

Environmental Impact Assessments in the Arctic

ICES Annual Conference, 19 September 2012

Narangerel Davaasuren, Martine van den Heuvel-Greve & Bas Bolman



Contents

1. Trends
2. Opportunities
3. Problems
4. Challenges
5. Framework requirements
6. Network model
7. Procedure
8. Output
9. Example projects
10. Conclusions

1. Trends

- 7 billion people
- Higher demand, scarcity of resources
- Raw materials price increase
- Climate change
- Retreating sea ice
- New activities & claims



2. Opportunities

- Oil & gas exploitation, marine contracting
- Shorter shipping routes
- New fishing grounds
- Agricultural development
- Harbour development
- Regional development



3. Problems 1/2

- Pressures of new activities on ecosystems
E.g. oil spills, emission of chemicals, under water noise

- Pressures of new activities on people
E.g. Sami, Inuit, local communities, new inhabitants



3. Problems 2/2

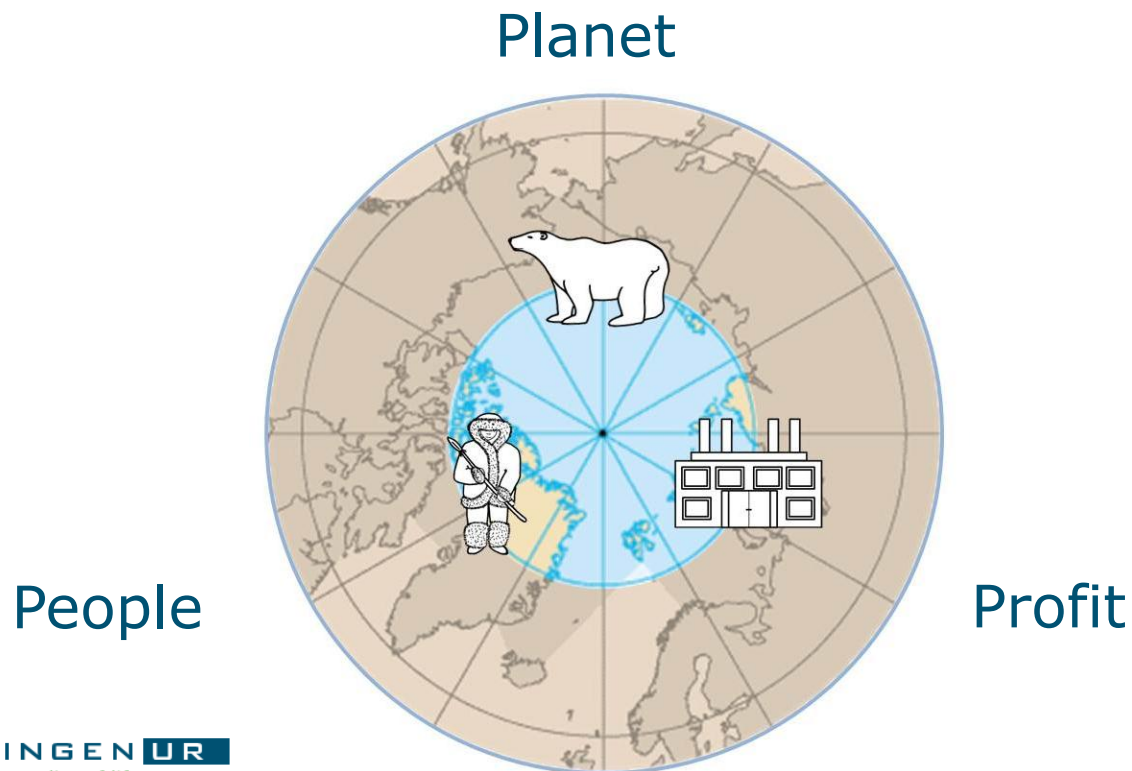
- Non existent institutional / legal framework
E.g. rules for safe operations in Arctic offshore areas

- Conflicts between economic activities and states
E.g. extension of continental shelf



4. Challenges

How to develop new activities in the Arctic ...
...in reconciliation with people and planet?

