



Risk Perceptions Related To Hazardous Substances In The Norwegian-Finnish-Russian Border Area

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Contaminants in the Arctic

- Toxic metals, POPs (persistent organic pollutants), radionuclides
- Bioaccumulation
- Food main source for humans – esp. marine and game diet
- Long-range transported pollution most important source overall.
 - Downward trend
- Local sources important in some areas. Polluting industry



An Arctic trade-off?

- **Polluting industry, jobs, income, taxes and public services**



- **Clean environment, low health risks**
- Many Arctic communities dominated by one-company heavy industry
- Jobs and income also important for human well-being
- Good knowledge about pollution situation and health risks is necessary to make good decisions

The case region



Kirkenes, Sør-Varanger



Nikel, Pechenga



Main pollutants: SO₂, Ni, Cu, dioxins

Risk and risk perceptions



- Complex, complicated and comprehensive information and knowledge is needed
- Available suited information sources?
- Trust in information provider?
- Limited time and attention, cognitive biases..
- Other risks and concerns may dominate

Some of our research questions...

1. How are people's concern about contaminants and health risks?
2. Association between level of concern and personal local food use and outdoor activities?
3. What are important information sources?
4. Do people trust information from the authorities?
5. Does people's risk perception affect their wish for their children to grow up in the municipality?
6. Who do people see as responsible for reducing the risks?
7. Are peoples' beliefs/knowledge of the pollution situation /risks in line with expert knowledge?
8. Do people want more information and attention on local pollution?

Method: Survey to general population

- Mix of postal, direct and internet contact with respondents.
- Many items used 1-10 scale
1:no/very little, 4:a little, 7:some, 10: yes/very much

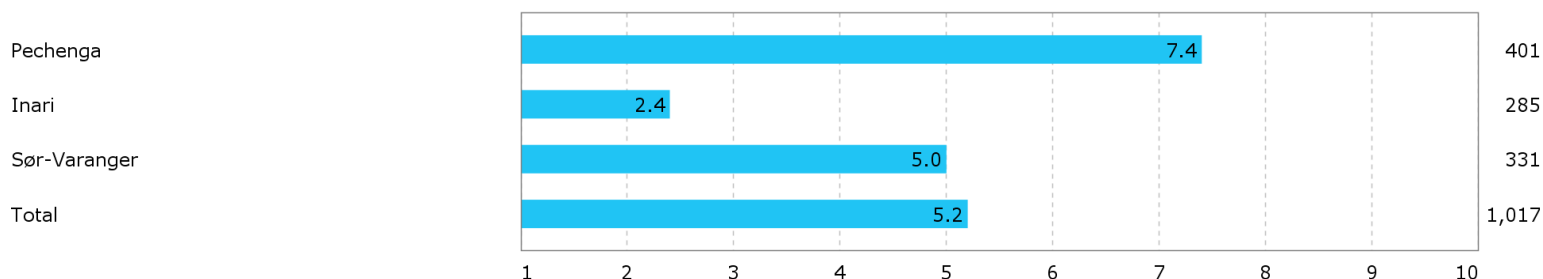
Respondents / population

- Inari 286 / 6796
- Pechenga 403 / 38,452
- Sør-Varanger 341 / 10,090
- Confidence interval ~3-5% = ~ 0.27-0.45 on 1-10 scale
(at 95% confidence level)

Are people concerned about pollution?

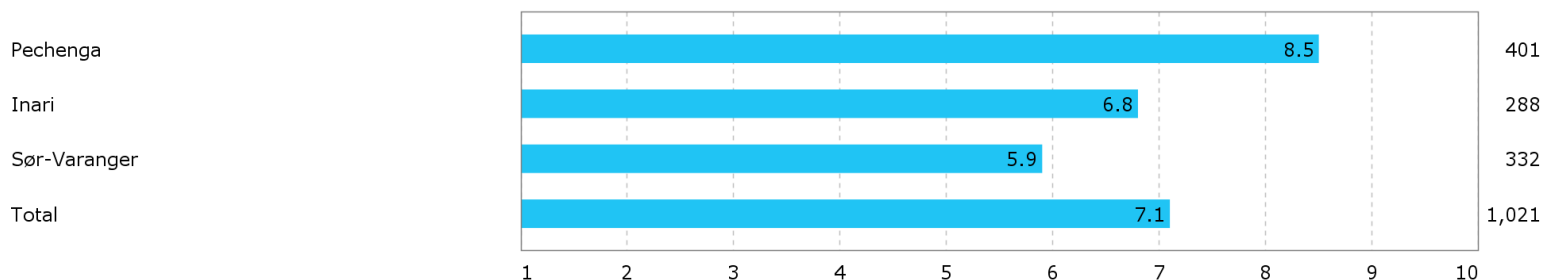
Do you consider your municipality clean or polluted?

