NRPB-OS/29/2004
CEPN R280

cepn

Pilot Study for the Creation of a European Union Radiation Accident and Incident Data Exchange System (EURAIDE)

Mrs J E Stewart
NRPB
Occupational Services Dept
Leeds
United Kingdom

Dr C Lefaure
CEPN
Fontenay-aux-Roses
France

Mrs R Czarwinski
Bundesamt für Strahlenschutz
Berlin
Germany

nrpb
National Radiological Protection Board

The National Radiological Protection Board was established by the Radiological Protection Act 1970. It is responsible for conducting research and providing advice and services for protection against both ionising and non-ionising radiations.

Any questions relating to this document should be addressed to the Information Office, National Radiological Protection Board, Chilton, Didcot, Oxfordshire OX11 0RQ. E-mail: information@nrpb.org.

Website: www.nrpb.org

Pilot Study for the Creation of a European Union Radiation Accident and Incident Data Exchange System (EURAIDE)

Part A: Full Report
Part B: Synthesis of Questionnaires

Mrs J E Stewart
NRPB
Occupational Services Dept
Hospital Lane
Cookridge
Leeds LS16 6RW
United Kingdom

Dr C Lefaure
CEPN
Fontenay-aux-Roses
France

Ms R Czarwinski
BfS
Bundesamt für Strahlenschutz
Berlin
Germany

CONTENTS

APPENDICES

Pilot Study for the Creation of a European Union Radiation Accident and Incident Data Exchange (EURAIDE)

1. INTRODUCTION

The above Study has been funded by the European Commission and has been a collaborative project involving NRPB (UK), CEPN (France) and BfS (Germany).

The study has had the objective of evaluating the feasibility of:

(i) facilitating the establishment of national radiation accident and incident databases where there are none and to encourage the compatibility of such databases,
(ii) establishing a European network to exchange radiological protection feedback from accidents and incidents,
(iii) establishing summary reports of relevant accidents and incidents with the aim of identifying lessons to be learned, so that they can be used in radiation protection training programs, and
(iv) upgrading the radiological safety in the countries applying to join the EU, by integrating them into the above efficient feedback exchange system.

This report details the first stage of the project, which was to review the status of existing (or proposed) national mechanisms for collating data on radiation incidents

2. OBJECTIVES and METHODOLOGY

The objectives of this initial review were to:

i) obtain detailed information regarding the means of capturing and collating data , the format of established or proposed data systems and accessibility of the final data
ii) to use this information to consider how a European platform to gather relevant data/accident reports might be established., and
iii) to consider how the various elements of national data systems might be harmonised in order to facilitate the presentation and distribution of lessons learned.

It was considered that the key aspects that would need to be addressed in order to determine the feasibility of a European wide data exchange mechanism were

- the criteria used for the classification and categorisation of incidents
- criteria for the selection of incidents from national data systems for inclusion in a European-wide system
- the implication of possible language problems

In order to illicit the required information a detailed questionnaire was sent to a total of 31 countries, being existing European Member States, applicant or associated countries. A full list of the countries and institutions contacted is given in appendix 1. Responses were not obtained from 6 of the 31 countries contacted; Denmark, Bulgaria, Estonia, Hungary, Latvia and Malta.

The questionnaire, which is reproduced in appendix 2, was split into three parts. Part A was by way of an introduction elaborating on the structure of the subsequent questions and how to complete them. Part B requested summary information on national systems for collecting information on radiation incidents, while Part C requested detailed, structured, information on (each) system.

The results of the survey are discussed in detail in the following sections

3. CURRENT INVENTORY of RADIATION INCIDENTS DATA SYSTEMS

The detailed responses to Part B of the questionnaire are presented in Table 1 (see following page).

3.1 Summary

In summary of the five countries, which responded (an 80% response rate):

- five have no formal incident data system: (Austria, Belgium, Irish Republic, Portugal, and Cyprus.)
- twelve have established data systems: (Finland, France, Germany, Luxembourg, Netherlands, Spain, Sweden, United Kingdom, Czech Republic, Lithuania, Romania, Slovenia)
- three are currently developing incident data Systems: (Turkey, Iceland, and Switzerland)
- five reported that they had no specific national data systems, but that they supported the INES*[1] system: (Greece, Italy, Poland, and Slovakia) or RADEV*[2]
- two countries (France and Germany) operate specific nuclear incidents data systems, in addition to systems recording non-nuclear incidents
- one country (UK) operates two national non-nuclear incident data systems, one for general non-nuclear applications and one specifically addressing incidents relating to the transport of radioactive materials

As for the countries that did not respond (Denmark, Bulgaria, Estonia, Hungary, Latvia and Malta), personal contacts suggest that, in general, they do not have formal incident data systems.

[1] INES :International Nuclear Event Scale ; see infra chapter 4 and Appendix 4 ; The International Nuclear Event Scale (INES), User's Manual, 2001, IAEA, Vienna, 2001.
[2] RADEV

Table 1: Inventory of Systems in the countries surveyed

EC member states	Existing system			In development			No system
	Country specific (all)	Country specific (nuclear)	INES	Country specific (all)	Country specific (nuclear)	INES	
Austria							X
Belgium							X
Denmark	← No response →						
Finland	X						
France	X	X					
Germany	X	X					
Greece			X				
Irish Republic							X
Italy			X(2)				
Luxembourg	X						
Netherlands	X(1)						
Portugal							X
Spain	X						
Sweden	X		X				
United Kingdom	X						

(1) This is not a specific « Radiation Incident Data System », but a Labour Inspection Registration System

(2) INES is used to report to IAEA information when known by ANPA

Table 1 (following): Inventory of systems in the countries surveyed

Applicant countries and associated countries	Existing system			In development			No system
	Country specific (all)	Country specific to nuclear	INES	Country specific (all)	Country specific to nuclear	INES	
Bulgaria	← No response →						
Cyprus							X
Czech Republic	X						
Estonia	← No response →						
Hungary	← No response →						
Latvia	← No response →						
Lithuania	X(1)						
Malta	← No response →						
Poland			X				
Romania	X		X				
Slovakia			X				
Slovenia	X(2)						
Turkey				X			
Iceland				X			
Norway							RADEV[3]
Switzerland				X			

(1) This is not a specific « Radiation Incident Data System », it is integrated into a more general health system

(2) A system exists, but rather partial

(3) Currently supporting the IAEA RADEV trial

3.2 Rationalisation of information supplied

In the interest of clarity, it was considered prudent to rationalise the information supplied. This was done according to the following criteria.

i) While the majority of nuclear countries have well established nuclear specific data systems which facilitate constructive data exchange on both a national and international level, it was considered that such systems are outside the scope of this study. As such, all nuclear –specific systems declared by respondents are excluded from further comment or analysis within this report.

ii) Likewise, the INES system has been excluded. This system, which was originally intended to apply to "nuclear" events was devised a mechanism for publishing information in a manner that could be understood by the media and the general public. Well-established, INES can in theory now apply to all radiological events, although in practice remains focussed on nuclear. While, as indicated in table 1 a number of respondents declared it as a data system, INES is, in fact, mainly a reporting system to IAEA, even if sometimes used as a support for collecting national data. Some further information on the system, and specific detail regarding operation in the above listed countries is given in appendix 6.

iii) One country, Norway, responded to the effect that, while there was no specific national data system in place, access is currently available to the IAEA's Radiation Events Database, RADEV.

The primary purpose of RADEV is to facilitate dissemination of information on radiation events and feedback lessons learned in order to prevent future accidents or mitigate their consequences should they occur. RADEV is also intended to help Member States, the IAEA and other organisations to identify priorities in their radiation safety programme in order to facilitate the efficient allocation of resources. The database contains information on accidents, near-misses and any other unusual events involving all radiation sources not directly involved in the production of nuclear power or its fuel cycle and organise the information in a standardised manner to facilitate the identification of root causes and lessons learned. A more detailed description is given in Appendix 6.

At the present time RADEV is undergoing user trials (due to be completed Spring 2004). While, in many respects RADEV may well represent a model for how an EU-wide data exchange system might operate the decision was taken to exclude it from comparative analysers within this report due to the fact that:

a) it does not reflect any specific national interest, and
b) the feasibility of RADEV having already been established, it is already undergoing testing and evaluation, the outcome of which will be well documents.

Nonetheless, the authors recognise that RADEV is a significant data exchange system, and its significance with regard to the feasibility of "EURAIDE" must be taken into account.

iv) No further account will be taken of those countries, which confirmed that that they had no specific national systems, nor of those countries that did not respond.

In the following sections therefore, analysis is confined to 17 data systems within 15 countries, ie – Finland, France, Germany, Luxembourg, Netherlands, Spain, Sweden, the UK, Czech Republic, Lithuania, Romania, Slovenia, Turkey, Iceland and Switzerland.

4. MECHANISMS FOR CAPTURING DATA

4.1 Objectives

Respondents were asked to specify the intended objectives of their respective data systems, specifically the intended end-use. Analysis of the responses indicated that the majority of the established, or proposed, systems have a number of objectives falling into the following categories:

i) "Declaration:"

Documentation and recording of incidents that require mandatory reporting to regulatory bodies.

ii) "Statistics"

To facilitate statistical analysis of information

iii) "Lessons to be learned"

Analysis of information on the data system allows conclusions to be drawn with regards to root cause of incidents

iv) "Feedback"

To encourage openness and dialogue between all stake-holders; data available for use on radiation protection training courses, to aid decisions on allocation of resources, etc.

Detailed responses are presented in Table 1 in Appendix 3**.** In summary, the 15 countries the primary objective is formal mandatory declaration of incidents. Only the Netherlands and Switzerland did not state this to be a key objective. 15 systems are used to learn lessons and 13 to facilitate feedback. Statistics are produced from within 12 systems.

4.2 Definition of an incident and reporting criteria

The survey indicated that there is no universal definition of what constitutes a radiological "incident". Each country has provided its own definition and these are detailed in appendix 7.

However, on the basis of the information provided it is possible to draw a general consensus on understanding and that is "an incident is an unforeseen, unusual, unintended, uncontrolled, ill-advised or abnormal event or series of events associated with the use of ionising radiation(s)".

