

The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, Moldova,
Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

EUROPEAID/120569/C/SV/MULTI

Regulation on the Transport of Dangerous Goods along the TRACECA Corridor

Azerbaijan, Georgia, Kazakhstan, Turkmenistan and
Ukraine

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Working Paper 5 Legal and Institutional Framework

August 2007



This project is funded
by the European Union



A project implemented by
NEA and its partners HPTI,
UMCO and Hoyer Gaslog

Report cover page

Project Title:	Regulation on the Transport of Dangerous Goods along the TRACECA Corridor (TRACECA)	
Project Number:	EUROPEAID/120569/C/SV/MULTI	
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1 Introduction

1.1 Background

This Working Paper 5 is part of a series of Working Papers that are prepared as part of the project *Regulation on the Transport of Dangerous Goods along the TRACECA Corridor*. The specific objective of the project is to provide a pre-feasibility study¹, which includes the technical, economic, financial, environmental and legal/institutional appraisal for the transport of Liquefied Petroleum Gas (LPG) through the TRACECA corridor. This report logically follows Working Paper 4 that focuses on safety of transporting LPG, where (international) legal and policy initiatives addressing dangerous goods mainly aim to improve external safety of countries and their citizens and environment involved with transport of dangerous goods.

SE Fireworks Incident

On 13 May 2000, an explosion occurred in a firework storage depot in Enschede, a multicultural and industrial city in the east of the Netherlands with a population of 150,000. The explosion and ensuing fire completely destroyed the surrounding residential district, some forty hectares in area. Twenty-two people were killed outright and almost one thousand were injured. Over 10,000 local residents were evacuated for one or more days, while over 1,200 people lost their homes completely. An estimated 8,000 emergency workers were drafted in to contain the incident, provide immediate aid to survivors and begin initial clearance and reconstruction work. The emergency workers were from the Enschede region, other parts of the Netherlands and even from neighbouring countries (Germany and Belgium).



Picture 1.1 SE Fireworks incident, Enschede, The Netherlands

Based on early discussions with TRACECA officials, the emphasis of this report has been taken from the review of existing legislation on transportation of dangerous goods in TRACECA countries (see Annex I for overview of legislation) to a presentation of legal, policy and institutional best practices on the transportaion and storage of dangerous goods, including LPG.

¹ The Inception Report defines the pre-feasibility status.

These best practises are even more worthwhile because they are the consequences of major accidents with dangerous goods, hence these are the lessons learned from these accidents and can form input for other Governments which have not experienced such accidents but are willing to prevent these. Many examples of best practices in this report come from The Netherlands, which as a result of a devastating accident with dangerous goods in Enschede (The Netherlands, see picture and text above) reconsidered its policies and practices towards working with dangerous goods.

1.2 Contents of the paper

The second chapter of this report concentrates on the international agreements concerning transport of dangerous goods, and the way these agreements have been incorporated in to EU law. It additionally looks at other legal initiatives to improve safety of working with dangerous goods, and how these are implemented in EU Member States. The following two chapters (3 and 4) are dedicated to international regulatory framework for railways transport and maritime transport of dangerous goods, as these two transport modes are mostly relevant for this project.

2 Legal framework of Transport of Dangerous Goods

2.1 Introduction

Nowadays the carriage of dangerous goods is a heavily regulated field and the legal provisions are subject to regular changes and amendments. There are international conventions and agreements in this field. Some of them apply to international carriage, some to domestic carriage as well. The carriage of dangerous goods has also been the subject of comprehensive EU legislation.

In this Chapter we will firstly give an historical overview in order to have a clear picture of the international legal framework of transport of dangerous goods. We will shortly introduce the main international agreements, while leaving some more space for the arrangements for railways and maritime transport in following chapters as these are for this project the main transport modes regarding LPG.

In this chapter we will look to the EU developments concerning transport of dangerous goods, and will additionally look into specific EU legislation concerning safety and working with Dangerous Goods (SEVESO directives).

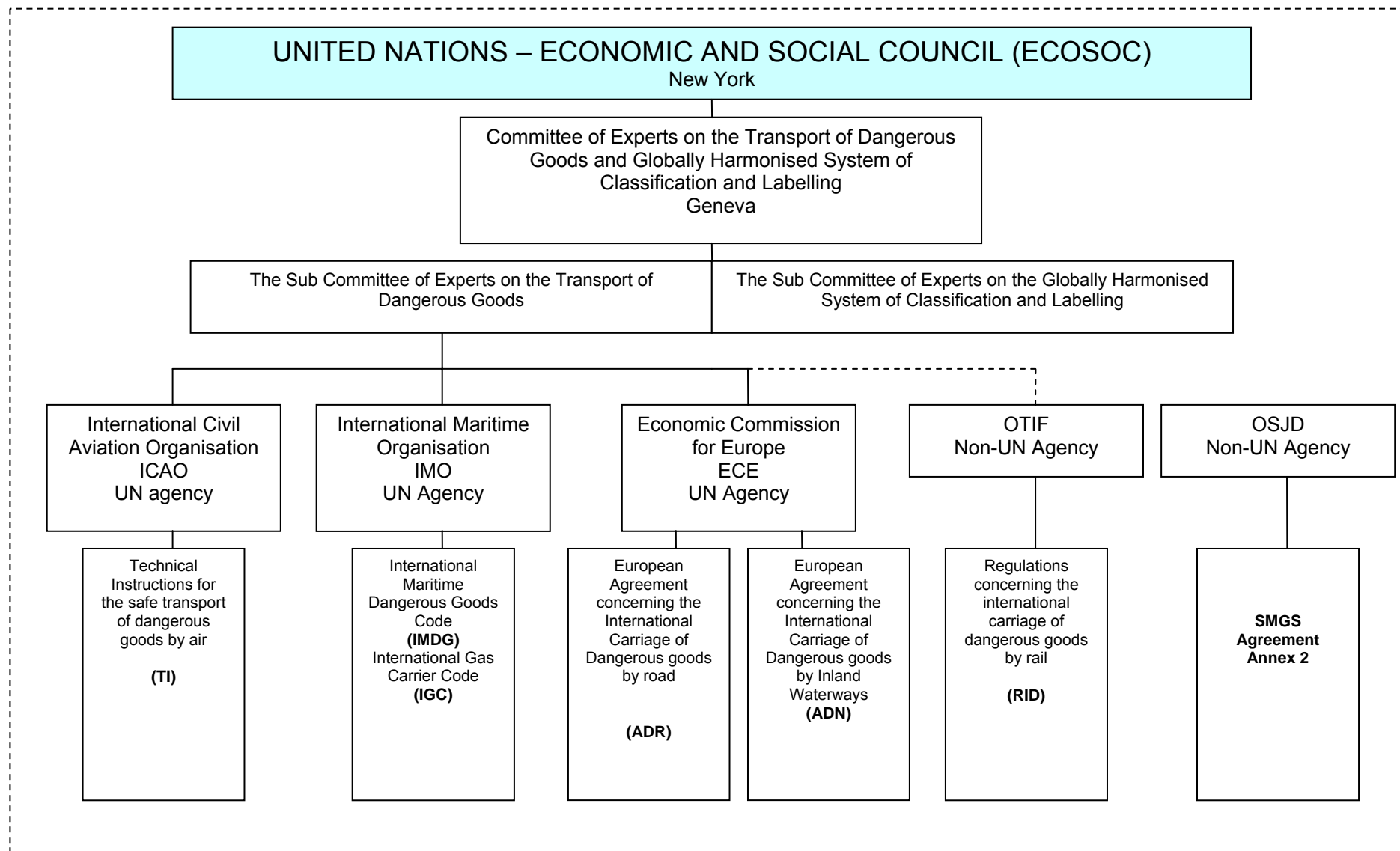
2.2 Historical overview

Dangerous goods transport regulations appeared in some national legislation in the early 19th century and in 1893 international railway rules were drawn up in Europe. These became known as the “RID” (Regulations concerning the international carriage of dangerous goods by rail). Today, these regulations are part of the Convention concerning International Carriage by Rail (COTIF); applicable in most European countries while some in the Middle East and North Africa are also contracting parties.

Prompted by the disastrous loss of the liner Titanic in 1912, and following the First World War, in 1924 the maritime world agreed a first Safety of Life at Sea Convention (SOLAS), which included a chapter on the transport of dangerous goods at sea. SOLAS has been revised on several occasions since, but no detailed provisions concerning dangerous goods transport were included until the first International Maritime Dangerous Goods Code (IMDG) appeared in 1965. Until then, it was left to national governments to impose requirements and only as from 1 January 2004 the IMDG code was made mandatory as part of the international law of the sea.

In 1949 the Berlin Airlift focused the attention of airlines at an international level on the need for controls on dangerous goods carried in commercial aircraft. It was left to the initiative of the airlines’ association, the International Air Transport Association (IATA), to produce a set of Restricted Articles Regulations in 1954, which that body regularly updated and re-issued.

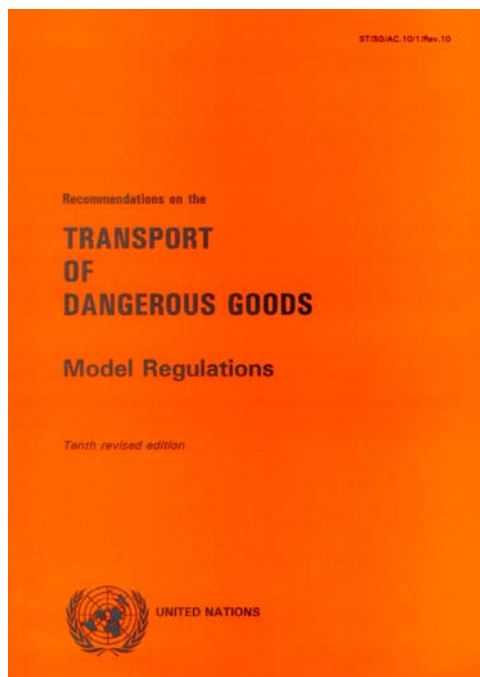
None of these separate modal rules apparently considered what other parties were doing. There was therefore little recognition of intermodal interfaces. So the rules for classification, identification, packaging etc were very different. In 1953, the Economic and Social Council of the United Nations (ECOSOC) in New York established an ad hoc advisory Committee of Experts on the Transport of Dangerous Goods. This Committee produced a first set of multimodal Recommendations on the Transport of Dangerous Goods in 1956. The Council adopted these Recommendations by Resolution and established the Committee on a permanent basis in Geneva in 1959. The Committee has continued to meet ever since, making a biennial report to the Council with amended and extended Recommendations, which the Council endorses. However, for many years the Recommendations made by ECOSOC were not carried through by the modal agencies for surface, sea or air transport even though the various forums had representatives in common. When the International Maritime Organisation was established in 1958 and began work on the IMDG Code, it did use the UN Recommendations as a general basis but maintained or introduced wide scale variations. The UN Economic Commission for Europe (UN ECE) in Geneva, from the mid-1950s, studied road transport, including the transport of dangerous goods. The ADR Convention (The European Agreement concerning the International Carriage of Dangerous Goods by Road) was opened for signature in 1957, but the issue of technical annexes specifying detailed requirements and the coming into force did not occur until 1968. The first technical annexes to ADR originally derived from the then 60 year old RID. When the road regulators began to review the work necessary, it was recognized that there was a close link to rail traffic, since both are surface transport modes and often intimately linked as road vehicles often take goods to or from a railhead.



Thus, since the early 1960s RID and ADR have been closely linked and the common areas of both texts are discussed in a regular “Joint Meeting” of the RID and ADR experts. In the late 1950s when the experts began to draft ADR the work of the ECOSOC Committee was not considered in any detailed way for application in RID or ADR.

For inland waterway traffic, the Treaty of Mannheim (1868) had established a Central Rhine Commission (CCNR) in Strasbourg, although some aspects of this regime dates back to the Congress of Vienna (1815). This Commission was to address navigation rules on the river Rhine and connected waterways, but made no provisions for dangerous goods until 1971. Then a code known as “ADNR” was drawn up, which was in some measure based on parts of RID/ADR. From the 1980s a Danube Commission applied a similar regime in Eastern Europe. The new UN ECE’s AND Agreement concluded in 2000 is intended to apply to all international traffic on European inland waterways, but to date is not yet in force due to insufficient signatory countries.

In the 1970s the various modes began to pay more attention to the work of the UN Committee of Experts and by the end of that decade all the modes recognized some alignment between their rules and the UN system was necessary to avoid duplication and to facilitate trade. The IMDG Code had used many UN principles since it was first published in 1965, but still retained some significant variations. In the case of air transport, the International Civil Aviation Organisation (ICAO) only began to take the transport of dangerous goods seriously following a fatal aircraft crash near Boston in 1973. ICAO established a Dangerous Goods Panel, which decided from the beginning to follow the UN system very closely when producing a first set of internationally mandatory Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) in 1982.