(1=clean, 10= very polluted)



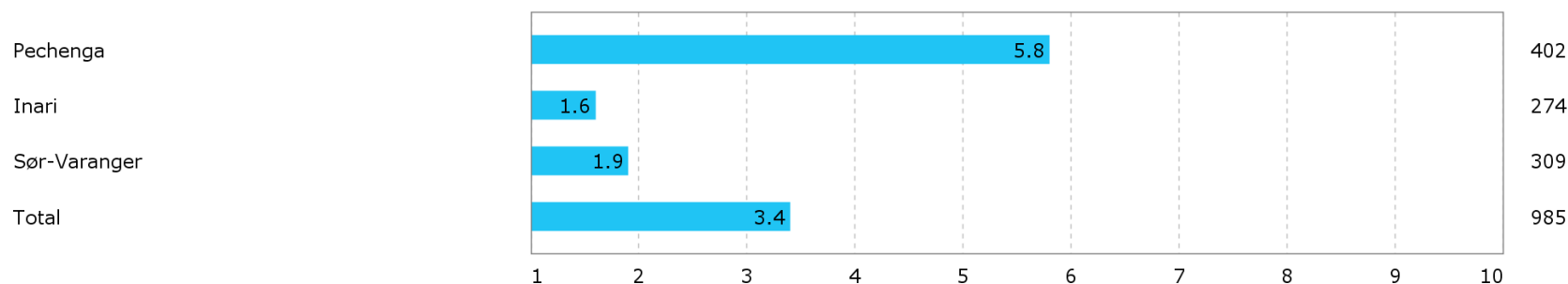
In general, are you worried about environmental pollution?

(1=no, 10= very much)

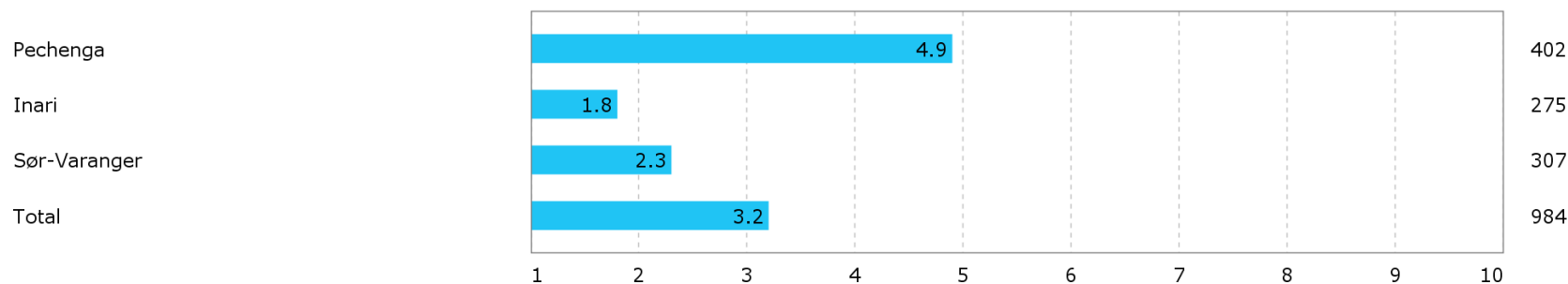


To what degree does your concern about environmental pollution affect you or your child's/children's use of the outdoors? ...