Even from this common starting point the definitions vary quite significantly in the detail. Some refer mainly to situations leading to violations in terms of dose limits or investigation levels. In these cases, the incidents produce situations considered as unacceptable and some countries mix the definition of the incident with necessary actions (investigation) or countermeasures that should be implemented. In two cases, Switzerland and the Czech Republic, a formal distinction is made between "incident" and "accident" in the regulation:

- "Radiation incident means an event resulting in an inadmissible release of radioactive substances or ionising radiation, or an inadmissible exposure of individuals; radiation accident means radiation incident requiring urgent measures in order to protect the population and environment" (Czech Republic).

- "a technical failure when the safety of the installation itself or of an object is impaired; a radiological incident when an emission limit or dose limit for persons not exposed occupationally may be exceeded; a radiation accident when a person or persons are subjected to a dose in excess of 50 mSv" (Switzerland).

Other definitions are more focussed on the effects of the event:

- "that led to or could have led to exposure of man or environment" (Sweden).

- "leads or could lead to a harm of persons, goods or environment even if there are no or negligible radiological consequences" (Germany).

- "give rise to incidental exposure or incidental potential exposure for a worker an individual of the public or the environment" (France).

- "able to generate (or having effectively generated) an uncontrolled occupational exposure".

With regard to the above definitions it is noticeable that an event that has not led to actual exposures but had the potential to considered valid as the one that gave rise to actual exposures. The event is then interesting in terms of lessons to be learned to avoid another occurrence of the same type of event, more than in terms of necessary actions or counter measures.

At an international level, there is a need of a common definition in order to set up a system of exchange; however, that definition will depend upon the objective proposed for the system. If the objective is mainly to set up a database to describe the situation and the evolution of the frequency and types of incidents, in order to decide where to put efforts, then a reference to violations and a description of criteria for declaration is of prime importance. If the objective is mainly to spread lessons learned to say, improve the effectiveness of radiological protection courses, or to modify behaviours to avoid new incidents, then a reference to circumstances leading to doses (actual or potential) is even more important.

The definition of what is an incident is directly linked to the criteria for reporting, or submission, to the data system. Therefore it is not surprising to find "exceeding the limits" as a reporting criterion in several countries; as well as, when the objective is to exchange data all what is abnormal is interesting and there is no reporting nor submission criterion. Several countries (Czech Republic, Lithuania, Germany, Spain) propose a list of situations corresponding to incidents to be reported (detailed responses are presented in Table 2, Appendix 3).

In conclusion, there is no homogeneity in the way incidents are currently reported, submitted or selected!

4.3 Operational History

All ofe 17 systems considered are national systems, with the exception of the German system, which is operated on both a national and regional basis. Full details are presented in table 3, Appendix 3.

It is interesting to note that, with the exception of the French IRSN system, established in 1975, and RAMTED in the UK, which was established in 1983/84, all of the systems have been set up quite recently, all post 1990. Eight of the data systems have been established since 1995 (3 still in development). This apparently recent emphasis on radiological events may be related to a number of factors:

i) The evolution of our societies requiring more protection in a context where the uncertainty concerning low doses effects has been reduced;
ii) An increased ability to spread information among workers and the public via software and networking;
iii) Where recommendations and regulations on radiological protection are more strict (eg, reductions in dose limits) or are quite recent, e.g. in applicant countries, and
iv) A greater emphasis on willingness to fight against misuse of lost sources.

4.4 Supporting documentation

The responses to the questionnaires indicted that the existence of documentation in support of the incident data systems is very varied. Of the 17 declared systems, 8 (including the 3 systems currently in development) have no supporting documentation at all. For the remaining 9, documentation ranges from reference in, or requirement of, legislation through to detailed published descriptions easily accessible to the various stakeholders (e.g. IRID, RAMTED, RELIR). Detailed responses on this aspect are presented in Table 4, Appendix 3.

4.5 Mandatory or voluntary system

Respondents were asked to indicate whether submission of data to incident data systems was :

(a) mandatory, ie data automatically included in data systems following reporting of incidents to Regulatory Bodies unfulfilment of legislative requirements; or
(b) voluntary, and at the discretion of stakeholders; or
(c) a mixture of a) and b).

Of the 17 systems considered, 8 support mandatory reporting of incidents to the regulatory body. The British IRID and the French RELIR are the only one where the inclusion into the database is totally voluntary. In these cases it is even a voluntary process of reporting to the system from the regulatory bodies, occupational physicians or qualified experts. In all other cases it is a mix. For example in Sweden, the reporting to the regulatory body is mandatory, but the regulatory body makes its own selection to include the incident into the database or not. Detailed responses are presented in Table 5, Appendix 3.

4.6 Operational constraints

One of the subsidiary objectives of this review was to ascertain the extent of any operational constraints on the incident data systems described, such as, for example, the existence of national legislation regarding confidentiality or data protection.

In fact only one system, that operated in Sweden, is influenced with direct regulatory constraints - "Systems have to be approved by the Swedish Data Inspection Board". For the others the single major operational constraint with respect to making the data generally accessible is that of confidentiality.

In these systems those involved in the recorded incidents are not identified, and the data is presented in such a way that any individual case is in no way attributable. In most cases, such an arrangement is viewed as essential in order to encourage co-operation and contribution. Example specific requirements are quoted below:

- "a law on confidentiality constrain the use of the raw data" (France IRSN).
- "with respecting these cases which shall be dealt with as confidential" (Czech Republic).
- "All treatment of personally identifiable data would have to be in accordance with the Icelandic Act and Regulations on the protection of privacy." (Iceland).
- "A major constraint is confidentiality; which was a problem that took a long while to solve when setting up the scheme. To address this problem, all information contained in the database is unattributable and confidential. Only the originator of the incident entry will know the names of the organisations or individuals concerned and all data are presented to NRPB in a format that provides anonymity. There will be some instances where, because of the affiliation of the contributor, NRPB may be aware of the organisation involved (but not the names of the persons). For its part, NRPB undertakes not to divulge any such privileged information to a third party. HSE and the Agency are well aware of the natural wariness that potential contributors may have in respect of the involvement of regulatory bodies. Therefore they have given assurances that they will not seek to obtain further information from the other partners (or the contributing organisation if different) about any incident recorded on the database that was not reported to the regulators. This would not prevent HSE and the Agency following up incidents that are notified to them by other means, eg, through statutory reporting requirements or complaints from employees or members of the public" (UK IRID)

- " a confidentiality chart is signed by all moderators of the RELIR system" (France)
- "Because it is an internal register without passing on data to third persons and without electronic possibility of the access, there are no restrictions to the system". (Luxembourg)

The practical consequence of this confidentiality constraint is that about one-third out of the 17 systems considered steps are taken to edit incident details prior to inclusion in the data system in order to ensure anonymity. While the remaining systems do not go this far at the recording step, in general, efforts are made to ensure confidentiality when data is published or communicated outside the data system.

4.7 Quality assurance elements of the system

In order for any incident data system to be of value it must be ensured that recorded data is accurate and pertinent. Consequently, it is considered that an element of quality assurance is a desirable feature of for any such system.
Again, responses to the questionnaire (detailed in Table 7, Appendix 3) indicated that the extent of the Quality Assurance associated with the declared systems is very variable ranging from just written declaration to review by expert committees and with four of the systems having no supporting QA at all.

5. SCOPE OF DECLARED DATA SYSTEMS

In order to try and ascertain the extent of practices/events included in the various data systems respondents were asked to indicate which of the following broad descriptions were included:

- Nuclear power
- Military
- Industrial
- Medical
- Research
- Teaching
- Transport
- Orphan sources
- Other (miscellaneous)

In addition, they were asked to state the types of exposure included ie, occupational, public and/or patient. The responses are summarised in Table 8, Appendix 3.

The information provided indicated that existing systems are fairly comprehensive. In all countries having data systems, those systems include incidents in general industry, research and transport (in the UK, transport is addressed in RAMTED, a dedicated data system) and with the exception of Luxembourg, all countries include incidents occurring in medical practice. Specific provision is made for the inclusion of incidents involving orphan sources in all responding countries except the UK. However, such incidents could be included within the framework of the UK IRID system.

All 15 countries have systems designed to cope with incidents within the nuclear power sector, although only 11 systems are inclusive of nuclear power (the remainder are dedicated data systems). Only 9 of the systems include incidents in the military sector.

All of the listed data systems include public and occupational exposure. It is worth noting that although incidents in the medical sector are included in nearly all systems, only 11 systems include issues of patient exposure and two others include them occasionally.

6. CATEGORISATION and PRESENTATION OF INCIDENTS WITHIN DATA SYSTEMS

6.1 Categorisation

Respondents were asked to describe the means of categorisation, if any, within their respective data systems. Here again, the meaning of "categorisation" is interpreted differently according to the country. When the role of the database is mainly ranking the incidents and communicating with the public and international organisations, the categories reflect the gravity of the incidents. When the objective is to provide analysis on lessons learned the categories reflect the types of occupations (27 in RELIR, more than 30 in IRID) or the type of source (RELIR), or equipment (IRID). With both approaches (ranking or lessons learned) the categorisation is specific to any given system.

The detailed responses are presented in Table 1, Appendix 4. In summary, the approach to categorisation is widely disparate; at the present time any comparison of statistics and data at the international level would therefore be quite difficult.

6.2 Inclusion of text descriptions of incidents

An objective of the questionnaire was to try and ascertain how widespread the use of text descriptions of incidents is. The answers to this question are presented in Table 2, Appendix 4.

Among the 17 systems considered, 11 have text descriptions of the incidents, one is developing documentation format and three do not include full test descriptions. Information from Turkey was not available.

7. ACCESSIBILITY

7.1 Statistical analysis

One possible use of the information incorporated within data systems is the production of statistics. The responses on this subject are presented in Table 1, Appendix 5.

Out of the 17 systems considered, the data from ten of them is routinely used for the production of statistics. For four of these ten, the statistics are for use by regulators only. Statistics are not routinely produced from six of the systems but one (Iceland) is developing a means of producing statistics. A response to this question was unavailable from Turkey.

