

Safety in Road Tunnels

Towards a pan-European agreement?

The IRF is working with the United Nations Economic Commission for Europe (UN/ECE) to improve safety in road tunnels

Background

With a series of recent accidents in major European alpine road tunnels – Mont-Blanc between France and Italy, Tauern in Austria and St-Gothard in Switzerland – in which some 62 died, traffic safety in tunnels has become a burning issue for the public, politicians and experts. So much so that the United Nations Economic Commission for Europe (UN/ECE) decided in 2000 to set up an [Ad-hoc Interdisciplinary Group of Experts on Safety in Tunnels](#) under the aegis of its Inland Transport Committee.

The group, chaired by Michel Egger, Deputy Director of the [Swiss Federal Roads Authority](#) (FEDRO), comprises of representatives of national road authorities and experts from the IRF, as well as the [World Road Association](#) (PIARC), the [International Road Transport Union](#) (IRU), the [World Tourism Alliance](#) (AIT-FIA) and the [European Commission](#). Its mandate is to examine what measures could be taken to improve traffic safety in tunnels and how to integrate them into existing international traffic conventions and national legislations.

A draft UN/ECE report

A draft final report of the UN/ECE Expert Group, presented in early December 2001 at the UN's Geneva offices, proposes 43 measures to reinforce safety in tunnels, involving road users, tunnel operation, infrastructure and vehicles. The recommendations draw on existing studies and findings from inquiries into recent tunnel accidents.

Prior to that, at a meeting in Zurich in late November 2001, the ministers of transports of Austria, France, Germany, Italy and Switzerland, as well as the European Commissioner for Transport, Loyola de Palacio, made a joint commitment and signed a declaration to adopt the Expert Group measures nationally and at EU level.

The European Commission itself is working on a draft directive on safety in tunnels, and will examine how and what measures of the UN/ECE Expert Group's reports could be incorporated. For its part, the UN/ECE, which administers a series of international inland transport conventions such as the AGR on E-roads, the ADR on dangerous goods and the Vienna Convention on Road Signs and Signals, is looking into the question of drafting a separate new international transport convention on safety in tunnels.

IRF input

One key issue is continent-wide harmonisation of road signing for tunnels. Findings from a recent alpine accident have shown that tunnel users fail to recognise emergency exit signs, which can have fatal consequences for those trying to escape. The UN Group of Experts' report notes that, in the event of an accident, the first ten minutes are decisive when it comes to saving peoples' lives and limiting material damage. This was confirmed by the fire in the Gotthard tunnel: out of 11 fatalities 10 died of suffocation within a distance of 2 km from the so-called "red zone" (i.e. where the accident actually occurred), mainly because they were surprised by rapidly spreading toxic fumes and declining visibility (see picture)

The IRF came up with a proposal for harmonised vertical and horizontal signing and on variable message signs (VMS), suggesting in particular adoption of the December 2000 international

standard ISO 6309 (or its CEN equivalent) for the emergency exit sign (see picture opposite). Annex 1 of the Expert Report includes these IRF proposals.

Another significant IRF contribution is the inclusion of a measure regarding the number of tunnel tubes and lanes. Data across from various countries, quoted in the UN/ECE Report, confirms that "the probability of accidents is significantly lower on motorways with dual carriageways than on roads with bi-directional traffic". This supports the principle long advocated by IRF that motorway tunnels should have twin tubes. For this reason, IRF insisted on introducing measure 3.01 which reads: "Since a tunnel is an integral part of the road system, the main criteria in deciding whether to build a single or a twin-tube tunnel should be projected traffic volume and safety."

Towards an international convention?

Nevertheless, prospects for implementing such an ambitious project for a tunnel safety convention in the near future look bleak. They hinge on a great deal of political will within UN/ECE members, most of which are countries of central and eastern Europe and republics of the former Soviet Union, where roads are in poor condition compared to western Europe. As the UN/ECE report says, in view of the urgent rehabilitation of tunnels and supply of new emergency services, Europe-wide budgets for maintenance and modernisation of the road networks will need to be increased over the next years.

However, implementing the measures proposed in the Report would require spending more money on roads than these countries would otherwise do. Under these circumstances, it is difficult to see why their governments would endorse a new convention on road tunnels. Nor are the countries of Western Europe keen to spend more money on roads at a time when the EU trend is in favour of rail.

Reference:

United Nations Economic Commission for Europe, *Recommendations of the Group of Experts on Safety in Road Tunnels: Final Report*. Geneva, December 2001.

Michel Egger, *Safety in Tunnels*, PowerPoint Presentation, Swiss Federal Roads Authority, Berne, 2001.