MIND

Microbiology In Nuclear waste Disposal

This project has received funding from the Euratom research and training programme 2014 - 2018 under grant agreement No. 661880

Birgitta Kalinowski, SKB

THE MIND CONSORTIUM

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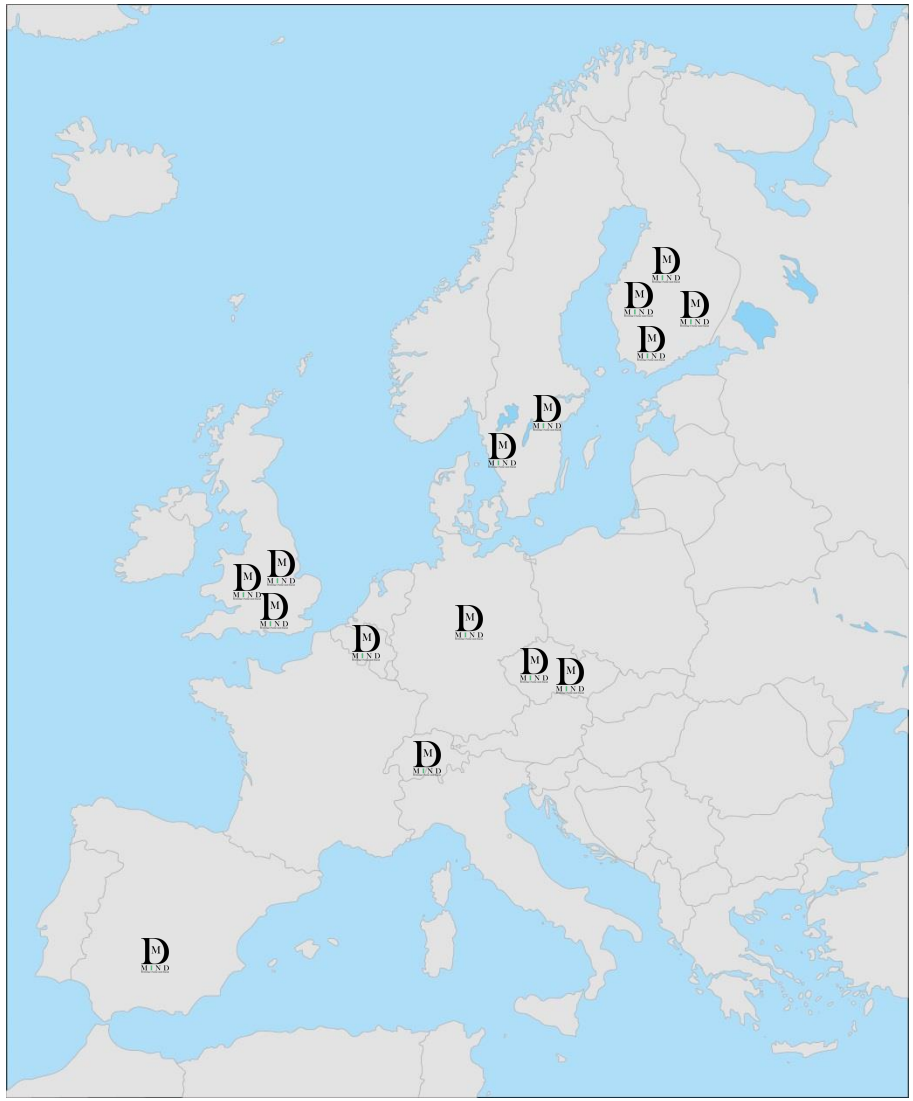
MIND
Microbiology in Nuclear waste Disposal

MIND CONSORTIUM DESCRIPTION

15 partners from: research, performance assessment, social science

8 countries represented



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GENERAL INTRODUCTION TO MIND

- The objectives of the project
  - are to target key technical issues, involving microbial processes, which must be addressed to facilitate safe implementation of planned geological disposal projects in the EU.
  - will increase the understanding of how life processes will influence the safety and performance of future repositories, by focusing on key topics as defined in the most recent version of the IGD-TP strategic research agenda (SRA) (version July 14, 2011).