7.2 Dissemination of case studies and lessons learned.

Respondents were asked to describe how the various case studies and lessons learned are disseminated beyond the data systems. Again, there appears to be a wide-ranging approach as illustrated in table 2, Appendix 5.

Among the 17 systems considered (in this case no data for Switzerland), five use case studies and lessons only for regulators, eight publish selected examples, and five publish all reported incidents, generally through public annual reports. One has produced a CD rom (French IRSN system), four have put case studies on their website (all incidents for IRID and RELIR). For five systems others ways of dissemination of lessons are used.

7.3 Languages used in publications

The predominant approach is for material included within data systems to be published in the national language(s). A small number additionally report in English (Finland for example in its annual report), although in at least three cases (Germany, Iceland and Romania) this is mainly done when required for the purposes of international presentation.

8. INTERNATIONAL EXCHANGE MECHANISMS

8.1 Use of examples from other countries

A key objective of the questionnaire was to try and establish whether or not use is made of data or information available from other countries. Although there are no formal exchange mechanisms in place, most respondents stated that they do, in fact, make use of data and examples from other countries although this appears to be on rather an ad-hoc basis determined by the ease of accessibility of the information (language can be a barrier). For important incidents, most countries have regularly got feedback information from IAEA, or national authorities annual reports. All countries confirmed that they would use information published via the media or reported on the Internet.

8.2 Perceived advantages of an EU-wide data exchange system and perspectives on EURAIDE

In the survey, countries were asked to give their views on the perceived advantages (or otherwise) of a European wide data exchange system:

i) All European countries surveyed see advantages in having common systems of categorisation of incidents. French IRSN proposes, for example, to have a minimum number of rough categories, and to let countries divide it into more specific details. The British administrator of IRID worries about the difficulties to achieve such a system, but considers that it is possible to identify a minimum set of common fields and categories, and proposes to look at the categories used by RADEV. United Kingdom RAMTED system, which deals specifically with transport incidents, fears that national reporting and recording of transports events would vary from country to country, and notes that there is an international system operated by IAEA (EVTRAM), and that RAMTED use its classification.

ii) One of the stated objectives of the proposed EURAIDE is "facilitating the establishment of national radiation accident and incident databases where there are none and to encourage the compatibility of such databases". This is clearly approved by all respondents, even if some countries consider it not worthwhile to have a national database given the limited applications of ionising radiations in these countries.

iii) All countries that responded see advantages in having common systems to exchange information on incidents. Two sets of goals are proposed for that system:

- The first set of goals is focussed on the "improvement of the safety culture" (Iceland) through "information exchange, feedback and lessons learned on special events especially for training purpose" (Germany, the UK, France). To achieve these goals it should not be worthwhile to set up an international "registry" of incidents, but to provide all stakeholders (regulatory bodies but also by licensees, media and general public; Spain) with a "selection of interesting examples, translated into all European languages", using a "web support". This will not happen overnight and it is suggested that its operation should evolve under the guidance of a Steering Committee. This should start with a relatively small core group with strong links to EAN. It should aim to run one Workshop a year, possibly in collaboration with other relevant groups (IAEA, EAN) as appropriate in that year.

- The second set of goals is more related to the elaboration of an international European database. It should be quite similar to, INES (Luxembourg, Greece) and facilitate fast "mutual information", as well as "Annual exchange of trends and breakdown per categories of events" (France) to allow benchmarking. The point was made that care needs to be taken as to how information is presented; for example a country announcing many events could be viewed as a country with a poor approach to radiation protection

However, whatever the objectives proposed, there is a consensus not to duplicate the existing systems, to "use existing information exchange systems" (Finland, Romania, Sweden), and to co-operate with the other international organisations (Czech Republic, the UK). There should rely on a web network providing, besides the data themselves on the events, an "up-to-date list of relevant authorities and contact persons" (Finland).

9. CONCLUSIONS and PROPOSALS

As detailed in section 2, the objectives of this initial phase of the study were to review the current status of existing (or proposed) radiation incident data systems and to consider on, the basis of information obtained, how a harmonised European-wide data exchange system might be progressed.

Analyses of the data provided has allowed the following broad conclusions to be drawn:

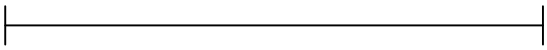
i) The majority of EU countries have, or make use of, an incident data system in some form. However, there is almost no consistency in approach and just over half of the countries involved in the survey have their own established national system

ii) The existing systems either:

- deal with the management of violations in terms of dose limits or investigation levels and are then a tool for further actions; or
- are focussed on the effects of the event and then provide lessons to be learnt to avoid re-occurrence of that event.

iii) All respondents see a positive advantage in having a European –wide data exchange system for incidents and there seemed to be general will to move forward. The proposed objectives are quite similar to those of the national systems, with in addition the need of an international benchmarking and strong hope of making profit from lessons learned from other countries.

In order to complete the initial phase of the study it is proposed that a workshop is organised for representatives of member states, applicant countries and associated countries. The objective of the workshop would be to define more precisely the specification of an EU-wide data system and to establish the feasibility and viability of such a system.



Appendix 1

List of Countries Surveyed

Country	Name of contact organisation
Austria	Austrian Research Center Seibersdorf
Belgium	FANC Research Centre CEN MOL
Denmark	
Finland	Radiation and Nuclear Safety Authority (STUK)
France	Institut de Radioprotectionet de Surêté Nucléaire (IRSN)
Germany	Bundesamt für Strahlenschutz (BfS)
Greece	Greel Atomic Energy Commission
Irish Republic	The Radiological Protection Intitute of Ireland
Italy	Agency for the protection of Environment and Territory (APAT)
Luxembourg	Department of Health
Netherlands	Ministry of Social Affairs
Portugal	Instituto Tecnologico e Nuclear
Spain	Consejo de Seguridad Nuclear(CSN)
Sweden	Swedish Radiation Protection Authority (SSI)
United Kingdom	National Radiological Protection Board (NRPB)
Bulgaria	
Cyprus	Medical Physics Department
Czech Republic	State Office for Nuclear Safety
Estonia	
Hungary	
Latvia	
Lithuania	Radiation Protection Centre
Malta	
Poland	Central Laboratory for Radiological Protection

Country	Name of contact organisation
Romania	Government of Romania
Slovakia	-Nuclear Regulatory Authority of the Slovak Republic (NRA SR)
Slovenia	Ministry of Environment and Spatial Planning, Slovenian Nuclear Safety Administration
Turkey	Radiation Health and Safety Department, Turkish Atomic Energy Authority (TAEA)
Iceland	Iceland Radiation Protection Institute
Norway	Norwegian Radiation Protection Authority (NRGA)
Switzerland	Swiss Federal Office of Health Public

Appendix 2

Questionnaire on Radiation Incident Data Systems

PART A

Structure of Questionnaire

The questionnaire is split into three parts:

Part A: provides information about the structure of the questionnaire and how to complete it,
Part B: asks for a list of the various systems in the country and contact points, and
Part C: asks for information about each specific system. A Part C should be completed for each system. It covers the following main areas

_ Mechanisms for capturing information about incidents
_ Scope of the systems
_ Means of categorising incidents
_ Use made of information
_ International exchange mechanisms
• Contact details

Questionnaires are often a compromise between a rigid format that in the ideal world would provide exact comparable data and looser formats for ease of completion. With this in mind the questionnaire below can be addressed in one of two ways, or a combination.

(a) It has been provided in hardcopy and in electronic format as a Word document [Version 6, Windows 95 and rtf]. In the latter case the responses can be added in a way convenient to you and the document will simply expand to accommodate them.
(b) Alternatively a separate descriptive document can be produced to answer the questions.

In either case, simple references to existing documents can be made and the documents provided. However please answer all questions, even if the answer is "None", "Not Applicable" etc. Also if you have more than one Reporting System, please complete a Part C for each system.. Examples of reporting forms or case studies would be very useful to supplement the information in the questionnaire.

If you have difficulty in understanding any of the questions or want to clarify any points, please telephone one of the contacts given in the letter.

PART B

List of the various systems in the country and contact points

If in your country there is one or more system for collecting information about incidents, even if they are in development, please list the systems in the table below and describe their status eg, operational, in development. In addition please identify the responsible organisation and relevant contact point.

Title of system	Status	Responsible organisation	Relevant contact point

Are there any links between the above systems? If so please describe the nature of these.

……

If you do not have any system, what do you see as the major obstacles to establishing them?

PART C1

Detailed Information about System

1 Name of System

…..

Mechanisms for Capturing Information about Incidents

2 What are the objectives of the system ?

……

What definition of an incident is used

3 Is the system national, regional or sector of use based?

……

4 How long has the system been operational and what time-frame does the data cover?

……

5 Are there any documents describing the system? If so please provide copies or relevant summaries

…..

6 Is the reporting system mandatory or voluntary or a mixture?
Mixture

…..

7 Are there constraints to operating such systems in your country?

- legal requirements
- other

…..

8 Please describe any quality assurance elements of the system

…..

Scope of the System

10 Which groups of practices or events are covered?

- nuclear power
- military
- industrial
- medical
- research
- teaching
- transport
- orphan sources
- other

11 What types of exposure are covered?

- Occupational
- Public
- Patient

12 What are the reporting criteria? Are these legally mandatory?

Means of Categorising Incidents

13 Are incidents categorised and if so how?

…..

14 Are text descriptions of the accidents/ incidents available?

15 Are the descriptions anonymised ie, individuals and organisations are not identifiable?

…..

Use Made of Information

16 Is the information used to produce accident statistics?
- for use by regulators only
- routine publication of statistics
- other (please specify)

17 How are the case studies/lessons learned disseminated?
- only for use by regulators
- selected examples published) where?
- all reported incidents published)
- available on CD Rom
- on a website
- other

18 What languages are the material published in?
- national language(s)
- English
- other

Please specify

International Exchange Mechanisms

19 Do you currently use/publish examples from other countries? If so
- where do you get the information from?
- are there problems in accessing and using foreign information

20 Do you see advantages in Countries in the EU having
- Common systems of categorisation of incidents?

…..
- a system to exchange information on incidents? …

21 How would you like to see EURAIDE operate?

…..

Thank you for your cooperation.

