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SAFETY AND SECURITY IN RAIL TRANSPORT

Note by the secretariat

The terrible bomb explosions in Madrid's commuter trains and railway stations on 11 March 2004, which killed more than 190 people and injured about 1,800, have underlined the vulnerability of rail transport to terrorism. This attack came two and a half years after the 11 September 2001 terrorist attacks and was the worst in Europe since the 1988 bombing of a jumbo jet over Lockerbie in Scotland.

The European railways are tightening security at railway and underground stations, stepping up police patrols, bomb-detection measures and electronic surveillance. Various security aspects are becoming parameters in determining the quality of services offered by railways and have an important impact on the overall running of rail companies, in particular on the operating profits and labour relations. The degree of safety also affects the image of rail companies and, more generally, the overall image of rail transport.

Background

In 1998, the Working Party on Rail Transport was involved in examining risk assessment techniques. In the same year, the secretariat produced a note on the application of risk assessment techniques to railway safety – “Railway safety: Risk assessment techniques” (TRANS/SC.2/1999/4/Add.1). In that document, risk assessment was regarded as a systematic approach to achieving higher safety levels at the lowest cost. It was considered as a way of effectively managing resources devoted to safety, prioritizing expenditure and ensuring that money spent on safety was used to maximum effect. The document reviewed various approaches to risk assessment in the railway sector, and outlined possible follow-up actions. It further noted that innovative approaches for risk analysis in railway transport were emerging and responding to a variety of concerns: the need to clearly identify the responsibilities of the different actors; the attempts to improve management of the resources devoted to safety, so that expenditure can be prioritized in an efficient way; the concerns about safety linked to activities involving hazardous materials, particularly in densely populated areas, etc. The document indicated that one of the most important areas for a possible follow-up might be to study the possibility of establishing a common methodology for risk assessment in rail transport. Another area deserving attention in future was the analysis of the risk associated to the transport of hazardous materials by rail.

In April 2002, following the decision of the Inland Transport Committee which requested its subsidiary bodies to identify (i) the differences between “security” and “safety” concepts and, (ii) the relevant concrete questions that could be addressed in this respect, the Chairman of the Working Party sent a letter to all member Governments addressing the question of definitions of railway safety and security. After an in-depth discussion, the Working Party decided to (i) adopt the definition of railway safety as “*the socially required level of absence of risk of danger in the rail transport system where risk relates to personal accident, injury or material damage*”; and (ii) the definition of security in railways: “*the protection of human beings, transport means and transport infrastructure against unauthorized and unexpected actions of any kind*”.

Noting that discussion of safety and security issues is ongoing in the European Conference of Ministers of Transport (ECMT), European Union (EU), International Union of Railways (UIC) and other transport forums, the Working Party decided at that time to await the finalization of the discussions in other international organizations before undertaking further consideration of the issue in relation to European railway transport. Nevertheless, it reiterated that the question of security and safety, in general, and the provisions for railway tunnels in particular, would be monitored closely. It, therefore, asked the ECMT, the EU and the UIC to keep the secretariat informed of new developments in respect of rail transport and security. In addition, the Working Party noted that member countries are regularly reporting new developments related to railway safety issues to the secretariat, thus complying with the request by the Inland Transport Committee.

Work done in other international organizations

Following Resolutions and reports adopted by the ECMT Council of Ministers in 1997 and 1999, a multidisciplinary ECMT Steering Group on Combating Crime in Transport was set up at the end of 1999. In 2001 the Group produced three reports, which were presented to the

ECMT Council of Ministers in Lisbon: "Conclusions and Recommendations on Combating Crime in Transport", "Theft of Goods and Goods Vehicles" and "Improving Security in Road Freight Transport".

In 2002, a Ministerial Declaration on Combating Terrorism in Transport was adopted at the ECMT Ministerial session and a round table was held on Security and Vandalism in Passenger Transport. In the Declaration, Ministers requested ECMT to "seek ways to combine efficiency and security improvements in the transport system with measures combating terrorism, for example by examining effective ways of tracking goods along the transport chain to prevent inconsistent and incompatible security requirements among modes." In response to the 2002 Ministerial Declaration on Combating Terrorism in Transport, the Group initiated research on the verification of cargo and container tracking across modes in collaboration with the Organisation for Economic Co-operation and Development (OECD). The final report will be submitted to the ECMT Council of Ministers and to the OECD Maritime Transport Committee in 2004.

