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Proposals for amendments to RID/ADR/ADN: new proposals

Exploratory study on the use of the concepts of «danger», “hazard” and “risk” in the ADN, ADR and RID regulations

Transmitted by the Romania, UIC and IRU

Introduction

In the harmonisation of the different language versions of the ADN, ADR and RID modal regulations, attention must be paid to the vocabulary used. Romania has highlighted on several occasions that the lack of harmonisation in the DE, EN and FR versions may create difficulties in the transposition of these regulations in other national languages. In addition, the improper use of certain terms within the same language version may prove a source of incomprehension.

The same applies for the “UN Recommendations”. It is for this reason that the United Nations’ Sub-Committee of experts on TDG ⁽¹⁾ have recently examined the situation and have adopted propositions for amendments concerning the use of the concepts of “risk(s)”, “danger(s)” and “hazard(s)”. The amendments decided upon will be taken into account in the ADN, ADR and RID regulations within the context of the standard management procedures with which they are concerned.

The use of the concepts of risk, danger and hazard (Risiko and Gefahr in German; risque and danger in French) in the ADN, ADR and RID regulations does not just concern the transposition of UN Recommendations. A certain number of provisions are specific to European regulations or even to one particular Modal Regulation.

The concepts of “risk”, “danger” and “hazard” are used alone or in combination with other terms in a certain number of fixed expressions. The most obvious anomaly is the use of the concept of “risk” in place of “danger” or “hazard” as if these concepts were interchangeable. This ‘anomaly’ appears more or less evident depending on the regulation in question and its DE, EN or FR version.

Pending the adoption of the UN Sub-Committee’s amendments, Romania and UIC have led an exploratory study regarding the situation for the ADN, ADR and RID regulations. The aim of this study is to identify the possible ‘anomalies’ and to provide elements of

¹ Forty-ninth session of the TDG Sub-Committee. Document ST/SG/AC.10/C.3/2016/16. Relationship between the concepts of danger and risk. Notification from IATA. Document ST/SG/AC.10/C.3/98/add1. Report by the Sub-Committee of experts on TDG. Draft amendments for the recommendations (Model-Regulation) have been adopted.

information which will allow the adaption and harmonisation of the relevant texts to be handled in the best possible conditions.

In principle, the impact of inappropriate use of the concepts of “danger(s)”, “hazard(s)” and “risk(s)” on the operational conditions for transport has not proved significant to date. However, this could change in time given the increasing importance of requirements relating to the assessment and acceptability of risks. Legislation evolves and various works are in progress, notably those decided upon by the Joint Meeting. The objective is to provide a “standardised method for risk assessment” for the parties involved in the transport of dangerous goods, in order to enable this activity to take place at European and international level whilst maintaining a high level of security.

The current review is not exhaustive. It concerns the occurrences of the use of the concepts of “risk(s)”, “danger(s)” and “hazard(s)” in the DE, EN and FR versions of the ADN, ADR and RID regulations, focusing on the essential. Not all occurrences of the same expression are necessarily highlighted. It will be possible to complete a more detailed examination later along the lines decided upon by the Joint Meeting when it comes time to prepare the amendments.

The results of the analysis have been recorded in an Excel table entitled “Occurrences of the concepts of danger, hazard and risk”. Each line corresponds to a recording of a “unit of text” (paragraph, table, article, subparagraph, etc.) which may contain several occurrences. Each constituent Part of the ADN, ADR and RID regulations (the RID only includes 7 rather than 9) has its own Excel spreadsheet. The table contains approximately 550 examples. An example may concern all of the ADN, ADR and RID regulations, or only one, or two out of the three.

Review – Observations and Comments

The 1.2.1 “Definitions” section of the ADN, ADR and RID regulations and the UN’s “Recommendations – Model Regulation” do not provide explicate definitions for these concepts. “Danger(s)”, “hazard(s)” and “risk(s)” do not feature in section 1.2.1 of the regulations with a definition of general application. The meaning behind the concept in question may not always be deduced in a straightforward manner from its use and the technical and regulatory context of the provision concerned.

- The concepts of danger or hazard are mainly used in relation to the classification of goods and their packaging (danger class, hazard label, hazard identification number, subsidiary hazard, packaging group, etc.).

- The meaning of the concept of “risk(s)” is not explained in the text. A definition is provided, however, by the “Generic Guideline for the Calculation of Risk inherent in the carriage of dangerous goods by rail” – An introduction to the basic principles of risk assessment for chapter 1.9 of ADR and RID.

1. The concepts of “danger”, “hazard” and “risk” are used in the field of safety, whereas the concept of “risk” is also used in the field of security (chapter 1.10), particularly in the FR version of the regulations (“Haut risque”) where the DE and EN versions use “Hohem Gefährpotenzial” and “High consequence” respectively.