Appendix 3

Summary of current mechanisms for capturing data

Table 1: Objectives of national data systems

Country/system	Declaration	Statistics	Lessons to be learned	Feedback
Finland	X		X	X
France 1- IRSN System 2- RELIR	X	X	X X	X X
Germany Non-nuclear syst.	X	X	X	X
Luxembourg	X	X	X	
Netherlands		X	X	
Spain: IRA	X		X	X
Sweden 1-Missödregister 3- Illicit trafficking	X		 X	X
United Kingdom 1- IRID 2- RAMTED	 X	 X X	 X X	 X X
Czech Republic	X	X	X	
Lithuania	X			
Romania 1- ENATOM	X	X	X	X
Slovenia	X			
Turkey	X			
Iceland	X			X
Switzerland	X	X		

Table 2– Reporting criteria (reporting to question 12)

Country/system	Criteria
Finland	exceeding dose limits or dose constraints, A result of individual monitoring or an observation made in the course of monitoring working conditions differs from what is typical for the practice or working area in question in a manner significant from the point of view of safety.
France 1- IRSN System 2- RELIR	 -Exceeding limits -Pedagogical aspects of the incident
Germany 1-Non-nuclear syst.	 only in accidents and severe incidents • severe personal injury or death of persons • significant exposure of persons • deficiencies or failures of safety relevant functions or equipment • extraneous cause (e. g. fire) • significant contamination of persons or areas • loss of radioactive materials • finding of radioactive materials emission of radioactive materials above limits
Luxembourg	
Netherlands	
Spain	delay for reporting is a criterion depending of the severity degree of the incident or accident. Precise description of incidental situations corresponding to each delay.
Sweden 1-Missödesregister	 No specific criteria but "any event outside « normal » situation"
United Kingdom 1- IRID 2- RAMTED	 - No specific reporting criteria
Czech Republic	delay for reporting is a criterion depending of the severity degree of the incident or accident
Lithuania	A typology of incidents is provided such as loss of source; leakage of source, …irradiation of the wrong patient…
Romania 1- ENATOM	
Slovenia	Prescribed limits
Turkey	
Iceland	
Switzerland	Technical failure. Radiological incident under limits. Radiation incident (> 50 mSv)
Romania 1- ENATOM	

Table 3: Operational History

Country/system	National	Regional	INES	Operational since
Finland	X			13 years (1990 ?)
France 1- IRSN System 2- RELIR	 X X			 1975 2001
Germany 1-Non-nuclear syst.	 X	 X		 1991
Luxembourg	X			1995
Netherlands	X			1998
Spain: IRA	X			1998
Sweden (1) 1-Missödesregister	 X			1997
United Kingdom 1- IRID 2- RAMTED	 X X			 1996 1983-1984
Czech Republic	X			1998
Lithuania	X			1997
Romania 1- ENATOM 2- INES	 X X		 X	 2000 1991
Slovenia	X			
Turkey	X			Not operational
Iceland	X			Not operational
Switzerland	X			Not operational

(1) There are three systems and one INES system in Sweden, but we will take in account only the first one (lacking information about the others)

Table 4– Existing documentation describing the system (reporting to question 6)

Country/system	Documentation (Yes or No)	References
Finland	Y	Radiation Decree, sections 13a and 17
France 1- IRSN System 2- RELIR	 N Y	 - a description of the system may be found on the web site: http://relir.cepn.asso.fr
Germany 1-Non-nuclear syst.	 N	
Luxembourg	N	
Netherlands	N	
Spain: IRA	N	
Sweden (1) 1-Missödesregister	Y	A document in the Quality system of SSI (Swedish regulatory body);Only in Swedish
United Kingdom 1- IRID 2- RAMTED	 Y Y	- Thomas, GO, Croft, JR, Williams, MK, McHugh, JO. IRID: Specifications for Ionising Radiations Incident Database: First Review of Cases Reported and Operation of the Database, Chilton, NRPB/HSE/EA (1996). - S M Warner Jones, J S Hughes, and K B Shaw. Radiological Consequences resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK - 2001 Review. Chilton, NRPB-W29 (2002). The report can be found at: http://www.nrpb.org/publications/w_series_reports/2002/nrpb_w29.htm
Czech Republic	Y	Only in Czech language
Lithuania	N	
Romania 1- ENATOM	Y	- IAEA ENATOM document
Slovenia	No answer	
Turkey	N	(system in development)
Iceland	N	(system in development)
Switzerland	N	(system in development)

Table 5– Mandatory or voluntary reporting systems (question 7)

Country/system	Mandatory	Voluntary	Mixture
Finland	X		
France 1- IRSN System 2- RELIR		X	X
Germany 1-Non-nuclear syst.			X
Luxembourg	NA	NA	NA
Netherlands			X
Spain	X		
Sweden 1-Missödesregister			X
United Kingdom 1- IRID 2- RAMTED		X	X
Czech Republic	X		
Lithuania	X		
Romania 1- ENATOM	X		
Slovenia	NA	NA	NA
Turkey	X		
Iceland	X		
Switzerland	X		

Table 6– Descriptions anonymity (reporting to question 15)

Country/system	Anonymous descriptions	
	Yes	**No**
Finland	X	
France 1- IRSN System 2- RELIR	 X	 X (for recording)
Germany 1-Non-nuclear syst.	 X (in publications)	 X (for recording)
Luxembourg	X (for transmission)	X (for recording)
Netherlands		X
Spain		X
Sweden 1-Missödesregister		X
United Kingdom 1- IRID 2- RAMTED	 X X (in publications)	
Czech Republic		X
Lithuania		X
Romania 1- ENATOM		 X
Slovenia		X
Turkey		
Iceland	X (for transmission)	X (for recording)
Switzerland		X

Table 7 – Quality assurance elements (reporting to question 9)

Country/system	Quality elements (Yes or No)	Comments
Finland	Y	Quality manual of STUK
France 1- IRSN System 2- RELIR	 Y Y	-Declaration in a writing form by a medical doctor, a qualified expert, or the employer -Each case is presented to a « Validation committee »
Germany 1-Non-nuclear syst.	 (in development)	
Luxembourg	N	
Netherlands	N	
Spain	N	
Sweden 1-Missödregister	Y	Declaration in a written form + investigation at SSI + weekly meeting about events at the Dpt of Occupational and Medical Exposures
United Kingdom 1- IRID 2- RAMTED	 Y Y	-Declaration in a written form, coded by the NRPB IRID Coordinator + discussions between NRPB and the provider -NRPB internal Quality Management System
Czech Republic	Y	Internal SONS instructions (following the SONS Quality System) and relevant CR acts and decrees
Lithuania	N	
Romania 1- ENATOM	Y	-Procedure according to Quality Assurance Manual of CNCAM: number, name, title, data of all persons involved in revision, preparing, verification, reviewing and approval -
Slovenia		
Turkey	(in development)	
Iceland	(in development)	
Switzerland	(in development)	

Table 8 – Groups of practices or events and types of exposures covered by the system (reporting to question 10 and 11)

Country/system	Covered groups									
	Nuclear power	Military	Industrial	Medical Occupat Public	Medical patients	Research	Teaching	Transport	Orphan sources	Other
Finland		X	X	X	X	X	X	X	X	Use of non-ionising radiation
France 1- IRSN System 2- RELIR	X	 X	X X	X X	X Sometimes	X X	X X	X X	X X	Individual with radium sources
Germany 1-Non-nuclear syst.	X	X	X	X	Sometimes	X	X	X	X	
Luxembourg			X			X	X	X	X	
Netherlands			X	X	X	X	X	X	X	
Spain			X	X		X	X	X	X	
Sweden 1-Missödregister	X	X	X	X	X	X	X	X	X	
United Kingdom 1- IRID 2- RAMTED			X	X		X	X	 X		

Table 8 (following) – Groups of practices or events covered by the system (reporting to question 10)

Country/system	Covered groups									
	Nuclear power	**Military**	**Industrial**	**Medical Occ+Pub**	**Medical patients**	**Research**	**Teaching**	**Transport**	**Orphan sources**	**Other**
Czech Republic	X	X	X	X	X	X	X	X	X	
Lithuania	X	X	X	X	X	X	X	X	X	
Romania 1- ENATOM	X		X	X	X	X	X	X	X	Import, export
Slovenia										
Turkey										
Iceland	X	X	X	X	X	X	X	X	X	
Switzerland		X	X	X	X	X	X	X	X	

Appendix 4

Categorisation of Incidents

Table 1 – Existing incidents categories (reporting to question 13)

Country/system	INES Categories	Other Categories	No Categories
Finland			X
France 1- IRSN System 2- RELIR		X (12 categories) X (by type of activity: 27 categories)	
Germany 1-Non-nuclear syst.			X
Luxembourg			X
Netherlands			X
Spain	X		
Sweden 1-Missödesregister		X (By type of activity)	
United Kingdom IRID 2- RAMTED		X (30 types of occupations, 27 types of equipment) X	
Czech Republic		X	
Lithuania			X
Romania 1- ENATOM	X		
Czech Republic		X	
Lithuania			X
Romania 1- ENATOM	X		
Slovenia			X
Turkey			
Iceland		X	
Switzerland		X	

Table 2 – Available text descriptions of the incidents (reporting to question 14)

Country/system	Text descriptions available		
	Yes	**No**	**Sometimes**
Finland	X		
France 1- IRSN System 2- RELIR	 X X		
Germany 1-Non-nuclear syst.			 X
Luxembourg		X	
Netherlands		X	
Spain	X		
Sweden 1-Missödesregister	 X		
United Kingdom 1- IRID 2- RAMTED	 X X (in anonymous form)		
Romania 1- ENATOM	 X		
Slovenia		X	
Czech Republic	X		
Lithuania	X		
Turkey	← not known →		
Iceland		X (system in development)	
Switzerland	X		