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MAIN MICROBIAL PROCESSES

- Microbially induced degradation
  - Corrosion of metal canisters
  - Degradation of buffer, backfill and cement
- Gases
  - Production –
  - Consumption +
- Migration
  - Mobilisation –
  - Immobilisation +

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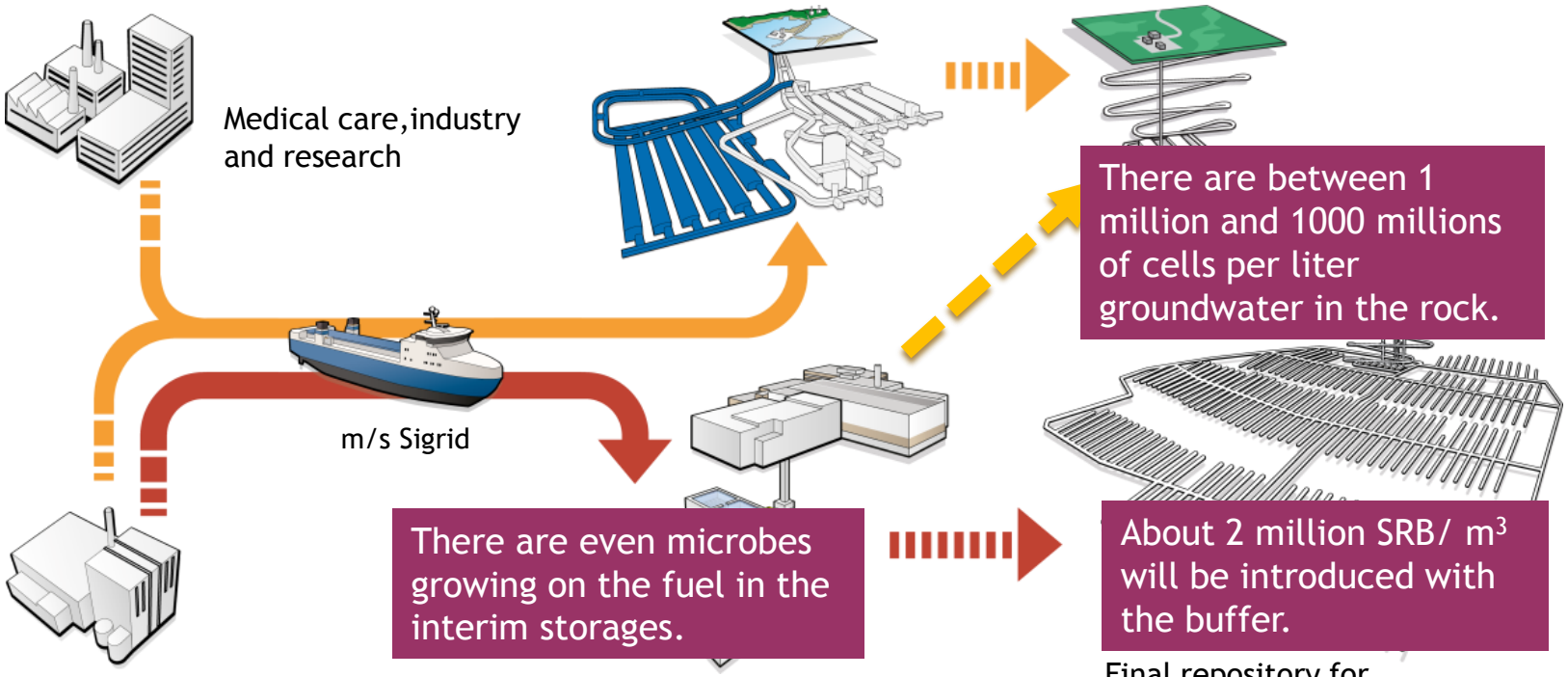
THE REPOSITORIES

