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DAGGOB

Summary of Evaluation
of EU Policy on the
Transport of Dangerous
Goods since 1994



Project part-financed by the European Union
(European Regional Development Fund) within
the BSR INTERREG III B Neighbourhood Programme



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1 INTRODUCTION

Transport of Dangerous Goods (DG) comprises a wide variety of commodities governed by international conventions, which together with supplementing EU and/or national regulation are mostly implemented in the Baltic Sea Region (BSR). Despite formal implementation, operational practices between DG-related authorities vary between countries, and unnecessary friction exists between authorities, shippers and logistics operators in DG supply chains.

In DaGoB project (see Annex), work is done to revoke this type of friction from the Dangerous Goods transport sector. To achieve these objectives, the DaGoB team is preparing the methodological framework to produce the first BSR-wide analysis of DG flows. Essential part of this analysis is the transport chain analysis, which is made through multiple case studies using a uniform method to ensure comparability of results. DaGoB is also preparing the Action Plan which is based on the analysis of DG flows, accidents and related bottlenecks in the process both on a local, national and BSR-wide level. For this reason, the Action Plan will provide a useful tool for both national Ministries responsible for Transport, and especially their units of DG transport to better shape the national policies. The DaGoB team has also ensured the participation of several major chemical industry firms and transport firms with operations in the entire BSR to give their insight into these issues.

The following report summarizes briefly the content of the Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 –report (2005). It provides merely an overview of the policy and statistics; for purposes of length and readability a significant amount of detail has been omitted. A complete understanding of the Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 requires reference to the text of the final report itself. From this summary people can get the main points of the dangerous goods transport regulations and transport statistics. This summary is made just to give the basic knowledge of the current situation of DG sector to different organisations dealing with the dangerous goods transport.

2 POLICY OVERVIEW

2.1 Overview

Evaluation of EU policy on the transport of dangerous goods since 1994 - study has employed desk research, statistical modelling and a survey with face to face interviews to gather the information contained in it.

Following the circulation of a questionnaire to the Member States, Norway and Switzerland, in the spring of 2004 and interviews with 23 Member States and Norway and Switzerland, between October 2004 and January 2005, the consultants have analysed and discussed the findings.

Overall, the consultants believe that the current set of EU Directives covering the transport of dangerous goods in land transport have proved a valuable addition to safety in the transport and trade of dangerous goods. The Directives and associated annexes provide a comprehensive coverage of all aspects of the dangerous goods regulations.

A comprehensive overview of the international legislation since the 1970s was undertaken in the study, including the range of EU Directives that had been adopted in the field of dangerous goods transport, in particular those adopted in the decade since 1994. Although the brief from the Commission was to concentrate on the effect of these Directives within the Community, it has proved impossible to ignore the wider international issues because:

- The Framework Directives are based on RID and ADR
- Member States trade beyond the boundaries of the Community
- Most Member States attend and play an active part in the relevant UN meetings

2.2 Framework Directives

The main purpose of Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 –report was to review the impact of the various Directives that have been implemented by the Commission to standardize the rules for the transport of dangerous goods within the Member States. The main Directives are the two Framework Directives for RID/ADR. Member States are content with these two Framework Directives. They do not consider that any new Directives are required in this area. In principle, they are content to

see the Directives merged and provisions for Inland Waterways included. However, those States with no international inland waterways carrying freight or waterways solely within in a national territory or no railways (Malta and Cyprus) require safeguards to ensure that they do not have to apply waterway or railway provisions in their territory. Several countries observed that they were content to apply the IMDG Code – suitably adapted – to the few commercially navigable waterways in their territory.

It is noted that the TDG Committee met on 24 November 2004 and agreed in principle to a single Framework Directive for road, rail and inland waterway. And change should impose unnecessary administrative burdens on the Member States.

Only about one third of Member States have stated that they would become contracting parties to the ADN Convention. The rest have indicated no interest and wish to be excluded from any Directive that addresses inland waterways. Considering that Central Rhine Commission and the Danube Commission already duplicate most of the work of ADN, the consultants question the added value of an EU Inland Waterways Directive which does not apply to all Member States.

2.3 Statistics

An analysis of available EU statistics on the transport of dangerous goods was undertaken. Throughout the period 1990-2002 the total volume of dangerous goods moved annually by all modes has remained fairly constant with a slight downward trend.

Accurate statistics concerning the transport of dangerous goods have been difficult to obtain. The statistics included in this study are a combination of international trade and transport data. Where data were available from other sources (e.g. national governments) a comparison was undertaken and the most reliable source was selected. The analysis was carried out for the three surface modes of transport – road, rail and inland waterway. Within the 15 Member States of the EU in 2002 (EU-15) and based on tonne-kilometres road transport has the largest share of the dangerous goods traffic (58%) while rail transport and inland waterway represent 25% and 17%, respectively.

Eurostat data form the basis of the study with national data taken into account for validation. For the EU-15 countries complete and consistent data for the years 1990 to 2002 all available and could be validated. For Norway

and Switzerland and the ten Accession States, the same analysis was limited to the year 2000, as data prior to this date were not available.