2.3 Orange Book

The Recommendations on the Transport of Dangerous Goods or “Model Regulations”, also widely known as the “Orange Book”, establish a basic system for safe transport of dangerous goods. These “Recommendations” have been incorporated in RID, ADR, the ICAO TIs and IMDG Code. The Recommendations establish concepts to ensure that, prior to consignment, dangerous goods are properly:

- Classified according to one of nine classes
- Identified by means of a “UN number” and a “proper shipping name”
- Packaged, limited quantities etc

- Marked, UN number and proper shipping name etc
- Labelled, the diamond hazard label(s) and orientation label
- Documented, a declaration
- Trained personnel

Table 2.1 Summary of Principles and Recommendations

Principle	Part of the UN Recommendations	Part of RID, ADR and ADN	Contents
	Part 1	1	Definitions and training, including in RID/ADR/AND the DGSA (but not driver training); includes transport security
Classification	Part 2	2	Detailed procedures on how to classify substances (including mixture and wastes) and articles for all classes of dangerous goods.
Identification	Part 3	3	This is the "Dangerous Goods list" and provides the key to most consignments of dangerous goods. This part also includes limited quantity provisions.
Packaging	Part 4	4	The day to day packing provisions, including tanks and pressure receptacles
Consignment procedures (Marking, labeling and documentation)	Part 5	5	Procedures for marking and labeling packages (and transport units) and preparing documentation. In ADR it includes "instructions in writing" for emergency response.
Construction and approval requirements for all packaging types	Part 6	6	Details the specifications for constructing all packaging, tanks etc. In addition it lays down procedures concerning approvals, but the detail usually remains with the Competent Authority in each government.

Table 2.2 Operational requirements

Operational Requirement	Part of the UN Recommendations	Part of RID, ADR and ADN	Contents
Transport Operations	Part 7	7	Primarily concerned with stowage and segregation of dangerous goods
Vehicle crews and equipment		8	ADR and AND only, equipment for vehicles, and includes driver training
Vehicle construction requirements		9	ADR/technical specifications and equipment for vehicles AND construction requirements

2.4 EU regulation

EU legislation governing the transport of dangerous goods covers road and rail modes only, for both international and national transport. For those modes, the EU legislation ensures a high level of transport safety, free provision of transport services and free movement of the means of transport in the territory of the EU. No European rules exist for dangerous goods transport by inland waterway and maritime transport. EU legislation completes the international regulations by making the rules of the international agreements apply also to national transport in the territory of the EU. Community law consists of the following rules for dangerous goods transport.

International agreements ADR and RID have been introduced into Community law in two pieces of legislation, so-called framework directives:

- Council Directive 94/55/EC of 21 November 1994 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road;
- Council Directive 96/49/EC of 23 July 1996 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by rail.

It should be noted that the Commission put forward in 1997 a proposal for a Directive of the European Parliament and of the Council on the approximation of the laws of the Member States with regard to the transport of dangerous goods by vessels on inland waterways⁸, which was amended in 1999. The proposal was never adopted, because the ADN agreement was not concluded as expected. The proposal was withdrawn in 2004.

In connection with the framework directives, two particular directives for dangerous goods safety advisers have been adopted, which cover all three land transport modes:

- Council Directive 96/35/EC of 3 June 1996 on the appointment and vocational qualification of safety advisers for the transport of dangerous goods by road, rail and inland waterway;
- Directive 2000/18/EC of the European Parliament and of the Council of 17 April 2000 on minimum examination requirements for safety advisers for the transport of dangerous goods by road, rail or inland waterway

Finally, there are four Commission Decisions granting national derogations for Member States from the basic Directives 94/55/EC and 96/49/EC:

- (1) Commission Decision 2005/263/EC of 4 March 2005 authorising Member States to adopt certain derogations pursuant to Directive 94/55/EC with regard to the transport of dangerous goods by road;
- (2) Commission Decision 2005/903/EC of 13 December 2005 amending Decision 2005/263/EC on authorising Member States to adopt certain derogations pursuant to Directive 94/55/EC with regard to the transport of dangerous goods by road;
- (3) Commission Decision 2005/180/EC of 4 March 2005 authorising Member States to adopt certain derogations pursuant to Council Directive 96/49/EC with regard to the transport of dangerous goods by rail;
- (4) Commission Decision 2005/777/EC of 13 October 2005 amending Decision 2005/180/EC on authorising Member States to adopt certain derogations pursuant to Council Directive 96/49/EC with regard to the transport of dangerous goods by rail.

At this moment the only Council Directive for transport of dangerous goods which is not based on an international agreement is Council Directive 95/50/EC of 6 October 1995 on uniform procedures for checks on the transport of dangerous goods by road. This provides for a common list of points to be checked and the issuing of a copy of the report on the road check carried out. This is for the information of any authorities carrying out a second road check, either in the same Member State or another one.

An additional very important directive for dangerous goods is the so called SESEVO II Directive, which will be discussed later in this chapter.

With ADN soon to enter into force, the development of two different regimes should be avoided: one for international and one for national transport. The rationale for incorporating international road and rail

agreements into Community law, namely to extend these rules to national transport as well, is equally valid for inland waterways. In multimodal transport operations, it is undesirable to maintain separate sets of rules for each mode, which a user of these operations will have to respect. Wherever possible, the rules should be identical, as is the objective of the UN Recommendations.

For historic reasons the existing EU legislation on the transport of dangerous goods is rather complicated. Mode-specific pieces of legislation contain unnecessary inconsistencies. Moreover, some of the provisions are already, or will soon become, obsolete. Two directives can be considered superfluous, since their provisions have been incorporated into ADR, RID and ADN.

Apart from the foregoing issues of substance, a technical problem has been encountered, which is linked to the current structure of the existing directives. Each time a revision of the international agreements takes place, at two-year intervals, the directives require the provision of full translations of the voluminous technical annexes, which has proved extremely difficult, if not impossible to achieve.

If nothing is done, the problems outlined above will remain and be exacerbated: the current complex rules are likely to become more complex with changes in international agreements; obsolete rules will remain and confuse users; the risk of non-compliance will increase. The EU rules may well become less rather than more user-friendly. With increasing use of multimodal concepts, different rules for different transport modes will cause even more practical daily problems for multimodal operations and increase costs unnecessarily. In inland waterway transport, different rules for international and national transport will hamper the development of this mode, which would otherwise, on the basis of statistics, be the preferable mode in many cases.

The proposal provides for simplification of legislation and of administrative procedures both for public authorities (EU or national) and for private bodies.⁵ The proposal means a substantial simplification of Community law in the field of dangerous goods transport, although the scope of the legislation would be extended. All three land transport modes would be covered by only one piece of legislation. The new directive would repeal existing Directives 94/55/EC and 96/49/EC, as amended, on the transport of dangerous goods, Directives 96/35/EC and 2000/18/EC on dangerous goods safety advisers, and Commission Decisions 2005/263/EC and 2005/180/EC, as amended, on national derogations from Directives 94/55/EC and 96/49/EC. Finally, the international agreements on dangerous goods transport would only be referred to in the annexes to the directive, not included as at present. This would reduce the Community acquis by about 2000 pages.

Simplified Community legislation would simplify the transposition of Community law into national legislation. The enforcement authorities' work, including reporting, would be made simpler and more effective by harmonising the rules governing transport of dangerous goods.⁴

Administrative procedures for all participants in dangerous goods transport, from consignor to consignee, would be easier with simplified and harmonised rules. Documentation of transport operations and vehicles would also be simpler with harmonised rules, as would the training of persons involved and the work of dangerous goods safety advisers.

2.4.1 The EU SEVESO directives

The "Seveso" accident happened in 1976 at a chemical plant in Seveso, Italy, manufacturing pesticides and herbicides. A dense vapour cloud containing tetrachlorodibenzoparadioxin (TCDD) was released from a reactor, used for the production of trichlorofenol. Commonly known as dioxin, this was a poisonous and carcinogenic by-product of an uncontrolled exothermic reaction. Although no immediate fatalities were reported, kilogramme quantities of the substance lethal to man even in microgramme doses were widely dispersed which resulted in an immediate contamination of some ten square miles of land and vegetation. More than 600 people had to be evacuated from their homes and as many as 2000 were treated for dioxin poisoning.

In 1982, Council Directive 82/501/EEC on the major-accident hazards of certain industrial activities (OJ No L 230 of 5 August 1982) – so-called Seveso Directive – was adopted, followed in December 1996 by the new Council Directive 96/82/EC. Council Directive 96/82/EC (SEVESO II) is aimed at the prevention of major accidents involving dangerous substances, and the limitation of their consequences. The provisions contained within the Directive were developed following a fundamental review of the implementation of Council Directive 82/501/EEC (SEVESO I).

In particular, certain areas were identified where new provisions seemed necessary on the basis of an analysis of major accidents which have been reported to the Commission since the implementation of SEVESO I. One such area is management policies and systems. Failures of the management system were shown to have contributed to the cause of over 85 per cent of the accidents reported.

Against this background, requirements for management policies and systems are contained in the SEVESO II Directive. The Directive sets out basic principles and requirements for policies and management systems, suitable for the prevention, control and mitigation of major accident hazards. The Directive sets out two levels of requirements corresponding to 'lower tier' and 'upper tier' establishments. There is a requirement for lower tier establishments to draw up a Major Accident Prevention Policy (MAPP), designed to guarantee a high level of protection for man and the environment by appropriate means including appropriate management systems, taking account of the principles contained in Annex III of the Directive. The operator of an upper tier establishment (covered by Article 9 of the Directive and corresponding to a larger inventory of hazardous substances) is required to demonstrate in the 'safety report' that a MAPP and a Safety Management System (SMS) for implementing it have been put into effect in accordance with the information set out in Annex III of the Directive.



Picture 2.1 The Seveso incident in Italy

In effect, the requirements for policies and management systems which apply to a lower tier establishment are similar to those for an upper tier establishment except that:

- the Directive states that the requirements should be proportionate to the major-accident hazards presented by the establishment, which is considered to introduce more flexibility;
- it is not necessary to prepare a detailed report for demonstrating how the Safety Management System has been put into effect;
- the document setting out the MAPP must be 'made available' but need not necessarily be sent to the competent authorities.

The particular circumstances of a given establishment will mean that in many cases some of the measures proposed here will be required in more or less detail as appropriate. In the document which follows, the term "where appropriate" is used for the most significant of these cases, but should be understood to apply implicitly throughout. In certain cases, there may be aspects specific to the establishment which require the consideration of particular points not set out here.

2.4.2 SEVESO implementation in The Netherlands

Article 12 of the EU's Seveso II Directive stipulates, among other things, that Member States must ensure that the objectives of the directive – to prevent major accidents involving dangerous substances and to limit the human and environmental consequences of such accidents – are taken into account in:

- decisions on the siting of new establishments or modifications to existing establishments,
- decisions on new developments in the vicinity of existing establishments.

In the Netherlands, this article has been implemented in national legislation by means of the External Safety (Establishments) Decree. The decree regulates the environmental quality requirements to be set for external safety when land-use planning decisions are taken and when environmental permits are issued for high-risk establishments. It also provides guarantees that, whenever decision-making in these areas impacts on the probability of a disaster occurring and claiming many victims, the procedures will be transparent for the general public.

The decree applies to establishments that fall within the scope of the Hazards of Major Accidents Decree of 1999 (BRZO); stevedoring establishments where dangerous substances are stored as part of the transport process; LPG filling stations; CPR 15-2 and -3 storage depots and establishments containing large-scale ammonia cooling installations. The scope of the decree can be extended by order in council to include other establishments with an external location-based risk exceeding 10^{-6} per annum (such as propane gas storage depots and certain railway marshalling yards). The decree does not apply to operators handling fireworks or storing explosive substances or objects, unless they are subject to the Hazards of Major Accidents Decree.

Firstly, the decree imposes limit values for the location-based risk to vulnerable objects. The distinction between vulnerable and less vulnerable objects is relevant only to location-based risk, not to societal risk. The term 'vulnerable objects' means residential properties and equivalent premises, such as schools and hospitals. A limit value is a minimum standard to be achieved by a given date and to be maintained thereafter. Limit values must be 'observed' and not exceeded. In setting the limit value, a distinction is drawn between existing and new situations (10^{-5} per annum for the first and 10^{-6} per annum for the second). An existing situation is one where an object is present or permissible under the current development plan.

