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INFORMATION ON DEVELOPMENTS IN VARIOUS RAILWAY FIELDS

Transmitted by the Governments of Belarus, Czech Republic, Denmark, Germany,
Hungary, Latvia, Lithuania, Slovakia, Slovenia, Sweden, The former Yugoslav Republic of
Macedonia, United Kingdom

Note: At its fifty-fourth session (3-5 October 2000), the Working Party asked Governments and international organizations to provide information on new relevant developments in the following areas (TRANS/SC.2/194, para. 57):

- (a) Environmental questions related to railway operations,
- (b) Safety in railway transport,
- (c) Introduction of new transport technologies and application of modern techniques to railway operations, in particular regarding the interface between rail transport and other transport modes.

The information provided by Governments and international organizations is reproduced below for consideration by the Working Party.

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BELARUS

An ongoing sector-based environmental programme involving the introduction of state-of-the-art resource-conserving technologies is being implemented on the railways. As a result, there has been a continuing decline in the adverse environmental impact of railway operations.

There were no train wrecks or accidents on Belarusian Railways in 2000. In recent years, including 2000, there has been a steady decline in the number of traffic safety violations. This is the result of the systematic implementation of the planned engineering improvements and, *inter alia*, modernization of existing train-movement control systems, introduction of up-to-date servicing and maintenance methods for equipment and rolling stock, broadening of the range of available safety and diagnostic devices and improvement of basic and further training for railway personnel.

In order to expedite the processing of paperwork at the Malaszewicze and Brest border stations, operated by Polish State Railways and Belarusian Railways respectively, a unified data-processing system has been developed and introduced at the Malaszewicze-Brest crossing to facilitate the movement of wagons, containers and freight across the State border. The legal status of this system is enshrined in a Border Agreement between Belarusian Railways and Polish State Railways.

The unified data-processing system takes account of the special circumstances that obtain at the border crossing, namely the need to reformat CIM consignment notes as SMGS consignment notes, and enables the time for processing trains at the border to be cut by 7-12 hours, thanks to one-step entry of data in the SMGS consignment note and electronic transmission of the note to all concerned for the insertion of additional information. The time-saving has been confirmed by detailed analysis of the processing of express trains at the Brest railway node.

Approximately 80% of freight delays at the border are attributable to incorrect completion of shipping and accompanying documentation. To facilitate the smooth movement of freight across the Latvia-Belarus border, a system for the advance customs declaration of freight has been developed. It involves the pre-processing (i.e. processing prior to the arrival of freight at Polotsk station) of electronic copies of SMGS consignment notes and invoices. The system makes it possible to identify and rectify documentation errors at an early stage, before they cause traffic delays.

Experts from Belarusian Railways have developed software to provide on-line help via the Internet to freight owners and forwarders who need to complete accompanying documentation (invoices). This service is tailored to the requirements of the national customs authorities of the Russian Federation and the Republic of Belarus.

With a view to integrating the unified data-processing system into international plans for electronic data exchange in respect of freight traffic, a pilot project is being elaborated to organize freight traffic between the joint-stock companies Deutsche Bahn AG, Belarusian Railways, Polish State Railways and Russian Federation Railways by means of an electronic consignment note in the format specified by the United Nations Rules for Electronic Data

Interchange for Administration, Commerce and Transport (UN/EDIFACT). As part of this project, the Electronic Data Exchange-IFTMIN system (CIM consignment note) has been jointly tested by Deutsche Bahn Cargo and Belarusian Railways.

Technical questions have been addressed in collaboration with Polish Railways, and tariff conditions have been set for the transport of road trains on specially adapted Polish Railways' wagons between Brest (Belarusian Railways) and Rzepin (Polish State Railways).

The organization of multimodal transport on the Black Sea-Baltic route through the operation of multimodal transport trains (i.e. carriage of road trains and large containers on flat wagons) is the subject of joint study with the Ukrainian and Lithuanian railway authorities.

CZECH REPUBLIC

(a) Environmental questions related to railway operations:

On the basis of the Concept of Environmental Protection as approved by the CEO of Czech Railways, the Department of Environmental Protection of the General Directorate conducts regular analyses of influence of railway operations to the environment and compares its findings with other influences, mainly with that one of road transport. To this purpose own data from operations of Czech Railways are used as well as those made available by the Czech Ministry of Environmental Protection. Remedies adopted to solve problems connected with this field of activities of Czech Railways are considered to be of top priority even under limited funding conditions.

