

information

Keywords

Incentive

Project title

Ripple environmental effects of mining in northern areas

Year

2014/2015

Project leader

Vera Hausner

Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)

70°29'01"N 29°32'26"E

Participants

Jennifer I Schmidt, University of Alaska, Anchorage

Else Grete Broderstad/Centre for Sami studies, The Arctic University of Norway.

Per Fauchald, Norwegian Institute for Nature Research, Tromsø

Kaz Kuba, UiT-the Arctic University of Norway

Flagship

MIKON

Funding Source

TUNDRA NRC/Framsentre/UiT

Summary of Results

We have created a GIS layer of mines ($n = 1,052$) and kml above 60 degrees North in Alaska, Canada, Greenland, Norway, Sweden, Finland, and Russia (Figure 1). The operational status of these mines ranges from conceptual to operating to historic. Most mines are not active, but rather in exploration (Figure 1 and 2). The categorization of mine status is based on the current time point, which due to the highly volatile nature of mining can change quickly and often.

The target of mines the mines collected include industrial materials, minerals, and precious stones. The dates of our mines range from 1542 to present with most of the older mines occurring in Scandinavia. For the mines that have past or present production, we

collected dates of operation, whether they are underground/open pit or both, and production information where available.

Literature database

We collected a vast amount of literature about mines including individual mine reports, country mining development plans, and comparative publications/reports. A few of the comparative reports provide examples of interdisciplinary models and a study designs that have been used to capture the indirect effects of mining activities (McDowel Group 2014, Prno and Slocombe 2014). Recently there has been a vast amount of work about resource extraction in the Arctic. The Resources and Sustainable Development in the Arctic (ReSDA) group has done a gap analysis, including documents in our literature review literature review which illustrates the rapid advancements and vast amount of work on this topic.

Interdisciplinary models and proposals

We have submitted a paper to Polar Geography than analyse demo economic dynamics associated with resource extraction (in review). The paper explored the role of resource extraction for demography and economy (demoeconomic systems). The next step is to analyse demoeconomic systems on smaller scale and relate it to resource use and environmental effects. We have also included a work package on RipEffects in the application submitted to the Belmont Forums Arctic Program. With the help of our literature review; we are also developing a proposal to submit for an early research award from the National Science Foundation (NSF) with partners at the University of Alaska, Anchorage (UAA). During proposal development, we have and will continue to work at developing an interdisciplinary study design and research protocol that would capture the direct and indirect effects of effects of mining activities in northern areas.

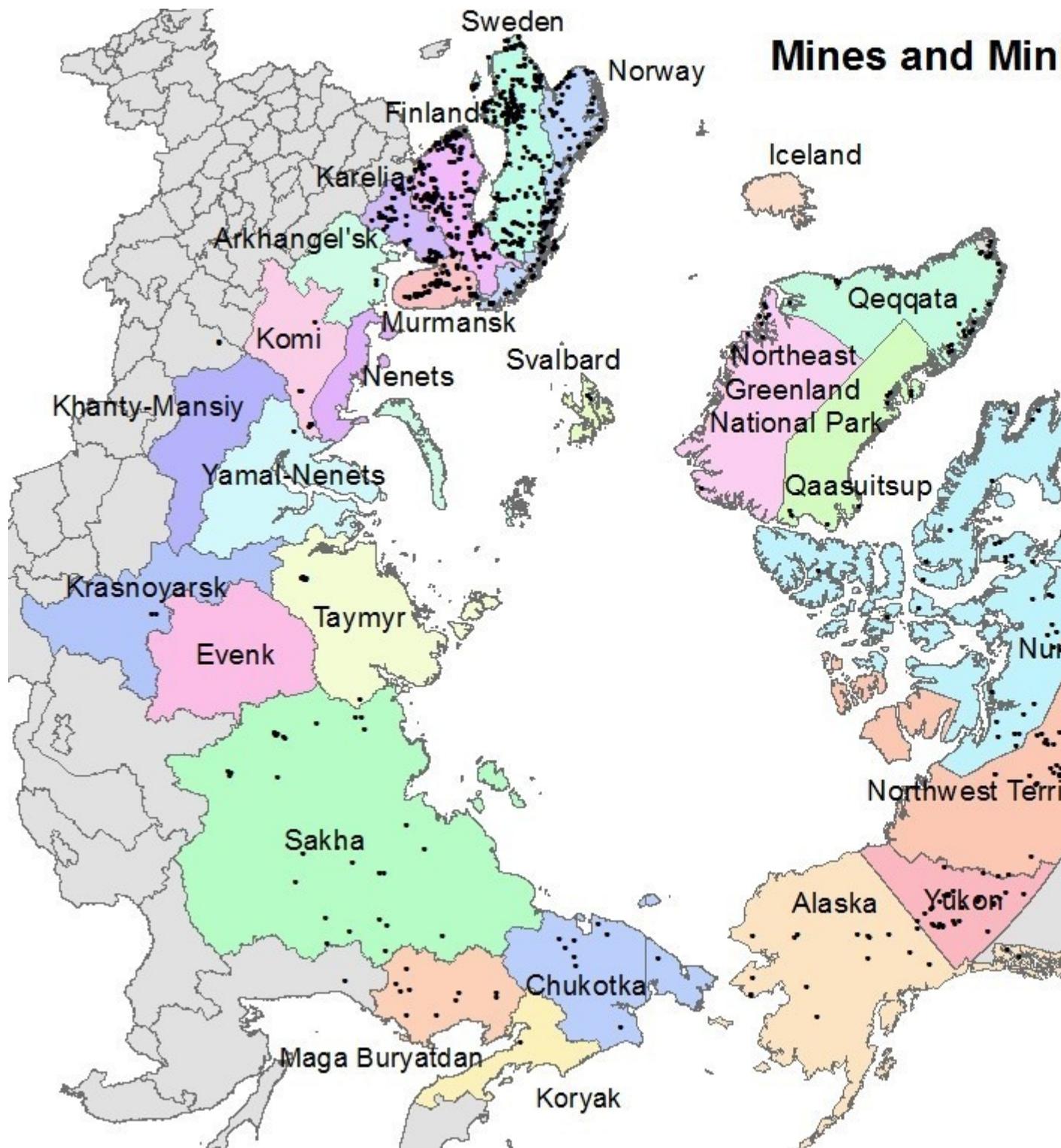
References:

