



April 2019

Quantitative Risk Assessment Model for Dangerous Goods Transport through Road Tunnels Updated version available

Incidents involving the spillage of dangerous goods are amongst the most feared in road tunnels.

To deal with this issue, a **Quantitative Risk Assessment Model (QRAM)** to evaluate the risks of dangerous goods transport through road tunnels has been developed jointly by **PIARC** and Organisation for Economic Co-operation and Development, OECD. An updated version of this software is now available (including fixing of minor bugs).

What does the Quantitative Risk Assessment Model do?

The software notably takes into account the ADR regulation (“Accord for dangerous goods by road”: European Agreement concerning the International Carriage of Dangerous Goods by Road).

It allows users to:

- assess the societal risks due to dangerous goods transport for a tunnel or a route;
- compare the societal risk of a tunnel or along a route with reference criteria
- assess the societal risks for each ADR category¹ (A to E) of a given tunnel in order to help choosing one. The societal risk of category A and E correspond respectively to the societal risk of the tunnel route and of one (or several) alternative transport route(s)

The software can be used to perform a specific risk analysis for dangerous goods transport. This specific risk analysis can be part of the general risk analysis required by the European Directive 2004/54/EC on minimum safety requirements for tunnels on the trans-European road network.

Outputs

¹ ADR : “Accord for dangerous goods by **road**” : European Agreement concerning the International Carriage of Dangerous Goods by **Road**

The main outputs provided by the software are Contour maps of individual risks along tunnels and open routes and the societal risk presented as FN-curves, where F is the frequency of N or more fatalities (and/or injuries)

Since the release of this software, the DG-QRAM software has been widely used by many European countries to perform risk analysis for dangerous goods transport as required by the European Directive 2004/54/EC on minimum safety requirements for tunnels in the trans-European road network, and to support the choice of a tunnel category according to ADR regulations.

Progress

A task group has been recently set up under the umbrella of PIARC's Committee on Road Tunnel Operations with the first objective of updating the tool to make it compatible with more recent versions of the software that it is based on. In a second phase the task group will explore the possibility of upgrading the tool, taking into account feedback from users.

To date, the World Road Association has completed Phase 1 of the project, which was the most urgent in terms of user requirements. Thanks to initial financial contributions provided by funding countries, the updated version of the software tool is now available.

« How can I obtain DGQRAM »?

The price for new buyers will be 1,500€ and 1,000€ for owners of the previous version QRA-3,61. Relevant means of dissemination will be put in place. The QRAM Task Force is also developing a training module.

All relevant information are available on PIARC's Web site:

https://www.piarc.org/en/knowledge-base/road-tunnels/qram_software/

« How can I participate in a training session »?

The body in charge of organizing training sessions for the new version is Pont Formations Conseil (PFC - acting on behalf of PIARC). These training sessions will be in English only.

It is possible to pre-register to the training sessions, via the PFC web site: [FORMATIONS QRAM](#) , by clicking on "pre-inscription". The first sessions for expert users are planned in Paris on the 24th June, and for new users on 25th and 26th June.

Currently, much of the information on the PFC web site is in French. Details in English can be found when clicking on "QRAM" (highlighted in yellow). "Perfectionnement" corresponds to "expert", "initiation" corresponds to "new users".

Given the limited number of seats available for these training sessions, registrations will be done on a first-come, first-served basis.