Secondly, the decree imposes a target value for the location based risk to less vulnerable objects. This term means, for example, workplaces employing relatively few people, such as offices with fewer than 50 members of staff and industrial or commercial premises which themselves pose no risk to the surrounding area and which are generally not occupied by large numbers of people for large parts of the day. A target value is a standard to be achieved so far as possible by a specified date and to be maintained so far as possible thereafter. Authorities must take the target value for location-based risk into account when issuing environmental permits for establishments where dangerous substances are to be stored, produced, processed etc, and also when making land-use planning decisions relating to the area surrounding such an establishment. Target values must be taken into account and may only be exceeded when there are compelling reasons for doing so.

The decree includes definitions of location-based risk and societal risk. Location-based risk is defined as the risk to individuals in a particular place, expressed as the annual probability of dying in the vicinity of an establishment where dangerous substances are (legally) present as a direct result of an on-site accident involving those substances. The decree establishes environmental quality standards in the form of limit values for location-based risk, e.g. 10^{-6} per annum for vulnerable objects and for sites in the process of remediation. Where the location-based risk for an existing vulnerable object is between 10^{-5} and 10^{-6} per annum, a standstill provision applies: i.e. the establishment concerned may not be modified in any way that will have the effect of increasing that risk. These limit values are primarily binding on the public authorities concerned. Like the duty to explain decisions relating to the level of societal risk, their function is to guarantee a basic level of protection against the risks associated with activities involving dangerous substances in establishments.

The duty to explain decisions relating to the level of societal risk in the vicinity of potentially dangerous establishments means that public authorities provide access to information about their choices in this respect. Members of the public can force compliance with the decree via the courts.

Societal risk takes account of population density in the vicinity of a high-risk activity and expresses the probability of a given minimum number of fatalities occurring as a result of a single accident involving dangerous substances. The focus is on large scale mortality in case of an accident. When taking the kinds of decisions specified in the decree, provincial and municipal authorities must explain how they have taken account of societal risk in the decision-making process. They must also explain the effect of the environmental licence issued or the relevant planning decision on the societal risk. The explanation must include information on what the affected population can do to protect themselves and on the plans

for emergency response in the event of an accident. The fire services have powers to advise in this respect.

Because the decree also applies to the adoption of development plans and the granting of exemptions from these, parts of it are based on the Spatial Planning Act. The Act makes municipalities responsible for land-use planning in their areas, and hence for guaranteeing adequate safety in the vicinity of potentially dangerous establishments. Much of this work is done by way of development plans, which determine how land can be developed and used. A municipality may only designate a piece of land for a high-risk activity in an establishment as referred to in this decree if the associated risks to the vicinity do not exceed the limit values laid down in the decree. In addition, the municipality must judge whether those risks are socially acceptable.

The competent authority can designate a safety zone surrounding the site of an individual high-risk establishment or group of such establishments, for example on an industrial estate. The authority must base the designation of any such zone on the current 10-6 contour calculated when issuing environmental permits to the individual establishments. However, it can take account of any relevant developments that may reasonably be expected to occur in future and of the possible accumulation of location-based risks where more than one establishment is present. This allows the competent authority to reserve space for the industrial estate to expand and to absorb any consequent increase in the risk posed. Once this safety zone has been designated in the development plan, house-building or the Construction or establishment of other vulnerable objects or of less vulnerable objects with no functional connection to the relevant establishments or to the area will not longer be permitted within the zone. When designating the safety zone, the competent authority can also choose to reduce the level of risk that establishments are allowed to pose and to modify the environmental permits of the relevant establishments accordingly. Once a safety zone has been designated, the limit values for location-based risk no longer apply within it. However, this is on condition that all vulnerable or less vulnerable objects or premises other than high-risk establishments currently present within the zone or permitted to be established there have a functional connection with one or more of the high-risk establishments in the relevant area or with the relevant area around which the zone has been designated.

3 Railways

3.1 Introduction

Rail is currently a very important transport mode for LPG transport. On the Traceca Corridor Railway transport combined with maritime transport are currently the only logical and feasible alternatives for cargo transport including LPG transport. In this chapter the two international legal frameworks are described, OTIF and OSJD, and their differences. The last part of this chapter focuses on the Dutch policy of transport of dangerous goods by rail. As The Netherlands is very densely populated, it is very much smaller than Kazakhstan but has a larger population, the safe transport of dangerous goods by rail has a high priority in this country. Accidents as in Ukraine, see below, can however still occur, as in July 2007 in The Netherlands an LPG train and a passenger train almost collided.

Ukraine Rail Crash

On July 16 2007, 15 tankers filled with yellow phosphorus, a toxic and highly flammable chemical, derailed and six tankers leaked, sparking a fire and causing a large toxic cloud to form over the region. More than 1,000 people living in nearby villages evacuated the area, and by July 19, 145 people were hospitalized. Ukraine's Transport and Communications Ministry has said that safety violations were to blame for the accident. In a statement on July 23, the ministry said that some of the tankers exceeded the permissible cargo limit by 5 tons and that the water level of some of the tankers did not comply with safety standards.

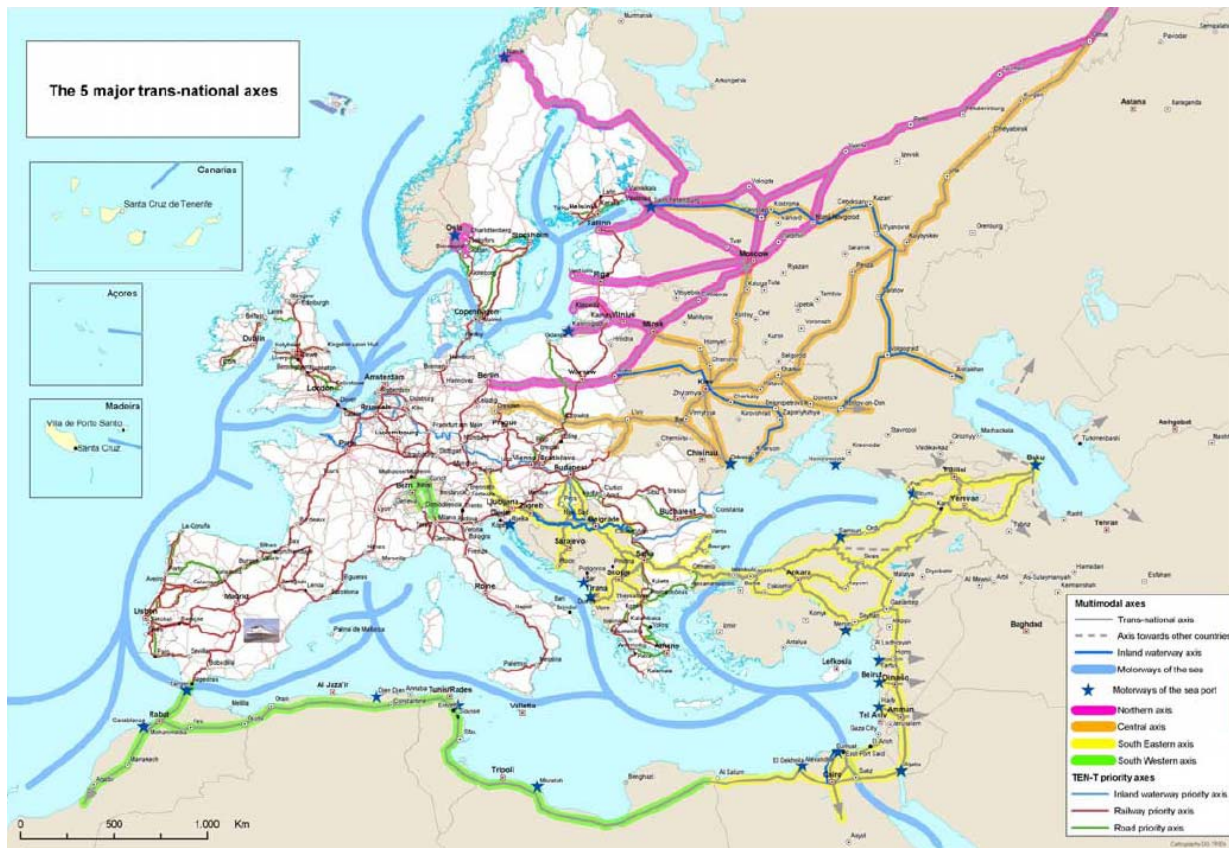


3.2 EU, neighbouring regions and railways

The European Commission published in January 2007 its Communication to the Council and European Parliament "Extension of the major trans-European transport axes to the neighbouring countries, Guidelines for transport in Europe and neighbouring regions"². An important objective for the external policy of the European Union (EU) is to facilitate the spread of the Union's policies, such as the internal market principles and rules, to the neighbouring countries. This is clearly underlined in the recently adopted Communication on the 'Strengthening of the European Neighbourhood Policy'¹. In the transport sector, the aim is to ensure that legislation, standards and technical specifications of our main trade partners are compatible with those of the EU and thus contribute to the achievement of the Lisbon agenda by encouraging trade and sustainable growth as well as social cohesion. This Communication

² COM (2007) 32 final, Brussels, 31/01/2007

outlines the first steps of a comprehensive policy for closer integration of the EU transport system with the neighbouring countries. The policy focuses on the main infrastructure used by international transport and on the relevant legislation affecting the use of these routes by all transport modes; over time this approach may lead to the development of common rules and regulations for the transport sector as a whole and thus create an effective transport market involving the EU and its neighbours.



Map 3.1 Transnational axes

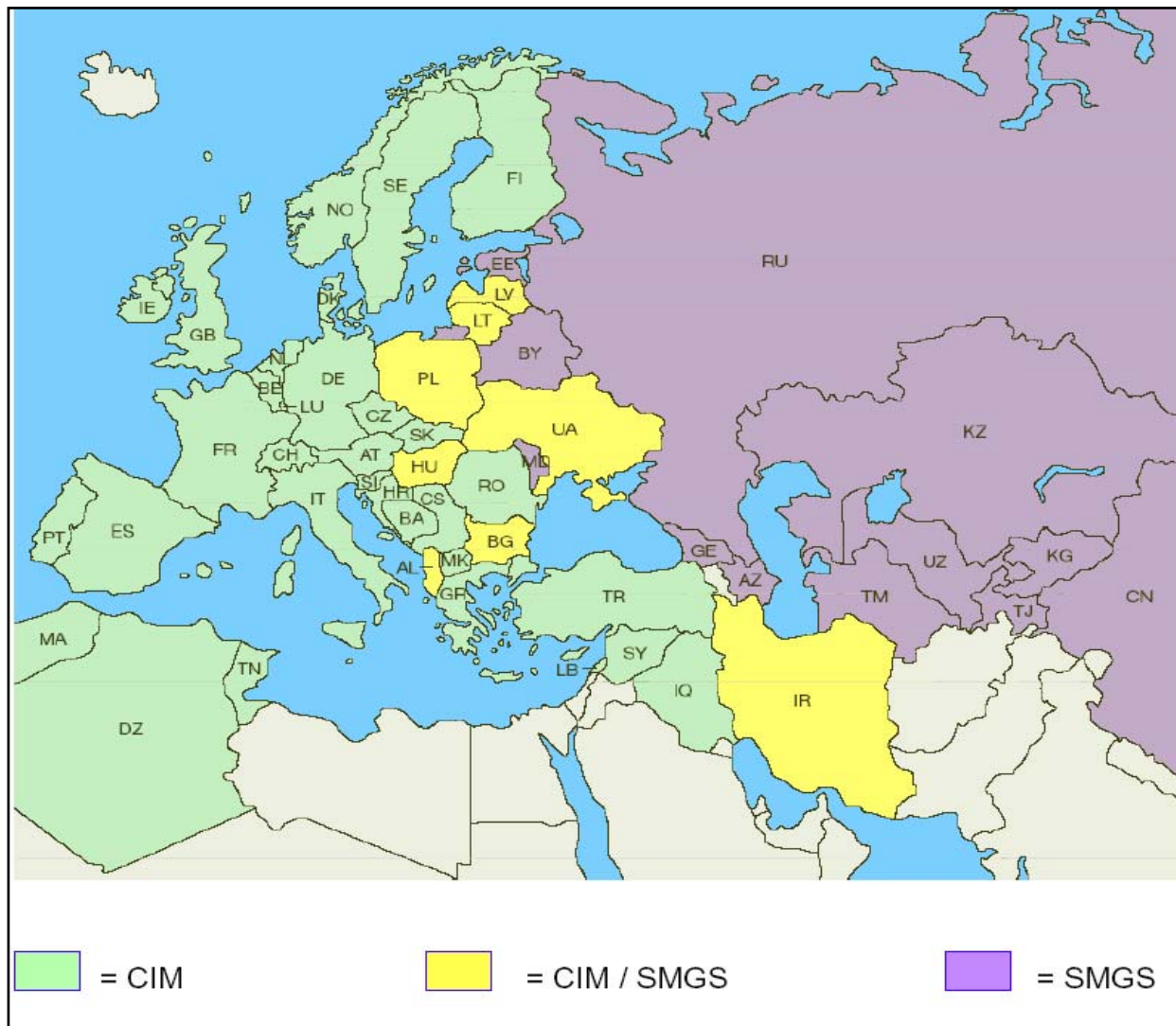
The communication proposes 5 trans-national axes for the transport between EU and neighbouring regions (See map 3.1 above):

1. Motorways of the Seas: to link the Baltic, Barents, Atlantic (including Outermost Regions), Mediterranean, Black and the Caspian Sea areas as well as the littoral countries within the sea areas and with an extension through the Suez Canal towards the Red Sea.
2. Northern axis: to connect the northern EU with Norway to the north and with Belarus and Russia to the east. A connection to the Barents region linking Norway through Sweden and Finland with Russia is also foreseen.
3. Central axis: to link the centre of the EU to Ukraine and the Black Sea and through an inland waterway connection to the Caspian Sea. A direct connection from Ukraine to the Trans-Siberian railway and a link from the Don/Volga inland waterway to the Baltic Sea are also included.
4. South Eastern axis: to link the EU with the Balkans and Turkey and further with the Southern Caucasus and the Caspian Sea as well as with the Middle East up to Egypt and the Red Sea.
5. South Western axis: to connect the south-western EU with Switzerland and Morocco, including the trans-Maghrebin link connecting Morocco, Algeria and Tunisia and its extension to Egypt.

