EUREKA PROJECT E!615 - EUROCARE WETCORR

1. General description

Project	E! 615 - EUROCARE WETCORR	**Status**	Finished - 13-JUN-1997
Title	**Monitors For Continuous Wetness And Corrosion Rate Recordings In The Microenvironment**		
Class	Sub-Umbrella	**Technological area**	Environment
Start date	19-JUN-1991	**End date**	19-JUN-1996
Duration	60 months	**Total cost**	1.15 Meuro
Partner sought	No		
Summary	Commercialisation Of Monitors For Wetness And Corrosion Rates In The Microenvironment Based On The Original Principle And Taking Advantage Of Recent Developments Within The Electronic And Information Technology Field.		

Budget and duration

Phase	Budget(Meuro)	Duration (Months)
Total	**1.15**	**60**

Member contribution

Member	Contribution	Position	Since
Norway	**85.00%**	**Notified Finished**	**13-JUN-1997**
Sweden	15.00%	Notified Finished	07-FEB-1997

Participants

Company	Country	Type	Role
Nilu - Norwegian Institute For Air Research	**Norway**	**Research Institute**	**Main**
Kth - Royal Institute Of Technology/Heating/Ventilation Lab.	Sweden	Research Institute	Partner
Abb Energi A/S	Norway	Large company	Partner

2. Project outline

Project description

The durability and service life of building materials and constructions, both old and new, are affected by the surrounding microenvironment, which can be defined "as the conditions of the building material and immediate layer of the liquid or gas which prevails at the site where chemical or physical processes take place". If reliable service life data is to be generated, the most important degradation factors such as wetness, radiation, pollutants etc. must be characterized and quantified in the micro-environment. Methods for surveillance of such parameters are also of decisive importance enabling the best possible remedial action to be taken in due time. This will greatly help to increase service life and decrease the yearly life cycle costs of maintenance.
One such possibility is offered by the NILU WETCORR monitor, a prototype of which was developed at NILU over several years and launched in the early Eighties for the purpose of continuous measurements of the instantaneous corrosion rate and time of wetness (TOW) for metals. The development and measurements were performed in close collaboration with other Nordic research institutions.
The main purpose of the project is to further develop and make commercially available monitors for wetness (TOW metres) and corrosion rates (WETCORR) in the micro-environment, based on the original principle and taking advantage of the recent developments within the electronic and information technology field.
The main project will consist of a least two projects:
1. Development of TOW metres that can be used for measurements of time-of-wetness (and other environ-mental variables) for different types of materials in the microenvironment as defined.
2. Development of monitors for time-of-wetness and corrosion rate recordings for different types of materials in the microenvironment.

Technological development envisaged

The durability and service life of building materials and constructions both old and new, are affected by the surrounding microenvironment. Development of methods for measurements of microenvironmental parameters, such as wetness, temperature and pollution, etc. will greatly help to increase the service life of materials and constructions, thereby adding to a more substainable. development of manufacturing.
The main project will consist of at least two projects:
1. Development of TOW metres that can be used for measurements of Time-Of-Wetness for different types of materials in the microenvironment as defined.
2. Development of monitors for Time-Of-Wetness and corrosion rate recordings for different types of materials in the microenvironment.
The TOW monitor has many potential applications for measurements of humidity and wetness in microenvironments,

such as mapping of humidity conditions on buildings and constructions, surveillance of humidity conditions on and inside buildings, constructions and materials, the study of paint performance influenced by moisture, etc.
It should now be possible to study, measure and make use of such data to increase the durability and service life of materials, by adopting the recent developments in electronics measuring techniques and information technology to the NILU WETCORR principle.

Markets application and exploitation

These types of monitors will be of interest for the whole building and construction market, in relation to the importance of the measurement and surveillance of environmental degradation of materials due to wetness and pollutants, etc.
In Europe by National Heritage Trusts, building companies, public and private administration and research programmes as well as the Product and Material Developing Industry.

Project codes

BSI

BA/BK	measurement
CIL.IC	humidity
DDT/DDU	corrosion
GEJ	chemical water polluants
RXH	construction materials

NACE

7310	Research and experimental development on natural sciences and engineering

3. Main participant

Company	**Nilu - Norwegian Institute For Air Research** Instituttveien, 18 2007 Kjeller Norway Tel +47 63 89 80 00 Fax +47 63 89 80 50 www.nilu.no/
Contact	**Ing. Svein E. Haagenrud** Eurocare Chairman Tel +47 22 96 55 55 Fax +47 22 69 94 38
Organisation type	Research Institute
Participant role	Main

Contribution to project

Share: 15%

Expertise

4. Partner

Company	**Kth - Royal Institute Of Technology/Heating/Ventilation Lab.** (Not Available), 801 02 Gaevle Sweden Tel +46 26 14 77 00 Fax +46 26 11 81 54 www.kth.se
Contact	**Dr. (Eng.) Christer Sjoestroem** Tel +46 26 14 77 00 Fax +46 26 11 81 54
Organisation type	Research Institute
Participant role	Partner

Contribution to project

Share (with the SWEDISH CORROSION INSTITUTE): 15%

Expertise

4. Partner

Company	**Abb Energi A/S** Brakeroeya, 3002 Drammen Norway Tel +47 32 80 80 00 Fax +47 32 89 51 90 www.abb.fi
Contact	**(Contact Not Available)** Tel Fax
Organisation type	Large company
Participant role	Partner

Contribution to project

Share: 45% Financial contribution of ROYAL NORWEGIAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (NTNF): 25%

Expertise

Provides equipment and systems for systematic monitoring of discharge to water, air and ground and provides the data necessary to be undertaken. Develops, builds and delivers complete systems for continuous monitoring, regular operations and data processing in addition to databases with information for use in environmental planning. Applied technology for data collection, communication, instrumentation and multi-sensor systems and remote control facilities. EB MILJOEKONTROLL represents the joint competence and experience of the EB Corporation.