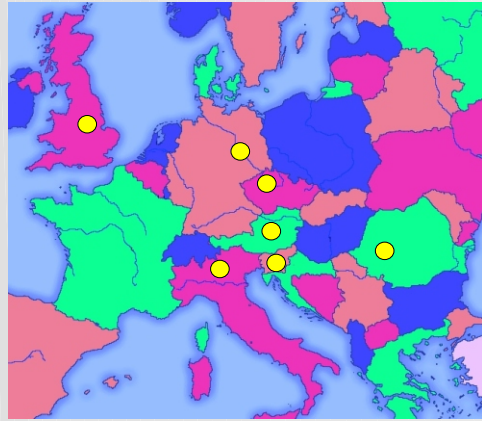




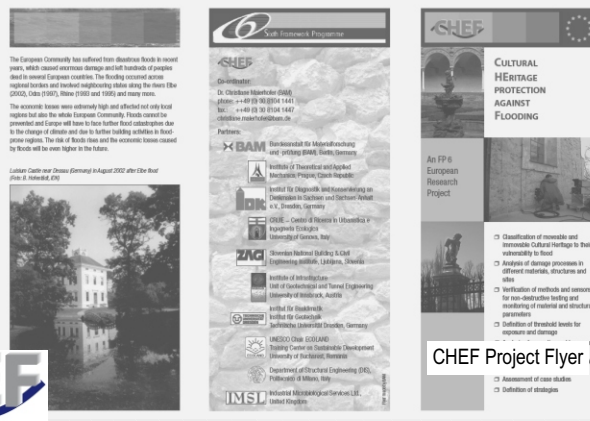
Sixth Framework Programme: Priority 8.1 B.3.6
 Contract Number: 044251 (SSP) CHEF
 Project Coordinator: Bundesanstalt für Materialforschung und -prüfung (BAM)

Project:

The European Community has suffered from disastrous floods in recent years, which caused enormous damage and left hundreds of peoples dead in several European countries. The flooding occurred across regional borders and involved neighbouring states along the rivers Elbe (2002), Odra (1997), Rhine (1993 and 1995) and many more. The economic losses were extremely high and affected the whole European Community. Floods cannot be prevented. CHEF proposes the integration of multidisciplinary research as scientific support to European policies. In this frame the necessary scientific and technological basis and cost efficient and effective tools for the development of new and innovative strategies for avoiding or mitigating flood-related damage of Cultural Heritage will be provided.



A European Project: Partners from Slovenia, Czech Republic, Romania, Austria, Italy, United Kingdom and Germany contribute to bringing together experience from different European regions. Transnational co-operation assures knowledge exchange and raises synergies in an extremely important area.



Project Partners:

- Bundesanstalt für Materialforschung und prüfung (BAM), Berlin, Germany
- Institute of Theoretical and Applied Mechanics (ITAM), Prague, Czech Republic
- Institut für Diagnostik und Konservierung an Denkmälern in Sachsen und Sachsen-Anhalt (IDK) e.V., Dresden, Germany
- University of Genova, Italy
- Slovenian National Building & Civil Engineering Institute (ZAG), Ljubljana, Slovenia
- University of Innsbruck, Austria
- Technische Universität Dresden, Germany
- UNESCO Chair ECOLAND, University of Bucharest, Romania
- Department of Structural Engineering (DIS), Politecnico di Milano, Italy
- Industrial Microbiological Services Ltd.,

Flooding as a threat to Cultural Heritage

Work Packages

WP1: Identification of typical environmental hazards related to flood and being decisive to Cultural Heritage. Flood mechanisms and hydrology will be one important aspect. Moveable and immovable Cultural Heritage will be classified according to its sensitivity.

WP2: Damage analysis of different materials and moveable Cultural Heritage, their properties and their interaction with moisture, salt, pollution and other phenomena related to flooding catastrophes. Survey of possible flood-related damage, validation of NDT- and MDT-methods for damage detection, classification and definition of damage threshold will be given.

WP3: Classification of damage on historic structures and sites including buildings, infrastructure (e. g. bridges) and cities for understanding the mechanisms of damage. Static and dynamic loading, moisture and salt transport, contamination and erosion problems will be considered as well as the vulnerability of whole structures and sites.

River floods Elbe and Vltava 2002



Top left: Luisium Castle/Dessau (Foto: B. Hofestädt)
 Top right: Historic Power Station in Prague (Foto: V. Herle)
 Centre: Entrance of St. Johannes Church/Bad Schandau (Foto: BfB Büro für Baupflege Dresden)
 Bottom left: Pier at Veltrosy Castle (Foto: ITAM)
 Bottom right: Church "Maria am Wasser" /Saxony (Foto: BAM)

Work Packages

WP4: Assessment of preventive and emergency measures (administrative and technical) and of restoration and repair techniques for materials, movable heritage, structures and sites. Conclusions from previous floods and measures will be drawn related to the development of new and innovative technologies.

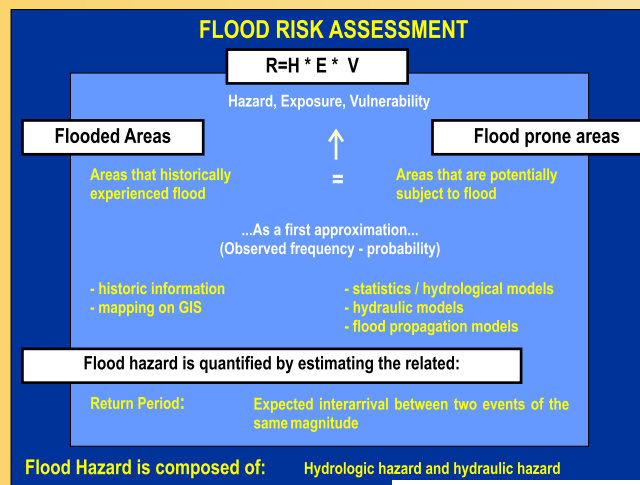
WP5: Assessment of running and new case studies on different objects concerning infrastructure, buildings, parks, cities. Two to three cases will be studied in detail concerning a multitude of aspects like a small castle surrounded by a park and containing a museum. Full-scale models in the shape of small buildings will be also used as intermediate case between laboratory and real buildings.

WP6: Development of guidelines and recommendations for the strategies concerning the assessment of vulnerability of Cultural Heritage against flood, the prevention and mitigation of damage, the emergency and the medium and long term post-flooding action plans.

Innovative Investigation



Investigations will be carried out with innovative methods like radar, thermography, microwave borehole transmission in order to assess the state of damage at historic buildings or objects. Measurement methods will be applied on-site and validated in the laboratory or at a large test specimen "Obelix".



Graphic by Prof. Luca Lanza, University of Genova

Project Meeting and Workshop



Networking and information exchange is one of the most important aspects of the CHEF project. Workshops open for the public raise attention for the project and bring together experts dealing with monument protection and flood prevention.