



Norwegian University of
Science and Technology



**ENHANCED SERVICE LIFE OF
COATED WOODEN FACADES.
Survey of the research project**

**WSE 2011
Oslo, Norway
27.-28. October 2011**

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Norway has long traditions in use of wooden facades on buildings



- Performance based building regulations
- Sustainability issues



Research project "Enhanced service life of coated wooden facades"

- ❖ **Period: 2007-2011**
- ❖ **Budget: appr. EUR 900 000**
 - **Research Council of Norway**
 - **Norwegian Sawmilling Industry**
 - **Viken Skog BA**
 - **Wood Research Fund**

 - **Jotun AS**
 - **Kebyony ASA**

Objective

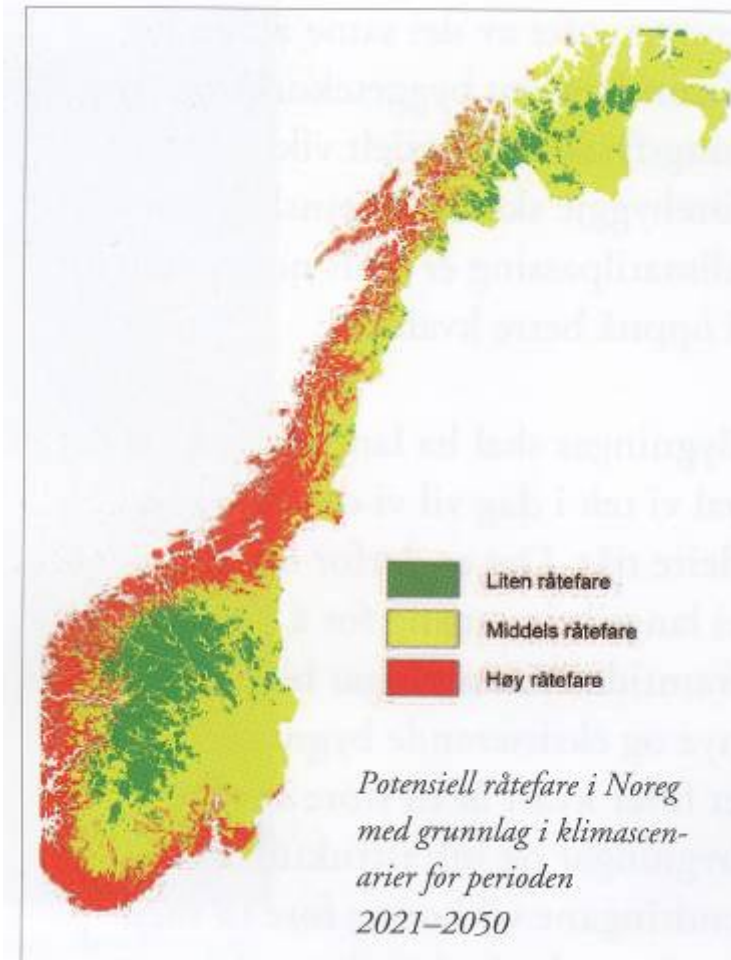
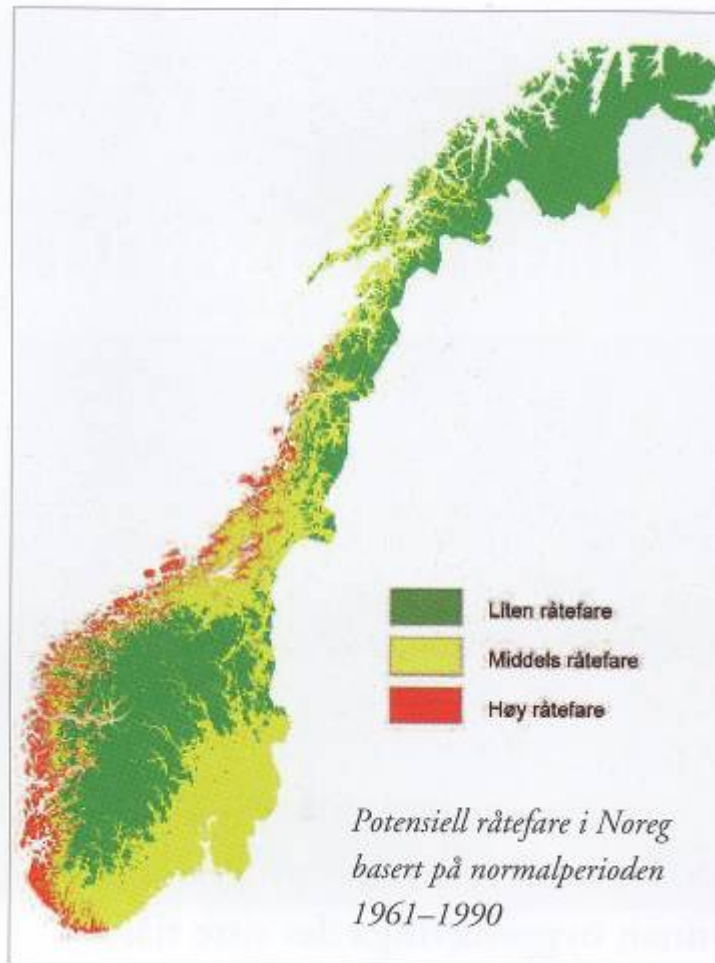
Development of new methods for early detection of durability and improved aesthetical service life of surface treated outdoor wooden claddings. This should be seen in relation to user needs and new building and environmental regulations.