The growth in dangerous goods transport over the 12 years analysed in terms of tonne-kilometres is much less dynamic than the development of total goods transport volumes with regard to tonne-kilometres. This is reflected the proportion of dangerous goods in the total for all transport which fell from 6.8% in 1990 to 6.0% in 2002 as tonnage, and from 9.1% in 1990 to 7.8% in 2002, in tonne-kms. Over the same period the total transport grew by 31% (tonne-kms), while dangerous goods transport only represents an increase of 13%.

Flammable liquids (class 3) are the largest single class and include petroleum products (accounting for two-thirds of the total traffic in 2002 – EU-15 countries). Gases (class 2) are second and its share amounts to about 16%; corrosive substances (class 8) are third.

The quantities of goods in classes 5.2, 6.2 and 7 are difficult to identify as they are not adequately recorded, either in trade or transport statistics. However these classes figure significantly in the waste statistics. So the analysis was based on both the available results from transport and from waste statistics.

The share of dangerous goods analysed by country depends on their role within the European transport system. Countries with main ports have significantly higher proportions of dangerous good within the total for all goods transported.

2.4 Traffic Routes

The Commission requested data on traffic flows of dangerous goods along particular routes in the Member States. Such data are not available in the majority of Member States. Where there are, the reports are not in a standard format and are generally not maintained up to date: rather they are occasional investigations. Such comprehensive surveys can prove expensive to undertake on a continuous basis. The reports that exist have been used more as an information source than for the possible formulation of legislation. In addition, they could only be treated as indicative as transport arrangements for some markets can change regularly according to the relative cost of modes. Some Member States considered that although they may have statistics, these could not be made available, as they were security sensitive.

Vehicle restrictions through towns, villages, tunnels, etc., are with a few exceptions matters for local authorities in each Member State and central data are not maintained. The consultants believe this is a major practical problem for vehicle operators, particularly when they make a journey to a new destination. Route restrictions on the railways are a separate problem. In some countries there are route restrictions, but in many cases alternative routes are not practical or even available.

There is no reason to suppose that the important routes for dangerous goods transport differ from those for other goods. Nevertheless, the ports and the centres of petroleum storage and refinement attract and emit dangerous goods transport more than average

The trend of moving chemical production to East Asia does not reduce movement of dangerous goods in Europe significantly, but simply shifts their origins and destinations from the centres of chemical industries to the ports leading to changing distribution patterns. The movement of chemical production does not affect petroleum products, which represent most of the dangerous goods moved.

2.5 Infringements

The following assessment is based on the reports filled with the Commission in compliance with Council Directive 95/50/EC on uniform procedures for checks on the transport of dangerous goods by road.

Council Directive 95/50/EC requires Member States to collect statistics on vehicle checks carried out in their jurisdiction. The reporting includes details of whether the vehicle was a national vehicle, one from another EU country, or one from a country outside the EU.

During the interviews with the Member States; it emerged that one of the main reasons for the poor response to making the reports to the Commission was the lack of any consequential recommendations/feedback on possible improvements to the transport of dangerous goods as a result of this enforcement action. There is no clear relationship between the infringements reported and the enforcement action taken.

Europe produces very few statistics on incidents involving the transport of dangerous goods. The Uniform Procedures Directive has produced very little meaningful data, but it has the potential to identify problems with ADR. It is perhaps worth noting that the USA is able to produce statistics as justification for many of its proposals to the UN Committee of Experts of the Transport of

Dangerous Goods. Although accuracy can be questioned the USA are able to produce the sources of its data; Europe generally has nothing to support or counter those from the USA.

The collection of statistics is controversial issue as industry complains that too many are produced already for the Commission. To establish a further requirement would probably not be acceptable, but this Directive could go some way to having similar data for Europe as in the USA with additional information from the Dangerous Goods Safety Advisor Directives (DGSA) recording the smallest incidents in their annual reports. A database to collate this information could be constructed.

2.6 Derogations

The system of derogations is necessary because RID/ADR at present has no facility to address all the domestic issues relating to local deliveries and operations. Derogations are also required because of geographical, demographic, cultural and social variations between countries. However, the system of derogations has some unsatisfactory features, notably:

- The current list is written in different styles and the individual purpose is often difficult to ascertain.
- It would appear a number of countries have derogations that have not been submitted to the Commission. Those countries with a federal constitution delegate powers to state/provinces and in some instances derogations issued at these local levels have not been registered. Some Member States view these as constituting possible trade barriers.

2.7 Security

Security is of great concern. When the report was published on 30th April 2005 the most Member States had not yet fully established the system to put the new provisions of RID/ADR into force arguing that in many cases they do not need to comply until July 2005, but in some instances that they have constitutional problems in applying the provisions.

The consultants consider that there is need for the Commission to:

- Carefully watch the development especially for the road mode

- Remind Member States and industry that they have a duty to apply all the provisions of RID/ADR on security
- Support a “platform” for sharing best practice among the Member States

2.8 Safety Advisers

A majority of Member States believe that the Dangerous Goods Safety Advisor Directive could be revoked as the provisions for the DGSA are incorporated into Chapter 1.8 of RID/ADN and ADN. However, it has to be noted that the wording of the Directive and the RID/ADR/ADN provisions are not exactly the same, which should be considered by the TDG Committee before a final decision is made.