In 2003, the Group focused on the subject of Transport and Terrorism. In addition to further work on security and terrorism, possible topics for the period 2004-2007 include: tracking of (stolen) goods; preventing lorry theft, tracking of stolen vehicles; attacks against drivers; theft of passenger cars; illegal immigration; and, fraud in transit systems.

The UIC has increased its focus on providing a forum for multilateral dialogue on security issues in the rail sector via its Ad Hoc Security Group. Key objectives of the Group include, among others, the following:

- exchange of experience and cooperation on security issues among all actors in rail transport;
- sharing of best practices in such areas as protection of sensitive infrastructure, station design and management, measures to prevent terrorist acts on rail infrastructure and vehicles; organization of rescue plans;
- definition of guidelines for dealing with illegal immigration and crisis communication.

More recently, the work programme of the Group focused on a number of topics including security in stations, and prevention of terrorist acts.

COLPOFER, the organization for railway police and security services brings together railway police and security services from some 19 European countries and provides a forum for sharing information and experience on crime and security issues. Its agenda includes the following aims: (i) agreement on joint measures to fight crime on the railways; (ii) sharing experience on the methods and systems used to prevent railway crime; (iii) exchange of information on security risks and incidents.

The events of 11 September 2001 have brought to the forefront several key issues of importance for rail:

- passenger and freight rail security must be assured without interfering with train operations;
- the open environment of railways and railway stations makes it impossible to adapt many of the restrictive measures implemented in the aviation sector;
- enhanced information gathering and intelligence-sharing is essential;
- partnerships between public and private actors in the rail sector, with clear division of responsibilities, is crucial.

The First and Second World Railway Security Forums held in 2001 and 2002 brought together all actors involved in railway security. During these two Forums a number of security related issues were discussed. The First Forum raised the importance of effective communication with the public – providing information on the situation without creating additional anxiety. It further recommended and encouraged exchange among countries on emergency intervention plans, monitoring systems, and information-sharing, as well as financing research and examining security risks in railway stations. A key short-term objective was to maintain public confidence in the rail system while taking measures to demonstrate rail company commitment to address the crisis. The Second Forum provided the opportunity for sharing experience and cooperative efforts between all actors in rail transport, covering all aspects of security (prevention and follow-up of acts of violence on customers or staff; protection of sensitive infrastructure; security aspects of train stations design and management; prevention of acts of terrorism and the organization of emergency planning; application of new technologies to security concerns, etc.). Security was viewed as a key strategic issue in the management of railway companies and in the delivery of quality rail services.

Being equally aware of the importance of security issues in the transport sector, the Executive Committee of the Coordinating Transport Meeting of the Commonwealth of Independent States (CIS) had also acted in this regard and, in September 2003, the Council of Heads of Governments of the CIS member states adopted the “Declaration on providing security in transport in CIS member states”.

National responses¹

Compared to other transport modes, criminal and terrorist activities targeting railway infrastructure and rolling stock have, until recently, remained relatively rare. The latest terrorist attack in Madrid and threats in France have, however, drawn attention to the fact that railways might be easy targets for terrorist acts, and that defending them would require considerable human, financial and organizational resources. Europe has more than 238,000 km of track along which bombs could be planted. Big cities depend on commuter and underground railways to move a large number of people (the London underground transports 3 million passengers, while in New York and Moscow about 9 million people use the underground every day).

The terrorist threat is not only limited to Europe. Since 2000, bombs have either gone off or been defused on the railways in the Czech Republic, India, Israel, the Philippines, the Russian Federation, South Africa, etc. At least 40 people were killed by a blast in the Moscow

¹ This section reproduces information from the ECMT document CEMT/CM(2002)19 – Transport security and terrorism – Note on actions and policy issues.

underground in March 2004. Ten thousand French rail workers walked the 32,000 km of tracks after a group calling itself AZF demanded a ransom.

While Eurostar already uses airline-style baggage and passenger screening and additional security measures, the increased security concerns on other railway lines might require treating other trains, including suburban services, as aircraft, which will mean shutting down many small stations to permit screening at bigger ones and arming railroad staff. Although trains in the EU, not counting underground railways, carried more than 5 billion passengers in 2003, Governments are likely to try less drastic and cheaper measures, like more police and cameras, more exits from trains and tunnels to aid escape, better emergency lighting, educating passengers to keep alert for suspicious baggage, etc.

