Arctic Ecosystem Services: Interviews from Norway, Russia, Alaska..(and Canada)

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....and the tundra team
Measuring changes in ecosystem services depends on both ecosystem functions and human well-being.
The Environmentalist’s Paradox

Human Development Index
- adult literacy,
- life expectancy
- income

Average human well-being is improving globally, despite resource depletion and degradation of ecosystems

➤ What is the link between ecosystems – services and HI??
What ecosystem services do people say they are dependent on?
Design – selection of 28 communities

- Similar tundra ecosystems
- Governance contrasts
- Socioeconomic contrasts

**Access to wage income**

- Low
- High
### Design - Selection of participants

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<tr>
<th>Demography</th>
<th>Leaders</th>
<th>Non-leaders</th>
<th>Total</th>
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<td>Elders</td>
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<tr>
<td>Total</td>
<td>8</td>
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**Ranked list of leaders for participation**
1. Community mayor/chief
2. Cultural organization (incl schools)
3. Local environmental or recreational NGO’s
4. People in local boards of relevance for management of ecosystem services
5. Local politicians
Which methods are suitable for cross-cultural comparison of ecosystem services in the Arctic?


- Key informant PPGIS
- Structured questions on harvest
Field work

1. Those who designed interviews were the leaders of fieldwork in each country
2. Two fieldworkers, 1-2 weeks in each community

3. Selection of participants:
   Norway – municipal list of leaders - cross-references for members
   Alaska - Tribal council - interpreter – select members
   Canada – Hunters and trappers org – interpreter – select members
   Russia   -Administration – helper – select members
Dependency on ecosystem services

- **Material** (e.g. species and landscape features important for subsistence or commercial purposes)

- **Social** (e.g. species and landscape features important for social ties or social activities today),

- **Cultural** (e.g. species and landscape features important for ceremonies, solitude or cultural continuity)
Contact with nature is suggested as a measure of well being in the Arctic

1. Harvest of traditional food
2. Consumption of traditional food
3. %Population accessing traditional food
Preliminary results: average harvest of top 3 resources
Methodology: Commercialization of traditional foods is prohibited in Alaska, but in Russia it is common – 

Need to include consumption and food security to compare provisional ES
Food Security is an issue in Alaska (not in Norway!): When food was not available at the store what did you do?

57 of 62 interviewees in Alaska say food has not been available at store.
If you were not able to hunt or use nature anymore, what would you do?

Norway – Cultural dependency:
“Being out in the nature is an irreplaceable good. Would have turned ill”

“Horribly sad. Would have consequences for the way of life. Would not move to a city, but comparable place, like Greenland.”

“Would move if he could not drive snowmobile”

Russia – economic income:
“Catastrophic economic consequences, but also catastrophic in other respects”

“Catastrophy”

“There would not be anything to do anymore, neither in terms of work or in terms of recreation”

Alaska – subsistence sharing network:
“Get from relatives, brothers and sisters, nieces.”

“The majority of food here is shared so I don’t need to ask. All depends on the hunter - benevolent or not. Some hang on to all their catch.”
PPGIS to uncover bundles of ecosystem services – i.e. multiple values of ES in one place

To explore the diversity of ES we let participants categorise and rank the importance of resource and landscape features themselves (open questions)
..BUT also need to have some comparative measures...

What harvest or recreational activities did you do last year?

1. **Extensiveness**
   - Area km² used for harvest or recreation
   - Length km travelled

2. **Intensity**
   1. How often?
   2. How long?
      - Daytrip
      - 2-6 days
      - 1 week
      - >week

3. **Purpose of visit**
   - Harvest
   - Recreation
We could compare the total area used by an individual during a year.
What other areas are important for you? Why?

Specifically asked about:

- Long term attachment to places (incl cabins, turf huts)
- Memories
- Length of stay and childhood
- Peace and quiet
- Areas for social gathering
Social values: Visiting friends and family on the tundra, often for several weeks, while participating in harvest activities is important.

No sharp border between nature use and social activities.
Norway: 63% have a cabin
Harvest and recreation in the top 3 priority sites
Alaska: Do you think the following animals should be increased, decreased, or left alone?
Norway: Do you think the following animals should be increased, decreased, or left alone?
Challenges for further analyses of dependency on ecosystem services

- **Material** – Can’t sell traditional foods in Alaska, but in Russia and Norway (reindeer) it is common to sell.
  - The premises for calculating the dependency differs
  - The importance of traditional food for food security differs

- **Social** - Social activities are linked to cabins/camps, especially in Russia and Norway
  - Not clear when ES is included as a part of the social activity

- **Cultural** – the cultural importance of ES in open questions need to be analysed
THANK YOU!

TUNDRA TEAM - DESIGN

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ALL FIELD WORKERS