Appendix 5

Accessibility of information

Table 1 – Use of information to produce statistics

Country/system	Producing statistics			
	Yes			No
	For use by regulators only	Routine publication of statistics	Other	
Finland				X
France 1- IRSN System 2- RELIR		X (in the review "*Points et commentaires en Radioprotection*)"	X (Input for RELIR)	 X
Germany 1-Non-nuclear syst.				X
Luxembourg	X			
Netherlands	X			
Spain	X			
Sweden 1-Missödesregister				X
United Kingdom 1- IRID 2- RAMTED		 X X		
Czech Republic		X (in annual Report of SONS)		
Lithuania				X
Romania 1- ENATOM		X	X (Emercon Forms and international com.)	
Slovenia				X
Turkey				
Iceland				X (in development)
Switzerland	X		X (in Annual Activity Report of the Division)	

Table 2 –Dissemination of case studies and lessons learned

Country/system	Only for use by regulators	Selected incidentspublished	All reported incidents published	Available on CD rom	Available on a Website	Other
Finland			X (in *Annual report of radiation Practices*)		X (STUK's website)	Press releases for urgent cases
France 1- IRSN System 2- RELIR		X (Through RELIR) X (in several professional journals)		X (in development)	X (http://relir.cepn.asso.fr)	
Germany 1-Non-nuclear syst.		X (in individual publications)	X (in Annual Governmental Reports)			
Luxembourg	X					
Netherlands	X					
Spain						Letters to licensees of facilities potentially affected
Sweden 1-Missödregister		X (in *SSI's news Pamphlet*)				
United Kingdom 1- IRID 2- RAMTED		X in ALARA Newsletter	X in specific NRPB reports X (in Annual Reports)		www.irid.org.uk www.nrpb.org	

Table 2 – Dissemination of case studies and lessons learned (reporting to question 17)

Country/system	Only for use by regulators	Selected examples published	All reported incidents published	Available on CD rom	Available on a Website	Other
Czech Republic	X	X (in annual SONS's reports)				
Lithuania	X	X				
Romania 1- ENATOM			X		X (IAEA site: www-news.iaea.org)	Letters to sources users in some cases All users of same kind of sources
Slovenia		X (expertises)				
Turkey						
Iceland						Through seminars and lectures
Switzerland						

Appendix 6

INES and RADEV: Features and Uses

6.1 Extracts from the 2001 INES Users Manual

The International Nuclear Event Scale (INES) was introduced in March 1990jointly by the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA). Its primary purpose is to facilitate communication and understanding between the nuclear community, the media and the public on the safety significance of events occurring at nuclear installations. The scale was refined in 1992 in the light of experience gained and extended to be applicable to any event associated with radioactive material and/or radiation, including the transport of radioactive materials..

Background

The International Nuclear Event Scale (INES) is a means for promptly communicating to the public in consistent terms the safety significance of events reported at nuclear installations. By putting events into proper perspective, it can facilitate common understanding among the nuclear community, the media and the public.

The scale was designed by an international group of experts convened jointly in 1989 by the IAEA and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA). It also reflects the experience gained from the use of similar scales in France and Japan as well as from consideration of possible scales in several other countries.

Initially the scale was applied for a trial period to classify events at nuclear power plants, and then extended and adapted to enable it to be applied to all installations associated with the civil nuclear industry. It is now operating successfully in over 60 countries. …the INES … can be applied to any event associated with radioactive material and/or radiation and to any event occurring during the transport of radioactive material.

General description of the scale

Events are classified on the scale at seven levels: the upper levels (4–7) are termed "accidents" and the lower levels (1–3) "incidents". Events which have no safety significance are classified below scale at level 0 and are termed "deviations".

Events which have no safety relevance are termed "out of scale". The structure of the scale is shown in Fig. 1, in the form of a matrix with key words. The words used are not intended to be precise or definitive. …. Events are considered in terms of three different areas of impact represented by each of the columns: off-site impact, on-site impact and impact on defence in depth.

The first column relates to events resulting in off-site releases of radioactivity. Since this is the only possible direct impact on the public, such releases are understandably of particular concern. Thus, the lowest point in this column represents a release giving the critical group an estimated radiation dose numerically equivalent to about one-tenth of the

annual dose limit for the public; this is classified as level 3. Such a dose is also typically about one-tenth of the average annual dose received from natural background radiation. The highest level is a major nuclear accident with widespread health and environnemental consequences.

The second column considers the on-site impact of the event. This category covers a range from level 2 (contamination and/or overexposure of a worker) to level 5 (severe damage to the reactor core or radiological barriers).

All nuclear facilities are designed and operated so that a succession of safety layers act to prevent major off-site or on-site impact and the extent of the safety layers provided generally will be commensurate with the potential for such impacts. These safety layers must all fail before substantial off-site or on-site consequences occur. The provision of these layers is termed "defence in depth". The third column relates to incidents in which these defence in depth provisions have been degraded. This column spans the incident levels from 1 to 3.

	OFF-SITE IMPACT	**ON-SITE IMPACT**	**IMPACT ON DEFENCE IN DEPTH**
7 MAJOR ACCIDENT	MAJOR RELEASE: WIDESPREAD HEALTH AND ENVIRONMENTAL EFFECTS		
6 SERIOUS ACCIDENT	SIGNIFICANT RELEASE: LIKELY TO REQUIRE FULL IMPLEMENTATION OF PLANNED COUNTERMEASURES		
5 ACCIDENT WITH OFF-SITE RISK	LIMITED RELEASE: LIKELY TO REQUIRE PARTIAL IMPLEMENTATION OF PLANNED COUNTERMEASURES	SEVERE DAMAGE TO REACTOR CORE/RADIOLOGICAL BARRIERS	
4 ACCIDENT WITHOUT SIGNIFICANT OFF-SITE RISK	MINOR RELEASE: PUBLIC EXPOSURE OF THE ORDER OF PRESCRIBED LIMITS	SIGNIFICANT DAMAGE TO REACTOR CORE/RADIOLOGICAL BARRIERS/FATAL EXPOSURE OF A WORKER	
3 SERIOUS INCIDENT	VERY SMALL RELEASE: PUBLIC EXPOSURE AT A FRACTION OF PRESCRIBED LIMITS	SEVERE SPREAD OF CONTAMINATION/ACUTE HEALTH EFFECTS TO A WORKER	NEAR ACCIDENT NO SAFETY LAYERS REMAINING
2 INCIDENT		SIGNIFICANT SPREAD OF CONTAMINATION/ OVEREXPOSURE OF A WORKER	INCIDENTS WITH SIGNIFICANT FAILURES IN SAFETY PROVISIONS
1 ANOMALY			ANOMALY BEYOND THE AUTHORIZED OPERATING REGIME
0 DEVIATION	NO SAFETY SIGNIFICANCE		

FIG.1 Basic structure of the scale (the criteria given in the matrix are broad indicators only).

An event which has an impact on more than one area is always rated at the highest level identified. Events which do not reach the threshold in any of the three areas are rated below scale at level 0. Figure 2 gives typical descriptions of events at each level.

LEVEL/	NATURE OF THE EVENTS
7 MAJOR ACCIDENT	External release of a large fraction of the radioactive material in a large facility (e.g. the core of a power reactor). This would typically involve mixture of short and long lived radioactive fission products (in quantities radiologically equivalent to more than tens of thousands of terabecquerels of 131) Such a release would result in the possibility of acute health effects; delayed health effects over a wide area, possibly involving more than one country; long term environmental consequences.
6 SERIOUS ACCIDENT	External release of radioactive material (in quantities radiologically equivalent to the order of thousands to tens of thousands of terabecquerels of 131I). Such a release would be likely. to result in full implementation of countermeasures covered by local emergency plans to limit serious health effects.
5 ACCIDENT WITH OFF SITE RISK	External release of radioactive material (in quantities radiologically equivalent to the order of hundreds to thousands of terabecquerels of 131I). Such a release would be likely to result in partial implementation of countermeasures covered by emergency plans to lessen the likelihood of health effects. Severe damage to the installation. This may involve severe damage to a large fraction of the core Three Mile Island of a power reactor, a major criticality accident or a major fire or explosion releasing large quantities nuclear power plant, of radioactivity within the installation.
4 ACCIDENT WITHOUT SIGNIFICANT OFF-SITE RISK	External release of radioactivity resulting in a dose to the critical group of the order of a few millisieverts.a With such a release the need for off-site protective actions would be generally unlikely except possibly for local food control. Significant damage to the installation. Such an accident might include damage leading to major on-site recovery problems such as partial core melt in a power reactor and comparable events at non-reactor installations. Irradiation of one or more workers resulting in an overexposure where a high probability of early death occurs.
3 SERIOUS INCIDENT	External release of radioactivity resulting in a dose to the critical group of the order of tenths of millisieverts.a With such a release, off-site protective measures may not be needed. On-site events resulting in doses to workers sufficient to cause acute health effects and/or an event resulting in a severe spread of contamination for example a few thousand terabecquerels of activity released in a secondary containment where the material can be returned to a satisfactory storage area. Incidents in which a further failure of safety systems could lead to accident conditions, or a situation in which safety systems would be unable to prevent, an accident if certain initiators were to occur.
2 INCIDENT	Incidents with significant failure in safety provisions but with sufficient defence in depth remaining to cope with additional failures. These include events where the actual failures would be rated at level 1, but which reveal significant additional organizational inadequacies or safety culture deficiencies. An event resulting in a dose to a worker exceeding a statutory annual dose limit and/or an event which leads to the presence of significant quantities of radioactivity in the installation in areas not expected by design and which require corrective action.
1 ANOMALY	Anomaly beyond the authorized regime, but with significant defence in depth remaining. This may be due to equipment failure, human error or procedural inadequacies and may occur in any area 1 covered by the scale, eg, plant operation, transport of radioactive material, fuel handling, and waste storage. Examples include: breaches of technical specifications or transport regulations, incidents without direct safety consequences that reveal inadequacies in the organizational system or safety culture, minor defects in pipework beyond the expectations of the surveillance programme.
0 DEVIATION	Deviations where operational limits and conditions are not exceeded and which are properly managed in accordance with adequate procedures. Examples include: a single random failure in a redundant system discovered during periodic inspections or tests, a planned reactor trip proceeding normally, spurious initiation of protection systems without significant consequences, leakages within the operational limits, minor spreads of contamination within controlled areas without wider implications for safety culture.

