

Uncertainty and local knowledge in Arctic Impact Assessment

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Uncertainty in impact assessment

"Uncertainty describes a condition where we lack certain knowledge that we think may be important to making a decision."

Predictions are not always accurate

I don't think there will be a woman Prime Minister in my lifetime

Margaret Thatcher 1973

Planning and impact assessment is about the future and the future inherently has an element of uncertainty

Guidelines for Environmental Impact Assessment in the Arctic:

"The requirements for exact predictions are not necessarily met because of uncertainties in the data and a lack of baseline data."
(Finnish Ministry of the Environment, 1997)



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Uncertainty in IA

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Examples

- Uncertainty about design or technology
- Uncertainty about data, models and calculations
- Uncertainty about society's classifications or values
- Uncertainty about related projects or developments

In practice

- Review of 22 EIA reports in Norway: 5 explains or discusses uncertainty
- Interviews with 77 Canadian stakeholders: 80 indicates that all EIAs contain uncertainty, 15% indicates that uncertainty is sufficiently acknowledged in practice
- Very little research on uncertainty in IA



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Relation to communities

- Not handling uncertainty may make impact assessments seem more certain than they are
 - Important issues might be excluded from the assessments because we cannot handle the uncertainty
- = difficult to form opinion and engage with the IA and the activity
- Uncertainty is hard on people
 - Can be a major social impact in itself if left as a statement

- At the time of the decision, for a year and a half we had not known, whether we should stay here or not. We have not been able to finish renovating our house, because we cannot afford putting more money into it if we have to move. That uncertainty has been massively destructive for all of us. (Interview: Biogasplant, Larsen, Nielsen and Hansen 2016)



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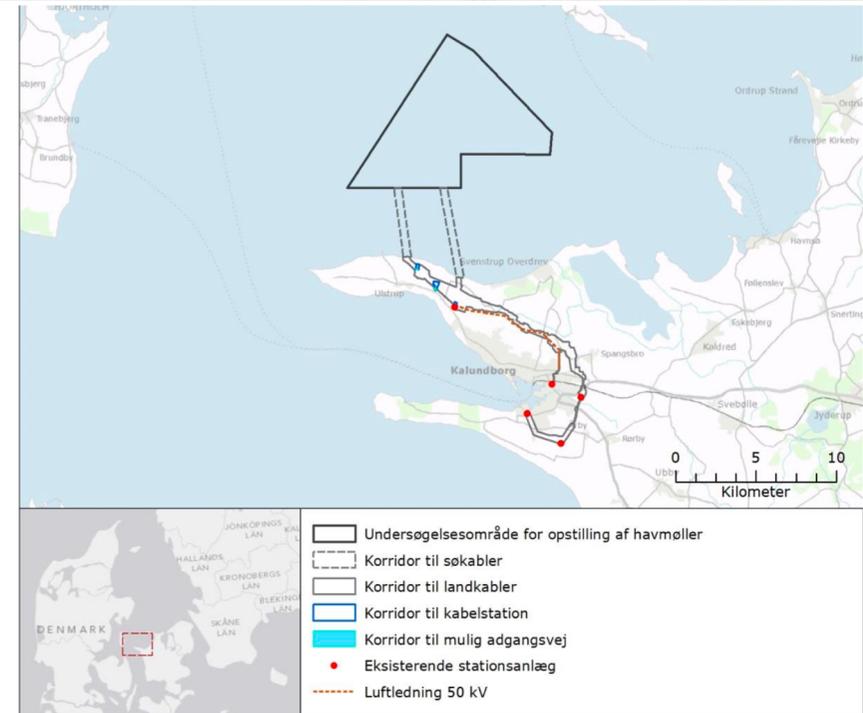




Democratic problem example

- Wind turbines offshore in Sejerø Bay: Working with a 'framework EIA'
- 200MW turbines within an area of 60km² 4km from the coast
- 66x3MW turbines (137m) – 20x10MW turbines (220m)

This does not make it possible to make a full assessment of the environmental impacts on the areas affected by the location of the turbines within the appointed area (Hearing statement by local resident)



Ref: Larsen, Hansen and Nielsen, 2018, The role of EIA and weak assessments of social impacts in conflicts over implementation of renewable energy policies. Energy Policy 115

Suggested tools and approaches

- Scenarios and dynamic baselines
- Monitoring and adaptive management
- Local knowledge
- Public participation

Traditional knowledge is used to gain a better understanding of the consequences of predicted impacts, to reduce uncertainties in predictions, and to assist in establishing baseline conditions and monitoring programs.