The results can be demonstrated over a wide range of last five years in practical examples of emission reduction, water management and reduced demand, waste handling, care for greenery, removal of old environmental loads, etc.

A system of cost monitoring has been prepared for the segment of environmental protection (i.e. an environmental 'green' accountancy system). This system is considered by independent specialists (of the Czech Ministry of Environmental Protection, Pardubice University, Prague University of Economy, etc.) to one of the best in the Czech Republic from the point of view of its design as well as its implementation in an organisation of such a large area of competence (more than 3,500 workplaces over the whole territory of the Czech Republic).

As of 2000, the EMS (Environmental Management System) is being introduced into a trial operation at Liberec Railway Centre.

There is a basic information system (SW) for the sector of environmental protection focused to the waste management, clean air protection, water management and a database of historical development of air pollution and origin of old environmental loads by leakages of harmful materials and/or spillages in accidents, etc.

Czech Railways are also involved in international projects within the framework of UIC and OSŽD where co-operation with other railway companies is being conducted in the field of environmental protection, utilisation of primary energy resources, indicators environmental protection development, communication with the general public, care for greenery, physical fields, etc.

(b) Safety in the railway transport:

The pilot project of GSM-R system implementation at the line Děčín – Prague – Kolín will be performed. The implementation of the ETCS system continues.

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

A proposal of remote controlling of the corridor lines is now under discussion.

DENMARK

During the autumn of 2000 political agreement was reached on implementing a supplementary investment plan in the area of railway safety amounting to about 100 mill. DKK over the period covering 2001-2004 including investment in automatic train control systems, safety at level crossings and safety of railway employees etc.

The plan was preceded by a systematic analysis by Banestyrelsen (the Danish National Railway Agency) into the costs and effects of various possible measures to increasing the safety in railway transport.

GERMANY

(a) Environmental questions related to railway operations:

Noise rehabilitation:

Since 1999, 100 million DM has been provided annually from the Federal Budget for “noise rehabilitation measures on existing federal railway infrastructure”. Similar amounts are budgeted for the years ahead. On sections with a particularly high level of noise, the construction of noise abatement walls or barriers, the installation of anti-noise windows and “specially monitored tracks” are planned.

In this context, the Federal Government welcomes the efforts being made by the railways to exhaust the possibilities of reducing noise at source. Thus, for instance, DB AG, together with other European railways, is pursuing the objective of fitting only low-noise composite brake blocks to new wagons. In addition, low-noise brake shoes that can be used in existing braking systems are being developed for retrofitting older rolling stock which has so far been particularly noisy.

The efforts being made by railways to ensure lower emission values for their rolling stock will help avoid restrictions on rail services in densely populated areas.

(b) Safety in the railway transport:

In the field of safety in railway transport, the Regulations on Chief Operating Managers for Railways of 7 July 2000 (Federal Law Gazette I, p. 1023) have entered into force. In accordance with Section 4 (1) of the General Railways Act, responsibility for ensuring safe railway operations is vested in the railway undertakings. The resultant obligation to take any internal organization measures that may be necessary was put into concrete terms in the Regulations on Chief Operating Managers for Railways of 7 July 2000. These regulations state that every railway undertaking in Germany has to appoint at least one chief operating manager and a deputy with specific professional competence, responsibilities and powers.

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

The railway companies have adopted various innovative approaches in order to strengthen their competitiveness. This relates, for instance, to the fields of information technology, technical equipment at multimodal terminals, a strategy to provide a range of services that meet the needs of customers, and the technical equipment on the network. In addition to the possibilities of improving services and minimizing problems at interfaces, it is generally expected that these approaches will also enhance efficiency.

1. New information services for rail customers

1.1 Internet for passenger services:

DB AG advanced timetable information (Hafas) and Surf & Rail

In October 2000, DB AG launched its on-line advanced timetable information service. This enables travellers to plan door-to-door itineraries in Germany, including services provided by integrated transport associations (rapid transit, underground, tram) and distances that have to be covered on foot. Recommendations on the use of taxis are provided if appropriate.

Surf & Rail makes it possible to distribute tickets via the Internet. A voucher printed out on the customer's PC at home contains a cryptographic number that can be authenticated by the train crew. With Surf & Rail, travellers can book low-price tickets on-line for use on 978 through services between 66 towns and cities. Surf & Rail is an initial step on the road to ticketless travel.

1.2 Freight transport information systems

1.2.1 DB Cargo AG is exploiting the possibilities provided by modern information technology to offer its freight customers simplified communications channels and additional services.