The doses are expressed in terms of effective dose equivalent (whole dose body). Those criteria, where appropriate, can also be expressed in terms of corresponding annual effluent discharge limits authorized by national authorities.

FIG. 2 The International Nuclear Event Scale (for prompt communication of safety significance).

6.2 Uses of INES in Greece, Italy, Poland and Slovakia

In Italy and Slovakia, INES is mainly used to inform IAEA about accidents any time the regulatory body receive an information concerning accidents in a practice involving ionising radiations. There is no national system for recording and reporting about these incidents and accidents in Italy; INES is a support for a national system in Slovakia.

On the contrary, in the two other countries, INES is used since the beginning of the 90's as a national tool for keeping the information at the national level, it is mandatory to operate such a system in Greece and the reporting criteria are legally mandatory in Greece and Poland. In these two countries the information are also provided to IAEA, but national statistics are issued for the regulatory bodies only in Greece, they are published in Poland. In that last country, the lessons learned are published in the annual report of the National Atomic Energy Agency.

6.3 RADEV

RADEV, the IAEA's Radiation Events Database, includes many different types of events that have occurred outside the nuclear power programme. The overall objectives of RADEV are to:

(a) disseminate information on radiation events and feedback lessons learned that may help to prevent future accidents, or mitigate their consequences should they occur, and

(b) provide a tool to help Member States, the IAEA and other organisations to identify priorities in their radiation safety programme to facilitate the efficient allocation of resources.

In order to achieve these general objectives a centralised RADEV database is being established at IAEA's headquarters in Vienna to:

(a) provide a repository of information on accidents, near-misses and any other unusual events involving radition sources not directly involved in the production of nuclear power or its fuel cycle;
(b) categorise events in a standardised manner to facilitate the search for events fitting particular profiles, the identification of causes and the lessons to be learned;
(c) provide a means to analyse trends in radiation events; and
(d) provide summary descriptions of events that can be used directly as training materials.

RADEV is designed to capture lessons to be learned from radiation events and is not meant to be a real-time on-line database. There is a separate IAEA initiative concerned with developing a 24-hour reporting system for missing and found orphan sources.

The following events will be included in RADEV:

- events or potential events involving patients, worker or members of the public;
- events involving radiation sources which have been lost, found, stolen, or subject to unauthorised and inadvertent transfer/sale; and
- events that occurred during the transportation of sources that result or could have resulted in the loss or degradation of control of radiation sources.

The database has been designed to operate on a personal computer using Microsoft Access 97. Copies of the RADEV software will be provided to selected organisations within member States for their own use and users will be requested to provide data to IAEA on a regular basis. IAEA will publish regular summary reports from RADEV and will provide electronic updates of the data to participating organisations. Confidentiality will be maintained by IAEA at all times and details such as names of individuals, hospitals and factories will not be divulged.

The RADEV project is being implemented in three phases:

Phase 1: Establishment of the database (complete).

Phase 2: Limited international trials. IAEA will provide a working version of RADEV to several international and national organisations (including professional organisations in the medical field) for testing and evaluation. Feedback from the trials will be reviewed by IAEA and any necessary changes made to the software. Norway included in these user trials.

Phase 3: Distribution of RADEV. IAEA will collect data from participating organisations, compile international statistics and produce summary reports. Electronic copies of the summary reports and the updated database will be available to participating organisations.

The current status – Phase 2 is in progress.

Appendix 7 – Definition of an incident

Country	Definition
Finland	Any abnormal event, which could affect radiation safety- (See also answer 6.)
France 1 (no official definition)	An incident give rise to incidental exposure or incidental potential exposure for a worker an individual of the public or the environment
France 2	Is considered as an incident, every situation, event, set of events, behaviour, anomaly... able to generate (or having effectively generated) an uncontrolled occupational exposure
Germany	Incident covers unusual events (deviation from normal working course) in the use or radioactive material or ionising radiation which leads or could lead to a harm of persons, goods or environment even if there are no or negligible radiological consequences; Obligatory information to the Ministry has to be done in following cases: • Severe physical injury or death of a person • Considerable radiation exposure of persons • Faults or break down of safety relevant functions or systems Influence from outside (e.g. fire) • Considerable contamination of persons or areas • Loss of radioactive material • Emission of radioactive material above authorized limits. Accident means a course of an event which can lead to an effective dose of more than 50 mSv of one or several persons (definition in Radiological Protection Ordinance).
Luxembourg	There is no exact definition of the term incident / event. In accordance with our regulations, each user of radioactive sources has to report immediately incident / event or accident" to the responsible authorities. It lies in the judgement of the authorized facility under incident / event to be understood is. In each case incidents are not an incident is declared: • an inadvertent radiation exposure of a worker or a member of the public, • the loss over the control of a radioactive source; this contains also the temporally limited loss of the control, • leakages or defects of radioactive sources, • contamination of any type, • the loss of radioactive sources, • finding abandoned radioactive substances, • serious ignoring of work procedures, even they did not cause radiological consequences.

Country	Definition
Netherlands	On behalf the Nuclear Energy Act: all kind of accidents or complaints about handling radioactive sources.
Spain	According to specific reporting criteria.
Sweden	An event that led to or could have led to exposure of man or environment. For every reported event a decision is made at the SSI regarding whether to register or not.
United Kingdom 1	An ionising radiation incident is any unintended or ill-advised event, including events resulting from operator error, equipment failure, or the failure of management systems that warranted investigation.
United Kingdom 2	In practice, all reported events involving the transport of radioactive materials, including irregularities such as breaches of national or international legislation. Transport includes all procedures from the preparation of the package to receipt by the consignee.
Czech Republic	Atomic Act: **Radiation incident** means an event resulting in an inadmissible release of radioactive substances or ionising radiation, or an inadmissible exposure of individuals; **radiation accident** means radiation incident requiring urgent measures in order to protect the population and environment; **radiological emergency** means a situation following the radiation accident or such radiation incident or such increase in level of radioactivity or exposure which require urgent action in order to protect individuals, Decree of SONS (No.219/1997 Coll.) **Extraordinary event** the event important from the viewpoint of nuclear safety or radiation protection, that results or can results to the inadmissible release of radioactive substances or ionising radiation, eventually to the origin of radiation incident or radiation accident; **the 1st degree extraordinary event** - the extraordinary event that results or can result to the inadmissible exposure of employee and other persons or to the inadmissible release of radioactive substances into the spaces of installation or workplaces; the 1st degree of event can be the radiation incident, it has limited, local character and for its solution there are sufficient the forces and the means of personnel or the working shift, and at the shipment there is not occurred the leakage of radioactive substances into the environment; **the 2nd degree extraordinary event** - the extraordinary event that results or can result to the inadmissible significant exposure of employee and other persons or to the inadmissible release of radioactive substances into the environment, that does not required the initiation of measures for the protection of inhabitants and the environment; the 2nd degree of event is the radiation incident, its solution requires the activation of intervening persons of licensee and for its control there are sufficient the forces and the means of licensee, eventually the forces and the means of contractually assured by the licensee; and

Country	Definition
Czech Republic cont/d	**the 3rd degree extraordinary event** - the extraordinary event that results or can result to the inadmissible significant release of radioactive substances into the environment, requiring the initiation of urgent measures for the protection of inhabitants and the environment; stipulated in the off-site emergency plan or in the emergency plan of the district /2/; the 3rd degree of event is the radiation accident and its solution requires, apart from the activation of intervening persons of licensee and of intervening persons according to the off-site emergency plan, respective. the emergency plan of district, the involvement of other affected authorities.
Lithuania	Situation due to mishap of installation, violations of technological process or other reasons, when because of consequences or probable consequences the radiation protection measures shall be applied.
Slovenia 1	Circumstances in the environment such as result in or may cause irradiation or radioactive contamination of the working environment population, parts of population or property in excess of the limits prescribed on the basis of act on "RP" and "NS.
Slovenia 2	Slovenian legislation and the IAEA definition of "illicit trafficking" are used. "The trigger" is pre-set alarm threshold, which equals to 0.16 to 0.30 micro Sv/h (gamma). An event can be started ("triggered") if the source is not accompanied by the prescribed documents.
Iceland	The current view is to have the definition relatively wide and to encourage a low threshold for reporting. This means that even incidents in other fields could be included, if analysis of the incident is likely to lead to improved responses to radiological incidents. As an example: In Iceland there is no nuclear reactor and very few high activity sources. The rate of incidents can therefore be expected to be very low. Lessons from other fields have therefore been used to enhance radiological safety culture in Iceland.
Switzerland	Definition used in the Radiological Protection ordinance ie, a. technical failure the safety of the installation itself or of an object is impaired b. radiological incident an immission limit or dose limit for persons not exposed occupationally may be exceeded c. radiation accident a person or persons are subjected to a dose in excess of 50 mSv

Part B - Synthesis of Questionnaires

Detailed Information about System

1 Name of System		
Czech Republic		MIMUDA
Austria		
Switzerland		none
Germany		Unusual events in the use of radioactive material and ionising radiation, at the operation of accelerators and at the transport of radioactive material
Iceland		No official title, preliminary title: IRIDS (Icelandic Radiation Incident Data System)
Slovakia		IAEA Information System INES
Hungary		
Luxembourg		The system has not a specific name. It concerns rather a register of all reported incidents.
Netherlands		GISAI (integrated information system Labour Inspectorate)
Bulgaria		
France	**1**	IRSN system on declared radiological incidents
France	**2**	RELIR

France	**3**	DGSNR system on significant radiological incidents for Nuclear Safety
Belgium		No system
Spain		IRA Instalaciones Radiactivas. Gestion de sucesos.
Portugal		
Italy		No system; when data are known use of INES
Greece		International Nuclear Event Scale (INES)
Romania	**1**	INES - The International Nuclear Event Scale
Romania	**2**	IAEA - ENATOM (Emergency Notification and Assistance Technical Operations Manual)
Poland		
Slovenia	**1**	None
Slovenia	**2**	Notification in case of an alarm of an radiation detector, used by customs or police officers.
Turkey		Accident recorded by licensees and sent to regulatory body ;
United Kingdom	**1**	Ionising Radiation Incident Database (IRID)
United Kingdom	**2**	Radioactive Materials Transport Event Database (RAMTED)