Some countries, notably the United Kingdom, have a long-standing security framework to deal with terrorist acts targeting rail. Because of its history of terrorist attacks, there is considerable practical experience in rail security in the UK. The National Railway Security Programme concentrates on aspects such as station searches, security of left luggage, and security of non-public areas. The stations are grouped into four Groups according to established risk criteria, and measures applied according to the grouping. Regarding the Channel Tunnel, “airport style” security has been implemented for passengers at two stations and passenger vehicle security at another station using explosive trace detection equipment and under vehicle video, heavy goods vehicle security using vehicle x-ray, and trace detection.

Railroad police forces have been established in many countries with independent authority and cooperation agreements with government law enforcement agencies.

Since 11 September, the United States Government has developed five “critical action” teams to undertake risk assessment in the rail sector in terms of disruption to physical assets; information technology and communications; chemical and hazardous materials transport; Defence Department shipments, and train operations. The particular challenge facing rail in the United States and in many other countries, as well, is to reach the balance between security, operational safety and economic necessity.

The Italian railways has, inter alia, conducted a risk evaluation of its fixed assets in the rail sector, including stations, tunnels and bridges; updated emergency plans and conducted reviews and training drills in railway stations and offices. Private security services have been engaged to patrol stations, rolling stock yards, and chemical and hazardous material yards. Enhanced security measures in postal services have also been put in place, notably x-ray screening of mail.

Japan has implemented specific measures for its Shin-kansen bullet trains that include enhanced video camera surveillance and increased patrols in railway stations, in the trains themselves and in rail yards. The police will also use sniffer dogs to check for explosives and police vehicles will be stationed around the stations.

In Finland, security measures against possible terrorist attacks on trains and buses were being upgraded as part of a number of actions taken as a result of EU directives. The purpose of these measures is to achieve a certain level of readiness to respond to possible threats if police or security officials give an advance warning. The focus of measures for rail transport is mainly the

development of an advance warning system without causing excess concern among the public and avoid causing more harm than the possible threats.

Cross-border bilateral cooperation on rail security is also growing. For example, a bilateral accord between the German and Polish Railways was signed in October 2003 aimed at improving this cooperation. The agreement includes: exchange of information on security incidents and risks in international rail traffic, and joint patrolling by German and Polish railway security services on selected trains, particularly at night.

New challenges emerging from the current security threats

The terrorist attacks in Madrid have generated a remarkable push to improve rail security. However, protecting travel by train and securing underground transportation involves challenges not present at airports and seaports. The experience so far has shown that the aviation model cannot be applied to a rail system which has traditionally been very open. The train network depends on being an open system and the metro would not work if passengers had to be x-rayed. Finding the balance between possible security threat and appropriate counter measures has therefore become a major priority.

Rail systems are essentially vulnerable to terrorist acts due to a number of factors, among them: railway stations are by and large easily accessible; open buildings and rail track infrastructure is very often unprotected, particularly in rural areas; rail tracks and switches are vulnerable to tampering; railroad bridges and tunnels are vulnerable to explosive attacks and bio-chemical agents; and, control and dispatching systems are vulnerable to explosive and cyber attacks.

Railroad companies can respond to increased security threats by: increased awareness of management and employees to vulnerabilities and training of emergency services; increased surveillance of critical assets; seeking information from government agencies on threats and responses to threats and sharing information between themselves through appropriate information sharing channels.

Security countermeasures on a national level in the rail sector may require: improved cooperation between local law enforcement authorities and private security agencies, with involvement of the military where necessary; reviews of company security procedures in light of the heightened security threat; specific awareness training and emergency procedure drills for railway personnel; more rapid introduction of new security technologies.

Some of the protective measures taken in response to the assessments of security threats by some major transport operators, for example, include:

- (i) infrastructure related measures
 - prioritize infrastructure security concerns on the national level (although the entire infrastructure can never be completely secured, bridges and tunnels that provide the only path to a specific destination, for example, would be higher priority than redundant infrastructure);
 - increased security at high risk rail yards;

- increased inspection of priority track, tunnels and bridges;
- placing security patrols at key points in rail infrastructure - a key part of this effort is identifying which bridges, tunnels, stations and other assets are the most important to protect);
- increased security of all physical assets;
- increased video surveillance and review of collected materials (additional official surveillance can come in the form of extra video cameras in train and metro stations); perimeter barriers, high-tech fencing and lighting;
- intrusion detection equipment.