The system accesses the new Cargo Order Management System, significantly increasing productivity in the information processes that accompany transport movements (empty wagon management, order management, production control).

The Internet, or individually agreed data links, are available as innovative interfaces with the customer.

DB AG's customer service system provides its customers (shippers and forwarders) with the possibility of using the Internet to directly

- award transport contracts and enquire about their status
- order empty wagons
- make service enquiries (e.g. invoices, compensation, transport delays, et al).

For customers with a greater volume of goods to be carried, an EDI connection can be used, which is specially configured as an interface between the systems of the consignor and DB Cargo AG. The EDIFACT standard (Electronic Data Interchange for Administration, Commerce and Transport) is normally used for this connection. Compared with the on-line customer service via the Internet, this method of transmission has the additional option of automated reports on the status of the transport movement. This system also makes provision for fully automated order handling, including accounting data.

DB Cargo AG has decided to fit 13,000 wagons with GPS receivers. This will enable it to accurately locate its rolling stock even in places where the use of the railways' own control systems is difficult on a transnational basis.

1.2.2 In the field of consignment tracking in combined transport, three of the largest European combined transport companies (CEMAT from Italy, HUPAC from Switzerland and KOMBI-VERKEHR from Germany) have joined forces under the title of "Project CESAR" for combined road/rail transport. The primary aim is to handle two fields of commercial transactions:

- cargo space booking/transport contract;
- query and report on the status of the consignment on the transport network

These tracking and tracing systems consist of the following components:

- a marking on the loading unit (vehicle/container) to be tracked, which indicates the identity and any other information about the vehicle/container or its contents;
- a reader, which identifies this marking or receives and decodes the signals transmitted by an electronic data carrier;

- a transmitter (communications network), which transfers the information from the reader or receiver to the person wishing to use the information;
- software and management facilities used by the person wishing to benefit from the data collected and transmitted in this way.

The projects involves widely varying technical and organizational details, but the objective is always to give the customer simple and easy access to an exchange of information with the combined transport companies.

2. Development of new handling technologies in combined transport

The Federal Government is promoting investment in combined transport terminals. Ports, freight villages and private railways can also receive investment aid. The aim is to provide a nationwide range of services for combined transport consignments. In the future, the following new technologies could play a major role:

- 2.1 As far as innovations at the interfaces between rail transport and other modes are concerned, the major development is the implementation of the Mega Hub concept in combined rail/road transport. Mega hubs represent a new production concept that has adopted the “hub-spoke system” introduced on the roads by logistics service providers. The trains run from the individual intermodal terminals to the mega hub, where they are concentrated, sorted, re-marshalled and then forwarded to their destination terminals. The hub performs the function of a large turntable. The technology used is a system for the rapid transshipment of containers and swap bodies, which, with a mean handling time of 40 minutes per consignment, enables the terminal to reduce the number of lengthy shunting and marshalling operations. Noell Crane Systems has developed such a high-speed crane handling facility. The Noell high-speed handling facility is characterized by high-bay warehouses arranged parallel with the transshipment track along the entire length of the facility. The length of the core facility corresponds to the train length. Depending on performance requirements, the handling facility consists of one or more aisles, in each of which one train can be dealt with at the same time. Multifunctional storage and retrieval units operate above the tracks and lorry loading lanes. They can perform all the necessary activities, such as loading and unloading the trains, storage and retrieval, and loading and unloading the lorries. Depending on performance requirements and the time required for train handling, several units can be employed in one aisle on the same train. Compared with conventional facilities, it is possible to save space in the width of the facility thanks to the use of high-bay warehouses and the handling of the trains, which leave the facility after transshipment.
- 2.2 Another recent development that is of interest from a technical point of view is the “Transmann”, manufactured by Mannesmann – Transmodal. This is a handling unit with which, unlike conventional systems, it is possible to carry out transshipment directly under the contact wire. There is thus no need to consider how to push the trains through using shunting robots or other additional elements, as is the case with all comparable development.

2.3 Given the growing importance of semi-trailers, interest is now focused on the cranability of semi-trailers, because it is believed that there is considerable potential here for shifting traffic, especially to the railways. Germany will thus initially conduct a study to identify the transport and economic effects that could be achieved by providing assistance in the purchase of cranable semi-trailers.

3. New DB AG service for Lufthansa customers on domestic routes (AIRail)

AIRail renews a tried-and-tested partnership between Lufthansa and Deutsche Bahn AG, connecting rail transport and air transport in Germany to the benefit of both parties. The system has been undergoing trials on the pilot route between Stuttgart and Frankfurt (Main) since 1 March 2001, and will be expanded to 7 ICE trains in each direction as of 10 June 2001.