2. The observations by IATA concerning the UN Recommendations are also applicable for ADN, ADR and RID. The concepts of “danger”, “hazard” and “risk” are frequently used in an interchangeable manner, particularly in the EN and FR versions, with the use of corresponding concepts appearing more in line with the meanings provided by IATA in the DE version.

3. Concerning the concept of “danger”, the DE and FR versions of ADN, ADR and RID frequently use “Gefahr” and “danger” respectively. The EN version, however, uses “danger” or “hazard” in quite separate conditions depending on whether it is the “UN Recommendations” or the ADN, ADR and RID regulations which are under consideration.

4. In the current EN version of the UN Recommendations, the use of the concept of “hazard” is much more frequent than that of “danger”. Indeed, approximately 200 occurrences of “hazard” are found, in comparison to only 50 occurrences for “danger”, of which 10 refer to “degree of danger”. In the ADN, ADR and RID regulations, the average number of occurrences is 150 compared to 90.

The two concepts of “hazard(s)” and “danger(s)” do not always appear to be interchangeable according to their application. This remains to be verified with the competent English speaking authorities. The UN Sub-Committee report requests the replacement of the concept of “risk(s)” by the concept of “hazard(s)”. The number of occurrences of the concept of “hazard” in the Model Regulation thus looks to increase further. From around 200 occurrences in the current version, the number should rise to around 300.

5. The DE version of the ADN, ADR and RID regulations primarily uses the concept of “Gefahr” (danger/hazard), while the EN and FR versions of these texts prefer the use of “risk”, in proportions which remain, however, varied. In the DE version, the number of occurrences of the concept of “Gefahr” is 380 on average in comparison to 40 for the concept of “Risiko”. In the EN and FR versions, the number of occurrences of “Danger(s)/Hazard(s)” and “danger(s)” is 210 compared to 150 occurrences of “Risk(s)”, and 185 compared to 200 occurrences of “risque(s)”, respectively.

6. In a number of cases, the UN Sub-Committee’s project for amendments consists in replacing the term “risque(s)” by “danger(s)” in the FR version and “risk(s)” by “hazard(s)” in the EN version. As indicated, the number of cases planned include around 100 occurrences. The key terms concerned are highlighted in YELLOW in Annex 2 of the present document.

7. Occurrences of the concepts of “risk(s)”, “danger(s)” and “hazard(s)” can be divided into several categories according to their “degree of conformity” to the UN Sub-Committee’s project for amendments, the challenges linked to the harmonisation requirements of the regulations, and the requirements regarding the identification and assessment of risks. It is first and foremost necessary to identify, in descending order of their number of occurrences, those which:

- arise “naturally” from the UN TDG Sub-Committee’s project for amendments,
- in principle, do not conform along the same lines but which require prior assessment,
- are to be assessed, without bias, with a view to improving the harmonisation of vocabulary.

Assessment of occurrences – Conformity – Harmonisation

The analysis of the examples and the occurrences they contain allows them to be divided as follows, depending on the actions to be undertaken in principle.

	Type of occurrence concerning the use of the concepts of “danger(s)”, “hazard(s)” and “risk(s)”	Regulation concerned	N° of examples concerned, divided by type (number)		
			DE	EN	FR
1	Occurrences directly concerned by the project of amendments for the “UN Recommendations”	ADN		87	97
		ADR		116	149
		RID		109	127
2	Other occurrences, in principle non-conforming. Prior examination of vocabulary to be completed for the purpose of strengthening harmonisation	ADN	3	3	10
		ADR	12	12	14
		RID	11	11	13
3	Occurrences to examine, for the purpose of creating a greater harmonisation of vocabulary between the ADN, ADR and RID regulations	ADN	3	3	5
		ADR	16	16	19
		RID	16	16	19
4	Occurrences which conform in principle, but are non-harmonised between the ADN, ADR and RID regulations	ADN	116	37	34
		ADR	170	51	23
		RID	152	43	23
6	Occurrences which conform in principle, harmonised between the ADN, ADR and RID regulations	ADN	178	178	178
		ADR	160	160	160
		RID	162	162	162
7	Non-significant occurrences	ADN	28	44	26
		ADR	21	24	19
		RID	22	22	19

Comments:

- a) Concerning the EN version, the concepts of “hazard” and “danger” are considered equivalent for the purposes of the analysis, including in expressions which use the concept of “danger(s)” despite the UN Sub-Committee’s suggestion to use “hazard”.
- b) As indicated above, the occurrences have not all been noted separately in order to prevent a study which is intended to be exploratory from becoming too heavy. In certain cases, the reference is linked to a number of occurrences. This is the case when the terms are used in tables, for example in Table A (3.2) or for written guidelines (5.4.3).
- c) The DE version of the ADN, ADR and RID regulations is not directly concerned by the amendments proposed by the UN Sub-Committee. It may, however, be concerned by certain amendments stemming from the examinations planned in lines 2 and 3 of the above table, and where necessary, the replacement of the concept of “Gefahr” by “Risiko”.
- d) The occurrences in line 1 of the above table in point III concern the application of decisions taken by the UN Sub Committee. They are to be acknowledged directly by the secretariats of the bodies concerned. Annex 2 provides additional information regarding terms used in relation to the concepts of “danger”, “hazard” and “risk”.