The general view of the interviewees and the consultants is that the DGSA Directive has improved safety awareness and general knowledge of the regulations. In that context, it is generally viewed that the Directive should be extended to sea and air transport. The question arises whether the Commission has competence in these areas.

If the Commission decided to take such action the syllabus and examination options would have to be reconsidered because much of the text of the individual modal regulations is the same and duplicating the examination in certain areas would provide no safety benefits.

2.9 Overall Transport Conditions

All Member States who responded to the questionnaire have made necessary regulations to implement the Directives. All countries provide a competent authority function, but the number of staff in the national competent authorities ranges from a single person up to 20 persons providing equivalent functions. To some extent, this reflects the size of the chemical industry in their country.

The capacity to implement and enforce the regulations is extremely variable. It is not only related to the functions of staff but also to their relative skills and comprehension of both of the Framework Directives and ADR and RID.

The Commission should consider whether to assist countries who have difficulties performing the role of the competent authority because of a limited

understanding of the regulations. Offering some special training courses for regulators to give them a comprehensive understanding of the regulations could do this.

2.10 Incident Data

Europe produces very few statistics on incidents involving the transport of dangerous goods. The Uniform Procedures Directive has produced very little meaningful data. Although, RID/ADR now include a requirement for reporting incidents, it is intended for the larger more significant events. There should be a reporting system that addresses daily minor occurrences, such as small leaks from packagings, failure to close valves on tanks correctly etc. Such minor incidents form the basis of determining whether RID/ADR is providing society with an adequate level of safety.

It is requirement that a Dangerous Goods Safety Adviser produce an annual report. Included in that report is a requirement to detail and analyse any accidents/incidents. There may be merit in having a standard DGSA report (a list of minimum requirements, not necessarily a standard form) and including in this a list of incidents, including details possibly based on the Uniform Procedures Directive 95/50/EC. In addition, make it a requirement that reports are sent to the competent authority annually. The analysis of such returns, could, where, appropriate, be considered by the TDG Committee. A European database on incidents should be considered.

2.11 Beyond Europe

The majority of the 10 new Member States that joined the Community in May 2004 are very close to or have frontiers with the Russian Federation and some of the Commonwealth of Independent States (CIS Republics) of the former USSR. Based on the interviews there are a number of problems which form not only barriers to trade could raise basic safety issues. The OSZhD (Organization for Railways Cooperation) has separate dangerous goods rules based on the 2001 RID and the OSZhD system.

Road transport does not seem to fair any better. Although, the Russia Federation has signed ADR, actual application within the various states does not appear to have taken place. The Commission via trade contracts should

consider assisting the standardization of the dangerous goods transport rules between Europe and the Russian Federation and the CIS republics.

2.12 Country Analysis

Council Directive 99/36/EC on transportable pressure equipment (TPED) appears to have given rise to confusion. The Directive has not yet been applied in most Member States and there is every likelihood that many of its provisions are addressed in the UN Model Regulations for UN approved cylinders. It is perhaps worth considering revoking a regional system in favour of the international multimodal system of the UN, provided certain saving clauses permitting mutual recognition are retained.

Again it is understood that this was considered by the TDG Committee on 24 November 2004, although no decision was made. Many Member States need to co-ordinate better at the national level between the modal agencies in their countries.

2.13 Role of the European Commission

The European Commission team responsible for the transport of dangerous goods is small and the available resources, in the view of the consultants, is limited. Therefore the role should be to ensure that Member States:

- implement and apply the Directives in a standard and consistent manner,
- promote projects that would be of benefit to all Member States that the Commission could oversee, such as risk analysis and research into the problems such as harmonized limited quantities, and
- act as a point for liaison and analysis of problems. In this respect the consultants consider that the number of meetings held each year (normally two) and their duration is insufficient to consider all the issues. This is highlighted by the fact that the derogations have not been analysed, an informal group developed the new form for Uniform Procedures, and the security provisions are presenting difficulties.
- Ensure greater co-operation in the fields of enforcement particularly at a multimodal level. Such co-operation should attempt to set down standard enforcement regimes. In addition the co-operation should

extend to ensuring standard application of testing and approval schemes for items such as packagings, tanks etc. Most member states felt that there should be more co-operation and the Commission could assist in this area.

There is a need for better co-ordination within the European Commission concerning dangerous goods regulation. At the moment it would appear that Directorate General for Transport and Energy including the Directorate dealing with Class 7, DG Enterprise and Industry and DG Environment all play roles in dangerous goods regulations. Closer co-operation is needed both for the benefit of regulators and industry.

