

L-SURF – Safety and Security as a European challenge

Research for Safety and Security in the EU

Research concerning safety and security in enclosed underground spaces is of unparalleled importance for sustainable socio-economic growth in the EU, as recent incidents (tunnel fires, terror attacks in metros, etc.) have shown. However, at present, activities in the field of safety and security in underground spaces is largely unstructured and mostly nationally orientated. In particular, a large-scale EU research facility with co-ordination and synergies of existing national facilities is lacking.

The joint efforts of the most experienced institutes in Europe in this field have led to the definition of one possible solution: the establishment of an ambitious European research body entitled **L-surF**.

Aims of the research body

There are at least two potential scenarios to extend EU research capacities and efficiency in underground spaces, i.e., the networking of existing facilities and/or the creation of a new pan-European facility.

Within the Design Study for L-surF all the relevant aspects for such a facility will be developed to a level where the facility could be established (including necessary structures and research ventures), culminating in the formation of a legal entity.

The Design Study includes:

- description of the lay-out of the facility, based – if feasible – on a new concept for the easy creation of an endless variety of contours, shapes and sizes of enclosed spaces, including relevant equipment, potential environmental impacts, etc.
- description of innovative measuring techniques and sensors, based on the latest technology (e.g. nanotechnology)
- evaluation of research needs and outlining potential R&D – ventures
- development of a network between existing and proposed national facilities.
- Establishing a financial plan for the development of such facilities and the networking of existing facilities.
- development of a business plan (e.g. referring to models like CERN) for a new legal entity dedicated to the incorporation of L-SURF.

Partners of L-Surf Design Study

The L-SURF partners all have extensive experience in the field of safety and security research in tunnels. They are: VSH Hagerbach Test Gallery Ltd, Switzerland (F. Amberg, V. Wetzig); INERIS, France (E. Ruffin); SINTEF/NBL as, Norway (K. Opstad); SP, Sweden (H. Ingason / P. v. Hees); STUVA, Germany (A. Haack); and, TNO, Netherlands (K. Both). During the first phase of the project, it will be defined how other interested parties can be integrated into the present project and ultimately into the proposed legal entity after completion of the Design Study.

Activities of L-Surf Design Study

The L-Surf Design Study is divided into six work-packages (WP) covering different areas relevant to the definition of the most important parameters for the construction of a European research facility for tunnel safety and security:

- **WP 1 - Integration:** Survey of existing or proposed facilities, in order to assess the potential integration of such facilities. Development of potential L-SURF scenarios for integration within the ERA (European Research Area).
- **WP 2 – Research Needs:** Identifying and prioritising scientific and technological research requirements including the identification of potential future clients of the L-SURF Research Body (e.g., operating companies, safety and security equipment providers, security firms).
- **WP 3 – Lay-out:** Definition of civil-works, infrastructure and their installations of the proposed L-SURF Research Body. Evaluation of measures to minimize environmental impact and the development of a flexible contour and shape scheme.

- **WP 4 – Equipment / Measuring Techniques:** Definition of ultra-modern testing methods and the corresponding use of relevant installations. Development of technical specification for innovative 2- and 3-dimensional data recording sensors
- **WP 5 – Activities:** Definition of all relevant activities of the future L-SURF Research Body (including, but not limited to: R&D, training and education, external-services, maintenance and operation).
- **WP6 – Funding/Business plan:** Fund raising for the realisation of the L-SURF Research Body. The establishment of a business plan for the L-SURF Research Body based on public and private partnership. This will include an evaluation of legal constraints for such an organisation.

The Future

The L-surF partners will endeavour to cooperate with those companies that are interested in such a large scale research facility. Interested parties are asked to identify themselves through the L-surF web site www.l-surf.org.

Based on the response for such a facility, the EU-project L-Surf will propose and initiate a legal entity, which will act as L-SURF starting in 2008.



Test of fire-detection and ventilation, source: STUVA



Fire-Fighter Training at VSH, source: Hagerbach Test Gallery