Betty Christakopoulou, Project Manager, Luleå Tekniska Universitet, “Mineral waste-disposal or value creation? Need for research and innovation”, Mo i Rana, Norway, March 17, 2016
NordMin January 2013 – March 2017

• Funded by the Nordic Council of Ministers

• Budget 30 MDKK

• Management at Luleå Tekniska Universitet
Vision

Create a network for RDI in the raw materials sector in order to increase the global competitiveness & sustainability of the sector in the Nordic region
Goals

- Collaborative platform
- Connect stakeholders
- Address issues of mutual importance for extractive industry and society
- Establish a Nordic Mining School
- Increase global visibility
- Initiate a dialogue on future challenges
Core Themes

CT1: Exploration
CT2: Mining
CT3: Mineral processing
CT4: Metallurgy
CT5: Mine closure and rehabilitation
CT6: Social sustainable, acceptable and attractive mining industry and regions
Core actions

1. Workshops
2. Research and Innovation projects
3. Post graduate program
4. Preparatory projects
<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 September 2014</td>
<td>Sweden</td>
<td>Funding Possibilities</td>
</tr>
<tr>
<td>18-19 November 2014</td>
<td>Norway</td>
<td>Nordic Aggregates &amp; Stones</td>
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<tr>
<td>23-24 March 2015</td>
<td>Iceland</td>
<td>Exploration on- and off-shore</td>
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<td>4 May 2015</td>
<td>Sweden</td>
<td>Nordic Underground Mining</td>
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<td>6-7 June 2015</td>
<td>Greenland</td>
<td>Mining and Society in the Arctic</td>
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<tr>
<td>17 March 2016</td>
<td>Norway</td>
<td>Mineral waste</td>
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<tr>
<td>19-20 October 2016</td>
<td>Finland</td>
<td>How to go further in Nordic collaboration in the Mining Research and Education</td>
</tr>
<tr>
<td>8-10 November 2016</td>
<td>Norway</td>
<td>3D Geological Modeling</td>
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</table>
Coming workshops 2016
“How to go further in Nordic collaboration in the Mining Research and Education”

19-20 October 2016, Helsinki, Finland

Goals

• Present results and experiences from research projects and other activities financed by NordMin
• Discuss possibilities for future Nordic collaboration on research and education in the mining and mineral industry areas
• Identify type of collaboration related to education in the mining and mineral industry sector for which joint funding will be sought
Nordic 3D Geological Modeling workshop

"3D modeling and visualization of geological structures - the unknown subsurface and associated uncertainty"

8-10 November 2016, NGU, Trondheim

Scope:

• Encourage cross-disciplinary and cross-border exchange
• Create a network of geologists from the Nordic countries working with 3D geomodeling in science or industry
General outline of the workshop

08.11: Plenary session with invited talks, discussion
09.11: Oral and poster presentations
10.11: Workshop "3D modeling and visualization of geological structures - the unknown subsurface and associated uncertainty"

Invited Speakers

• Dr. Mark Lindsay (Centre for Exploration Targeting, University of Western Australia)
• Dr. Florian Wellmann (Institute for Advanced Study in Computational Engineering Science, RWTH Aachen, Germany)
Important dates
May 31st, 2016: Deadline for abstract submissions
June 30th, 2016: Deadline for registration

Fees
Free of charge
Students who give a presentation at the meeting can apply for financial support
Research and Innovation projects

• Crustal Structure and Mineral Deposit Systems: 3D-modelling of base metal mineralization in Jameson Land and nickel mineralization in Disko-Nuussuaq”

• Sustainable Fibres from Basalt Mining”

• Modelling dunite hosted PGE-Ni-Cu deposits in the Seiland Igneous province”

• Nordic Mining and the search for women. Designing new gender equality interventions”

• Water Conscious Mining

• Sustainability Criteria for the Nordic Extractive industry
Education and training Goals

• Contribute to Nordic countries overall expertise
• Increase public awareness of the importance of raw materials
• Maintain the supply of professionals needed
Post Graduate Education with joint Nordic courses

- 4 post-graduate courses in total (3PhD, 1 MSc)
- MSc, PhD students from all Nordic countries
- Stakeholders from industry, public authorities and NGO’s
- Invited speakers
- Scholarships for participating Nordic students
1st PhD course

“Minerals industry sustainability within a Nordic context”
December 8-12, 2014, LTU

Topics
Minerals Industry Sustainability, Ecological, Environmental, Economic, Societal and Legislative aspects, Indigenous peoples rights, Gender aspects
# 2nd PhD Course

“Gold from Bedrock to Bullion: Sustainable Mining”

January 18-22, 2016  University of Oulu, Finland

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<th>January 18</th>
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<th>January 20</th>
<th>January 21</th>
<th>January 22</th>
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<tbody>
<tr>
<td>Occurrence of gold in bedrock and gold mineralogy</td>
<td>Planning and execution of a mine project: economic perspective</td>
<td>Gold extraction techniques</td>
<td>Excursion to the Kittilä Gold Mine</td>
<td>Environmental challenges of a gold mining (CN, As, U, etc.)</td>
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<tr>
<td>Gold exploration: Rompas case study</td>
<td>Chemistry and analytics of gold and associated compounds</td>
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Coming postgraduate education courses 2016

3rd PhD Course

5 days course
Joint Norway and Iceland course
Theme: Deep sea mining/subsea mining/
sea floor resources
Location: Bergen, Norway
Autumn 2016
MSc Course

5 days course incl. one day field trip

Title: “The Business of Exploration, from the ground to the stock market”
Location: Reykjavík, Iceland
September 19–23, 2016
Preparatory projects

• Based on results from workshops
• Costs for establishing a partnership to develop ideas for leverage from National, Nordic, EU or International sources
• Participation from at least 3 Nordic countries
Eligible costs

- Preparation costs
- Travel costs
- Meeting costs
- Indirect costs (overheads)
- All costs related to the preparation of the proposal
**Preparatory projects funded**

1. “NordMin Center of Excellence” NordMinCoE
2. “Spectroscopic quantification of critical minerals and applications for exploration and mining”
3. “Sustainable Governance of Northern StoneHeritage” (HeriStone)
4. “Assessment of undiscovered mineral resources in the Nordic countries and Greenland”
5. “Modern and Ancient VMS-forming hydrothermal systems”
6. “Mining, quarrying and tourism development”
Preparatory projects call on “Mineral waste”

- Proposal linked to a coming external call
- Clearly stated which specific call is targeted
- Clearly stated how the funding will be used
- Minimum 3 letters of Interest from 3 Nordic countries
- Evaluation by NordMin Steering Committee
- Deadline for applications: April 15, 2016 17:00 CET
- Application form at: nordmin-network.org
- Send to: betty.christakopoulou@nordmin-network.org

Full project proposal to be submitted to the external funding source, not later than 31 December 2016
Max. funding 200 000 DKK / Preparatory Project
Preparatory projects call on raw materials
Call open early April 2016
2-3 preparatory projects to be funded

Full project proposal to be submitted to the external funding source, not later than 31 December 2016
Max. funding 200 000 DKK /PP

More info at: nordmin-network.org
National contact points

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