3 STATISTICAL OVERVIEW

3.1 Dangerous Goods Transport Data

The reason for the statistical analysis of transport data was to give a clear picture of dangerous goods transport in Europe showing the development of such traffic in each Member State in the period 1990 to 2002:

- carried (tonnes transported) and
- moved (tonne-kilometres performed)

The transport modes covered are road, rail and inland waterways. The geographical scope of the study was limited to the 15 EU countries, Norway and Switzerland, and the ten Accession States (Latvia, Lithuania, Estonia, Poland, Hungary, Slovenia, Czech Republic, Slovakia, Malta and Cyprus).

In most countries, transport statistics of dangerous goods exist only for (the mode) road as part of the annual road transport surveys. Although the two Council Regulations of the European Union (EU) have recently included the dangerous goods classification for road and rail transport in the European framework, today only few data are available at the European level. In the New Cronos database provided by Eurostat for example, data on dangerous goods are available only

- for goods moved (tonne-kms),
- for road transport,
- for the time period 1999-2002,
- for the 15 EU Member States excluding Greece and including Norway,
- and are highly aggregated showing one value per year, reporting country and dangerous goods class.

In addition to the data available in the New Cronos database, national statistics for the transport of dangerous goods exist but they vary considerably between the Member States regarding:

- the transport modes covered,
- the time period covered,
- the geographical limits,
- the part of the journey covered, etc.

Therefore in order to meet the detailed objectives of the study, a new approach was developed which covers the whole period 1990-2002, all three transport modes and all Member States in one coherent approach. The main

idea of the approach was to combine the time series data available in the New Cronos database of Eurostat of goods carried and moved with the INTRASTAT database of Eurostat of trade between the Member States and third countries. From the New Cronos database the amount of goods carried and moved is available, but the sectoral classification according to the Standard Goods. Classification for Transport Statistics into 24 commodity groups is too vague to map the commodity groups directly to the dangerous goods classes. For this mapping the Comext trade statistics is used from which the distribution of the dangerous goods classes inside the 24 NST/R groups can be estimated. For this purpose a transportation table from the Combined Nomenclature (CN) of trade statistics to the dangerous goods classes and, to the 24 NST/R commodity groups was established and successfully applied.

3.2 Results 1990-2002

The following is an overview of the results achieved. Concentration is only on the main developments and results consider only the amount of dangerous goods moved (tonne-kms).

3.2.1 Dangerous Goods Transport by Mode

The development of the transport of dangerous goods in the EU-15 by mode is shown in Figure 1. From 1990 to 2002 the transport of dangerous goods has increased from 98.3 billion tonne-kms in the year 1990 to 111.1 billion tonne-kms in the year 2002 (+13.0%). The highest increase was by road (+27.4%), followed by inland waterways (+11.1%) and rail (-9.4%). The market share of road transport in all transport of dangerous goods has increased from 51% in 1990 to 58% in 2002.