(ii) operations related measures

- restricted access to railcar location data;
- real-time monitoring and additional surveillance of designated trains;
- increased tracking and inspection of certain shipments;
- new encryption technology for selected data communications;
- increased number of uniformed and undercover patrols;
- continued broadcast of public announcements to alert riders and citizens to be aware of the potential threat, watch their surroundings, and report any suspicious activities or abandoned property such as backpacks, garbage bags, etc.;
- increased number of inspections of trash receptacles and other storage areas;
- police sweeps (trains wait briefly at stations while officers walk through cars with an eye for suspicious activity);
- increased number and frequency of bomb detecting canine teams;
- strong border patrols (may provide almost as good security as would be provided by passenger screenings if that were feasible);
- work with customers to tighten control of supply chain logistics;
- increased cybersecurity.

(iii) staff related measures

- spot employee identification checks;
- procurement of personal protective equipment for emergency responders;
- increased employee training to ensure that the employees serve as the “eyes and ears” of the security efforts;
- hazardous materials training for personnel.

Similarly to other industries, one of the main concerns remains the financing of railway safety. Under pressure to increase security, transport-operating companies may, for example, put off some routine maintenance to improve security and money may get turned away from other purposes. Every additional video surveillance system as mentioned above, requires human operators to monitor collected data. Transportation companies will then have to decide whether their available resources are better spent on such monitoring or on having their staff out on foot controlling the system. The push for better and improved training that transportation workers should receive comes both from rail transport companies and security authorities. Security exercises involving train operating companies, local authorities and other first-response services and security experts are particularly recommended as an effective method of training, but they

could also be costly. Increased Government funding for security purposes would give train-operating companies more options.

Conclusions

The seriousness of security threats and the potential catastrophic consequences of terrorist and other criminal acts on railways should never be underestimated. Threat response capabilities of both railway companies and relevant authorities are being developed and becoming better planned, organized and coordinated both nationally and at the international level. As shown above, a number of international and national activities are more coordinated and are aimed at raising the preparedness of the railway sector to respond to any security threat.

However, the nature of the railway system, with open infrastructure and numerous potential high risk elements requires continuous efforts by both rail companies and Governments to maintain a high levels of awareness at all times as well as continuous relevant education and training of their staff.

In order to continue its constructive role in this overwhelming task, the Working Party on Rail Transport may wish to consider in which ways it can contribute to the ongoing work on security. Such contribution, however, should not duplicate areas of concern and activities already carried out elsewhere (EC, ECMT, UIC). Within its sphere of competence, however, the Working Party may generate discussion on concrete security aspects of rail transport and might work towards developing certain practical guidance for member Governments for those security aspects.

In particular, an important contribution by the Working Party could be a compilation of the best practices in application of railway security measures from member Governments and preparation of a recommendation based on these experiences. Following the approach taken in the case of the Multidisciplinary Ad hoc Group of Experts on Safety in Tunnels (Rail), and, in order to complete this task efficiently and in a reasonably short time, the Working Party may wish to consider establishing an Ad hoc multidisciplinary expert group from interested Governments. This group could be entrusted with the task to compile available national best practices in applying security measures in railway transport and, based on these, develop and propose recommendations for Governments. Thus, the Working Party might be able to provide a tangible contribution to the growing concern related to security threats in railway transport.

In addition, some of the aspects of railway security that would benefit from further in-depth consideration by the Working Party include items such as:

- methods for vulnerability assessments of rail networks that operate in high-density urban areas;
- development of a common methodology for railway security risks assessment, risk management and response;
- guidelines for the development of security and emergency preparedness plans;
- development and implementation of employee and public awareness campaigns;
- application of new technologies and procedures to coordinate information and threat sharing in international rail transport;

- guidelines for conducting security exercises involving rail operators, local and other Government authorities, emergency services and security experts;
 - methods for anti-terrorism training of rail personnel;
 - use of new technologies and procedures for screening high risk rail freight entering through national borders.
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