The system comprises the following features:

- Passengers check in at a DB AG station at the Lufthansa desk (Stuttgart Hbf in the pilot scheme)
- Checked-in baggage is conveyed safely and securely
- Passenger services on the train are of the same quality as those on Lufthansa domestic flights
- All trains have LH flight numbers (through ticketing)

This system is designed to largely supersede Lufthansa domestic flights, so that the corresponding take-off/landing slot capacity (up to 10 %) can be used for international air services.

4. Equipping railway lines with a uniform mobile radio system

European railways are working on the establishment of a digital mobile radio system. Over the next few years, DB AG intends to establish a GSM-R (Global System for Mobile Communications – Rail) to replace the various radio systems that currently exist on DB AG. GSM-R is of significance for new services, such as data services for train control and protection, passenger information services, in-company communications between railway staff, and to improve performance and reduce costs in railway operations.

Introduction of this system is designed to facilitate European interoperability in the field of control and signalling technology for trains with the appropriate equipment. European interoperability is possible because there is an agreed standard and a memorandum of understanding has been signed by 32 railways.

HUNGARY

(a) Environmental questions related to railway operations:

The national Railway Company deals with different issues in order:

1. to prevent and diminish detriments to the environment by the way of examination of railway technologies, facilities, vehicles, of development of waste treatment, of implementation of relevant UIC leaflets and provisions, of remedying civil claims and of increase of safety of dangerous goods' transport.
2. to support the protection of environment through modernising the systems for fuel supply and heating, taking preventive measures concerning infrastructure development works.
3. to eliminate existing detriments to the environment through implementing the 1996-2005 programme for that.
4. to deepen the consciousness of the environment by the way of organizational measures training and information.

(b) Safety in the railway transport:

Settling of barriers with light protection in dependence from block signal(s) is in progress in the framework of the national programme of safety in the transport, from 1998.

Recently a simulator device has been installed in the training of traffic inspectors to give them experience in the cases of prompt failures and disturbances.

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

In the normal/broad gauge transshipment area at Záhony vis-à-vis the Ukraine facilities for handling of bulk materials in open respectively box wagons, of chemicals and of fuel oil and also a gantry facility have been renovated and modernized in value of 15 million USD in 2000, granted in majority by PHARE from the European Union.

Joined to the HERMES electronic data information system of western European railways through the Austrian railways in 2000, Hungarian State Railways Co. Ltd. had been capable to inform clients on the run of their consignments in real time. The system is in extension to the Slovakian railways.

LATVIA

(a) Environmental questions related to railway operations:

The most important activities in implementing the environmental policy of LDz are:

- Reconstruction of fuel and firewood storage, including the reconstruction of equipping points for diesel locomotives and diesel trains;
- Reconstruction of old drainage and sewage refinement facilities and construction of new ones;
- Survey, supervision and rehabilitation of pollution in LDz territories;
- Modernization of rolling stock;
- Education of employees on the issues of environment protection.

(b) Safety in the railway transport:

The new pressed air breathing facilities “Drager” were bought and implemented in operation in 2000, so working longer in the dangerous zone. The construction of assistance trains freight elevator check firing ground was finished. The training connected with localization and liquidation of accidents in dangerous goods transport was organized in five biggest stations where along with the railway employees participated also employees of state and regional rescue structural units.

The railway technical Inspection has been established on 1 June 1999 to improve the safety of traffic on railway. It controls the safety of traffic on private tracks and private railway companies as well. At present, work is ongoing on the developing methodologies of risk assessment.

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

The centralization of microprocessors will be set up on Riga and Torðakalns stations to improve the management of train movement in 2001.

Ship agents and stevedore companies receive news about the incoming freight on harbour using the informative system. It helps to plan the ships’ loading work.

LITHUANIA

(a) Environmental questions related to railway operations:

Environment protection issues

1. Mobile sources of pollution (locomotives, diesel trains) belonging to the JSCSP “Lithuanian Railways” in the year 2000 used 65.1 thousand tonnes of diesel fuel and discharged 5.9 thousand tonnes of pollutants into the atmosphere.
2. 650 thousand cubic metres of wastewaters are being discharged to sewerage and environment per year.
3. Waste products and secondary raw material fail to be fully collected. Handling of waste fat, pulp, mud, paper, and luminescence lamps is carried out but with difficulty.
4. Oil is dripping on the bed from old locomotives. There are problems concerning drip of oil products from tank-wagons as well as polluted railway territories.
5. Measurement of electromagnetic radiation and external noise fails to be implemented periodically.