(Finnish Ministry of the Environment, 1997)

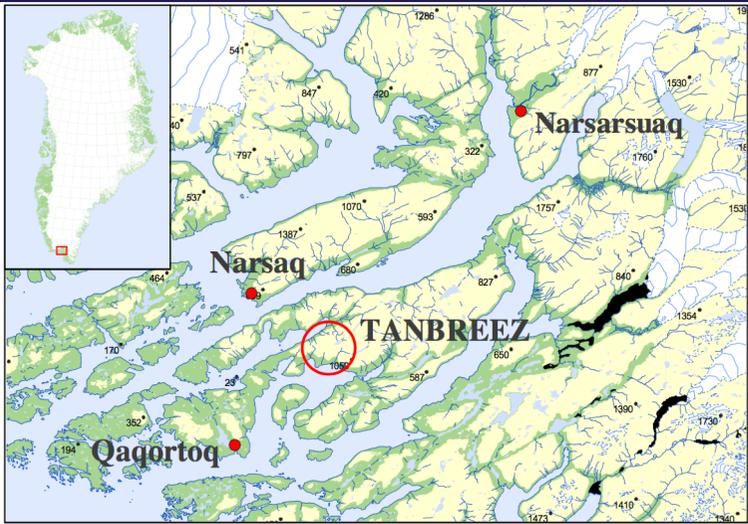


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Fulbright Pilotstudy: Kringlerne (Killavaat Alannguat)

- Uncertainty as a major challenge in the Arctic – also for EIA
- Local knowledge as a source of knowledge and values





Kringlerne: Uncertainty

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- Direct statements of uncertainty/lack of knowledge in the baseline

“Little specific knowledge is available about most groups of animals in the project area” (EIA report)

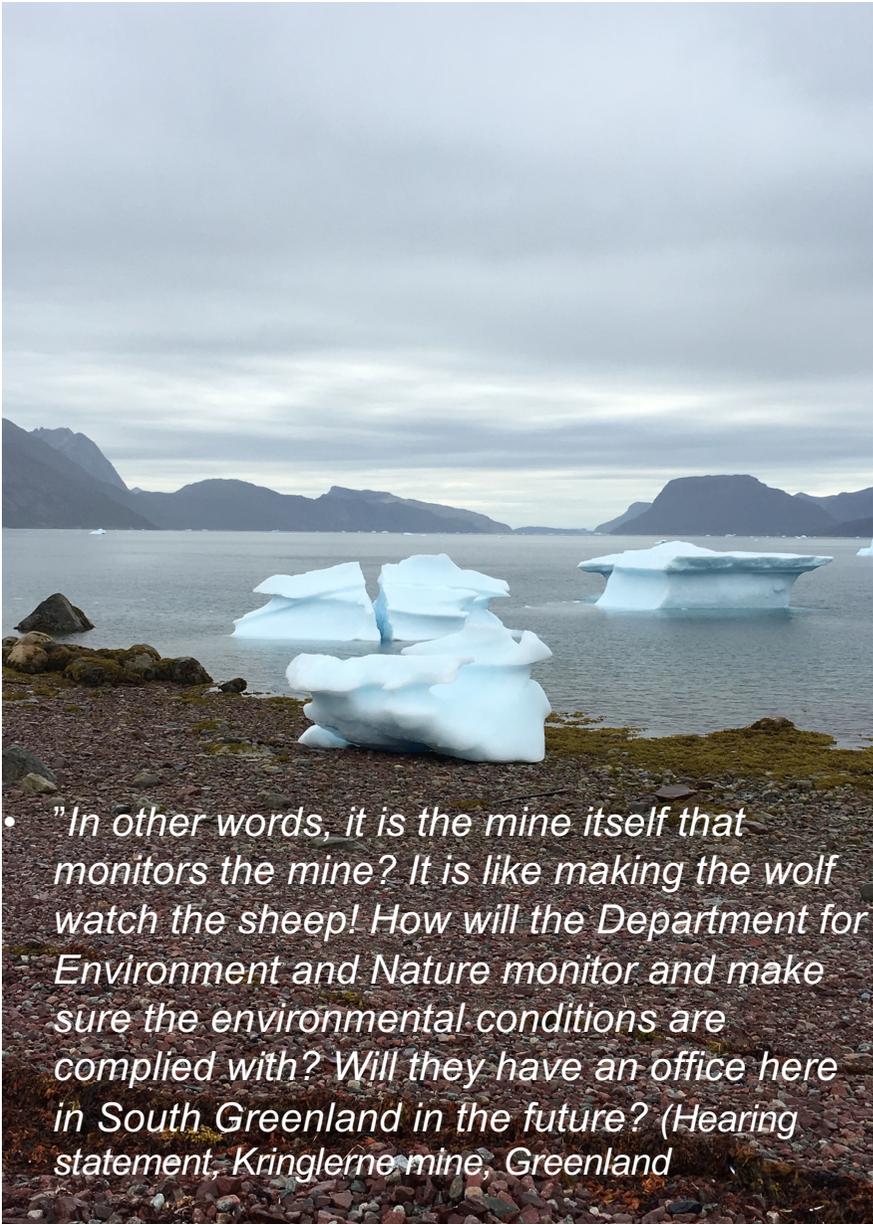
- Indirect statements of uncertainty/lack of knowledge

“Ringed seal seems to be the only marine mammal that regularly occurs in the Kangerluarsuk Fjord. Other species of seals, such as hooded seal and harp seal might also occur” (EIA report)

- Likewise both direct and indirect statements of uncertainty/lack of knowledge in assessments

“To what extent the low water flow in Lakseelv during mid-winter will cause the concentration of lead to exceed the GWQG value after 3-5 years of operation is unknown” (EIA report)