...Less time spent outdoor for leisure



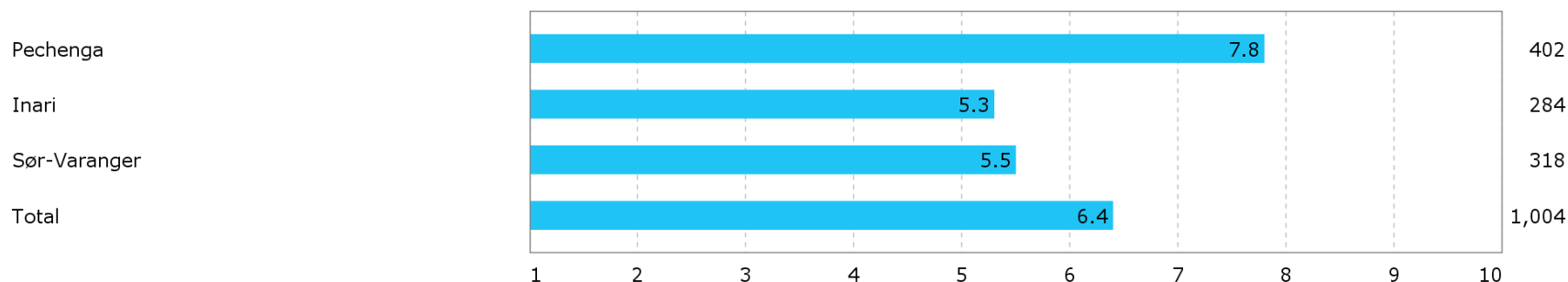
... Gather less food (incl. hunting and fishing)



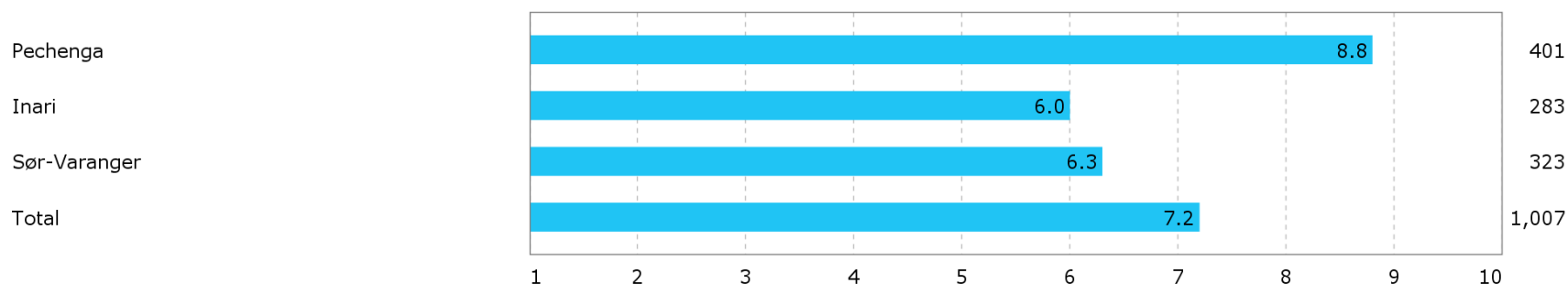
Are you concerned that pollution negatively affects...

(1=no, 10= very much)

