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**Economic Commission for Europe**

Inland Transport Committee

**Working Party on the Transport of Dangerous Goods**

**Joint Meeting of the RID Committee of Experts and the**

**Working Party on the Transport of Dangerous Goods 20 February 2017**

Bern, 13-17 March 2017

Item 5 (b) of the provisional agenda

**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]](#footnote-2)) 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 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 Gefahrpotenzial” 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)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | Occurrences of terms in the DE, EN and FR texts | | | | | |
|  |  | | Gefahr(en)  Danger(s) (+ hazard(s))  Danger(s) | | | Risiko(en)  Risk(s)  Risque(s) | | |
|  |  | |
|  |  | |
| Versions | | | 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  Primary hazard  Primary risk | Risque principal  Danger principal  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 Explosiongefahr | Limited explosion risk | Risque limité d’explosion |
| Explosiongefährdete 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 |
|  |  |  |
|  |  |  |

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. [↑](#footnote-ref-2)