



## Economic and Social Council

Distr.  
GENERAL

TRANS/SC.2/2002/5  
8 July 2002

Original: ENGLISH

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### ECONOMIC COMMISSION FOR EUROPE

### INLAND TRANSPORT COMMITTEE

Working Party on Rail Transport  
(Fifty-sixth session, 16-18 October 2002,  
agenda item 8)

### INFORMATION ON DEVELOPMENTS IN VARIOUS RAILWAY FIELDS

Transmitted by the Governments of Czech Republic, Hungary and Slovakia

### CZECH REPUBLIC

(a) Environmental questions related to railway operations

Fundamental changes are occurring in the relationship between the railways and the environment. In accordance with the principles of transport policy of the Czech Republic, a fundamental modernization of the railway infrastructure is in progress and will bring it up to the parameters set out in international agreements, which will have a favourable effect on environmental protection. The extent of modernization of the railway infrastructure in the Czech Republic up to 2010 is set out in the important document "Proposed Development of Transport Networks in the Czech Republic", which was adopted by the Government in 1999. This document is being favourably discussed under the Environmental Impact Assessment Act, No. 224/92 Coll. As a part of preparatory and project documentation for railway construction, specific technical measures are being adopted to protect the environment against atmospheric pollution (based on exhalation and dispersion studies, etc.), noise (anti-noise walls), water pollution, degradation of the landscape, flora and fauna. Protective measures are also taken during construction and on buildings already completed and brought into operation in former periods.

In accordance with the approved environmental protection strategy, České dráhy conducts regular analyses of the impact of railway transport on the environment and compares this impact with that of road transport on the environment. These activities

are mostly aimed at improving the technical state of sources of atmospheric pollution, dealing with old environmental burdens, and continuing to introduce an EMS (Environmental Management System) pilot project at the Liberec railway junction. It is expected that the system will be certificated in the second half of 2002. The actual effects and benefits will be able to be assessed after the second internal audit, expected at the end of 2003.

Attention is also paid to other environmental elements, dealing with the growing number of complaints about noise and vibration, adjustments to technological processes that affect the environment and the costs of dealing with the negative effects of railway transport on the environment. Insufficient funding has made a more aggressive approach impossible when dealing with known sources of danger to the environment.

Implementing the conditions set out in forthcoming environmental protection legislation will require further funding, also in relation to preparations for Czech entry into the European Union.

The environmental protection information system, participation in international cooperation, use of emissions measuring results and environmental accounting are being improved, which enables environmental protection costs to be monitored.

As a part of international cooperation, České dráhy is involved in dealing with environmental problems related to railway transport, partly through participation in UIC committees and expert committees for the environment, ecology and combined transport of the OSŽD. Knowledge is coordinated and sent back to the relevant České dráhy organizational components.

(b) Information about new developments in railway safety

Under Act No. 77/2002 Coll. on České dráhy, akciová společnost, Správa železniční cesty, státní organizace, and an amendment to the Railways Act No. 266/1994 Coll., as amended, and the State Enterprise Act, No. 77/1997 Coll., as amended, Section 40 establishes a new State administration body – the Railways Inspection, as an organizational component of the State.

This office will perform the functions of an independent national body for accident investigation under a forthcoming Directive of the European Parliament and Council on Railway Safety in the Community and an amendment to Council Directive 95/18/EC on the provision of licences to railway companies and Directive 2001/14/EC on the allocation of railway infrastructure capacity and charging for the use of railway infrastructure and safety certification (2002/0022(COD)).

Its powers shall be as follows:

1. Ascertaining the causes and circumstances of extraordinary events in railway transport on all railways under the Railways Act, to the extent set out in the implementing regulation.

2. Ascertaining shortcomings which pose a threat to railway operations safety or railway transport safety, their causes and the persons responsible for their occurrence or duration under legislation.
3. Requiring the removal and correction of any shortcomings found, their causes and damaging consequences, from their originators, and imposing measures to have them removed and corrected.
4. Conducting checks on measures imposed.
5. Subsequent to ascertaining shortcomings threatening railway operations safety or railway transport safety, their causes and the persons responsible for their occurrence and duration under legislation, the commencement of administrative proceedings for the imposition of a fine under the Railways Act or, depending on the nature of the facts ascertained, the submission to the Railways Authority of a proposal for the commencement of administrative proceedings:
  - (a) on the temporary restriction of railway transport for the necessary time, if required to ensure safe railway operations and safe railway transport following the occurrence of an extraordinary event;
  - (b) on the withdrawal of a carrier's certificate;
  - (c) on the withdrawal of a certificate of competence to drive a rail vehicle, certificate of rail worthiness of a rail vehicle or certificate of serviceability of specified technical equipment.
6. Performing State supervision of railway matters.

The new State administration body will commence its activities on 1 January 2003 at the same time as the establishment of České dráhy, akciová společnost.