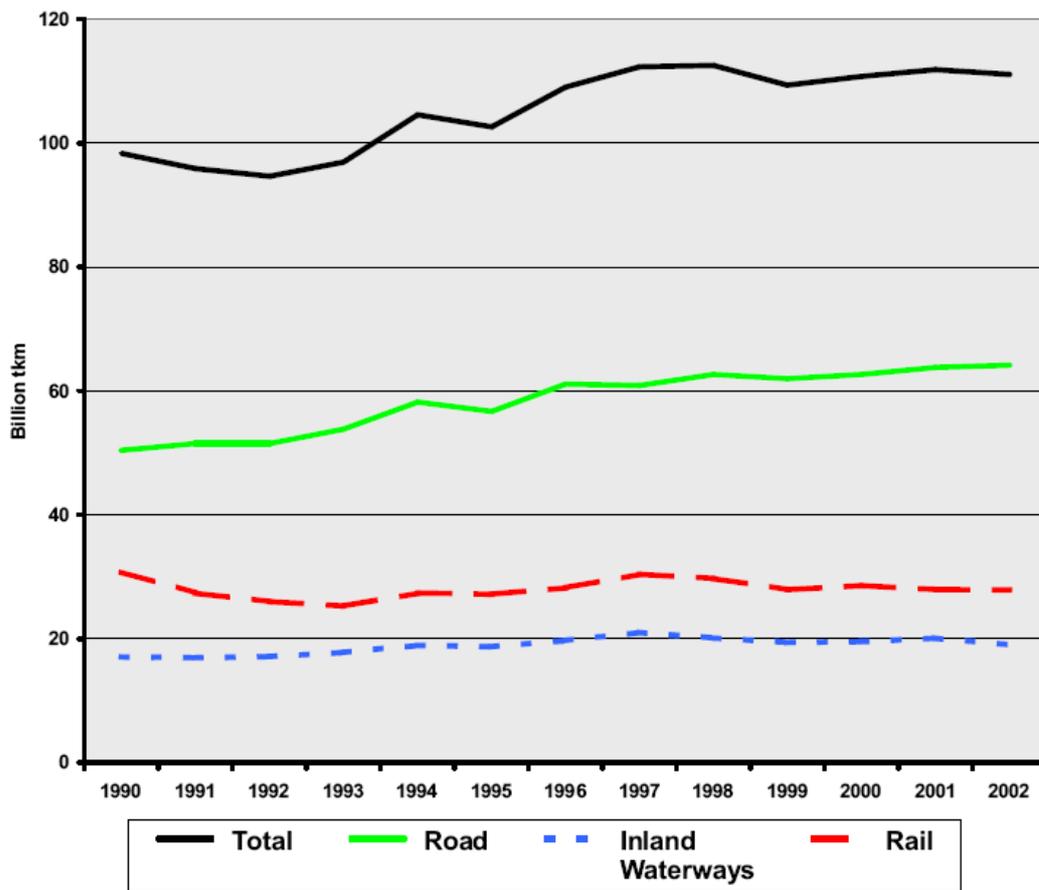


Figure 1 Development of Dangerous Goods Transport in the EU 15 by Mode in billion tonne-kms (Based on data from the New Cronos database and INTRASTAT database of Eurostat + Comext trade statistics).

3.2.2 Share of Dangerous Goods Transport by Mode

The development of the share of transport of dangerous goods in the EU-15 in total transport (dangerous and non-dangerous goods) is shown in figure 2. From 1990 to 2002 the share of dangerous goods has decreased from 9.1 % to 7.8 % meaning that transport of dangerous goods is increasing more slowly than the whole transport market. The growth rate from 1990 to 2002 for the total market is 31 % whilst dangerous goods increased by 13 %, only.

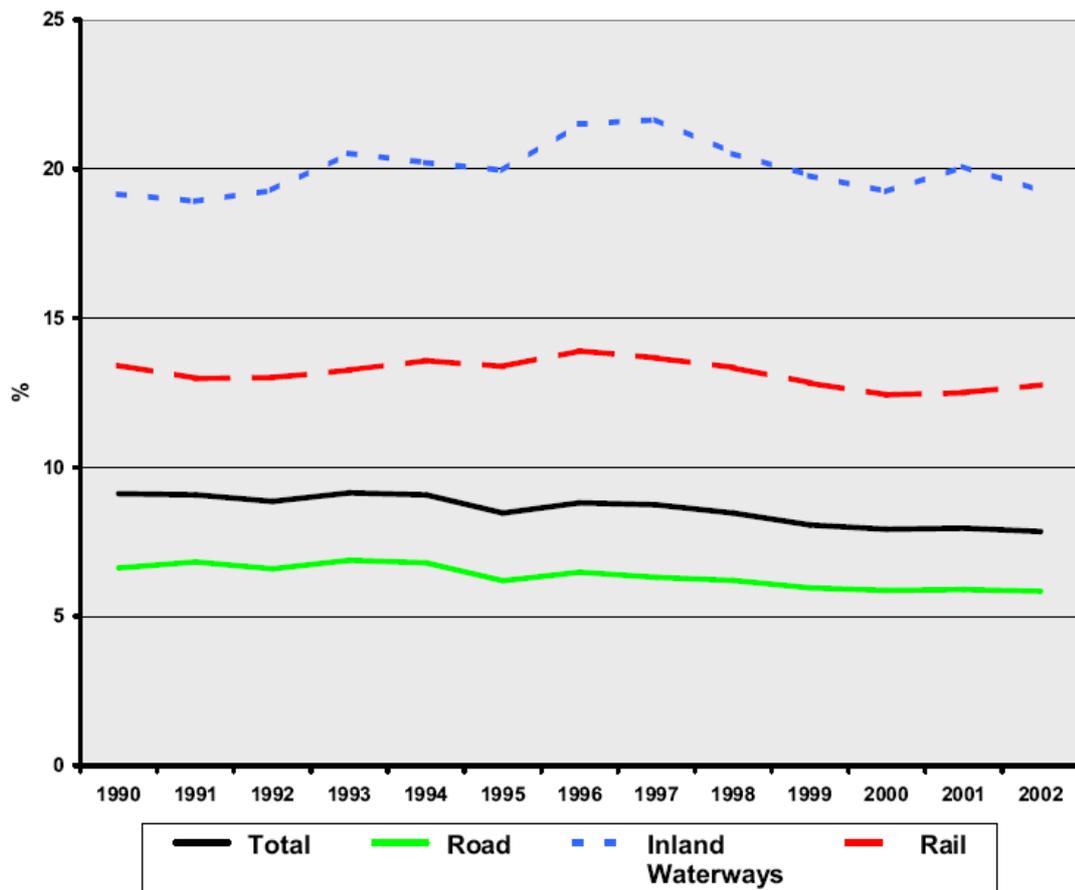


Figure 2 Development of the Share of Dangerous Goods of Total Goods Transported in the EU 15 by Mode (Based on data from the New Cronos database and INTRASTAT database of Eurostat + Comext trade statistics).

3.2.3 Dangerous Goods Transport by Class and Mode

According to Table 1 “Petroleum Products” are by far the most important dangerous goods class including 54 % of all dangerous goods moved in 2002. The next important classes are “Gasses” (12 %), “Flammable liquids” (10 %, belonging to class 3, but no petroleum products) and “Corrosive substances” (8 %). Nearly 85 % of all dangerous goods are included in these four most important dangerous goods classes. Transport of classes 5.2 “Organic peroxides”, 6.2 “Infectious substances” and 7 “Radioactive material” are not reported.