The EC proposes to adopt a number of measures for making transport along the axes more rapid and effective. These measures aim at gradually approximating the neighbouring countries' legislation and policies with the relevant *acquis communautaire*. In case of railways this means the integration of CIM and SMGS, which will be discussed in the next section.

3.3 Two different railway systems: COTIF - OSJD

Two different legal railway systems coexist today when transporting by rail from Eastern to Western Europe. The COTIF system is in use in the EU, Norway and Switzerland as well as in Turkey. The OSJD system is applicable in the former Soviet Union countries as well as in China and the Central Asian states. Bulgaria, Romania and Ukraine are members of both systems. CIM and SMGS are the terms are abbreviations for different international rail freight transport law under COTIF and OSJD. The CIM and SMGS regulation is the international law in its area and all member states organize their railway legislation according to the CIM and SMGS regulation. Within their membership area this detailed regulation smoothens the transport flows enormously.



Map 3.2 CIM/SMGS

As shown on the map above some of the countries are part of both legal regimes because of their geographical situation, these countries must ensure the transition between the two systems. Especially in those states there will be a need for COTIF and OSJD to work together because the influence of CIM on the one hand and SMGS on the other will overlap.

Meanwhile, there is an added complication: In Europe we have not only to consider COTIF-law, but also EU regulation. So eventually three different legal areas with different legal has to be harmonized.

Due to the EU railway reform and EU railway regulation competence in the railway area lies no longer with the Member States of the EU but with the European Commission. As a consequence COTIF co-operates closely with the EU developing uniform legal provisions and the rules for implementing them.

Both CIM and SMGS regimes are quite different, and that creates many legal problems. One of these is, that you have to stop the transport at the border between CIM and SMGS and that the shipper has to reconsign the goods with a new consignment note. Operational problems are in particular arising from the use of two different consignment notes (CIM and SMGS) as the two railway systems use different waybills. If goods cross from one zone to another, there must be two waybills. The freight liability regimes for each waybill are different. SMGS waybills are not so widely accepted by banks handling international commerce, which is an inconvenience on operations.

Reconsignment is obviously a source of many errors. And errors cause legal uncertainty and consequently cost money. Moreover the reconsignment creates a time lag, extra administration and a lot of added costs –without any added value.

In order to solve these problems, the COTIF and OSZhD have set up a project to create a uniform consignment note. The aim of this project is to overcome the difficulties resulting from the existence of two different legal systems and by this way to accelerate the railway transport flows between East and West.

The project envisages in phase 1 the creation of a common CIM/SMGS consignment note, however maintaining the two different law regimes. Phase 2 is aiming at the creation of a common liability regime and system for sharing compensation for loss and damage between the railways taking part in carriage within the contractual freedom allowed by the CIM and SMGS-regime. Phase 3 is striving for the implementation of a common legal regime in the long run. EU-support for the ongoing work is very desirable, especially for customs aspects: Only if the common CIM/SMGS consignment note is recognised by the EU and the other states as a customs document, the project can succeed as a whole. Moreover the CIM/SMGS consignment note constitutes a bank document, which allows to make sales over big distances in a very safe way. It's clear, that just this function will play an important role for the traffic between the Traceca Corridor

The objective is to use the CIM/SMGS note as a transit document for about 200 million tonnes of freight traffic crossing the Eastern Community border every year, thus reducing delays of customs formalities at the COTIF/OSZhD border. On the 25th of July 2006, the first freight train using the new common CIM/SMGS consignment note set off.

The harmonisation between CIM and SMGS is based on following principles:

- Taking CIM and SMGS as basis and starting point,
- to pay attention to the different legal cultures,
- to ensure as far as possible contractual freedom.

In the context of COTIF, the requisite uniform legal text for transport of dangerous goods by rail, including requirements concerning implementation, is set out in the regulations concerning the International Carriage of Dangerous Goods by Rail (RID)

In recent years, RID has undergone a fundamental reworking and has, from 1 July 2001, been in force with a new structure. Like ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road), ADN (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway), the IMDG Code (International Maritime Dangerous Goods Code) and the ICAO Technical Instructions (Technical Instructions for the Safe Carriage of Dangerous Goods by Air), RID has been aligned with the structure of the UN Model Regulations (UN Recommendations, see 2.).

The assumption is that the new structure and harmonization with the other modes will make the multimodal carriage of dangerous goods considerably easier. RID is subject to ongoing revision; amendments to the globally applicable UN Model Regulations and developments in the rail sector are both taken into account.

In the SMGS countries the carriage of dangerous goods is organised in the SMGS Annex 2. The SMGS Annex 2 is nearly harmonized with RID 2007. Its latest amendments entered into force on 1 July 2007. In the future the rules covering the carriage of dangerous goods will be brought up to date with RID on a

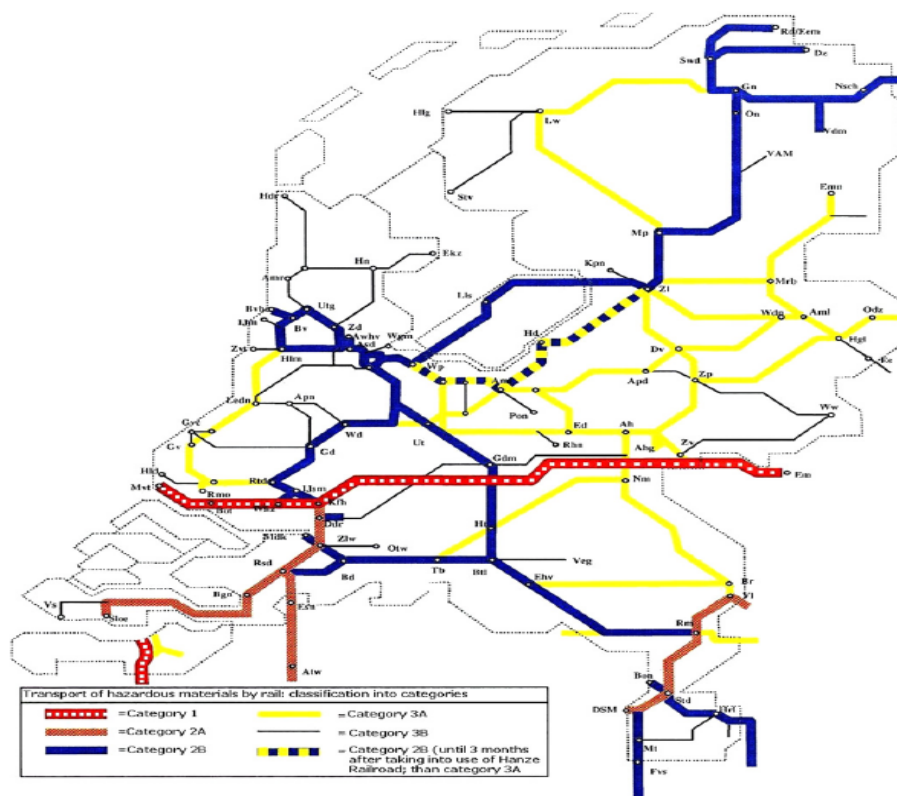
running basis in order to make it possible for the logistical chain between Eastern and Western Europe to function normally by using the harmonized rules. Again the ongoing integration of the Western and Eastern European legal regimes facilitates railway transport passing both regimes enormously.

Some differences between these two remain. The main differences in the SMGS Annex 2 compared to RID are as follows:

- Table A contains two additional columns: namely the column with codes for barrier wagons 2.
- Hazard goods (such as "flammable", "toxic") are presented by the substance. Information of both goods shall be indicated in the transport document.
- There are additional requirements concerning loading in Part 7.
- There is some differences in the requirements of construction of tank wagons³.

3.4 Experience from The Netherlands: introduction of the 'Basisnet'

In the summer of 2007 an accident with a train carrying propane almost happened in The Netherlands. As this country is densely populated most of the train lines pass through residential areas. This led the Dutch Government to think hard about a strong policy accompanying the transport of dangerous goods by rail. The so-called basic network for the transport routes of hazardous materials was recently launched by the Dutch Ministry of transport, public works and water management. In fact, the basic network focuses on transport routes by road, railway and water. However, considering the scope of this paper, as mentioned before, we will focus on the railway track.



Map 3.3 Basic Network in The Netherlands

The basic network categorizes the total amount of transport of hazardous materials by rail, measured in tank wagons, for the current and future railway tracks in the Netherlands. In this regard, a first elaboration on the basic network is given by the mobility policy document ('Nota Mobiliteit', Ministerie van Verkeer en Waterstaat, 2004). The mobility policy document states that the government is to create a basic network which consists of three types of routes with different importance to either spatial

³ These differences are among others based on the fact that the different gauge sizes lead to different tank wagon specifications.

development or transport. Also, along the basic network a safety zone will be created within which limitations to certain activities will be set. A distinction is made between three main categories for transport of hazardous materials, with a different value of importance to either transport of hazardous materials or spatial development:

- Primary routes with unlimited transport of hazardous materials. Urban development has large limitations due to safety zoning.
- Secondary routes where transport of hazardous materials as well as urban development have their limitations.
- Tertiary routes on which transport of hazardous materials are limited and next to which urban development should not be hindered at all.

The combination of these principles, limiting volumes and the Dutch railroad network results in a map with the qualified railway tracks. Subsequently, the entire railway infrastructure in the Netherlands forms the basic network (see Fig.3.4).

The other central principle of the basic network is safety zoning. This means that a static safety zone is created where no vulnerable objects may be built. Examples of vulnerable objects are hospitals, homes or schools, since the self rescue of people inside such objects is relatively low. This zone is assumed to be three-dimensional. Therefore constructions cannot cover the rail infrastructure, except for when the infrastructure is strengthened to withstand large explosions. The safety zoning is mainly meant for the category one railroads and is based on a pool fire, which has a maximum reach of about 30m.

Table 3.1: Maximum allowed quantities transported on railway tracks per year per category for the basic network (Ministerie van Verkeer en Waterstaat, 2005)

Type of the transported hazardous material	Hazard identification numbers (Kemler codes)	Allowed amount of tank wagons transported per year		
		Category 2A railways	Category 2B railways	Category 3A railways
Flammable gasses (matter Category A)	23, 263, 239	12 500	2500	350
Toxic gasses (matter Category B2)	26, 265, 268 (except for UN 1017, Chloride gas)	6600	5400	1250
Highly toxic gasses (matter Category B3)	268 (in this case UN 1017, Chloride gas)	0	200	0
Highly flammable liquids (matter Category C3)	33, X33, 336 (except for UN 1093, Acrylonitril)	5000	4000	1250
Toxic liquids (matter Category D3)	336 (in this case UN 1093, Acrylonitril)	15 500	6300	1200
Highly toxic liquids (matter Category D4)	66, 663, 668, 886, X88, X886	1500	750	750

Advantages of a basic network

The first advantage of applying the basic network is the new approach on risk policy enabling solutions for bottlenecks in the rail network regarding urban development in the vicinity of those routes. This network provides a transparent overview of transport routes and transport volumes on those routes in the Netherlands on the one hand, while on the other hand it represents potential conflict locations where intensification of urban spaces is planned in the future near those routes.

