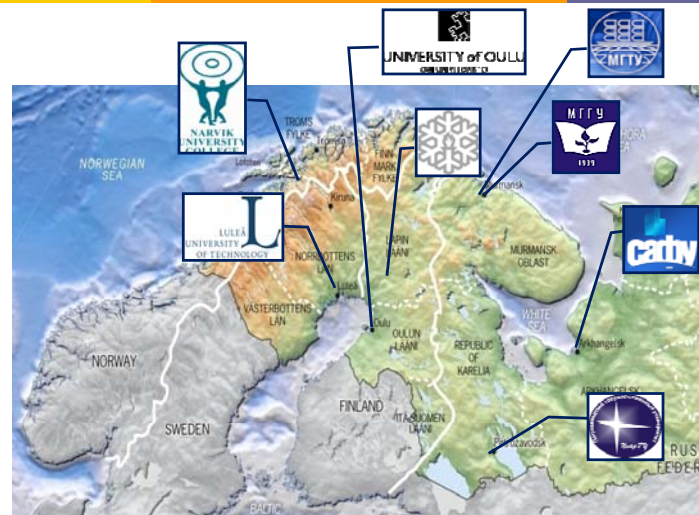


# Barents Environmental Engineering



## Barents Environmental Engineering (BEE)

- **BEE Programme leader: University of Oulu**
  - Programme implemented at the Faculty of Technology, Department of Process and Environmental Engineering
  
- **Full partners**
  - University of Oulu, Finland
  - Northern (Arctic) Federal University, Russia
  - Murmansk State Technical University, Russia
  - Narvik University College, Norway
  
- **Associate partners**
  - Petrozavodsk State University, Russia
  - University of Lapland, Finland
  - Murmansk State Humanities University, Russia
  - Luleå University of Technology, Sweden



# Status at BEE partner universities

- University of Oulu:
  - Clean production (CP), Water and environment (WE)
    - Launched 2009, intake every year, total 14 (5+3+6) student intake, 2009 BEEs graduate in 2011
  - Sustainable energy (SE)
    - Orientation realized jointly by UOulu and UCNarvik, started 2010, intake total 12 (8+4)
- Northern (Arctic) Federal University
  - Energy and resource processes in chemical engineering, petrochemical and biotechnology master's degree programme launched in 2011 (120 ECTS), has 10 ECTS English content
    - A 90 ECTS programme available to specialist graduates since 2009
    - 12 students intake since 2009 (6+3+3), 3 graduated 2011, 3 in 2012, first BSc to graduate 2012
- Master's degree programmes at Murmansk State Technical University
  - Environmental Engineering, since 2009 – some of the courses available in English (3 students)
  - Safety of Technosphere, started 2011 - part will be translated to English (2 students)
  - Sustainable Management, to start 2012 – will have English language modules (will accept 3 students)
- Narvik University College
  - Can provide up to 70 ECTS to the BEE/SE programme
  - Presently 7 BEE/SE students of UOulu are at exchange in UCNarvik
- Status of associates
  - Petrozavodsk State University & Luleå University of Technology
    - Participated in the implementation of joint courses and have English language courses to offer to the BEE programme
  - University of Lapland & Murmansk State Humanities University
    - Have not participated in joint courses and have not offered courses

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>* High quality education and experienced teachers in partner universities</li> <li>* Education of skilled engineers who are specialized in the Northern environment</li> <li>* Networking between the students and teachers</li> <li>* BEE attracts students from all around the world in UOulu</li> <li>* Provides motivation to develop English language courses in Russia</li> <li>* New curriculum developed in NARFU</li> </ul>	<ul style="list-style-type: none"> <li>* Deficient marketing</li> <li>* Very few BEE students at UOulu from the Barents region</li> <li>* Lack of English speaking teaching staff and students in Russia</li> <li>* Distant learning methods underutilized</li> <li>* Teachers' overload and lack of knowledge/time to develop distance learning courses</li> <li>* Lack of /Failure to utilize funding sources for student exchange (outward from Russia)</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>* Recruit motivated graduates to doctoral programmes</li> <li>* Vast investment and development projects in the Barents region will create a demand for trained Barents experts</li> <li>* Distance education platform development in Kolarctic ENPI BCBU+</li> <li>* Applying for funding for short-term student and teacher mobility (intensive courses)</li> <li>* Use BEE as platform to test new teaching methods</li> </ul>	<ul style="list-style-type: none"> <li>* Graduates/international students will not stay in the North to utilize their education</li> <li>* Will be unable to realize joint programmes with Russia in the short term</li> <li>* Universities' administrative and financial frameworks are not supportive of realizing joint programmes</li> <li>* No incoming students in Russia – no motivation for developing courses in English</li> <li>* Tuition fee at UOulu may reduce the interest of international students to apply to the programme</li> </ul>



# Summary of the BEE WG

---

- BEE is not yet a joint programme, only realized at UOulu
  - The only common feature at the moment are the joint courses
  - Partners agreed to offer English language modules or courses
- We will have to work on the comparability of Russian and Finnish curricula
  - Challenges of curricula and course scheduling
  - Need to harmonize learning outcomes of courses
- Agreement on the implementation of the BEE programme to be finalized
  - There is a need to (re-)define the roles of full and associate partners
- Financial resources for implementing joint courses and exchange periods
  - Recognizing and removing barriers of sending Russian students for exchange periods abroad and accepting their studies in Russia
  - Challenges provided by different living costs in Russia vs. Finland vs. Norway
- Need to address the issue of teachers' work overload
  - Distant learning methods need to be used more actively
  - Russian university teachers need motivation to develop/translate more courses to English
- Agreed to put more effort into marketing the programme
  - In particular marketing in the Barents region needs to improve