The Bergskraft Bergslagen Project

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Swedish Mining Regions

Swedish mines 2008

- Blue: Iron
- Red: Sulphide
- Yellow: Gold

Investing in your future
Swedish Mining Regions

Swedish mines 2008

- Iron
- Sulphide
- Gold

Investing in your future

MAN TECHNOLOGY ENVIRONMENT RESEARCH CENTRE
BERGS KRAFT SWEDEN
EUROPEAN UNION
European Regional Development Fund
In only our county we find nearly 900 contaminated sites related to mining.
The **Bergskraft** (2005-2007) and **Bergskraft Bergslagen** (2007-2010) projects

- The Bergskraft projects started in 2005
  - Main aim is to help create growth in Bergslagen
  - Office in Kopparberg, Ljusnarsberg municipality
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- Financial support from
Regional

- Länsstyrelsen Västmanlands län
- REGIONFÖRBUNDET ÖREBRO
- REGION dalarna
- Region Värmland

Foundations

- Sparbankstiftelsen Bergslagen
- Sparbankstiftelsen Upland
- Sparbankstiftelsen Åla
- Sparbankstiftelsen Nya

Municipalities

- Askersunds kommun
- Degerfors kommun
- Jägsta kommun
- Filipstads kommun
- Hälsedal kommun
- Nora kommun
- Norbergs kommun
- Lindesbergs kommun
- Ljusnarsbergs kommun
- Ludvika kommun
- Sandvikens kommun
- Smedjebackens kommun

Others

- Arbetsförmedlingen
- Örebro universitet
- [European Union logo]
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• Three main areas/activities
  – 1 The Bergskraft Bergslagen Meeting Place
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![EU logo](image)
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  - 2 Mining
  - 3 Mining-related Environmental Work
Mining Related Environmental Work

Our research focuses on cost efficient, low-maintenance methods for remediation of historic mine sites using alkaline by-products.
Mining Related Environmental Work

• People connected with the project – environmental part
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• People connected with the project – environmental part
  – Mattias Bäckström, associate professor, chemistry
  – Stefan Karlsson, associate professor, chemistry
  – Bert Allard, professor, chemistry
  – Viktor Sjöberg, PhD-student, chemistry
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  – Viktor Sjöberg, PhD-student, chemistry
  – Stefan Sädbom, exploration geologist
  – Lotta Sartz, PhD, environmental science
Mining Related Environmental Work

• Companies connected to the project – alkaline by-products
  – Nordkalk AB
    • Lime kiln dust and water works granules
  – SSAB Merox AB
    • LD-slag
  – Korsnäs Frövi
    • Fly ash, lime mud and green liquor dreg
  – E.on
    • Fly ash
Mining Related Environmental Work

• Different alkaline by-products are suitable for different applications

• Our ambition is to find the right application

• ”There’s no bad materials, only bad applications”
Mining Related Environmental Work

Prevention of ARD

Oxidized mine waste

Treatment of ARD

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EUROPEAN UNION
European Regional Development Fund
ARD prevention
mixed and layered systems
ARD treatment
filter systems

ARD-generator

Separating wall

Alkaline material

Supportive materials

S. 1

S. 2

S. 3

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EUROPEAN UNION
European Regional Development Fund
Experiences

• Blending (mixed/layered)
  – Appropriate alkaline addition (pH → trace metals)
  – Characteristics of different amendments (e.g. hard pan)
  – Release of elements from mixtures

• Filters
  – Materials appropriate for ARD with high/low Fe-conc.
  – Release of pollutants from alkaline by-products with different leaching media
Next steps – studies in progress

• Bergskraft 11•13

– Field-scale injections in waste rock piles
  • Lime kiln dust and green liquor dreg
  • Ongoing experiments on how to best apply the alkaline materials (slurries, depths, pressure etc)

– Optimization of different alkalinitities (mainly hydroxide and carbonate) in ARD filter treatment

– School projects
Bergskraft – business part

- Bergskraft Bergslagen Incorporate Association (Bergskraft Bergslagen Ekonomisk Förening)
  - Activities for promoting sustainable development and growth in Bergslagen with a focus on mining.
  - A fully owned company with six employees (Bergskraft Bergslagen AB), to perform assignments on behalf on members and external clients.
Thanks for Your Attention!

If you want to know more about Bergskraft, please contact:

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www.bergskraft.se