Proposals

The present document aims to provide a global view of the use of the concepts of “danger”, “hazard” and “risk” within the ADN, ADR and RID regulations and of the extent of the work to be carried out regarding their clarification and harmonisation. Given the number of modifications arising directly from amendments decided upon by the UN Sub-Committee, only a specific examination of lines 2 and 3 of the table presented in point III will be completed as a supplement.

The table containing extracts from the DE, EN and FR texts concerned may be provided, if the Joint Meeting decide that this examination is to be completed.

Annex1

Occurrences of expressions containing the concepts of “danger(s)”, “hazard(s)”, “risk(s)”.

The data in the table below results from the enumeration of the table of occurrence recordings (references + corresponding text)

Versions		Occurrences of terms in the DE, EN and FR texts					
		Gefahr(en) Danger(s) (+ hazard(s)) Danger(s)			Risiko(en) Risk(s) Risque(s)		
		DE	EN	FR	DE	EN	FR
Part 1	ADN	55	25 (13)	28	18	18	35
	ADR	44	14 (9)	15	15	18	34
	RID	46	15 (9)	17	15	16	33
Part 2	ADN	145	32 (71)	82	3	48	51
	ADR	146	31 (76)	88	3	45	49
	RID	143	31 (73)	86	3	41	46
Part 3	ADN	5	2 (1)	3	2	15	3
	ADR	31	3 (16)	13	2	15	22
	RID	32	3 (16)	13	2	14	22
Part 4	ADN	0	0	0	0	0	0
	ADR	35	4 (9)	15	2	14	35
	RID	34	4 (7)	15	2	14	32
Part 5	ADN	65	2 (23)	31	1	27	20
	ADR	72	2 (26)	33	1	27	25
	RID	74	3 (24)	33	1	27	25
Part 6	ADN	0	0	0	0	0	0
	ADR	39	22 (1)	12	18	25	67
	RID	41	19 (1)	13	21	25	65
Part 7	ADN	13	1 (5)	5	1	6	15
	ADR	8	4 (2)	3	1	6	15
	RID	7	5 (2)	4	1	6	15
Part 8	ADN	13	6 (7)	12	2	4	9
	ADR	14	3 (5)	4	2	4	16
		0	0	0	0	0	0
Part 9	ADN	30	4 (1)	24	4	21	23
	ADR	11	3 (4)	3	4	21	17
		0	0	0	0	0	0
Total	ADN	296	72 (98)	185	31	139	156
	ADR	400	86 (148)	186	48	175	280
	RID	377	80 (132)	181	45	143	238

Comments:

Overall, the data in the table shows clear differences in the use of the concepts of “risk(s)”, “danger(s)” and “hazard(s)” in the ADN, ADR and RID regulations and their DE, EN or FR versions. These differences do not necessarily have a negative impact on the comprehension of the regulatory provisions. It must also be taken into account that the RID regulations only contain 7 parts, as opposed to the 9 parts and modal specificities of the ADN and ADR regulations.

Annex 2

List of key terms containing the concepts of danger, hazard and risk

The examples highlighted in Yellow are directly concerned by the UN Sub-Committee's project for amendments. Table 3.2 and the label templates are directly affected by these amendments.