(c) New Transport Technology

ERMTS – a system serving to ensure technical interoperability in the control/command field.

ETCS – European train safety mechanism. It is to replace the existing 27 types of safety mechanism on locomotives, thereby ensuring that the system used is uniform.

GSM-R – Global system of mobile communications. It enables service communications over public telecommunications networks and operates in a digital, not analogue, data processing regime.

From the train transport viewpoint, all the above three systems are designed to ensure safe train travel and uniform communications links in interoperable European train transport, which in practice means travelling by train from Italy through France,

Germany and the Czech Republic to Austria without technical and organizational problems at border crossings and, if possible, with one engine driver.

DOZ, DZZ – national remote control of safety equipment and remote operation of train transport. Closely linked to the European ERTMS system.

GALLILEO – European satellite navigation system for the management of train transport on branch lines, only an extra to the national safety systems.

In all the above fields cooperation with České dráhy is taking place in the form of pilot projects, simulation processes and specialist consultation sessions.

## **HUNGARY**

(a) Environmental questions related to railway operations

(i) A 10 year programme of HUF 10 billion, €60 million to eliminate the problems caused by the railway operation was launched at the Hungarian State Railways Co.Ltd. in 1995.

The main goals of the programme are:

- to liquidate soil pollution accumulated at major junctions, at loading/unloading points and at gasoline stations at depots;
- to modernize the whole gasoline supply system at the company;
- to prevent any pollution of air, soil and water in the future by the way of replacing important technologies at main operation sites;
- to liquidate illegal deposits of waste along the tracks.

By the end 2001, HUF 4.6 billion, €27 million was used up in the framework of the programme with the following results:

- all gasoline supply facilities will be modernized by the end 2003;
- the 40 diesel locomotives of high capacity for freight trains going to be renovated up to 2006, out of 87 units of this type, will be equipped with new engines complying fully with EU provisions to protect the environment.

(ii) In the course of modernization of the rolling stock for passenger transport

- 13 units of twin motor coaches will be delivered by Siemens AG in 2003/2004 satisfying the highest environmental requirements;
- 40 diesel motor coaches will be carried from the Russian Federation in 2002/2004 equipped with German engines also meeting the environmental provisions adequately.

(At the end 2001, the national railway company disposed of over 300 old-type small diesel motor-coaches).

(iii) In March 2002, Hungary's normal/broad gauge transshipment hub at Záhony, in the north-eastern corner of the country, won the ISO certificate 14001 that its facilities to trans-pump chemicals, to transship sundries by machines, to store and converse timber, to transpump heavy fuel and to change bogies, operate with implementation of all provisions for the protection of environment.

(The area's entire transshipment capacity is 10 million ton per year of which 5 million ton for bulk materials.)

## **(b) Safety in railway transport**

(i) In the framework of development of the sections at pan-European transport corridors:

- the new railway line to Slovenia, part of corridor V, inaugurated in 2001, 19 km in Hungary, was equipped with EU standard European Train Control System (ETCS), level 1 (spot transmission ) in March 2002.
- ETCS level 1 is in mounting on the 154 km section of the Vienna-Budapest line on corridor IV in the course of its complete modernization by 2006. (The system has been in operation already on 25-25 km sections on both sides of the Austrian/Hungarian border, as a common experiment of the Hungarian and Austrian railways from August 2000).

(ii) Having replaced its first one for 1997/2001, the Hungarian State Railways Co. Ltd. launched the new medium term Labour Safety Programme for 2002/2006.

The strategic goals of the programme are:

- to keep the risks for labour in the period globally below the level of the previous one;
- to give priority to the prevention of accidents rather than to the measures following them, by the way of risk analyses.

Among the means of implementation the following may be pointed out:

- the modernization of training systems to make employees adhere to safety provisions automatically (80% of the labour accidents occurring in the 1997/2001 period were attributed to human factors and only 20% to technical deficiencies);
- the improvement of labour conditions in a higher pace with regard to the heavy lag.

Further, the statistical apparatus of labour safety indices in relation to the performances, following the practice in the International Union of Railways (UIC), will be introduced in this period to make national data on the level of labour safety comparable internationally.

**(c) Introduction of new transport technologies**

There is no development to report.

**SLOVAKIA**

**(a) Environmental questions affecting railway transport**

**(i) Refuse management area**

ŽSR produces 54 types of danger and 63 types of common refuse. Among the most frequent are, besides refuse of a community character, refuse occurring during technological activities of ŽSR operation. On average, 45,663.63 tons of refuse is produced annually. From the point of view of amount, most refuse occurs from septic tanks and wells, iron scrap including transport devices and equipment, rail and mine sleepers, earth contaminated by mineral oil materials and communal refuse.

In terms of the scale of contamination, among substantial garbage are refuse from cross-sleeper bearing, station tracks and intermediate tracks, which have accrued by technological process on track maintenance works.