The document on transport of hazardous materials also mentions that the Dutch government strives to permanently improve safety. This should be done through a thorough attention and registration of incidents, amelioration of legislation, good communication of risks and some specific measures

This brings up another advantage of a basic network: adequate risk communication between authorities and civilians. As is also expressed by Adriaansen (2006), it is hard to explain to civilians what safety and risk mean. Each human has his own view on safety.

It becomes even more difficult when new calculations show that risks have increased due to adjustments to the model itself. For that matter it could be much easier to communicate to other parties or civilians that on certain railroads of the basic network an agreement on maximum volume of transport cannot be violated. The idea for a basic network could therefore serve as a tool for a more rational way of coping with risks. This is also the main notion of a recent report by the Dutch National Institute for Public Health and the Environment 'Coping rationally with risks' (RIVM, 2003), which argues that a less rigid and emotional way of regarding risks is necessary for a sound risk policy.

Disadvantages of a basic network

Unfortunately there are not only advantages to the basic network to be pointed out. The following disadvantages should be mentioned:

1. The proposed limits of the fixed numbers for transport are in the future for a number of cases higher than at the moment.
2. Possible problems may occur if the transport numbers are fixed on basis of law.
3. Some existing problems with external safety due to too much transport may be politically neglected in the future.
4. There is a shift in coordination between responsible ministries for safety.
5. The three-dimensional limitations of using the basic network.

4 Maritime Transport

4.1 Introduction

From Kazakhstan to Azerbaijan transport of dangerous goods (including LPG) has to cross the Caspian Sea by means of maritime transport. For this reason maritime transport has been given an additional chapter. Maritime transport of dangerous goods can be catastrophic, even in the 21st century, as shown by the explosion of the container ship Hanjin Pennsylvania 2 in 2002.



Picture 4.1 The Hanjin Pennsylvania 2 explosion on November 11th 2002

In this chapter we will mainly look into the IMDG Code, as developed by the International Maritime Organisation (IMO). Additionally new IMO recommendations for handling dangerous goods in ports will be introduced.

4.2 Safety of Life at Sea (SOLAS) Convention

The SOLAS Convention in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version was adopted in 1914, in response to the Titanic disaster, the second in 1929, the third in 1948, and the fourth in 1960. The 1960 Convention - which was adopted on 17 June 1960 and entered into force on 26 May 1965 - was the first major task for IMO after the Organization's creation and it represented a considerable step forward in modernizing regulations and in keeping pace with technical developments in the shipping industry. The intention was to keep the Convention up to date by periodic amendments but in practice the amendments procedure proved to be very slow. It became clear that it would be impossible to secure the entry into force of amendments within a reasonable period of time. As a result, a completely new

Convention was adopted in 1974 which included not only the amendments agreed up until that date but a new amendment procedure - the tacit acceptance procedure - designed to ensure that changes could be made within a specified (and acceptably short) period of time. Instead of requiring that an amendment shall enter into force after being accepted by, for example, two thirds of the Parties, the tacit acceptance procedure provides that an amendment shall enter into force on a specified date unless, before that date, objections to the amendment are received from an agreed number of Parties. As a result the 1974 Convention has been updated and amended on numerous occasions. The Convention in force today is sometimes referred to as SOLAS, 1974, as amended.

The main objective of the SOLAS Convention is to specify minimum standards for the construction, equipment and operation of ships, compatible with their safety. Flag States are responsible for ensuring that ships under their flag comply with its requirements, and a number of certificates are prescribed in the Convention as proof that this has been done. Control provisions also allow Contracting Governments to inspect ships of other Contracting States if there are clear grounds for believing that the ship and its equipment do not substantially comply with the requirements of the Convention - this procedure is known as port State control. The current SOLAS Convention includes Articles setting out general obligations, amendment procedure and so on, followed by an Annex divided into 12 Chapters.

Chapter VII – deals with the carriage of dangerous goods

Part A - Carriage of dangerous goods in packaged form - includes provisions for the classification, packing, marking, labelling and placarding, documentation and stowage of dangerous goods. Contracting Governments are required to issue instructions at the national level and the Chapter makes mandatory the International Maritime Dangerous Goods (IMDG) Code, developed by IMO, which is constantly updated to accommodate new dangerous goods and to supplement or revise existing provisions.

Part A-1 - Carriage of dangerous goods in solid form in bulk - covers the documentation, stowage and segregation requirements for these goods and requires reporting of incidents involving such goods.

Part B covers Construction and equipment of ships carrying dangerous liquid chemicals in bulk and requires chemical tankers built after 1 July 1986 to comply with the International Bulk Chemical Code (IBC Code).

Part C covers Construction and equipment of ships carrying liquefied gases in bulk and gas carriers constructed after 1 July 1986 to comply with the requirements of the International Gas Carrier Code (IGC Code).

IMDG, IBC and IGC Codes will be shortly discusses in the following sections.

4.3 IMDG Code

Resolution 56, adopted at the 1960 SOLAS Conference, recommended that Governments should adopt a uniform international code for the carriage of dangerous goods by sea which should supplement the SOLAS regulations and cover such matters as packing, container traffic and stowage, with particular reference to the segregation of incompatible substances. It further recommended that IMO, in co-operation with the United Nations Committee of Experts on the Transport of Dangerous Goods, should pursue its studies on such an international code, especially in respect of classification, description, labelling, a list of dangerous goods and shipping documents. To carry out this mandate, in January 1961, IMO's Maritime Safety Committee (MSC) established a Working Group on the Carriage of Dangerous Goods (CDG). Governments with considerable experience in the carriage of dangerous goods were invited to nominate experts. The Group met for the first time from 29 to 31 May 1961 and set about preparing the "unified international maritime code" as envisaged by the 1960 SOLAS Conference. Preliminary drafts for each class were compiled by individual national delegations and then considered by the Group which took into account the practices and procedures of numerous maritime countries in order to make such a code as widely acceptable as possible. Close co-operation was established with the United Nations Committee of Experts on the Transport of Dangerous Goods, which had prepared its 1956 report in which it established the minimum requirements for the transport of dangerous goods by all modes of transport. By November 1965, good progress had been made in preparing such a code and the resulting document became known as the International Maritime Dangerous Goods (IMDG) Code . It was adopted by the fourth IMO Assembly in 1965. Although designed primarily for mariners, the

provisions of the IMDG Code affect a number of industries as well as storage, handling and transport services from manufacturers to consumers.

Chemical and packaging manufacturers, packers, shippers, forwarders, carriers and terminal operators are guided by its provisions on classification, terminology, identification, packing and packagings, marking, labelling and placarding, documentation and marine pollution aspects. Feeder services, such as road, rail, harbour and inland water craft are guided by its provisions. Port authorities, terminal and warehousing companies consult the IMDG Code to segregate and separate dangerous cargoes in loading, discharge and storage areas. Although the Code only applies to ships covered by the SOLAS Convention, IMO considers it highly desirable that its provisions should be observed by all ships.

Since its introduction in 1965, the IMDG Code has undergone many changes, both in appearance and content to keep pace with the ever-changing needs of industry. Amendments which do not affect the principles upon which the Code is based may be adopted by the Maritime Safety Committee alone. Thus IMO can respond to transport developments in reasonable time. The latest 1995 consolidated edition of the IMDG Code, incorporating Amendment 27-94, is published in four loose-leaf volumes so that amendments can be easily inserted.

IMO Member Governments are periodically requested to provide information on the current status of implementation of the IMDG Code, its Annexes and Supplements, and information on the names, addresses, telephone, telex and telefax numbers of the offices of competent authorities and other appointed bodies within their Administration which deal with questions related to the carriage of dangerous cargoes (refer to SC.2/Circ.34) or revisions thereof, and any additions thereto, and section 22 (and the appendix thereto) of the General Introduction to the Code.

So far some 51 Administrations, whose combined merchant fleets total 80% of the world's Gross tonnage, have informed IMO that they are applying the IMDG Code (see Annex 1). The legal system of each country determines in detail whether the IMDG Code becomes mandatory or is applied as a recommendation.

Application of the Code as a recommendation does not detract in any way from the obligations imposed by the 1974 SOLAS Convention, as amended, but merely provides a greater flexibility in the method of observance.

The IMDG Code is published in five volumes. Volume I contains a general introduction to the Code while volumes II, III and IV contain detailed technical information on specific dangerous goods which are divided up into nine different classes. Volume V is a Supplement to the Code.

Each class is preceded by an introduction which describes the properties, characteristics and definitions of the goods and gives detailed advice on handling and transport, e.g. stowage and segregation, that is the degree to which such goods should be kept separated from other dangerous cargoes, or other goods, transported in a ship, including separation from special spaces or areas in a ship. The class introductions also give information concerning procedures which should be followed during loading and unloading.

Each substance, material or article which is listed in the IMDG Code is referred to by a proper shipping name (correct technical name) together with a four-digit UN Number assigned to the goods by the United Nations Committee of Experts on the Transport of Dangerous Goods. Each package containing dangerous goods should be durably marked with the proper shipping name of the contents, and, when assigned, the corresponding UN Number preceded by the letters "UN". Each class or category of goods is identified by a distinctive mark, label, placard or sign. Where appropriate, each individual schedule (page) in the Code refers to the required label and, if applicable, the marine pollutant mark and elevated temperature or fumigation warning sign. Some consignments of dangerous goods should have the UN Number of the goods displayed. All placards, orange panels and other marks and/or signs should be removed from cargo transport units or masked as soon as both the goods or their residues which led to the application of those placards, orange panels and marks or signs, are discharged. Each dangerous substance or category of substances is listed on a schedule. The schedules of the IMDG Code follow a similar pattern. The proper shipping name of the substance, material or article, and any known and commonly used alternative names (synonyms) appear at the top left of the schedule. To the right of this, other relevant information or observations are given, such as the United Nations identification number (UN Number), its chemical formula, explosive limits, flashpoint and so on. The other headings used in the individual schedules include properties or descriptions (such as state and appearance), special observations, packing, stowage, segregation and the marine pollution aspects. The schedule also indicates the label or labels/placards and, if applicable, the MARINE POLLUTANT and other signs

required on the package or cargo transport unit. This is basically one of the labels shown in Annex 4, but a label or placard may also contain additional information. Those used for explosives, for example, also give the substance's division number and compatibility group. Class 3 labels or placards sometimes contain a reference to the flashpoint or flashpoint group. For class 7 labels or placards additional information on the contents, activity and transport index is required.

4.4 IBC Code

The International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) applies to chemical tankers constructed on or after 1 July 1986 (the date of entry into force of part B of chapter VII of SOLAS 1974 contained in the 1983 amendments to the 1974 SOLAS Convention). Chemical tankers constructed before that date should comply with the requirements of the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk. The purposes of each of these Codes is to provide an international standard for the safe transport by sea in bulk of liquid dangerous chemicals, by prescribing the design and construction standards of ships regardless of tonnage involved in such transport and the equipment they should carry so as to minimize the risks to the ship, its crew and to the environment, having regard to the nature of the products carried. The basic philosophy is one of ship types related to the hazards of the products covered by the Codes. Each of the products may have one or more hazard properties which include flammability, toxicity, corrosivity and reactivity. Throughout the development of the Codes it was recognized that they must be based upon sound naval architectural and engineering principles and the best understanding available as to the hazards of the various products covered; furthermore that chemical tanker design technology is not only a complex technology but is rapidly evolving and that the IBC Code should not remain static. Therefore, IMO will periodically review the IBC Code taking into account both experience and technical development. Both codes primarily deal with ship design and equipment. Other important facets of the safe transport of the products, such as training, operation, traffic control and handling in port, are being or will be examined further by IMO.

The layout of the IBC Code is in line with the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk* (IGC Code). Gas carriers may also carry in bulk liquid chemicals covered by the IBC Code.

