

Airports CBRN terrorism-proof

AIR SECURE

Since '9/11' the risk of terrorist attacks using CBRN weapons has increased significantly. Chemical, biological, radioactive and nuclear weapons are the instruments that can top the enormous impact of the attacks in New York. Airports are a key target. To protect them, an international consortium, including TNO, designed a risk-based detection and filtration system to counter chemical and biological agents.

The impact of attacks with CBRN agents could have been catastrophic, certainly at airports: large complexes full of people. To boost its safety the Finnish air filtration systems producer, Lifa Air, wanted to develop a detection and filtration system. So the company joined up with Blancon (Spain), Smiths Detection (Great Britain), Dekati (Finland) and the VTT and CBRN expert, TNO.

'The aim of this so-called Air Secure project was to develop a risk-based detection and filtration system to counter CBRN agents,' says TNO project manager Ilja Bensen. 'A generic solution is not possible since each airport and situation is different.' The system that was ready in November 2007 after two years of work comprises three stages. 'The first is detection,' Bensen explains, 'In the event of an attack the system analyses exactly what is occurring. Then the air-conditioning system filters or refreshes the affected air to quickly isolate or remove it. Finally, human intervention comes into play. What must the security people do? For this we have devised a template for a crisis management plan.'

TNO is supporting Lifa Air and Smiths Detection in developing and testing the filters and the detection system. 'In the spring of 2007 we set up a test of the system at the baggage handling department of Rotterdam Airport,' Bensen continues. 'We spent three months testing so as to precisely tune the detectors. With input from Frankfurt airport, too, the result was a system that operates as intended.'

Buildings

To disseminate the accumulated knowledge TNO organised a seminar for airport management and security staff at Rotterdam Airport in September 2007. In June 2008 a seminar for policymakers followed in Brussels. Interest in the system is considerable, including airports in Frankfurt and Paris, even though the airports are not yet obliged to be protected.

In the coming years TNO will continue to strive for better security against terrorist attacks for large infrastructures like airports. 'The second round of the Seventh Framework Programme of the European Commission is focusing on CBRN protection of buildings,' Bensen says. 'We want to be part of that and deliver a toolkit this year, which can help building owners to establish the specific threat of CBRN attacks for their buildings.'

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Test set-up at Rotterdam Airport along with detail of the filter system (below)



SCENARIOS FOR FIFTEEN THREATS

To be able to estimate the threat and impact of CBRN terrorism for their situation, airports can use a risk analysis tool specially developed by TNO. Since no situation is the same, this tool uses fifteen scenarios developed for airports that cover the whole range of threat. Airports can thus custom-make their security measures: What filters are required? Where do they have to be located? How sensitive must the detectors be? And how can visitors and personnel be rapidly and optimally informed?