Methanogens



Sulphate reducing bacteria

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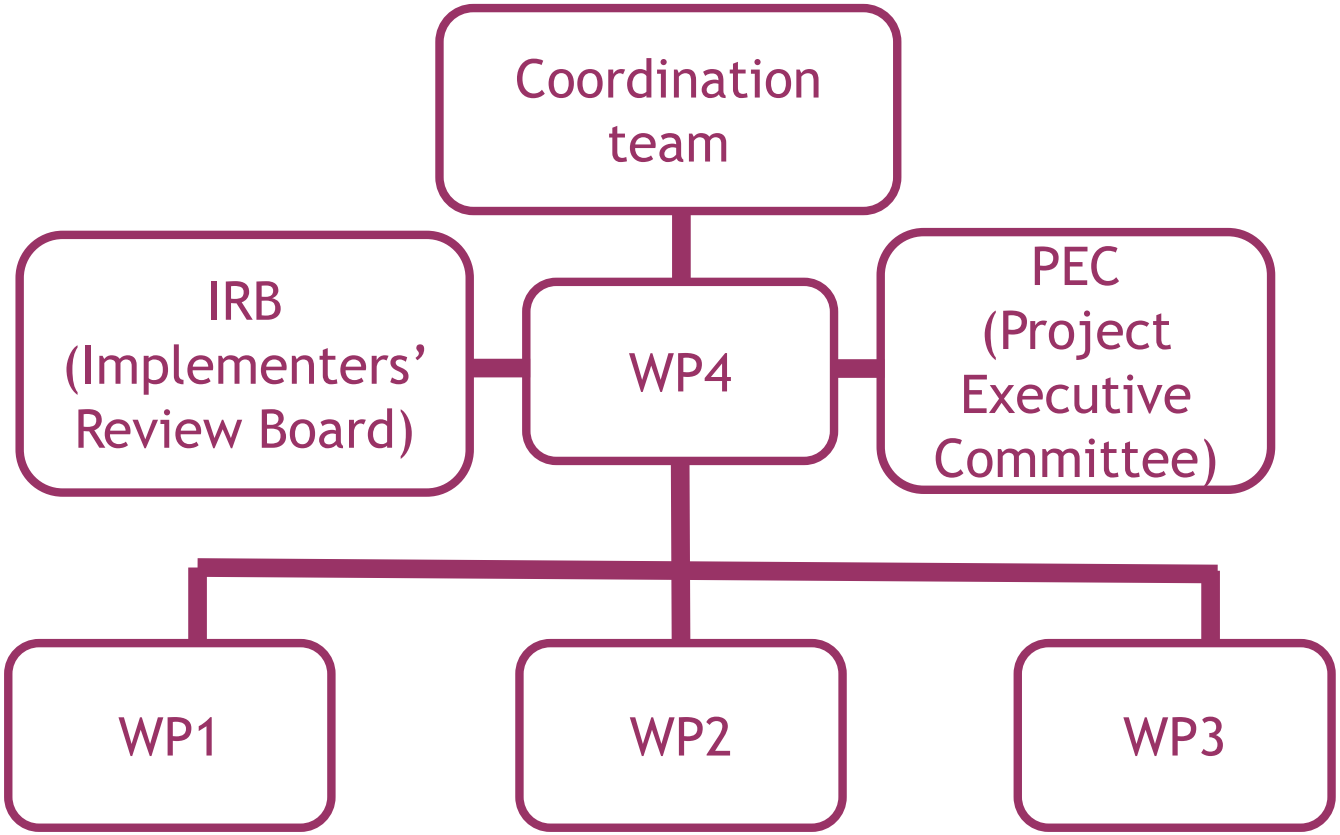
MIND ORGANIZATION



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WORK PACKAGES

- ***Work Package 1***: Improving the geological safety case knowledge of the behaviour of organic containing long-lived **ILW**
  → Key Topic 2: "Waste forms and their behaviour"
  → Lead: NNL (UK, Joe Small)

- ***Work Package 2***: Improving the safety case knowledge base about the influence of microbial processes on **HLW** and spent fuel geological disposal
  →Key Topic 3: "Technical feasibility and long-term performance of repository components"
  → Lead: MICANS (Sweden, Karsten Pedersen)

- ***Work Package 3***: Integration, communication and dissemination
  → Lead: SCK•CEN (Belgium, Natalie Leys/Kristel Mijnendonckx)

- ***Work Package 4***: Project Management
  → Lead: SKB (Sweden, Birgitta Kalinowski/Petra Christensen (Jan Gugala)

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SAMPLES FROM FEBEX-DP

After 18 years of simulation in a full-scale mock-up of a HLW repository, anaerobic mesophilic bacteria were found in numbers of over thirty thousand per gram of bentonite in some core samples. Specific bacterial groups important for the safety case of a HLW repository such as SRB, IRB and NRB could also be cultivated from several bentonite core samples, however, mainly in those dismantling sections where the water content was elevated and temperature and dry density was lower than in the hot and dry sections in close adjacency to the heater.