4.5 IGC Code

The International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) applies to gas carriers constructed on or after the entry into force of part C of chapter VII of SOLAS 1974 contained in the 1983 amendments to the 1974 SOLAS Convention (1 July 1986). Gas carriers constructed before that date should comply with the requirements of the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk or the Code for Existing Ships Carrying Liquefied Gases in Bulk. The purposes of the code is to provide an international standard for the safe transport by sea in bulk of liquefied gases and certain other substances, by prescribing the design and construction standards of ships involved in such transport and the equipment they should carry so as to minimize the risk to the ship, its crew and to the environment, having regard to the nature of the products involved. Again the basic philosophy is one of ship types related to the hazards of the products covered by these codes, each of which may have one or more hazard properties. A further possible hazard may arise owing to the products being transported under cryogenic (refrigerated) or pressure conditions. Severe collisions or strandings could lead to cargo tank damage and uncontrolled release of the product. Such release could result in evaporation and dispersion of the product and, in some cases, could cause brittle fracture of the ship's hull. The requirements in the codes are intended to minimize these risks as far as is practicable, based upon present knowledge and technology. IMO will periodically review the IGC Code taking into account both experience and future development.

4.6 Dangerous Goods in Ports, new IMO recommendations 2007

IMO's chief concern as far as dangerous cargoes are concerned is to protect the lives of those on board ships and the ships themselves. But dangerous goods can still be dangerous in the maritime context when they are on shore. Accordingly, to mitigate the hazards involved in handling such goods in port areas, the IMO Assembly, in 1973, by resolution A.289(VIII), adopted a *Recommendation on Safe Practice on Dangerous Goods in Ports and Harbours*. The subsequent development of new techniques in shore and ship operations, as well as the desirability of having more comprehensive

recommendations which included dangerous goods in packaged form, liquid and solid dangerous substances and liquefied gas carried in bulk, made it necessary to revise and update the Recommendation. The Recommendation has been revised on several occasions and circulated as MSC/Circ.299 (12 February 1981), MSC/Circ.299/Add.1 (8 July 1983) and MSC/Circ.675 (30 January 1995). The 1995 edition of the Recommendations included necessary updates and some novel features, the most important of which was guidance for the implementation of the Recommendations by those Member States which were in the process of developing the regulation of the transport of dangerous goods and related activities in their ports. In 1996, the Maritime Safety Committee agreed that the IMDG Code should be reformatted in a style consistent with the format of the UN Model Regulations with the intention of enhancing user-friendliness, compliance with the regulations and the safe transport of dangerous goods. At its seventy-fifth session in May 2002, the Maritime Safety Committee confirmed its earlier decision to make the IMDG Code mandatory in international law. Thus, IMDG Code Amendment 31 became mandatory on 1 January 2004 without any transitional period under the umbrella of chapters VI and VII of SOLAS 74, as amended. The Recommendations are aligned with relevant IMO codes and the IMDG Code in particular. It is considered essential to harmonize the rules within the port area with the ship in order to ensure smooth operations and to avoid misunderstandings between ship and shore. The Recommendations make a distinction between keeping and storage. Dangerous cargoes temporarily in the port area as part of the transport chain are not considered as being stored as their presence is solely concerned with awaiting loading onto and further onward movement by another mode of transport. Because this is an operation covered by the Recommendations, the term “keeping” is included in the overall definition of handling. Storage, which involves the holding of substances for an indeterminate period not directly involved with the transportation process, is considered to be outside the scope of these Recommendations and has been excluded from the definitions. Regulatory authorities may wish to regulate the storage of such substances but that would be achieved by other regulations unconnected with the transportation process.

These Recommendations are intended to set out a standard framework within which legal requirements can be prepared by Governments, whether for the first time or as a revision, to ensure the safe **transport** and **handling** of **dangerous cargoes** in **port areas**. These Recommendations are not intended to specify standards of construction and equipment.

The recommendations prescribe that all dangerous cargoes moving by road, rail, barge or ship are governed by transport legal requirements covering such matters as packing, marking, labelling or placarding, documentation and segregation. Worldwide, the transport legal requirements should be adequate to protect the population and the environment along the transport chain, including handling at the beginning or the end of the transport chain and during changes of the mode of transport. This applies to all dangerous cargoes. As ports are places where there is an interchange between the modes of transport, the transport legal requirements to all the relevant modes of transport will apply in ports. However, in many industrialized countries there are specific legal requirements and standards for the design, construction and operation of refineries, chemical plants, tank farms, factories, storage and distribution centres or similar installations. They may include legislation relating to labour, environment, pollution prevention, water protection or explosives. These specific legal requirements and standards sometimes differ considerably from the legal requirements based on these Recommendations. To avoid conflict between the different legal requirements and the authorities responsible for their implementation, the Recommendations should not be applied to areas within or near a port that are not directly related to or involved in the transport of dangerous cargoes. The Recommendations may also be applied to marine terminals not situated in port areas.

Example 1

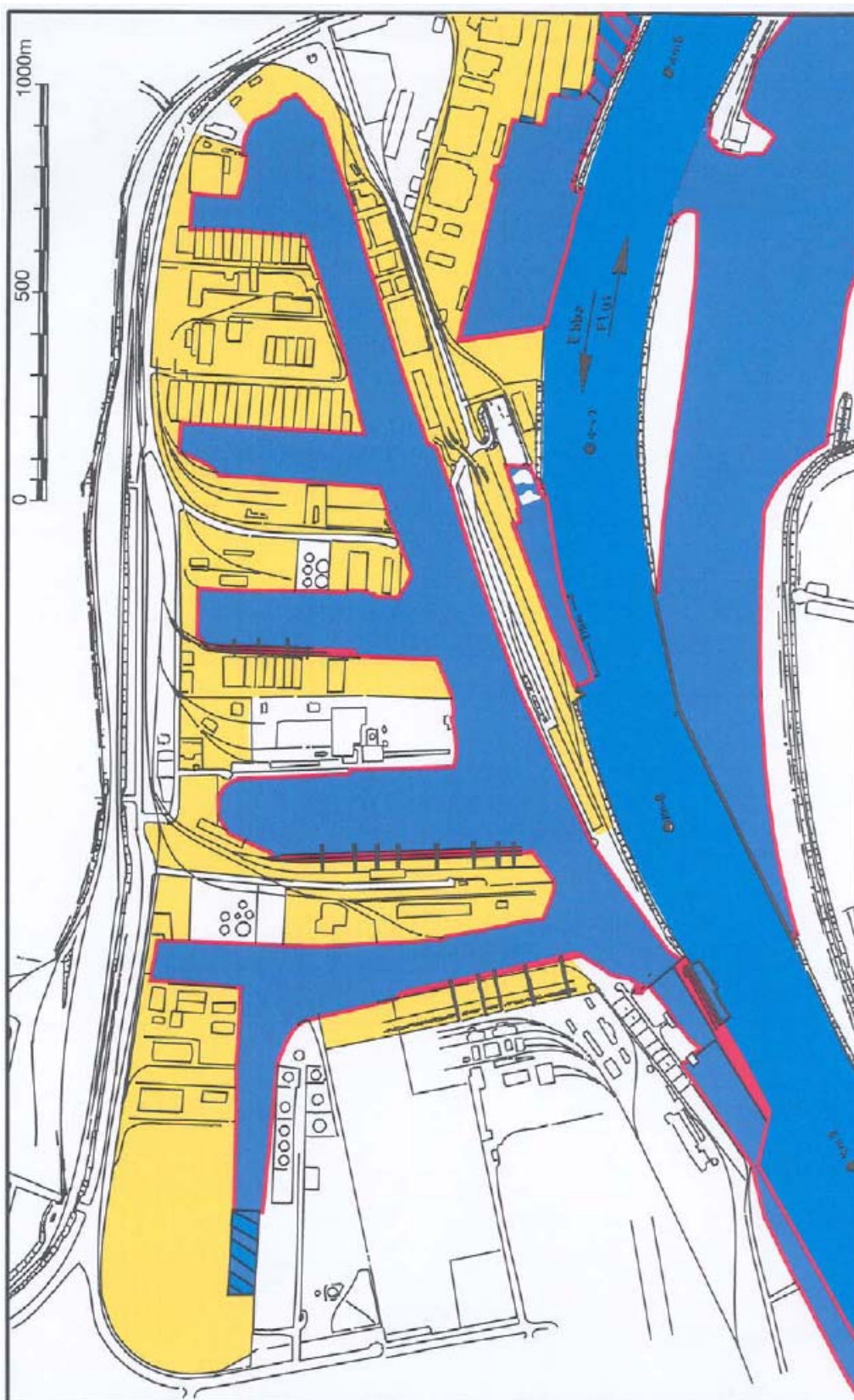
One way of defining areas to which legal requirements based on the Recommendations apply is to attach a plan to the port laws or port by-laws, showing the various areas in different colours, e.g., (see figure 1):

Blue = water areas to which the legal requirements apply;

Red = ship/shore interface areas (berth, jetties, wharves) to which the legal requirements apply;

Yellow = shore areas to which the legal requirements apply; and

White = shore areas to which the legal requirements do not apply.



ANNEX 1 Overview of Legislation on Dangerous Goods

Following chapter provides an overview per country on the legal and institutional framework and the implementation of this framework.

Azerbaijan

International conventions and agreements

Azerbaijan is member of following conventions:

Transport mode	Convention	Contracting state
Road	ADR	XX
RAIL	RID	--
	COTIF	--
MARITIME	IMO	XX
	SOLAS (Chapter 7)	XX

Institutional framework

The national regulation (Azerbaijan Law on Transport of Dangerous Goods by Rail) is based on the Moscow based regulation. This is in line with UNECE. The UNECE numbers are integrated in the Moscow regulation. Including the 2 yearly updates.

In Azerbaijan the Industrial Safety and Mining Supervision Agency is responsible for the dangerous goods inspection. Only for some specific kinds of dangerous goods the Ministry should give special permission, however LPG is not included in this list.

The Ministry has inspectorates per transport mode, which do the checking's on dangerous goods transport. This is separate of the checking's of the Ministry for Emergency.

According to the Ministry the training of the staff might not be up to standard. However the Western companies might even have internal regulation, what is more strict than the international regulation.

Ministry of Transport does not foresee any bottlenecks in case the LPG transport increases.

Railways

Azerbaijan State Railways has the monopoly of transport dangerous goods. For transporting LPG the wagons have special labelling, signings and manufacturer date; which are conform the COTIF standards.

The State Railways are only responsible for the rolling part of the wagon. The LPG wagons are not owned by the State Railways. This gives a division of liability: the Railways are liable for accidents caused by the Railways; not for accidents caused by other influence; like quality of the LPG tank.

The railways do not check the quality of the LPG tanks, just check or the papers and labeling are conform the regulation. For CIS transport a special accident card is used CIS nr 206; when transporting outside CIS a different one is used namely UNECE 2313. The State Railways have safety advisors and safety training is in place according their statements.

The Railways have also internal inspection department. Financial constraints can influence the quality of safety. Last years no major accidents occurred

Caspian sea transport

As concerns the Caspian sea transport, responsibilities in Azerbaijan have been split between Caspian Shipping Company (CSC), responsible for the physical shipping operations and a new State company called 'Meridian' responsible for 'sales', including the forwarding business operations.

Likewise in Azeri Railways there is a split between the physical railway operations (running the trains) by the Railways and the commercial operations by a State company called 'Transkavkaz' acting as rail forwarding agency.

In principle this organizational set up does not sideline the private sector but private sector operators would have to work with and under the supervision of these 'state actors'.

Georgia

International conventions and agreements

Georgia is member of following conventions:

<i>Transport mode</i>	<i>Convention</i>	<i>Contracting state</i>
Road	ADR	--
RAIL	RID	--
	COTIF	--
MARITIME	IMO	XX
	SOLAS (Chapter 7)	XX

National legislation

In Georgia the following laws, by-laws and decrees regulate the transportation of dangerous goods.

Maritime transportation.

- International Maritime Dangerous Goods Code (IMDG) of International Convention on the Safety of Life at Sea (SOLAS);
- International Convention on Prevention of Pollution from Ships (MARPOL);
- Maritime Code of Georgia;
- Law of Georgia on Education and Certification of Seafarers;
- Decree of the Maritime Transport Administration of Georgia on Port Rules;

Air transportation.

- International Convention on Civil Aviation (Chicago Convention), Annex 18;
- Civil Aviation Code of Georgia;
- Decree N1 of the Civil Aviation Administration (01.03.2004) on Rules of Transportation of Dangerous Goods by Air Transport;

Road transportation.

- Convention on the contract for the international carriage of goods by road;
- Law of Georgia on Safety of Road Traffic;
- Law of Georgia on Road Transport;
- Decree N 45 of Joint Transport Administration of Georgia from 3 of July, 2007 about the "Technical requirements for vehicles and testing methods, on the bases of which vehicle will get permission to move on Georgian roads";
- Decree N 45 of the Ministry of Transport and Communications of Georgia from 6, August, 2003 on the "Regulations for dangerous goods transportation by road transport";
- Decree N 29 of the Ministry of Transport and Communications of Georgia from 19, May, 2003 on the "System for control of technical maintenance, exploitation and testing of road transport";

- Decree N 5 of Road Transport Administration of Georgia from 9, December, 2005 on the “Endorsement of Permissions for the International Passenger Transportation, International Cargo Transportation and Cargo International Transportation from Georgian territory”;

Note. Georgia has not yet joined the ADR Convention. The attempts to initiate the joining procedure were made several times by Road Transport Administration, but the final agreement was not achieved by the Parliament of Georgia.