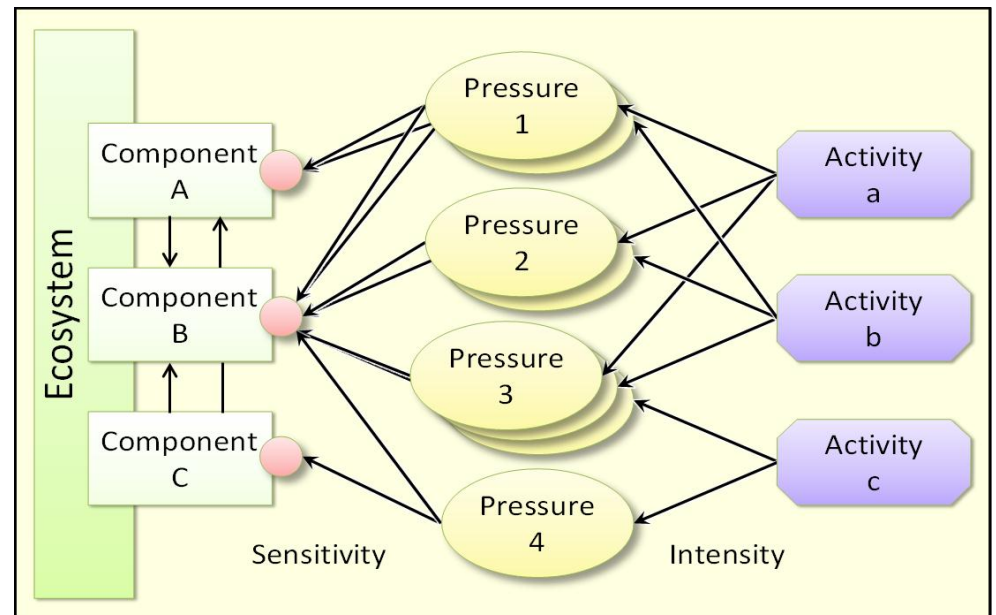


5. Framework requirements

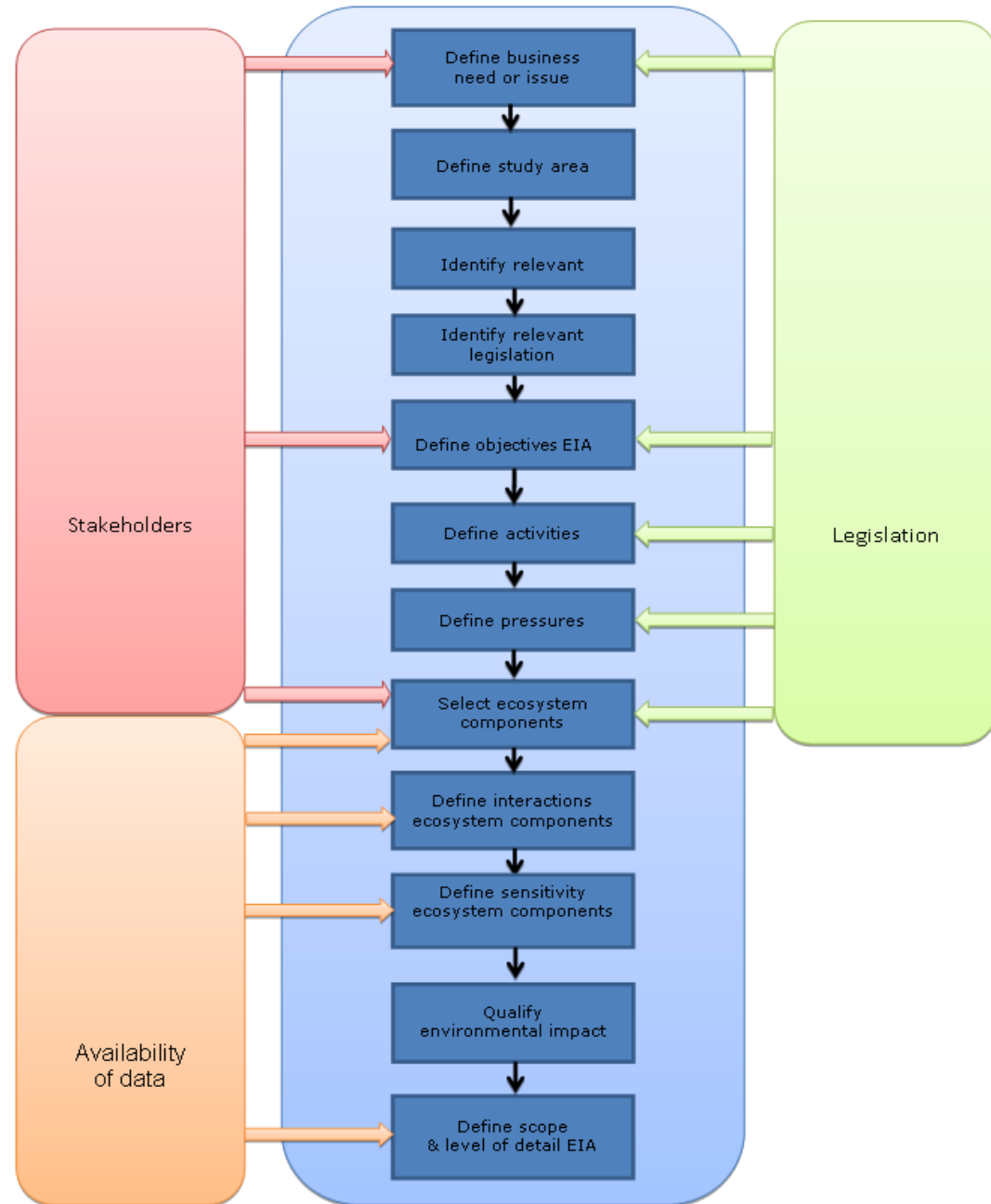
- Comply with (inter)national laws, treaties, guidelines
- Use existing knowledge & databases
- Develop in interaction with stakeholders
- Qualitative, semi-quantitative & quantitative
- Transparent, including audit-trail