(b) Safety in the railway transport:

The preliminary plans and timetable for aligning legislation with the *acquis* and improving traffic safety in railways:

Table 2. Planned measures to improve rail traffic safety

No.	Legal act	Planned date for adoption and implementation
1.	Reorganization of the State Railway Inspectorate into the Railway Regulatory Agency. The following main functions will be designated to the Agency: monitoring and control of traffic safety; licensing, safety certification and supervision of the railway market.	2002, 1 st quarter
2.	Draft Law on Railway Traffic Safety	2003, 2 nd quarter

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

In September 2000 the installation of the automatic gauge change facility in Mockava (Lithuania-Poland border) improved the border control procedures and reduced the delay time of trains. In October 2000 the regular passenger rail service was established between Warsaw and Vilnius.

SLOVAKIA

(a) Environmental questions related to railway operations:

The ŽSR has created internal organizational units and structures addressing the issue of effect of railway transport upon the environment in accordance with national and international legislation on environmental protection.

Assessment of impact of the structure upon the environment is constituent part of any investment feasibility study in accordance with national legislation, while an approval procedure is run under participation of state administration committed with environmental protection. At the same time, legislation forms a framework for participation by civil associations focused on environmental protection as well as citizens in the approval procedure.

Activities of the ŽSR in the area of environmental protection are focused on the following:

- rehabilitation of ground water in engine depots;
- putting warehouses of oil products into the condition being in compliance with national legislation as well as with standards of environmental protection;

- operation of a system of dangerous-waste disposal in accordance with applicable legislation on waste management;
- cutting the air pollution;
- cutting the noise pollution.

(b) Safety in the railway transport:

Control of adherence to safety regulations is provided by the railway workers. Controls are focused on adherence to provisions of safety regulations, technological working procedures as well as adherence to working discipline by both the workers of railway operation as well as the workers of other corporate entities performing activities on the sites of railways.

Overall review of occupational accident rate - development in comparison with an average of the past 5-year period:

Year	Total	Mortal	Serious	Mass	Number per 100 employees
1995	417	5	1	0	0.79
1996	432	5	2	0	0.82
1997	342	4	8	1	0.69
1998	343	5	2	0	0.69
1999	282	2	1	0	0.58
Sum	1,816	21	14	1	-
Average	363.20	4.20	2.80	0.20	0.714
2000	306	2	2	0	0.66
Difference	-57.2	-2.20	-0.80	-0.20	-0.054

Through an analysis of vocational accident rate for the period of 2000, it has been found out that a further decrease by 57 accidents occurred in the total number of vocational accidents, representing 15.75 % in comparison to the average for the past 5 years. This condition was also projected into the most unbiased assessment - into recalculation per 100 employees. In this assessment, a decrease by 0.054 accident was attained, representing a drop by 7.56 %.

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

The ŽSR has focused its attention on the development of the following:

- integrated system of passenger transport

At present, a trial verification of the system is carried out in the cities of Bratislava and Košice. In association with the reform of state administration and self-government as well as that of the funding system of transport in public interest, an increased interest on the part of self-governments of towns and regions in this solution of transport servicing the territory is expected.

- development of combined transport
Tasks of combined transport are particularly focused on the following:
- provision for construction of a network of routes of combined transport;
- a scheme of support to combined-transport development in the Slovak Republic;
- purchase of special railway cars for combined transport.

In 1998, the third stage of construction of the terminal of combined transport at Dobrá next to Ěierna nad Tisou was put into operation with rails of normal as well as wide gauges for horizontal as well as vertical reloading. In the final condition, the terminal will be equipped for all systems of reloading in combined transport. The major task of the terminal is a transit connection of eastern markets with the markets of West Europe.

Along with road forwarders, railways participate in development of combined transport, establishing also internal organizational units focused on management and development of combined transport.

SLOVENIA

- (a) In the 1999 the Project Quality Environment Management System has been launched. Its goal is to introduce the system in accordance with the standards SIST EN ISO 14001 and to obtain a certificate.
- (b) Slovenian Railways has been endeavouring to modernize the railway network and rolling stock to the point which will provide safe and rapid transport of passengers and freight. All the investments included in the National Programme of the Slovenian railway infrastructure development and in the Programme on the modernisation of the rolling stock are intended to increase the level of safety and reduce the impact on the environment.
- (c) The Slovenian Railways Information System consists of the Business Information System (BIS) and Transport Operation Information System (TOIS). The TOIS enables real time capturing, control and monitoring of technological and commercial activities of the Slovenian Railways. The modernisation of the BIS is based on a standard SAP R/S system.
- (d) Slovenian Railways are active in the field of combined transport. The projects called Gateway Slovenia and Komar which have been developed together by the Slovenian Railways and AdriaKombi company will improve the services in international combined transport.