For dangerous goods class 1, explosives, transport volumes are higher than production in the EU, which amounts to about 0.3 to 0.4 million tonnes

per year. This is due to a remarkable level of imports, probably from East Asia, and their consequential effect on distribution.

Table 1 Development of Dangerous Goods Transport in the EU 15 by Dangerous Goods Class and Mode in billion tonne-kms (Based on data from the New Cronos database and INTRASTAT database of Eurostat + Comext trade statistics).

Dangerous Goods Classes	Total				Road			
	1990	1994	1998	2002	1990	1994	1998	2002
10 Explosives substances and articles	0.5	0.5	0.7	0.8	0.4	0.4	0.5	0.7
20 Gases	10.0	10.8	15.4	13.8	5.3	5.5	8.2	7.7
30 Flammable liquids	16.8	9.9	10.3	10.7	4.5	5.8	5.9	5.9
31 Petroleum Products	50.3	57.6	57.7	60.3	27.2	31.8	31.7	34.3
41 Flammable solids	2.8	2.9	4.2	3.4	1.1	1.4	2.0	1.5
42 Substances liable to spont. combustion	0.9	2.1	2.1	2.9	0.7	1.8	1.6	2.6
43 Substances emitting flammable gases	0.3	0.3	0.5	0.4	0.2	0.2	0.4	0.3
51 Oxidising substances	1.1	1.6	2.0	1.8	0.8	1.1	1.6	1.4
61 Toxic substances	1.0	3.8	4.5	4.0	0.4	1.6	1.9	1.8
80 Corrosive substances	9.2	8.5	9.5	8.9	6.5	5.8	6.2	5.7
90 Miscellaneous dangerous substances	5.3	6.5	5.7	4.1	3.3	2.9	2.7	2.3
00 Total	98.3	104.5	112.6	111.1	50.4	58.2	62.7	64.2

Dangerous Goods Classes	Rail				Inland Waterways			
	1990	1994	1998	2002	1990	1994	1998	2002
10 Explosives substances and articles	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0
20 Gases	3.8	4.1	5.7	4.5	1.0	1.3	1.5	1.5
30 Flammable liquids	11.4	3.3	3.2	3.5	1.0	0.8	1.2	1.4
31 Petroleum Products	9.9	11.2	11.8	12.8	13.2	14.6	14.2	13.2
41 Flammable solids	1.6	1.1	1.7	1.5	0.2	0.4	0.6	0.4
42 Substances liable to spont. combustion	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.2
43 Substances emitting flammable gases	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
51 Oxidising substances	0.3	0.4	0.3	0.3	0.0	0.1	0.1	0.1
61 Toxic substances	0.5	2.0	2.2	1.9	0.1	0.2	0.3	0.3
80 Corrosive substances	1.8	1.9	2.2	2.0	0.9	0.8	1.1	1.2
90 Miscellaneous dangerous substances	1.4	3.0	2.3	1.1	0.7	0.6	0.7	0.7
00 Total	30.8	27.4	29.7	27.9	17.1	18.9	20.1	19.0

3.2.4 Dangerous Goods Transport by Member State and Mode

In Table 2 the amount of dangerous goods transported per Member State and transport mode is shown. Most significant are Germany, followed by France, Italy, the Netherlands, the United Kingdom and Spain.

Table 2 Development of Dangerous Goods Transport in the EU 15 by Member State and Mode in billion tonne-kms (Based on data from the New Cronos database and INTRASTAT database of Eurostat + Comext trade statistics).

Member States	Total				Road			
	1990	1994	1998	2002	1990	1994	1998	2002
BE Belgium	4.3	5.1	4.9	4.9	1.2	2.0	2.0	2.3
DK Denmark	1.1	1.1	1.0	1.0	1.0	1.1	0.9	0.9
DE Germany	34.9	37.8	39.4	35.4	8.3	12.8	14.4	12.5
GR Greece	1.1	1.2	2.6	2.6	1.0	1.2	2.5	2.5
ES Spain	7.8	7.9	10.0	12.2	6.7	7.3	8.6	10.9
FR France	12.0	13.1	15.7	14.4	5.9	7.0	8.6	8.3
IE Ireland	0.3	0.4	0.4	0.9	0.3	0.4	0.4	0.8
IT Italy	11.1	12.3	10.8	11.3	9.9	10.9	9.6	10.3
LU Luxembourg	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1
NL Netherlands	6.2	6.8	7.3	7.8	1.4	1.5	1.5	1.7
AT Austria	1.9	2.0	2.2	2.6	0.8	0.9	0.9	1.0
PT Portugal	1.4	1.5	1.8	1.5	1.4	1.5	1.8	1.4
FI Finland	2.8	3.1	3.6	3.7	2.0	1.9	2.1	2.1
SE Sweden	2.1	2.1	2.3	2.6	1.5	1.5	1.7	2.0
UK United Kingdom	11.3	9.9	10.5	10.2	9.1	8.0	7.9	7.4
EU-15	98.3	104.5	112.6	111.1	50.4	58.2	62.7	64.2