Cooperation partners

- ❖ **Norwegian Forest and Landscape Institute**
- ❖ **Norwegian University of Life Sciences (UMB)**
- ❖ **Norwegian University of Science and Technology (NTNU)**
- ❖ **Norwegian Wood Technology Institute (NTI)**
- ❖ **SINTEF Building and Infrastructure**

- ❖ **Jotun AS**
- ❖ **Kebony ASA**

Climate change – risk of fungal attacks in Norway



Structure of the project

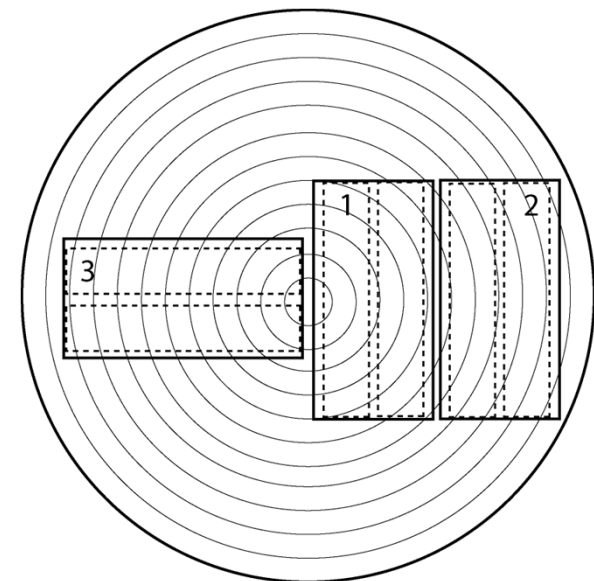
- ❖ **WP 0: Administration**
- ❖ **WP 1: Development of test method – qPCR**
- ❖ **WP 2: Development of test method - FTIR**
- ❖ **WP 3: Comparison of test methods for discoloring fungi**
- ❖ **WP 4: Natural and artificial ageing of coated wood materials**
- ❖ **WP 5: Characterisation of wood materials**
- ❖ **WP 6: Evaluation of exposed surface treatment**
- ❖ **WP 7: Evaluation of service life of coated wood materials**

Main activities of the project

- ❖ ● WP 0: Administration
- ❖ ● **Development and evaluation of new test methods for fungi**
- ❖ ● **Studies of moisture absorption and degradation of coated wood material related to material structure**
- ❖ WP 1: Development of test method – qPCR
- ❖ WP 2: Development of test method - FTIR
- ❖ WP 3: Comparison of test methods for discoloring fungi
- ❖ WP 4: Natural and artificial agency of wood decay
- ❖ WP 5: Characterization of wood materials
- ❖ WP 6: Evaluation of exposed surface treatment
- ❖ WP 7: Evaluation of service life of coated wood materials

Key material parameters

- ❖ **Wood quality and characteristics**
 - Norwegian spruce
 - growth conditions
 - log position
 - heartwood/sapwood
 - annual ring position
- ❖ **Surface treatment**
- ❖ **Impregnation**



Ageing of materials

❖ Outdoor ageing

- Oslo
- Trondheim
- Ås
- Bergen



❖ Artificial laboratory ageing

- Climate carousel (vertical) (NT Build 495)
- QUV-apparatus
- Atlas Climate chamber



Outcome of the project

- ❖ **New test methods for characterization of discoloring fungi**
 - qPCR
 - FTIR
- ❖ **Characterization of moisture absorption**
 - unaged and aged materials
- ❖ **Characterization of material degradation**
 - evaluation according to NS-EN 927-3
 - gloss and colour measurements
- ❖ **Service life of coated wooden claddings**
 - survey of methods and materials

Publications from the project

- ❖ **Results from the project are presented in papers at international conferences and in international scientific journals**
- ❖ **See separate list of publications**

Thanks to

- Research Council of Norway
- Other funding partners
- Research partners

Thank you!