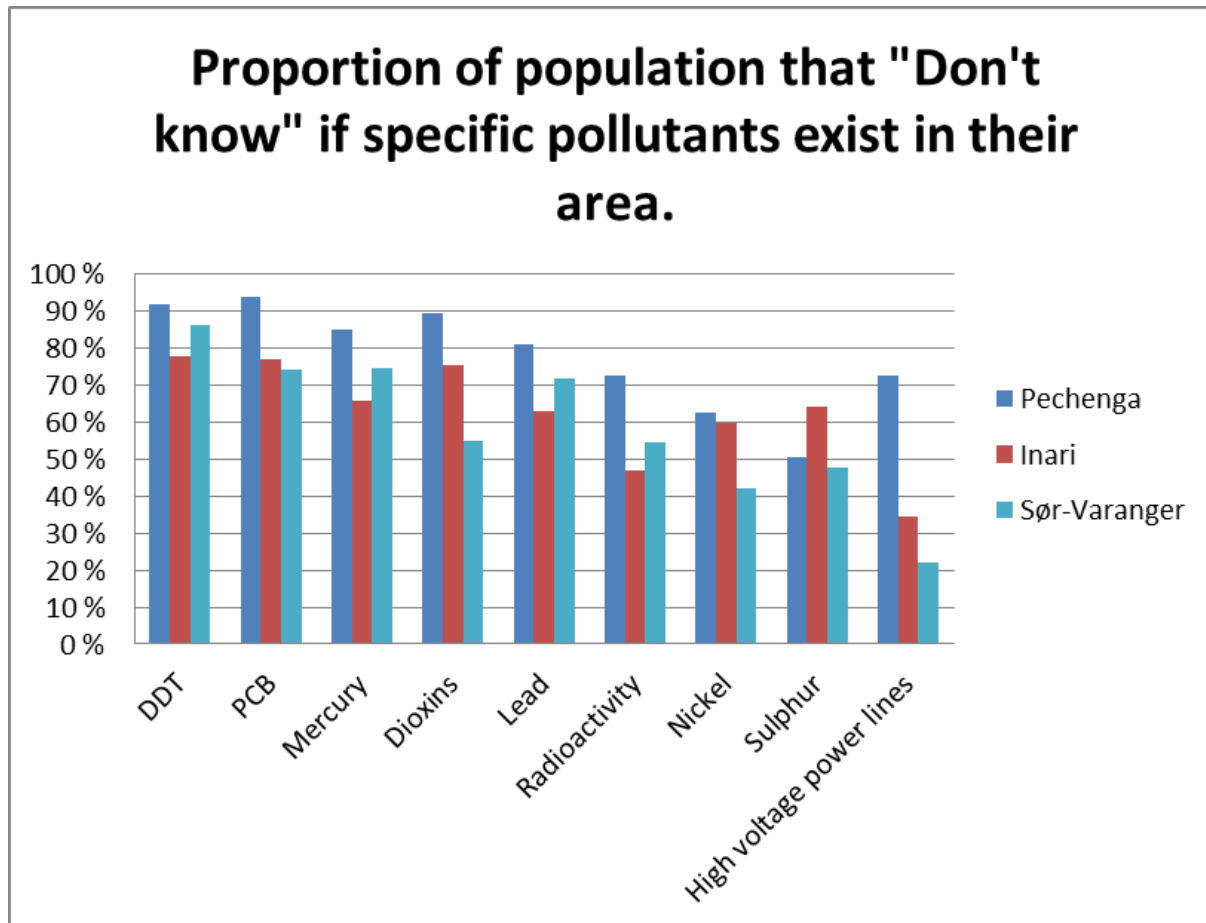
...Local food sources



...Local nature/ecosystem



Do people know about specific pollutants?