Member States	Rail				Inland Waterways			
	1990	1994	1998	2002	1990	1994	1998	2002
BE Belgium	2.0	2.0	1.7	1.2	1.0	1.1	1.2	1.4
DK Denmark	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
DE Germany	15.8	12.9	12.5	12.1	10.8	12.2	12.5	10.8
GR Greece	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
ES Spain	1.1	0.7	1.4	1.4	0.0	0.0	0.0	0.0
FR France	5.4	5.3	6.2	5.3	0.8	0.8	0.9	0.8
IE Ireland	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
IT Italy	1.2	1.4	1.3	1.0	0.0	0.0	0.0	0.0
LU Luxembourg	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
NL Netherlands	0.5	0.5	0.5	0.4	4.3	4.8	5.4	5.8
AT Austria	0.9	0.9	1.1	1.3	0.2	0.2	0.2	0.4
PT Portugal	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
FI Finland	0.9	1.2	1.6	1.6	0.0	0.0	0.0	0.0
SE Sweden	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
UK United Kingdom	2.2	1.8	2.6	2.8	0.0	0.0	0.0	0.0
EU-15	30.8	27.4	29.7	27.9	17.1	18.9	20.1	19.0

3.2.5 Overall Picture of Dangerous Goods Transport in Europe for the Year 2000

The statistical analysis presented so far has only covered the EU-15 Member States. To obtain a more complete picture of the transport of dangerous goods in Europe, an additional analysis was made for the year 2000 integrating transport in Switzerland, Norway, the Accession States which joined the EU in 2004, as well as Romania and Bulgaria.

The bases of this additional analysis are freight transport flows in the year 2000 established by BVU for all European countries as part of several projects undertaken for the European Commission, mainly:

- SIC! Sustrain Implement Corridor
- EUFRANET European Freight Railway Network.

The freight transport flow matrices give a high quality, consistent picture of the freight transport market in Europe in the year 2000 and are divided by

- Origin and destination (mainly NUTS-2).
- Transport mode (road, rail and inland waterways).
- 10 NST/R commodity groups.

To obtain the amount of dangerous goods carried and moved, the same methodology was used as for the time series data 1990-2002, i.e. from the Comext trade statistics of the year 2000 the distribution of the dangerous goods classes inside the NST/R commodity groups was modelled and applied.

The resulting transport quantities of dangerous goods are shown in table 3. Accordingly, Poland has the most significant transport quantities followed by Slovakia, Hungary and Romania. 9.4 % of all goods moved in the Accession States are dangerous goods (compared to 7.4 % in EU-15).

Table 3 Dangerous Goods Transport for the year 2000 by Country and Mode in billion tonne-kms and % (Based on data from the BVU transport flow statistics + Comext trade statistics).

Country	billion tonne-kms				% of Total Transport Performance			
	Rail	Road	Ship	Total	Rail	Road	Ship	Total
CH Switzerland	1.0	1.3	0.0	2.4	11.4	5.4	42.5	7.1
NO Norway	0.4	1.5	0.0	1.8	14.2	10.4	0.0	11.0
Accession States	24.1	8.2	0.4	32.7	13.7	4.9	11.0	9.4
PL Poland	10.2	4.0	0.0	14.2	13.1	5.4	2.4	9.3
CZ Czech Republik	1.2	1.3	0.0	2.5	5.6	4.1	3.1	4.7
SK Slovakia	4.2	0.2	0.2	4.6	13.8	2.4	23.3	11.2
HU Hungary	2.7	1.0	0.2	3.9	17.7	5.0	19.2	10.6
SI Slovenia	0.1	0.3	0.0	0.4	6.5	7.9	0.0	7.6
RO Romania	2.5	0.6	0.0	3.1	15.7	4.9	1.5	10.9
BG Bulgaria	1.6	0.3	0.0	1.9	26.8	3.5	0.0	13.1
LT Lithuania	1.1	0.3	0.0	1.3	37.4	8.0	0.0	21.3
LV Latvia	0.1	0.1	0.0	0.2	3.2	5.6	0.0	4.4
EE Estonia	0.4	0.0	0.0	0.5	26.9	3.6	0.0	15.9

4 CONCLUSIONS

This short summary of the Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 –report tries to clear the current situation of EU Policy on the transport of Dangerous Goods. It also tries to give a picture of dangerous goods transport in Europe showing the development of such traffic in each Member State. These figures give direction for DaGoB surveys, but in DaGoB we have to collect more accurate data on DG transport. Dangerous Goods need to be divided into classes more accurately and also different transport modes have to be presented more thoroughly. The statistics presented in the Final Report, can however be used as a comparison to statistics collected within DaGoB project.

Larger contribution of the Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 –report is however in the Policy Overview. After reading the report people can understand the realism of incident reporting in EU, as well as the actual value of safety advisers or the regulation amendments. As a conclusion we can say that the regulation issues are not very clear in the EU. There are too many different directives and amendments, which probably doesn't have any impact on risk level of dangerous goods transport.