6. Network model

- Based on Karman & Jongbloed (2008)
- Additions:
 - 'stimulative' or positive pressures
 - species interactions



7. Procedure



Source: Lagerveld 2012

8. Output - Qualitative

Qualitative Effect Matrix		Ecosystem Components						
		Phytoplankton	Zooplankton	Bowhead Whale	Arctic Cod	Walrus	Polar Bear	Sea Ice
Activities	Trenching	Yes	Yes	Yes	Yes	Yes	?	No
	Pipe Lay	No	No	?	No	No	No	No
	Backfill Material	Yes	Yes	Yes	Yes	?	?	No
	Seismic Research	No	No	Yes	Yes	Yes	?	No
	Presence Platform	No	No	Yes	Yes	?	?	No

8. Output – Semi-Quantitative

Semi-quantitative effect matrix		Ecosystem Components						
		Phytoplankton	Zooplankton	Bowhead Whale	Arctic Cod	Walrus	Polar Bear	Sea Ice
Activities	Trenching	-	- / +	+	-	+	?	N.A
	Pipe Lay	N.A	N.A	?	N.A	N.A	N.A	N.A
	Backfill Material	-	-	-	-	?	?	N.A
	Seismic Research	N.A	N.A	++	+	- / +	--	N.A
	Presence Platform	N.A	N.A	--	+	?	?	N.A

8. Output - Quantitative

Quantitative Effect Matrix		Ecosystem Components						
		Phytoplankton	Zooplankton	Bowhead Whale	Arctic Cod	Walrus	Polar Bear	Sea Ice
Activities	Trenching	- 5%	- 5%	-1	- 1%	- 10%	- 2	N.A
	Pipe Lay	N.A	N.A	-0,1	N.A	N.A	N.A	N.A
	Backfill Material	- 2%	- 1%	-0,2	- 0,5%	-1%	- 1	N.A
	Seismic Research	N.A	N.A	-4	- 4%	-3%	-0,1	N.A
	Presence Platform	N.A	N.A	-0,1	+5%	+ 3%	+ 1	N.A

9. Example projects

Project	Financed by
Environmental Impacts on European seas	EU DG Environment
Quality Status Report 2011	OSPAR
Impacts of oil & gas on Natura 2000 of North Sea	NOGEPa
Green supply vessels in the Wadden Sea	MCN EFRO
Environmental impact of navy vessels in the Arctic	Canadian/Swedish Navy
The Arctic Handbook	MIP

10. Conclusions

- Identification, prioritisation & mitigation in design phase
- Use outcomes to design operations with reduced impacts
- Minimise negative impacts, maximise positive impacts
- Integral approach involving emissions to air & water
- Beyond emissions: consequences for ecosystems
- Suitable for all offshore & near shore activities

More information
www.arctic.wur.nl



This is an investment in your future. This project is
financed by the European Fund for Regional Development



WAGENINGEN UR
For quality of life