• *"In other words, it is the mine itself that monitors the mine? It is like making the wolf watch the sheep! How will the Department for Environment and Nature monitor and make sure the environmental conditions are complied with? Will they have an office here in South Greenland in the future? (Hearing statement, Kringlerne mine, Greenland*

Kringlerne: Uncertainty

Impact during phases of the life of mine				
Construction	Operation	Closure	Post-closure	
Importance of impact without mitigation				
<i>Spatial extent</i>	<i>Duration</i>	<i>Significance</i>	<i>Probability</i>	<i>Confidence</i>
Project footprint	Permanent	Very Low	Definite	High
Mitigation measures				
<ul style="list-style-type: none"> Limited mitigation is possible other than planning the equipment at the tailings pond to blend as far as practical with the surrounding landscape; Remove buildings and other equipment next to the lake at the end of mine life. 				
Importance of impact with mitigation				
<i>Spatial extent</i>	<i>Duration</i>	<i>Significance</i>	<i>Probability</i>	<i>Confidence</i>
Project footprint	Permanent	Very Low	Definite	High

Assessment summary of landscape changes if Fostersø is used for tailings pond and waste rock deposition



Closing

- Uncertainties are not very often communicated and handled (in a systematic and transparent way)
- Democratic implications: Gives an impression of certainty, not transparent decision making basis
- What are experiences in practice?
- How can we to develop our competences in terms of analysing and handling uncertainty and following through
- One proposed approach is to include local knowledge: To what extend? What role should it play? How should it be done? Does the framework of IA lend itself easily to inclusion of local knowledge?





Thank you!

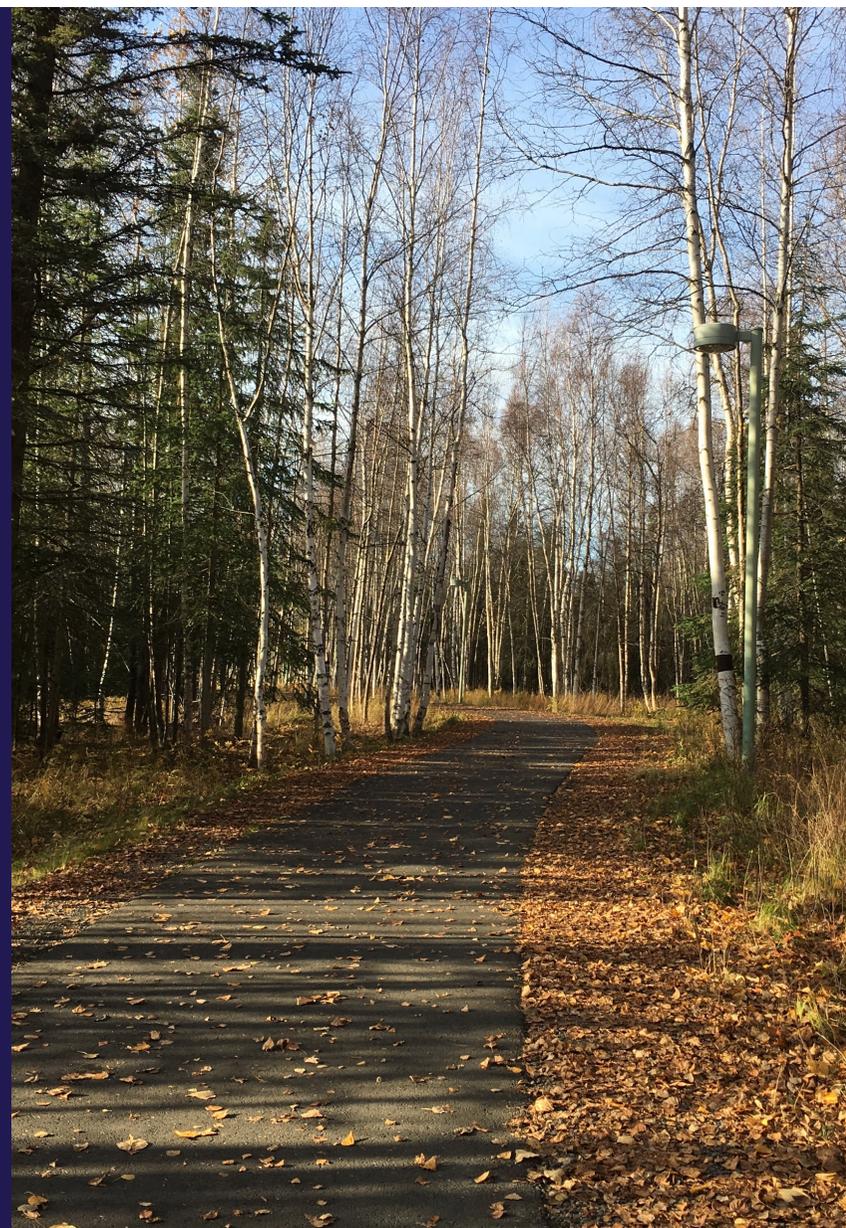
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