Further debates about the best ways of dealing with these issues need to be discussed in the DaGoB project. For example what is the ideal relationship between EC directives and the UN-ECE-IMO-OTIF system? What is the proportion between joint EU measures and regional initiatives? Also the role of the Baltic agreement/MoU needs to be clarified.

Another important issue in the future will be how to handle security. The Commission should ensure that Member States have made provisions in national legislation to address the subject. The Commission should also assist in the resolution of any problems with the impact of RID/ADR and then maybe leave the provisions to settle down for a few years.

DaGoB experience is likely to have an impact on EU level. Hopefully, through DaGoB project we can contribute to EU regulations by giving examples of what is working and what is not. Because now there is a clear need for better co-ordination within the European Commission concerning dangerous goods regulation. At the moment it would appear that Directorate General for Transport and Energy including the Directorate dealing with Class 7, DG Enterprise and Industry and DG Environment all play roles in dangerous goods regulations. Closer co-operation is needed both for the benefit of regulators and industry.

REFERENCES

Evaluation of EU Policy on the Transport of Dangerous Goods since 1994. TREN/E3/43-2003. Final Report. Section One: Policy Overview (2005) Pira International.
<http://europa.eu.int/comm/dgs/energy_transport/security/goods/policy_en.htm>, retrieved 22.2.2006.

Evaluation of EU Policy on the Transport of Dangerous Goods since 1994. TREN/E3/43-2003. Final Report. Section Two: Statistical Overview (2005) Pira International.
<http://europa.eu.int/comm/dgs/energy_transport/security/goods/policy_en.htm>, retrieved 22.2.2006.

ANNEX

DAGOB

Project rationale

Over 200,000,000 tons of Dangerous Goods (DG) moves in BSR (plus over 100 million tons in NW Russia) mostly through densely populated areas, imposing real health and safety risks to people and environment. DG Transport is regulated in international conventions by modes: RID (rail); ADR (road); MarPol (bulk by sea) and IMDG (unitised by sea), supplemented by EU and/or national regulation. In addition a unique MoU on designated Ro-Ro ships is applied in the BSR.

Despite formal implementation, DG authorities' operational practices vary substantially between and even within countries, causing safety and other problems. No BSR-wide analysis on DG cargo flows or on DG-related accidents exists, nor are there publicly available comparative studies on border-crossing transport chains of DG. Units dealing with DG in BSR Ministries responsible for Transport usually have 2-3 staff preparing national DG legislation. Maritime, Rail and Road Administrations have a similar number of DG specialists in central administration, and a handful of field inspectors in main ports, rail and road districts. Other DG-related authorities comprise e.g. port authorities, coast guard, customs, traffic police and rescue services. Their exposure to international cooperation is limited, and best practice is seldom shared across borders. There is imminent need for better information exchange between DG authorities, and between authorities and the private sector. DaGoB comprises Partners from several DG authorities, ports, universities and industry associations.

Objectives/expected results

DaGoB aims at improving the co-operations between public and private stakeholders related to DG transport in the BSR by connecting the stakeholders on different levels, providing up-to-date information on cargo flows, supply chain efficiency and risks related to DG transport. DaGoB will:

- Promote correct implementation of DG regulations among stakeholders
- Search the information for better control of the DG supply chains

- Provide a risk assessment in the DG supply chain by studying real life transport cases
- Enable better information exchange between public and private sector stakeholders
- Organize joint field and desk exercises to share valuable information in practice
- Disseminate good practices and other produced information on local, national and also EU level
- Provide the first BSR-wide analyses and surveys of DG flows and accidents in the region

DaGoB will also provide a useful tool for both national Ministries responsible for Transport, their units of DG transport and for Central Administration in Maritime, Rail and Road subsectors.

The long term impacts comprise (I) the establishment of a BSR-wide survey of DG flows and accidents that can be updated in follow-up projects; (II) enabling better cross-border working contacts between DG authorities; (III) opening up ways for a better dialogue between DG authorities and private sector operators and industry associations; and (IV) consolidating the cooperation of research entities dealing with DG issues in the BSR.

Dangerous goods transport presents a risk to transport system users, the public, and the environment, but is necessary in today's world. EU Directives covering the transport of dangerous goods have a big role in controlling the different transport modes and they have also proved a valuable addition to safety in the transport and trade of dangerous goods.

Transport of Dangerous Goods comprises a wide variety of commodities governed by international conventions, which together with supplementing EU and/or national regulation are mostly implemented in the Baltic Sea Region.

This publication is part of a DaGoB-project - Safe and Reliable Transport Chains of Dangerous Goods in the Baltic Sea Region. Project aims at improving the co-operations between public and private stakeholders related to Dangerous Goods transport in the BSR by connecting the stakeholders on different levels, providing up-to-date information on cargo flows, supply chain efficiency and risks related to DG transport.

This publication summarizes briefly the content of the Evaluation of EU Policy on the Transport of Dangerous Goods since 1994 - report. It provides merely an overview of the policy and statistics.

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