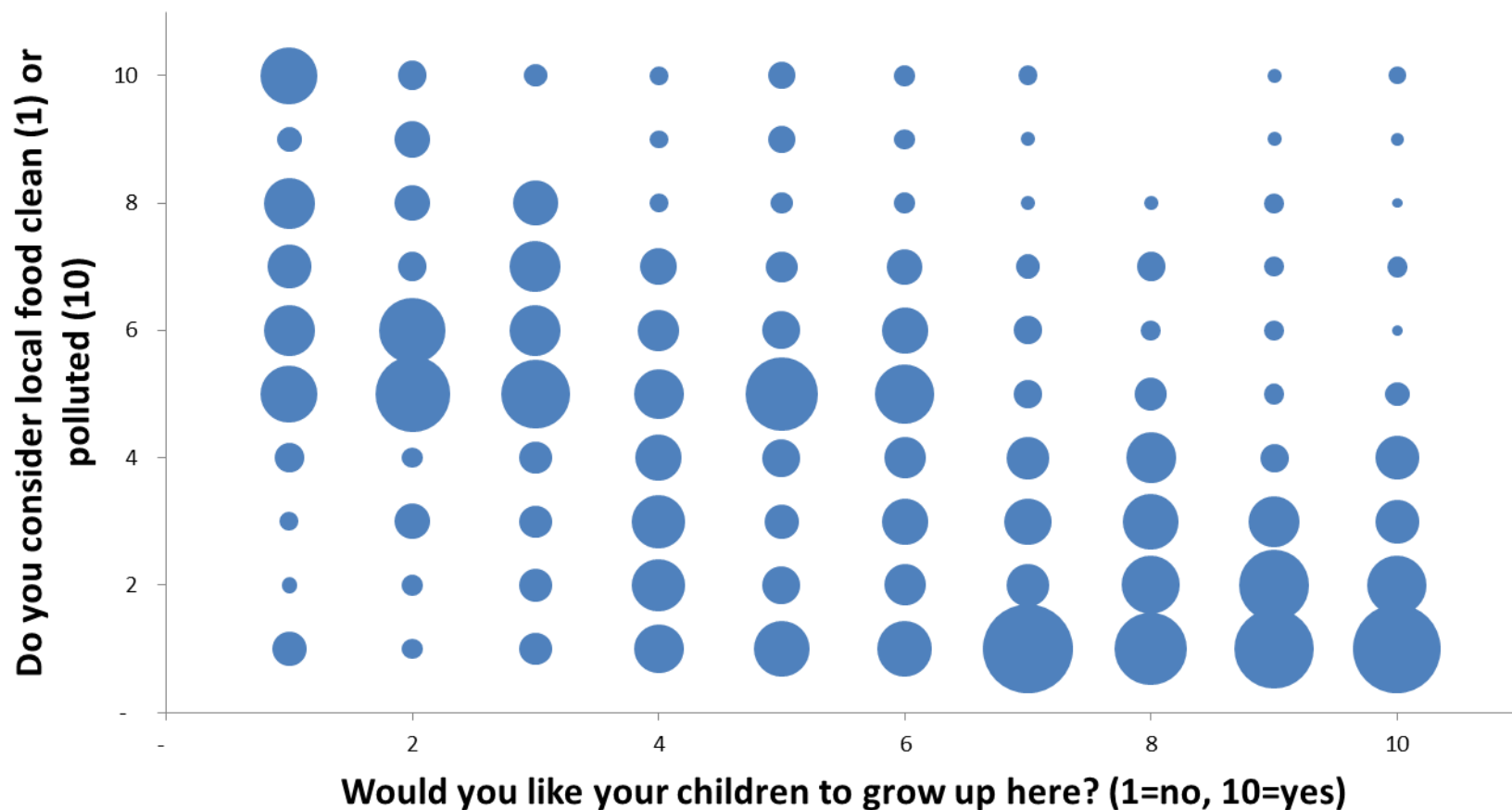


People vs. the experts..

(Sør-Varanger only here)

- Expert group assessed the local pollution situation and health risks
- Compared their assessment to population's answers
- In general:
- Average population opinion coincided well with expert opinion
- People think local authorities are more responsible for reducing risks with local pollution than the experts do.

Risk perception and wish for children to grow up in the municipality?



Pearsson correlation: $\rho = -0.59$

People want more info on and attention to local pollution issues

State your agreement...: 1-10 (no agreement – very much agree)...

- «*I have enough information about local pollution issues*»: **4.0**
- «*There is too much attention to local pollution issues*»: **3.2**

Summing up

- In Pechenga they are generally more concerned about pollution than in Inari and Sør-Varanger, and there the concern leads to less time spent outdoors and for gathering local food.
- *For all municipalities the concern is bigger for pollution's effects on nature itself than on local human food.*
- Large parts of the population do not know the local situation for specific pollutants.
- *In Sør-Varanger the population's risk perceptions are fairly well in line with expert knowledge.*
- Perceived environmental situation seem to matter for whether people want their children to grow up in the region.
- *People want more information on and attention to local pollution issues.*

These results were from the project:

Food and health security in the Norwegian, Finnish and Russian border region: linking local industries, communities and socio-economic impacts

- Project leader Dr Torkjel Sandanger, UiT
- Administrative leader Dr Eldbjørg Heimstad, NILU

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