Railway transportation.

- Georgian Railway Code;

Various.

- Basel convention on the control of transboundary movements of hazardous wastes;
- Georgian Law on explosive substances for manufacturing needs;
- Law of Georgia on dangerous chemical substances;
- Decree N 211 of the Ministry of Agriculture of Georgia from 30 November, 2006 on the “Rules and regulations for transportation, circulation, warehousing and utilization of pesticides and agricultural chemicals”;
- Resolution N 184 of Georgian Government from 28 September, 2006 on the “Approval procedure of issuing of permissions for manufacturing, transportation, import and export, re-export and transit of “limited circulation substances” and the creation and endorsement of the list of the “limited circulation substances”.

Institutional framework

The Georgian revolution of roses (The revolution that brought down President Shevardnadze) brought, among others, the concept of a ‘laissez faire’ economy. The idea is that the state influence on the economy should be reduced and that private companies are responsible for their own activities, instead that the government is controlling all business activities.

The influence of the government on the economy should be reduced, state companies are sold to the private sector and government bodies were abolished. Among others the Ministry of Transport was integrated in the Ministry of Economic Developments and the Transport Inspectorate was abolished.

Railways

Georgia is part of the SMGS convention. These SMGS regulation on dangerous goods are well implemented in the ‘Regulation on Dangerous Goods’ of 2003. This regulation instructs Georgian Railways on transport dangerous goods by rail.

Georgian Railways are the member of SMGS. It incorporate most changes and participate in all the annual SMGS meetings, conferences, etc. Georgian Railways amends every two years its dangerous goods instructions according to the SMGS amendments.

Georgian Railways is not only operating trains, but also checks the its own operations and procedures via its Security Department and investigates accidents if occurs. Georgian Railways organises its own safety trainings according to the SMGS standards. However as there is no government body to certify the training institute or trainings, the trainings are not certified.

Dangerous goods or LPG do not need special permits or permission of a government body for transport. These permissions were abolished after the merger of the Ministry of Transport in the Ministry of Economic Development. The SMGS safety standards provide the safety instructions. Special permits are only needed for transporting nuclear or explosive goods; in this case the Ministry of Defence provides the permits.

Safety is very important for Georgian Railways and no big accidents have occurred yet. It is said that in case of conflicts of interests between the Commercial Department and the Safety Department within Georgian Railways the last one is higher on the decision making level.

In the case a major incidents occur the Safety Department of Georgian Railways is assisted by Government bodies, like the transport prosecutor office under the General Prosecutors Office, to investigate the accident.

Georgian Railways do not have any LPG wagons by it selves. The owners of these wagons are responsible for the yearly or two yearly technical inspections and the owners liable in case accidents occur due to the state of the wagon. Georgian Railways is responsible when accidents happen due to the state of the railways or what falls under their responsibility.

Safety inspections of wagons are held at the border and the ports, at the beginning and the end of the transport. These inspections are visually and includes controlling of the documents. Only when irregularities are found the wagon is transported for technical inspection. There are no ad random technical checks.

Interesting is the border crossing procedure which should be dealt with in 24 hours. The freight forwarders should organise their paperwork (guarantee letter, cargo excise letter) well in advance so the border crossing procedure take less than 24 hours. When the process takes longer a penalty of \$25.- per wagon per day is charged upon.

There is a special tariff for transporting dangerous goods which includes the extra responsibilities of Georgian Railways and the safety procedures, like the special shunting procedures.

It is said that Georgian Railways are still a very strongly organised organization and that the rules and regulations, especially on safety, are very strictly obeyed. However there is no neutral body to verify these impressions than statements of Georgian Railways it selves.

Road sector

Georgia is not an ADR member state at this moment. The ADR agreement is already for five years waiting in Parliament. The ADR assignment is not foreseen as this would have big impact towards the transport of dangerous goods in road sector. Because there are no training institutes and there is no transport inspectorate checking on the implementation. The companies themselves do not have safety advisors and there are no technical inspections on truck and their loads.

As earlier mentioned the road sector does not face limits in transporting dangerous goods, except nuclear and explosive ones, because there is no transport inspectorate anymore. Formally the Ministry of Economic Developments is responsible for developing policy to the transport of dangerous goods in the road sector; in practice this is not happening.

The very limited transit transport of dangerous goods by road makes that ADR is not an issue at the border. The transport sector indicates that is does not miss ADR standards procedures.

Pipelines

Recently the oil pipeline, gas pipeline companies and licensing institute merged officially. How this will work out is not yet crystallized as the merger has not realized yet in practices. This company is partly in charge of operations, inspections and licensing for building new pipelines and operators.

This oil and gas company will be independent from the Transport Regulation Department of the Ministry of Economic Developments.

Georgian Maritime Administration is a member of IMO. Georgia is a member of SOLAS (Safety of Life at Seas) Convention. So the regulations of this document are in force in Georgian ports and ships under Georgian Flag, and have to be in force also for vessels, calling Georgian ports and passing territorial waters.

Kazakhstan

International conventions and agreements

Kazakhstan is member of following conventions:

Transport mode	Convention	Contracting state
Road	ADR	XX
RAIL	RID	--
	COTIF	--
Maritime	IMO	XX
	SOLAS (Chapter 7)	XX

National legislation

Transport of dangerous goods in the Republic of Kazakhstan is regulated by a number of legal regulations, including international conventions and agreements, laws, governmental decrees and orders of the authorized bodies of the Republic of Kazakhstan.

In the basis of Kazakhstan legislation in sphere of dangerous goods transportation there are following documents:

- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) from 30 September 1957 to which Kazakhstan acceded on 7 May 2001 by the Law #193-II;
- Dangerous Goods Transport regulations to the Agreement on International Freight Traffic - SMGS, Kazakhstan acceded to this agreement on 9 November 1992 by Decree of Prime-Minister of the Republic of Kazakhstan #19071;
- Law of the Republic of Kazakhstan "About Transport in the Republic of Kazakhstan" from 21 September 1994 # 156-XIII;
- Law of the Republic of Kazakhstan "About Road Transport" from 8 December 2001 #476-II;
- Law of the Republic of Kazakhstan "About Railway Transport" from 17 January 2002 #266-II;
- Law of the Republic of Kazakhstan "On Sea Trade Shipping" from 17 January 2002 #284-II;
- Law of the Republic of Kazakhstan "On Internal Water Transport" from 6 July 2004 #574-II;
- Law of the Republic of Kazakhstan "On State Regulation of Civil Aviation" from 15 December 2001 #271-II.

At present time the project of Transport Code is under consideration in upper Chamber of the Parliament – the Majilis - of the Republic of Kazakhstan. This Code will unify all abovementioned Kazakhstan laws and will regulate all issues in transport sphere, including carriage of dangerous cargoes.

Besides, Kazakhstan signed the following international agreements settling relationships in transportation of dangerous goods within CIS countries.

- Agreement on transit unified conditions through the territories member countries of Custom Union (Moscow, 22 January 1998);
- Agreement on control of transboundary transportation of dangerous and other wastes (Moscow, 12 April 1996).
- Regulations on dangerous goods carriage approved by the Council on Railway Transport of the CIS countries and adopted at XV meeting of Council on 5 April 1996

The Committee of Transport Control of the Ministry of Transport and Communications is in charge of all questions to issue licenses on dangerous goods transportation.

The issue of licenses is regulated by laws mentioned below:

- Law of the Republic of Kazakhstan “About Licensing” from 11 January 2007;
- Decree of the Government of the Republic of Kazakhstan from 27 June 2007 #534 “On approval of the Rules of licensing and qualifying requirements to dangerous goods transport”;

With regard to securing safety during the carriage of dangerous goods by road transport the following regulations are in force in Kazakhstan:

- “Rules of dangerous goods transportation by road transport, passing through the territory of the Republic of Kazakhstan, and qualifying requirements to the driver and vehicle, carrying dangerous goods”, approved by Decree of the Government of the Republic of Kazakhstan from 12 May 2007 #316 “on some issues of dangerous goods transportation by road transport”;
- Order of the Chairman of the Committee of Transport Control, Ministry of Transport and Communications from 31 May 2004 # 38-II «On some measures of improvement of registration and issuing of permissions in sphere of road transport»;
- Order of Minister of Transport and Communications from 23 September 2003 # 282-I “On approval of courses on special preparation of vehicle drivers, carrying dangerous goods”;
- Order of Minister of Transport and Communications from 6 September 2002 # 303-I “On approval of courses on special preparation of vehicle drivers, carrying dangerous goods in international transportation.

Carriage of dangerous goods by air transport in Kazakhstan is regulated by the following documents:

- Regulation on dangerous goods transportation by air transport, approved by Order of the Chairman of the Committee of Civil Aviation, Ministry of Transport and Communications from 17 September 2002 # 701;
- Order of the Chairman of the Committee of Civil Aviation, Ministry of Transport and Communications from 22 June 2005 года # 127 “On approval of certification requirements to aircraft operators”;
- Decree of the Government of the Republic of Kazakhstan from 26 June 2002 #695 “On approval of the list of dangerous goods, assigned for transportation by aircrafts”

With regard to securing safety during the carriage of dangerous goods by railway transport the following regulations are in force in Kazakhstan:

- Order of the Minister of Transport and Communications from 23 November 2004 # 429-I “On approval of the Rules of cargoes transportation”;
- Order of the Minister of Transport and Communications from 18 March 2004 # 122-I “On approval of the Rules of transportation of baggage and cargoes by railway transport of the Republic of Kazakhstan”;

With regard to securing safety during the carriage of dangerous goods by water y transport the following regulations are in force in Kazakhstan:

- Order of the Minister of Transport and Communications from 27 May 2005 #517 “On approval of the List of dangerous goods, assigned for transportation by water transport”;

Although not all the other states concerned in this study have went into the same detail on dangerous goods transport regulations,

Legal system of Kazakhstan in transport sphere is under reforming in purpose to reach European standards and correspond to WTO requirements; however this list shows that from the legal side all provisions are made for safe transport in Kazakhstan.

Institutional framework

Railways

Kazakhstan Railways (KTZ) is a jointed stock company, 51% of the shares within the government and 49% on the stock exchanges. KTZ is a profitable company, making \$114 million profit in 2006. Kazakhstan Railways has the monopoly to organise railway transport. KTZ is big company with around 100.000 employees.

The transport volumes are enormous and currently a second railway line to China is being constructed which will be ready in two years time. Transport volumes are increasing rapidly. In 2006 already 11 million tons were transported to China. These trends make transport over the Caspian Sea less important for KTZ.

KTZ is regulated by the Railway Transport Committee within the MoTC and develops the standards and norms. The legal basis is equal to the Russian SMGS system, which facilitates the cargo flows in the SMGS member countries. Moreover *quote* as Azerbaijan and Georgia want to attract cargo, these countries do not intent to hinder the cargo flows with to many administrative constraints.

The recent railway accident in Ukraine, involving wagons of Kazfosfor, apparently is not blamed on the Kazfosfor wagons (a Kazakh chemical company), as these wagons were checked every 2 years according to Kazakhstan technical inspection and safety standards. Moreover *quote* private company wagons are in general better maintained than the state company railway wagons.

Technical and safety inspections are dealt upon on two levels: the Safety Department within KTZ, involving around 12.000 persons in KTZ; and the Transport Inspectorate within the MoTC, involving around 1500 persons, but covering all transport modes.. Due to the extreme weather conditions the standards of the track are high and the tracks are checked every day. The trunk network covers 14.000(!) kilometres.

There are no conflicts of interest between the KTZ Safety Department and the Transport Inspectorate. The safety statistics show some incidents and accidents, but *quote* not more or less than in other countries as human and technical failure are not to be evaded. However the commercial interest in transporting cargo without any delays due to incidents and accidents are very high, which supports a save environment and smooth border passing procedures.

Maritime Transport

Till 2007 both Kazakh and Azerbaijan ships transported oil on the Caspian Sea. Since 2007 Caspian Shipping, the Azerbaijan Shipping Company has a 'quasi monopoly' on maritime transport to Azerbaijan as Kazakh ships do not sail any longer on the Aktau-Baku route. The port dues for non Azerbaijan ships has increased to such highs that non-Azerbaijan shipping companies stopped serving Baku. Due to the efforts of Kazakhstan to enter the WTO such a policy of discriminating foreign flags was not possible in Aktau.