ADN+ADR+RID		
DE	EN	FR
Risiko	Risk	Risque
Sicherheitsrisiko	/	Danger pour la sécurité
Sicherungsrisiken	Security risks	Risques pour la sûreté
Gefahr	Danger	Danger
	Hazard	
Gefahrgutklasse	Class of dangerous goods	Classe de marchandises dangereuses
Gefahrenklasse	Hazard class	Classe de danger
Gefahrenunterklasse	Hazard division	Division de risque
Gefahrenklassifizierung	Hazard classification	Classement des dangers
Gefahrenermittlung	Identification of hazard	Détermination des dangers
Bereiche der Gefährlichkeit	Categories of risk	Catégories de danger
Gefährdungskategorie	Hazard category	Catégorie de danger
Überwiegenden gefährlichen Eigenschaft	Predominant hazard	Danger principal
Überwiegenden gefahr	Major hazard	Danger prépondérant
Tabelle der Überwiegenden Gefahr	Table of precedence of hazards	Tableau de prépondérance des dangers
Hohem gefahrpotenzial (1.10)	High consequence (1.10)	Haut risque (1.10)
Hauptgefahr	Predominant hazard	Risque principal
	Primary hazard	Danger principal
	Primary risk	Risque primaire
Zusätzlichen Gefahr	Additional hazard	Risque additionnel
Zusatzgefahr	Subsidiary risk	Risque subsidiaire
Mehrfachen Gefahren	Multiple risks	Risques multiples
	Multiple Hazard	
Grosszettel für die Hauptgefahr	Primary risk label	Etiquette de risque primaire
Gefahrzettel	Danger labels	Etiquette de danger
Gefahrkennzeichen	Danger marks	Marques de danger
Nebengefahr	Subsidiary risk	Risque subsidiaire
Überwiegende Nebengefahr	Predominant subsidiary risk	Risque subsidiaire prédominant
Zusätzlichen Nebengefahren	Additional subsidiary risks	Risques subsidiaires supplémentaires
Nebengefahrzettel	Subsidiary risk label	Etiquette de risque subsidiaire
Gefahrzettel für die Nebengefahr		
„Warnung vor allgemeiner Gefahr“	« Warning : general danger »	« Avertissement : danger général »
Gefahrenpotential	Hazard potential	Potentiel de danger
Potenzielle Gefahren	Potential risk	Risques potentiels
	Potential hazards	
Gefährlichen Eigenschaften	Dangerous properties	Propriétés de danger

Akute Gefährdung	Acute hazard	Danger aigu
Vorhersehbaren Gefahren	Foreseeable dangers	Dangers prévisibles
Gefahrenmerkmale	Hazards characteristics	Caractéristiques de danger
Tatsächlichen gefahr	Actual degree of danger	Danger réel
Gefahrenkombination	Combination of hazards	Combinaison de risques
Gefahrentyp	Hazard type	Type de danger
Gefahrenniveau	Danger level	Degré de danger
Gefahrgrad	Degree of danger	Degré de danger
		Degré de risque
« Precautionary labels (...) »	« Precautionary labels (...) »	« Etiquettes de risques (...) »

(next page)

Annexe 2

Other occurrences

ADN+ADR+RID		
DE	EN	FR
Gefahren einer Verformung	Risk of deformation	Risque de déformation
Gefahr der Beschädigung	Risk of damage	Risque d'endommagement
Korrosionsgefahr	Risk of corrosion	Danger de corrosion
Gefahr der Beschädigung von Teilen	Risk of damage to working parts	Risque d'avarie des organes
Gefahr der Penetration des Tankbodens bei einem Aufstoß	Risk of penetration of the tank end	Risque de pénétration des fonds de citerne en cas de choc
äußeren Gefahren	External hazards	Risques extérieurs
Gefahren bei Arbeiten an Bord	Dangers caused by work by board	Dangers causés par les travaux à bord
Gefahr des Austretens	Risk of escape	Risque de fuite
Feuergefahr	Fire hazard	Risque d'incendie
Gefahr der Entzündbarkeit	Flammability hazard	Risque d'inflammabilité
Gefahr einer unbeabsichtigten Entzündung oder Zündung	Risk of unintended ignition or initiation	Risque d'allumage ou d'amorçage
Explosionsgefahr	Explosion hazard	Risque d'explosion
Begrenzte Explosionsgefahr	Limited explosion risk	Risque limité d'explosion
Explosionsgefährdete Bereiche	Explosion danger area	Zone de danger d'explosion
Zusätzliche Detonationsgefahr	Additional risk of sympathetic detonation	Risque supplémentaire de détonation
Gesundheitsrisiko	Health risk	Risque pour la santé
Erstickungsgefahr	Risk of asphyxiation	Risque d'asphyxie
Gefahr beim Einatmen	Inhalation hazard	Danger par inhalation
Gefahr heftiger Reaktion	Risk of vigorous reaction	Risque de forte réaction
Gefahr einer spontanen heftigen Reaktion	Risk of spontaneous violent reaction	Danger de réaction violente spontanée
Gefahr einer Infektionsübertragung	Risk of spread of infection	Risque de propagation de l'infection
Infektionsrisiko	Significant risk of infection	Risque notable d'infection
Gefahr der Vergiftung	Risk of intoxication	Risque d'intoxication
Biologische Gefahr	Biohazard	Danger biologique
Gewässergefährdend	Aquatic hazard	Danger pour le milieu aquatique
Gefahren für die aquatische Umwelt	Aquatic environmental hazards	Danger pour le milieu aquatique
Umweltgefahr	Environmental hazard	Danger pour l'environnement
Thermische Gefährdung	Thermal hazards	Risques thermiques
Erstarrungsgefahr	Risk of solidification	Danger de solidification
ionisierender Strahlung ausgehende Gefahren	Hazards related to ionizing radiation	Risques propres aux rayons ionisants
Gefahr exothermer Zersetzung	Risk of exothermic decomposition	Risque de décomposition exothermique