McDowell Group, Inc. 2014. The economic impacts of Alaska's mining industry.

Prno, J. and D. S. Slocombe. 2014. A systems-based conceptual framework for assessing the determinants of a social licenses to operate in the mining industry. *Environmental Management* 53:672-689.

For the Management

There is a lot of mining activities that is occurring in the Arctic, especially in Nunavut and Greenland. Our project is a first step to create a circumpolar database over resource extraction activities. The database could be expanded and improved. First, there is no standard definition of what is or is not a mine and the declared status of a mine. A mine defined as bankable in one country may not be applicable as a category in another country. In addition, the size of a mine is very subjective, and the user of the database is encouraged to develop their own index of size. Secondly, mines operate on a very narrow financial margin so whether they are operating from one year to another, even one month to another, can vary. Third, owners are important for stability and many of the mines in North America are non-state owned. Thus unlike many mines in Europe there are multiple owners and this ownership is constantly under flux.



Mines and Min

Published Results/Planned Publications

Schmidt et al. 2014. Spatial and Temporal Analysis of Demoeconomic Systems in Arctic Regions. *Polar Geography* (in press)

Schmidt et al. 2014. GIS database on mining in the Arctic (Available for FRAM centre participants)

Research proposal CONNECT to Belmont Forum, Arctic Observation systems program, in which RipEffects was included as a workpackage. FUNDED.

Proposal to the Early Concept Grants for Exploratory Research (EAGER) program at the NSF, which has an open submission date.

Communicated Results

Presentation of RipEffects and the GIS database. MIKON, FRAM center meeting.

TUNDRA workshop, Sommerøy, Presentation of RipEffect and discussion of proposals.

Arctic-FROST Research Network conference (<http://uni.edu/arctic/frost/223-2/>)

Meet with people involved in the Resources and Sustainable Development in the Arctic (ReSDA). (<http://yukonresearch.yukoncollege.yk.ca/resda/workshops/labrador-2014/>).

Inhouse meeting with interested parties at the Institute of Social and Economic Research at UAA.

Interdisciplinary Cooperation

The GIS database was constructed by people with GIS competence, but expertise in social sciences, economy and geology were drawn in to quality assure and improve the database (e.g. NGU, Division of Mining, Land, and Water at the Alaska Department of Natural Recourses). The paper submitted to Polar Geography includes competences in economy, economic geography, ecology and sustainability science, and we also include a wide range of expertise in

the proposals. The causal links between resource extraction, resource and land use and finally environmental effects cannot be explored without including economy, social sciences and ecology.

Budget in accordance to results

Yes

Could results from the project be subject for any commercial utilization

No

If Yes

No

Conclusions

We achieve our goals in the project:

1. to create a mining database
2. to publish a paper on regional disparities in socio-economic conditions
3. CONNECT application was successful and is funded by Belmon, Arctic Observatory Program.