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ROLE OF THE IRB

- Advice the project with critical evaluation concerning research quality and significance of outputs
- Highlight opportunities for networking with other international research acitivites and raise awareness of our research programme where appropriate

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THE IMPLEMENTERS REVIEW BOARD

- SKB
  - Johan Andersson (HLW) chairperson
  - Klas Källström (ILW)
- Posiva
  - Tiina Lamminmäki (HLW)
- TVO
  - Kirsi Weckman (ILW)
- Niras/ONDRAF
  - Benny de Blochouse/ Xavier Sillen
- Andra
  - Achim Albrecht
- NAGRA
  - Irina Gaus
- RWM
  - Rebecka Beard
- Canadian Institute of Advanced Research
  - Jennifer McKelvie (previously at NWMO)

Observers

- IRSN
  - Margot Flatchet/ Charles Wittebroodt
- Los Alamos National Laboratory
  - Don Reed

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WORKSHOPS AND MEETINGS

The next Project Annual Meeting will be held in the Czech Republic, from May 3rd until 5th 2017

MIND will be in charge for session 3n: Biogeochemical Processes and Radioactive Waste Disposal at the Goldschmidt Conference in Paris, France August 13-18, 2017. Chair persons are Andrea Cherkouk (HZDR) and Jonathan Lloyd (UniMan)

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Follow the MIND project on www.mind15.eu and @MINDH2020

Thank you!

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MIND Project Annual Meeting 2017 and Project Executive Committee Meeting

Prague, Czech Republic, May 3rd to 5th, 2017

The Mind project would hereby like to invite you and your colleagues to the second **MIND Project Annual Meeting** and **Project Executive Committee** meeting (PEC) which are scheduled to take place in **Prague, Czech Republic on the 3rd to 5th of May** with a planned visit to **Centrum Vyzkumu in Rez.** We are also planning to have a pre-workshop as last time. The meeting will be held close to Charles Bridge: http://en.csvts.cz/

Travel arrangements

The complete MIND 2017 Workshop will be hosted by the **Technical University of Liberec** and **Centrum Vyzkumu** in **Rez** Detailed maps will be distributed together with the final agenda to all participants.

Travel

The Václav Havel Airport in Prague is located 10 km from city center. A public transport bus is traveling every 10 mins from the airport to the nearest metro station (about € 1.5). Taxi rates are about € 25.

For more information about the workshop and meeting please contact:
alena.sevcu@tul.cz, petr.polivka@cvrez.cz
or visit our webpage
www.mind15.eu

Hotel Booking

Recommended hotel located close to the meeting venue:
http://www.charlesbridgepalace.com/
Or near metro station Staromestska:
http://www.pachtuvpalace.com/

Each participant is responsible for their own travel arrangements and hotel bookings. We recommend that you book your tickets and hotel rooms as soon as possible as the first week of May is very busy in Prague.

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The Workshop will include a parallel meeting with the Implementers Review Board.

May 3rd 14:00-17:30
May 4th 16:00-17:00

MIND-Project pre-meeting workshop
The MIND-project will on May 3rd host an open for all pre-meeting workshop. The key subjects will be announced within shortly.

09.00 - 12.30 Key topic #1 & 2.
- High pH and methanogenesis with focus on low- and intermediate level waste repositories.
- Microbial effects on radionuclide migration.

14.00 - 17.30 Key topic #3& 4.
- Bioinformatic work in MIND, mock sample and bioinformatic work
- Microbial life and effects on clays in natural and engineered barriers

The workshop will be organized by MICANS and the MIND-project.

MIND - Project Annual Meeting
The Project Annual Meeting will start on the morning of May 4th and continue until lunch-time on May 5th.

May 3rd

19:00	Optional Icebreaker and Registration (Prague, location not yet decided)

May 4th

08:30-16:00	Theme sessions I and II
16:00-17:00	MIND - Project Executive Committee meeting
16:00-18:00	Poster session
20:00	Conference dinner (not yet decided)

MIND - Project Annual Meeting cont.

May 5th

09:00-12:00	Theme session III:
12:30	Summary and Closing of meeting (IRB)

Visit to CV Rez (14:00-16:00)

Workshop objectives
This workshop aims at providing a forum for discussion of scientific and technical project results, preparing for periodical reporting and planning on future project program. The project workshops contribute to integration within the project and communication with a broader interested community

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