98% of the maritime transport is crude oil transport. Oil transport to Baku decreased 30% compared to the same period last year.

Kazakhstan is a member of the IMO, but not yet of the MOPOG, however membership is planned. The Kazak legal framework is based on these international treaties.

The Safety Inspection under the MoTC is checking the implementation of the Kazakh law and regulation onboard the ships. The 32 inspectors are based in Aktau. In 2006 twelve accidents occurred in Kazakh territorial waters: 4 ships hit the quai and 5 ships grounded on sandbanks. According to the Inspection most of the accidents happened due to human failures. Amongst others the Kazakh Inspection controls strongly on alcohol use.

Road Transport

Kazakhstan is member of ADR. ADR is well implemented in Kazakhstan. Around 300 inspectors check on the road amongst others dangerous goods vehicles. The safety advisors and special training courses are well established.

According to the Kazak Law dangerous goods transport is not allowed on dirt tracks unless a special license is obtained. As most of the oil and gas fields are on dirt track, this license would hinder the road transport of LPG.

Ukraine

International conventions and agreements

Ukraine is member of following conventions:

<i>Transport mode</i>	<i>Convention</i>	<i>Contracting state</i>
Road	ADR	XX
RAIL	RID	Under preparation
	COTIF	XX
Maritime	IMO	XX
	SOLAS (Chapter 7)	XX

National legislation

The transport of dangerous goods in the TRACECA countries is regulated by a number of laws and regulations as well as international agreements. Only to point here the situation in the Ukraine as an example where the following laws and regulations are concerned:

- Law of Ukraine "About Transport";
- Law of Ukraine "Concerning carriage of dangerous goods";
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) from 1957 to which Ukraine acceded in 2000;
- Safety regulations as well as emergency operating order with dangerous goods when transporting them by rail;
- Dangerous Goods Transport regulations to the Agreement on International Freight Traffic - SMGS, Appendix 2;
- Regulations on Dangerous Goods carriage by rail (at the moment the legalization process with its further implementation is in progress).

According to the Decree of Cabinet of Ministers of Ukraine # 440 from 1995, the Ministry of Environment of Ukraine is in charge of all questions concerning issuing of permission on dangerous goods transport, with the compulsory adjustment by the Ministry of Transport and Communication.

With regard to securing safety during dangerous goods transportation by rail when providing licenses as well as control of license provisions fulfillment by economic entities the following regulations have to be considered:

- Decree of Cabinet of Ministers of Ukraine # 733 of 01 June 2002;
- „About approval of an Order and regulations for compulsory liability insurance of dangerous goods transportation entities against occurrence of negative consequences in transit of dangerous goods”;
- Regulations on dangerous goods carriage approved by the Council on Railway Transport of the CIS countries and adopted at XV meeting of Council on 5 April 1996;
- Order of the State Committee of Ukraine on regulatory policy and of the Ministry of Transport and Communication of Ukraine of 08.06.2001 #85/363 “Concerning the approval of License provisions for introduction of business activity on rendering a service for passenger and goods carriage by rail” .;
- -Directive of the Council 96/49/EU of 23.07.96 concerning the mutual recognition of states-members laws during the dangerous goods carriage by rail.

With regard to securing safety during the carriage of dangerous goods by sea and river transport the following regulations are in force in Ukraine:

- WP 31.11.43-81 "Regulations on LPG transport in bulk by specialized gas carrier vessels"
- WP 31.15.01-89 "Regulations on dangerous goods carriage by sea" (MOPOG regulations)

- Safety of port operations with LPG in bulk is regulated by regulations of individual sea ports
- VNTP 01-78 "Standards of sea ports technological design"
- WP 31.40.21-86 "System of organizational-technological documentation on loading-unloading operations process. General Provisions"
- Merchant Marine Code of Ukraine
- Water Code of Ukraine
- Provision about the Ministry of Transport and Communication of Ukraine approved by the Decree of Cabinet of Ministers of Ukraine of 06.06.2006 # 789
- Procedure of supervision for traffic safety securing on transport approved by the Decree of Cabinet of Ministers of Ukraine of 04.03.97 # 204
- Regulations on sanitary protection of Ukrainian territory approved by the Decree of the Cabinet of Ministers of Ukraine of 24.04.99 # 696
- Provision concerning the Main State Inspectorate of Ukraine on Safety of Maritime Navigation territory approved by the Decree of the Cabinet of Ministers of Ukraine of 30.12.98 # 2098
- Order of the Ministry of Transport of Ukraine of 17.09.92 # 7 "About establishment of Ukrainian Cargo Bureau"
- Order of the Ministry of Transport of Ukraine of 20.11.2003 # 904 "About approval the Provision on Safety Navigation Management System on sea and river transport".
- Provision about Inspectorate of Port State Control of the commercial sea ports of Ukraine, approved by the order of 18.10.2000 # 574
- Rules for registration of operations with noxious substances on ships, on marine installations and in the ports of Ukraine approved by the order of the Ministry of Transport of Ukraine of 10.04.2001 # 205.

Although not all the other states concerned in this study have went into the same detail on dangerous goods transport regulations, this list can show that from the legal side all provisions are made for safe transport. However, a source of criticism remains the missing harmonization of regulations, namely, the change of the former Soviet Union standards for the international and European standards⁴. In the Ukraine, the list of Inter-State Standards (GOST), which were developed before 1992 and remain active today, includes 16,765 individual standards⁵. Especially a considerable amount of standards is not adopted, that should serve as evidentiary base for compliance with technical regulations (adopted on the basis of European Directives of 'New Approach').

The application of old standards in Ukraine and the other states concerned prevents from application of a principle 'one standard-one test-one certificate', declared by International Standardization Organization (ISO) that should become the key principle of technical regulation system of all ISO member-countries as it fully complies with the Agreement on Technical Barriers to Trade.⁶

GOST (Gosudarstvennyj Standart) is quoted in the Annexes of RID and ADR. According to the German BAM, a certificate of analyses according to GOST is accepted by them up to now without further investigations. However, it is envisaged for the 2009 revision of ADR/RID that minimum standards for analyses will be enforced with the option of international cross-monitoring.

In the field of dangerous goods

- GOST 19433-88 with amendments "Dangerous Freights. Classification and labelling"
- GOST 12.1.044-89 "Flammability and explosive properties of substances and materials. Classification of indicators and methods of its identification"

applies, in particular.

⁴ The agenda in implementation of steps to harmonization of national standards with the international and European ones as stated in the Decree of the President of Ukraine on the Program of Ukraine's Integration to the European Union, dated 14.09.2000, №1072/2000 with changes and amendments adopted pursuant to the Presidential Decree №1411/2004 dated 16.11.2004 is lagging behind (<http://zakon.rada.gov.ua>).

⁵ as of March 1, 2006

⁶ see State Committee of Ukraine for Technical Regulation and Consumption Policy, Green Paper on Policy of Adaption of National Legislation in the Technical Regulation and Consumption Policy Sphere to the European Requirements; Kiev 2006

Classification is performed based on:

- evaluation of hazards of a chemical and assigning danger class for substances and specific types of products, resulting from its possible exposure to human health and environment;
- establishing of health-related and other standards for contents of substances and components of products in environment, including sanitary-epidemiological regulations on certain products, maximum concentration limit values of pollutants in different environmental compartments (air, water, soil), maximum allowed emissions of pollutants;
- elaboration of technical documentation like list of precautionary and protective measures, instructions of safe use, conditions of reclamation, disposal of waste and certain types of products to prevent its adverse effect on human health and environment.

Evaluation of hazards means expert assessment (incl. review of inventory of hazardous components) and laboratory tests both of substances and products. The scope of tests is dependant on potential hazard class. If the product contains substances of I or II hazard class, also chronic toxicity studies are conducted in addition to chemical-hygienic tests. Common testing principles are enforced through national standards (GOST).

The main differences among EU and the GOST classification systems for substances are:

- The GOST system relies on experts' knowledge to interpret test results in institutions performing evaluation of hazards, no legally binding common classification criteria similar to EU Classification and Labelling Guide exists, i.e. it is possible that the same substance evaluated by different institutions has different hazard classes assigned;
- List of necessary tests depending on type of substance and its danger class is identified only for pesticides, there is no unified approach for testing of other substances.
- Tests performed in hazard assessment are not necessarily following OECD methods.

However, standardization of methods has a top priority in the international arena. The forthcoming 'Updating of the Globally Harmonized System of Classification and Labelling of Chemicals'⁷, for example, addresses the following issues regarding flammable liquids:

- Sustained combustion
- Calculation of the flash point of mixtures
- Standards cited for the determination of the flash point; and
- Determination of the boiling point / initial boiling point

Institutional framework

This paragraph focuses on rail transport, as this is the only transport mode which would be practical to use in Ukraine for LPG transport on large quantities.

Legal system:

Ukraine law on dangerous goods for railways is for 70% harmonized to RID. It is expected that in July 2007 this is expanded to 100%. The tank container meet already the international requirements. The COTIF office in Warsaw is in charge of the approving the harmonization. It is expected that Ukraine joins the RID, however no timeframe is set yet. Ukraine is ready to join AND.

Currently Ukraine has some procedures on dangerous goods which are more strict than the RID, and some which are less. Examples are:

More strict – RID foresees every 7 year inspection of the pressure of tanks, whereas Ukraine foresees in a 5 year period; and even more frequent depending on the use of the tank.

Less strict: Ukraine does not use the iron plates indicating the content of the container, but instead it is painted on the tank in white (UN dangerous goods code); or the testing date is not clearly noted on the tank. The accidents card is only in Russian and Ukrainian but not in English.

⁷ United Nations; Committee of Experts on the transport of dangerous goods and on the globally harmonized system of classification and labelling of chemicals, ST/SG/AC.10/C.3/2007/11; ST/SG/AC.10/C.4/2007/2; 12 April 2007

The accidents card uses the UN codes, not the SMGS code.

Institutional elements:

Under the MoT the Railway Inspectorate is in charge for checking the safety procedures. The Inspectorate is independent and reports to the MoT. The Inspectorate is mainly checking the tracks, wagons and locomotives. Packaging is under the shipper's responsibility or plant factory.

The tanks are inspected by a separate entity: State Committee of Technical and Industrial Control. This entity is responsible for testing and control of the LPG tanks.

Recently Ukraine introduced special training courses for LPG transport. Permissions to transport dangerous goods are given for a one year period by the MoT. When accidents occur, the Railways reports to the Ministry of MNS. The MNS informs the Inspectorate. There is a smooth cooperation between these institutes.

In principle Ukraine uses the SMGS documents, as these can be used till the German border. Ukraine is now testing the Unified Bill of Loading. The environmental aspect is covered in the law; however the penalty system is not into place as the Inspectorate is not sufficient equipped and trained, so no strict control mechanism in place.

LPG transport in practices:

At the moment the LPG transport is for 70% domestic transport. Ukraine cannot increase international transport at a short term, as no extra wagons are ordered; moreover Ukraine is not eager to send its tank wagons to Georgia or Turkmenistan as these countries are famous for loosing these wagons,

Each region has its own railway company. When the transport involves more regions, in each region the locomotive has to be changed and the accompanying documents checked. It is possible to run the train in 3 to 5 days from Odessa to the Polish border, depending on the number of shunting for procedures.

No big accidents happened so far during the transport of dangerous goods by rail. Rail is the safest mode of transport. (This was noted before the derailment discussed earlier in the report). There is a difference between the regulation and the daily practice. The Inspectorate finds quite some breaches during the inspections: for example during loading and the transport of LPG the temperature is not constant.

According to the records of the Inspectorate the shippers make more accidents than the railways do. These accidents are mostly due to human failures.

There is a maximum of dangerous goods trains, which depends on the quotas of Hungary, Poland and Slovakia. These countries allow only a certain number of dangerous goods train on their network. Ukraine

Conclusions

The four countries taking part in the study, Azerbaijan, Georgia, Kazakhstan and Ukraine, do not have any legal or institutional barriers to transport LPG, nor is an increase of LPG transport limited by the legal framework or institutional barriers. LPG transport is not specially treated; LPG transport is dealt with like transport of all other dangerous goods.

Controlling the implementation of the safety regulation within the railways is inspected by the internal safety departments of the railways. These departments are checked upon by the Ministerial safety inspectorates. Only in Georgia there is not such an extra control body on national level.

Controlling the implementation of the safety regulation in the maritime field is done by the maritime inspectorate and port authorities.



Published September 2007

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