectations regarding the type of information required from proponents (e.g., in the Tailored Impact Statement Guidelines) related to uncertainty?
- How can reviewers be supported in determining whether the information around uncertainty provided by proponents is sufficient? Are there tools (e.g. frameworks) or considerations that could help in this regard?
- Is it possible/desirable to characterize uncertainty in a consistent way across Valued Components among different projects?
- Should uncertainty be characterized in different ways when it is quantifiable versus not quantifiable?
- Are there elements of guidance/approaches in other jurisdictions that are instructive?

1 British Columbia Environmental Assessment Office – Effects Assessment Policy