Through modification and valuation of materials from rail supports proceed ŽSR in the years 1997–1999. In cooperation with Žilina University, a report was prepared on “Methodics for ecological evaluation of the rail supports - obtained cross-sleeper bearing material”, on the basis of which the material is recycled and the occurrence of hazardous scrap is minimized. Consequently TNŽ was published – Technical and ecological conditions for the supply of materials for body of ballast and rail bearing – which also established the technical conditions for unrecycled ballast. By this is secured repeated use of obtained ballast.

As part of the conceptual conclusions in the area of ŽSR waste management the following sphere of problems has been addressed:

- waste collection separation (chiefly hazardous);
- storage of waste in appropriate conditions to the time of hazard removal;
- arrangement of hazard removal from hazardous wastes;
- arrangement of purchase of used wastes (according to available refining capacities) with emphasis on economic advantage;
- arrangement of waste records;
- compilation of waste management programmes;
- minimization of waste by reform of railway technological processes;
- constant separation of wastes, possible recycling of wastes and their usage as reused raw material (chiefly in the area of recycling of railway aggregate).

**(ii) Water management and protection of waters**

A significant source of pollution of waters are activities connected with the storage and handling of oil materials. This refers mainly to standing places and fuel

stores, oil and grease stores, repairs and maintenance of rail vehicles. Removal of these stated technical insufficiencies is possible only through financially demanding investment activities. Long-term removal of contaminated earth and water is performed chiefly at the Cierna nad Tisou junction station (and at other railway stations) and is performed under the supervision of State administration bodies. Another positive fact is that since 2001 there have been no significant ecological accidents.

(b) Railway transport safety

Comparison of the development of accident events for the II half-year, 2001 against the II half-year, 2000 is shown in the following table:

Period	Development for II. Half-year 2001/ II. Half-year 2000				
	Category				
	A	B	C	D	Total
<b>2. Half-year 2001</b>	11/0	10/0	40/9	427/320	488/329
<b>2. Half-year 2000</b>	6/0	3/0	31/15	416/316	456/331
<b>Difference</b>	+5/0	+7/0	+9/-6	+11/+4	+32/-2

In accident occurrences in the II. half-year 2001 there was total damage amounting to Sk 13.5 million. From this there was damage to ŽSR equipment amounting to SK 3.8 million. In total there was a breakdown in service of 134 hours, single-track operations were affected for 94 hours. 760 passenger trains were missed by 514 hours, and 377 freight trains by 675 hours. 105 passenger and 7 freight trains were called off.

According to the means of safety, the greatest number of accidents involved level crossings guarded only by St. Andrew's cross in 19 cases, and on manned level crossing barriers electrically operated in 13 cases. According to the type of road vehicle, the greatest number of accidents involved passenger cars in 34 cases, and with cargo vehicles in 7 cases. In these occurrences 8 persons were killed, which is a rise of 2 people, 7 were seriously injured, a rise of 4 people, and 13 people suffered health impairment, a rise of 5 people. In the accidents stated, there was damage to ŽSR equipment amounting to Sk. 5.7 million.

Railway transport safety for I. half-year 2001

Period	Comparison of A.O. for I. quarter-year 2002/ I. quarter-year 2001 in total/ŽSR				
	Category				
	A	B	C	D	Total
<b>I. 1/4 2002</b>	3/0	4/2	24/3	197/32	228/37
<b>I. 1/4 2001</b>	2/0	5/0	11/3	174/138	192/141
<b>Difference</b>	+1/0	-1/+2	+13/0	+23/-106	+36/-104

Introduction of new technologies and application of modern technologies to railway operation, specifically in connection between railway transport and other forms of transport:

(c) Information systems

Informatics played a significant role in the preparation and implementation of the transformation and restructuring processes at ŽSR. These pilot projects were addressed within the Project of Transformation and Restructuring of ŽSR:

- Complex evaluation of ŽSR information systems from the viewpoint of the future unification of the administration of railway companies;
- Analysis of the effectiveness of ŽSR information systems.

Conclusions of these projects will be used in the directing of further development of information support for the basic business processes of both companies.

Activities within ŽSR information systems

KVC – Complex passenger service of transport documents

In cooperation with banking institutions, ŽSR is following the possibilities of expanding the payment for travel documents through domestic and international bank-cards such as EUROCARD, MASTERCARD and VISA.

IRIS-N freight transport information system

In 2001 attention was paid to the further development of individual functions of the IRIS-N project. For individual levels of ŽSR management, as well as for customers, new access to data was instituted in Internet/Intranet, IRIS mail, etc. The total size of the IS IRIS-N is witnessed by the present number of 100 servers and 1,035 terminals in 284 localities.

ISOD – Passenger transport information system

In the course of 2001, solutions of the first stage of the ISOD project were renewed with emphasis on the km. circuit of passenger wagons. It is foreseen within the project the rational recording of passenger train wagon data, and the provision of operational and statistical output configurations (reports) for individual user organizational units.

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