Irish Republic		
Sweden		Missödesregister
Denmark		
Finland		No special name
Norway		
Cyprus	**1**	Personnel TLD Monitoring Service
Cyprus	**2**	Early warning environmental radiation monitoring system (EWERMS)
Malta		
Estonia		
Latvia		
Lithuania		No special name

Mechanisms for Capturing Information about Incidents

2 What are the objectives of the system ?	
Czech Republic	to register all unexpected events as they are defined in a special Decree of SONS (No.219/1997 Coll.), resp. in relevant internal SONS instructions; the licensee duty of reporting of such events to SONS – categorised to three levels – is established also in this decree, resp. the duty of SONS Contact Point of reporting of such events to abroad (namely to IAEA) categorised according to INES and ENATOM international scales is established in internal SONS instructions
Austria	
Switzerland	The system will be part of the Quality Management System of the Radiation Protection Division which is certified according to ISO 9001:2000. It should help to find radiation related problems and identify possible and effective solutions
Germany	Registry and evaluation of information on incidents and accidents (even the radiological consequences are negligible); publication of the events (anonymous) in a listing; feedback to users, manufacturers, authorities and for training purposes in selected cases
Iceland	The objectives would be to collect information that can be used to identify areas where improvements can be made to increase the safety of the use of ionising radiation.
Slovakia	To collect, record and report all radiation and nuclear safety relevant deviation anomalies incidents and accidents.
Hungary	
Luxembourg	Essentially: • documentation of all unusual events, • internal passing on of the information to the Ministry and other co-workers
Netherlands	A common information and registration system dealing with all the activities of the Labour Inspectorate in relation to the relevant legislation (i.e. Working Conditions Act, Working Time Act, Nuclear Energy Act,

		etc.). The system consists elementary inspection data, obtained from so called active and reactive inspections. There is no specific registration system describing radiation incidents.
Bulgaria		
France	**1**	Control of radiological protection by the authorities and analysis of feedback experience; Analysis of trends in order to modify regulations
France	**2**	Learning in order to avoid new incidents Fostering exchange of information between radiological protection specialists and non-specialists Producing documents as teaching materials
France	**3**	Control of radiological protection by the authorities and analysis of feedback experience; Analysis of trends in order to modify regulations
Belgium		
Spain		To have complete information about radiological events (location, description, origin, consequences, corrective measures) for regulatory body use.
Portugal		
Italy		
Greece		The objective of the system is to collect information concerning incidents or accidents categorizing them according to INES scale, archiving them in the National System, and reporting them accordingly to IAEA.
Romania	**1**	The objectives are to maintain the evidence and to promptly communicate the events reported at all nuclear installations.
Romania	**2**	The objectives of the system are designed to fulfill the responsibilities of IAEA and signatory states (including Romania) in the framework of the IAEA early Notification and Assistance Convention

Poland		
Slovenia	**1**	No applicable
Slovenia	**2**	- detect illicit trafficking of (nuclear) and radioactive materials (NRM) - co-operation and sharing of the data among stakeholders - SNSA and expert support to the front-line officers - (in future:) to include all Slovenian users into this system in case of incidents, e. g. lost sources, orphan sources, etc.
Turkey		
United Kingdom	**1**	(a) to act as a national focus on ionising radiation incidents, primarily in the non-nuclear sector, (b) through appropriate publications to provide feedback and guidance to users on preventing, or limiting the consequences of radiation accidents, (c) to provide regulatory bodies, and others with advisory responsibilities, with analyses of data that help in assessing priorities in resource allocation.
United Kingdom	**2**	a) to keep details of accidents and incidents involving the transport of radioactive materials, including their radiological consequences; b) to enable analyses of the events to be compiled of the types of events and their causes and consequences, including trends; c) to enable annual and periodic reports to be compiled containing summaries and analyses of the events in the database; d) to enable customised summaries of data to be provided in response to specific questions from the media, government departments, or the UK Parliament; e) to provide information pertinent to future legislation and codes of practice; to periodically update and maintain the database of events.
Irish Republic		
Sweden		To handle events regarding radiation in a uniform and correct way at the authority.

		To get an exchange of experiences.
Denmark		
Finland		To obtain information of incidents to be disseminated to other users of radiation
Norway		
Cyprus	**1**	To ensure that all radiation workers occupational dose, remains as low as reasonably achievable and within set limits.
Cyprus	**2**	The continuous radiation monitoring of the atmosphere.
Malta		
Estonia		
Latvia		
Lithuania		Collecting information about radiation accidents.

3 What definition of an incident is used?	
Czech Republic	Atomic Act: **Radiation incident** means an event resulting in an inadmissible release of radioactive substances or ionising radiation, or an inadmissible exposure of individuals; **radiation accident** means radiation incident requiring urgent measures in order to protect the population and environment; **radiological emergency** means a situation following the radiation accident or such radiation incident or such increase in level of radioactivity or exposure which require urgent action in order to protect individuals, Decree of SONS (No.219/1997 Coll.) **Extraordinary event** the event important from the viewpoint of nuclear safety or radiation protection, that results or can results to the inadmissible release of radioactive substances or ionising radiation, eventually to the origin of radiation incident or radiation accident, **the 1st degree extraordinary event** - the extraordinary event that results or can result to the inadmissible exposure of employee and other persons or to the inadmissible release of radioactive substances into the spaces of installation or workplaces; the 1st degree of event can be the radiation incident, it has limited, local character and for its solution there are sufficient the forces and the means of personnel or the working shift, and at the shipment there is not occurred the leakage of radioactive substances into the environment, **the 2nd degree extraordinary event** - the extraordinary event that results or can result to the inadmissible significant exposure of employee and other persons or to the inadmissible release of radioactive substances into the environment, that does not required the initiation of measures for the protection of inhabitants and the environment; the 2nd degree of event is the radiation incident, its solution requires the activation of intervening persons of licensee and for its control there are sufficient the forces and the means of licensee, eventually the forces and the means of contractually assured by the licensee, **the 3rd degree extraordinary event** - the extraordinary event that results or can result to the inadmissible significant release of radioactive substances into the environment, requiring the initiation of urgent measures for the protection of inhabitants and the environment; stipulated in the off-site emergency plan or in the emergency plan of the district /2/; the 3rd degree of event is the radiation accident and its solution requires, apart from the activation of intervening persons of licensee and of intervening persons according to the off-site emergency plan, respective. the emergency plan of district, the involvement of other affected authorities.
Austria	
Switzerland	Definition used in the Radiological Protection ordinance ie. a. technical failure the safety of the installation itself or of an object is impaired b. radiological incident an immission limit or dose limit for persons not exposed occupationally may be exceeded

	c. radiation accident a person or persons are subjected to a dose in excess of 50 mSv
Germany	Incident covers unusual events (deviation from normal working course) in the use or radioactive material or ionising radiation which leads or could lead to a harm of persons, goods or environment even if there are no or negligible radiological consequences; Obligatory information to the Ministry has to be done in following cases: • Severe physical injury or death of a person • Considerable radiation exposure of persons • Faults or break down of safety relevant functions or systems Influence from outside (e.g. fire) • Considerable contamination of persons or areas • Loss of radioactive material • Emission of radioactive material above authorized limits. Accident means a course of an event which can lead to an effective dose of more than 50 mSv of one or several persons (definition in Radiological Protection Ordinance)
Iceland	The current view is to have the definition relatively wide and to encourage a low threshold for reporting. This means that even incidents in other fields could be included, if analysis of the incident is likely to lead to improved responses to radiological incidents. As an example: In Iceland there is no nuclear reactor and very few high activity sources. The rate of incidents can therefore be expected to be very low. Lessons from other fields have therefore been used to enhance radiological safety culture in Iceland.
Slovakia	Definition of events according to their importance is given in the INES user´s manual.
Hungary	
Luxembourg	There is no exact definition of the term incident / event. In accordance with our permissions, each user of radioactive sources has to report immediately incident / event or accident" to the responsible authorities. It lies in the indgement of the authorized lacility under incident / event to be understood is. In each case incidents are nou an incident is delared: • an inadvertent radiation exposure of a worker or a member of the public, • the loss over the control of a radioactive source; this contains also the temporally limited loss of the control, • leakages or defects of radioactive sources, • contamination of any type, • the loss of radioactive sources,

	• finding abandoned radioactive substances, • serious ignoring of work procedures, even they did not cause radiological consequences.
Netherlands	On behalf the Nuclear Energy Act: all kind of accidents or complaints about handling radioactive sources.
Bulgaria	
France 1 **(no official definition but for the nuclear sector)**	An incident give rise to incidental exposure or incidental potential exposure for a worker an individual of the public or the environment
France 2	Is considered as an incident, every situation, event, set of events, behaviour, anomaly... able to generate (or having effectively generated) an uncontrolled occupational exposure
France 3 **(no official definition but for the nuclear sector)**	Official definition since 1983
Belgium	
Spain	According to specific reporting criteria.
Portugal	
Italy	
Greece	An unforeseen event that causes damage to the integrity of the source or to an installation or disrupts the normal operation of an installation, and is likely to result for one or more persons in a dose exceeding the dose limits.
Romania 1	The definition of INES User' Manual 2001
Romania 2	The definition of INES User' Manual 2001 and ENATOM

Poland		
Slovenia	**1**	Circumstances in the environment such as result in or may cause irradiation or radioactive contamination of the working environment population, parts of population or property in excess of the limits prescribed on the basis of act on "RP" and "NS.
Slovenia	**2**	Slovenian legislation and the IAEA definition of "illicit trafficking" are used. "The trigger" is pre-set alarm threshold, which equals to 0.16 to 0.30 microSv/h (gamma). An event can be started ("triggered") if the source is not accompanied by the prescribed documents.
Turkey		
United Kingdom	**1**	An ionising radiation incident is any unintended or ill-advised event, including events resulting from operator error, equipment failure, or the failure of management systems that warranted investigation.
United Kingdom	**2**	In practice, all reported events involving the transport of radioactive materials, including irregularities such as breaches of national or international legislation. Transport includes all procedures from the preparation of the package to receipt by the consignee.
Irish Republic		
Sweden		An event that led to or could have led to exposure of man or environment. For every reported event a decision is made at the SSI regarding whether to register or not.
Denmark		
Finland		Any abnormal event, which could affect radiation safety- (See also answer 6.)
Norway		

Cyprus	**1**	In this service an incident occurs when the investigation limit is exceeded
Cyprus	**2**	According to the joint radiation emergency management plant of the international organisations (see attached copy)
Malta		
Estonia		
Latvia		
Lithuania		Situation due to mishap of installation, violations of technological process or other reasons, when because of consequences or probable consequences the radiation protection measures shall be applied.