SWEDEN

- (a) Environmental questions related to railway operations:

No recent developments are reported.

Example of research in progress in the environmental field is

- acoustic demands on noise-barriers along railways
- emissions to the air from railway traffic
- ecological effects, effects on natural vegetation by lowered subsoil water.
- ecological effects of roads and railways, influence on landscape and fauna, syntheses of known facts
- ecological effects of roads and railways on invertebrate animals.

Source: National Rail Administration

(b) Safety in the railway transport:

Collisions in level crossings are the most common reason for accidents. To improve security, the most cost efficient action is to separate road and rail traffic. In year 2000, National Rail Administration has built 50 new level separated crossings and has closed 250 old level crossings.

Source: National Rail Administration

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

No new transport technologies have been introduced recently.

Source: SJ AB and Green Cargo AB

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

(c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

1. Timely current and investment infrastructure maintenance and haul capacities.
2. Modernization of the infrastructure and procurement of new haul capacities.
3. Development of extra profit of the PE MR or a combination of several models such as concessions, construction of the Vardar valley, investments for fast rails etc.

Future in the cargo-system, to enable passenger vehicles for speed of 200 km/h, introduction of business trains, tact trains in the local traffic etc.

UNITED KINGDOM

(a) Environmental questions related to railway operations:

A proposed EU directive on the assessment and management of environmental noise would require noise maps and action plans to be drawn up for large conurbations and for major transport links. The directive would apply primarily to road, rail and aircraft noise and to noise from industry. The proposal for the directive was adopted by the EU Commission last year and is now awaiting Council common position.

In a parallel initiative, the Government's Rural White Paper published last year, announced that the Government would consult on a national ambient noise strategy, which would involve mapping the main sources and areas of noise. The White Paper described the mapping as a major new exercise, which would involve major road and rail links in rural areas. It said that the aim was to complete the mapping by 2004.

(b) Safety in the railway transport:

Railway accidents

In its annual report for 1999-20, published in December 2000, the Health and Safety Executive's (HSE's) Railway Inspectorate (HMRI) reported that overall rail safety continued to show a gradual improvement year on year. The number of train collisions fell by 27 from 121 to 94, the lowest on record and train derailments fell by 28 from 117 to 89 an all time low. However, because of the tragic crash at Ladbroke Grove on 5 October 1999 (the only train incident during the year in which passengers were killed) in which 31 people died, fatalities (excluding trespassers and suicides) increased to 65, the highest level since 1991/92. Vandalism continued to be a problem with 55 % of train incidents caused by malicious action.

Cullen Inquiry

The Health and Safety Commission (HSC) appointed Lord Cullen to carry out a public Inquiry into the causes of the Ladbroke Grove accident (Part 1 of the inquiry) and to look at the safety management and appropriateness of the current safety regulatory regime (Part 2). HSC will publish a Report for Part 1, expected this summer and a Report for Part 2, expected in the Autumn and then advise the Government on the recommendations. The Government has already made it clear that it will deliver any necessary measures arising from Lord Cullen's Inquiry.

Train Protection

On 29 March 2001 the Health and Safety Commission (HSC) published the Joint Inquiry Report by Lord Cullen and Professor Uff into train protection systems. The Government is pleased that the railway industry will now be working with the Strategic Rail Authority and Railway Safety to produce an implementation plan

Following consultation with the industry, the HSE will draw up Regulations over the next three years which will require the fitting of the European Train Control System (ETCS) to a specific timetable. The Government will await advice from the HSC and their proposals on a realistic, timebound programme for delivering ETCS across the rail network and to

draw up the regulations that will set out the timetable. HSE will be issuing a progress report this September.

- (c) Implementation of new transport technology and the application of new techniques in railway operations, especially as regards interfaces between railway transport and other types of transport

Railtrack's "Total Operational Processing System" continues with its development, providing a fully comprehensive system for monitoring train movements along the network. Railtrack are also currently engaged in the development of a computerised asset register, designed to be a complete and continual record of the condition of the network, its capabilities and passenger and freight capacity.