4 Is the system national, regional or sector of use based?	
Czech Republic	National
Austria	
Switzerland	National
Germany	Based on regional information (Länder) and annual centralised evaluation
Iceland	The planned system is national.
Slovakia	60 IAEA member states are involved in the IS INES.
Hungary	
Luxembourg	It concerns a national transport system, which contains events in the context of industrial applications as well as in the case of the of radioactive substances. The system doesn't contain at present no incidents in the medical diagnostics or therapy.
Netherlands	National based
Bulgaria	
France **1**	National
France **2**	National

France	**3**	National
Belgium		
Spain		National
Portugal		
Italy		
Greece		The INES system of IAEA is used as National System also.
Romania	**1**	The system is international and national of use based.
Romania	**2**	The system is international and national of use based.
Poland		
Slovenia	**1**	Not applicable (n. a.)
Slovenia	**2**	The system is national, involving several institution. Borders and inner territory are controlled.
Turkey		
United Kingdom	**1**	The system is national. The database deals primarily with the non-nuclear sector, ie, industry, research, teaching and medicine. It specifically excludes the following, as there are existing mechanisms for recording these sorts of event: (a) nuclear incidents – covered by HSE Nuclear Installations Inspectorate's (NII) 'Statements of Nuclear Incidents' published each calendar quarter, (b) transport incidents – NRPB runs, under contract to HSE and the Department of Transport, Environment and the Regions (DETR), a database of incidents involving the transport of

		radioactive material, (c) patient exposure incidents – incidents involving patients being exposed to a greater or lesser extent than intended are addressed through arrangements of HSE and the Medical Devices Agency.
United Kingdom	**2**	It is national, and includes events that occur during transport within the UK, on arrival of a shipment into the UK, or events that originated within the UK but were discovered in another country.
Irish Republic		
Sweden		It´s a national system
Denmark		
Finland		National
Norway		
Cyprus	**1**	National
Cyprus	**2**	National
Malta		
Estonia		
Latvia		
Lithuania		The system is national. Regions are taking part in collecting information.

5 How long has the system been operational and what time-frame does the data cover?		
Czech Republic		since 1998 and events registered there are also since 1998
Austria		
Switzerland		Not yet operational
Germany		Since 1991 the list is published with annual data;
Iceland		The system is not operational yet and the time frame of data cover is not yet defined.
Slovakia		Since 1990 in Slovakia since 1993.
Hungary		
Luxembourg		Incidents are registered and documented only Systematically since end of 1994 / Beginning of 1995.
Netherlands		1998 and former data of the old regional systems back to 1995.
Bulgaria		
France	**1**	1975
France	**2**	2001
France	**3**	1983

Belgium		
Spain		Four years. From January 1998.
Portugal		
Italy		
Greece		Officially, since 1992
Romania	**1**	The system has been operational beginning with 1991 and the data are covered since 1991.
Romania	**2**	The system has been operational beginning with 2000 and the data are covered since 2000.
Poland		
Slovenia	**1**	n. a.
Slovenia	**2**	The system has been in operation since June 2002, being extended recently. 24-hour-0n-duty service is being provided by the SNSA (on-duty radiological monitoring group).
Turkey		
United Kingdom	**1**	It started in 1996. There is no definitive time frame. Some interesting incidents from the preceding two decades were included to seed the database with case studies that provided useful lessons to be learned.
United Kingdom	**2**	RAMTED was first set up in 1983/84. The earliest events date from 1958, and the database has now been updated with events that occurred in 2001.
Irish Republic		

Sweden		Since 1997
Denmark		
Finland		For 13 years, and covers the same time period
Norway		
Cyprus	**1**	It is in operation since 1994. The Data concerns a 2 monthly period
Cyprus	**2**	Since 1988, measurements are performed automatically in internals of 20 seconds, 24 hours per day, 365 day per year.
Malta		
Estonia		
Latvia		
Lithuania		It is operational since 1997 and covers the same time-frame.

6 Are there any documents describing the system? If so please provide copies or relevant summaries	
Czech Republic	there exists manual describing the system and its use in Czech language
Austria	
Switzerland	No
Germany	In few publications the procedure is mentioned and results are published. No document exist about details of collecting data.
Iceland	No documents are presently available.
Slovakia	INES user´s manual newest edition 2001. Available at IAEA or INES national officer in the country.
Hungary	
Luxembourg	The registration of the incidents takes place by means of a simple form, which receives a serial-number. At smaller incidents, e.g. when finding NORM in metal scrap, the registration is limited to the form. At serious incidents, like the inadvertent radiation exposure of workers, the incident is documented additionally by a more or less larger report (see appendix 1)
Netherlands	There are no specific documents describing the registration of the radiation incidents within the whole system. There are documents describing the GISAI system, but they are not relevant for this questionnaire.
Bulgaria	
France **1**	No

France	**2**	Yes; see description of the system on the web site: http://relir.cepn.asso.fr
France	**3**	Yes
Belgium		
Spain		No. Attached you can find information related each event that is included in the Database (Spanish language).
Portugal		
Italy		
Greece		There are INES documents from IAEA
Romania	**1**	Yes. There is o procedure "Reportable events to CNCAN (Regulatory Authority of Romania: National Commission for Nuclear Activities Control)" issued bc NPP Cernavoda and approved by CNCAN. This procedure has Appendix A "Reporting requirements: (a) Public safety, (b) Environment protection, (c) Security, (d) Production, (f) Miscellaneous", Notification Form, Assessment Event Report Form (INES). Regarding ionizing radiations applications, every radiological event should be reported to Regulatory Authority (CNCAN) according to the condition written in the license of use of sources. Every reported radiological event is recorded in an electronic database. Our Section "NATIONAL REGISTRY OF DOSES AND IONIZING RADIATION SOURCES" of DIVISION OF IONIZING RADIATION SOURCER APPLICATIONS of CNCAN is responsible to maintain and keep up date the electronic database with all radiological incidents and overexposures reported.
Romania	**2**	Yes. The main document is IAEA ENATOM document. There are a lot of procedures in Quality Assurance Manual of Regulatory Authority of Romania (National Commission for Nuclear Activities Control-CNCAN): - CNCAN intervention in the situation of radiological or nuclear emergency, Work procedure of Notification Point in the situation of radiological or nuclear emergency, with the Emercon Forms: Form N-1 Nuclear Facility, Form N-2 Follow up Information, Form MPA Measurements & Protective Actions - CNCAN team manual for intervention - Work procedure of CNCAN team for interventions, and so on... Regarding ionizing radiations applications, every radiological event should be reported to Regulatory Authority (CNCAN) according to the condition written in the license of use of sources. Every reported

		radiological event is recorded in an electronic database. Also the overexposures are reporting and recorded in an electronic database. Our Section "NATIONAL REGISTRY OF DOSES AND IONIZING RADIATION SOURCES "of DIVISION OF IONIZING RADIATION SOURCES APPLICATIONS of CNCAN is responsible to maintain and keep up date the electronic database with all radiological incidents and overexposures reported.
Poland		
Slovenia	**1**	n. a.
Slovenia	**2**	Documents: - Written procedure for customs officers in case of an illicit export or import of NRM - Reporting form for record-keeping and communication between customs and the SNSA - Written procedure for duty officer at the SNSA for the case of illicit trafficking of NRM - Database of the reported cases. Under preparation: - Written procedure for the inspectors of the SNSA and HIRS for the case of illicit trafficking of NRM.
Turkey		
United Kingdom	**1**	(a) Thomas, GO, Croft, JR, Williams, MK, McHugh, JO. IRID: Specifications for Ionising Radiations Incident Database: First Review of Cases Reported and Operation of the Database, Chilton, NRPB/HSE/EA (1996). (b) Croft, JR, Thomas, GO, Walker, S, Williams, CR. IRID: Ionising Radiations Incident Database: First Review of Cases Reported and Operation of the Database.
United Kingdom	**2**	Annual reports are produced that include a description of the system. The latest report is: S M Warner Jones, J S Hughes, and K B Shaw. Radiological Consequences resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK - 2001 Review. Chilton, NRPB-W29 (2002). The report can be found at: http://www.nrpb.org/publications/w_series_reports/2002/nrpb_w29.htm Consolidated reports, giving analyses of all events in the database, are published periodically, and the latest is: Hughes, J S, and Shaw, K B. Accidents and incidents involving the transport of radioactive materials in the

	UK, from 1958 to 1994, and their radiological consequences. Chilton, NRPB-R282 (London, HMSO) (1996).
Irish Republic	
Sweden	A document in the quality system at SSI (only in Swedish).
Denmark	
Finland	The basis of capturing the information on incidents is defined in legislation (Radiation Decree, sections 13 a and 17, unofficial translation below). Radiation Decree, section 13 a: Observations significant for safety The responsible party shall report the following observations without delay to the workers concerned, to the physician responsible for their medical surveillance and to the Radiation and Nuclear Safety Authority: 1) the dose limit has been, or is suspected to have been exceeded, 2) the dose constraint referred to in Section 7 has been, or is suspected to have been exceeded, and 3) a result of individual monitoring or an observation made in the course of monitoring working conditions differs from what is typical for the practice or working area in question in a manner significant from the point of view of safety. The responsible party shall ensure that abnormal radiation exposures and the reasons for them are investigated and reported, and that the necessary remedial measures are implemented. Radiation Decree, section 17: Notifications of abnormal events The Radiation and Nuclear Safety Authority shall be notified of the following without delay: 1) any abnormal event pertaining to the use of radiation that is substantially detrimental to safety at the place where the radiation is used or in its environs, 2) any disappearance, theft or other loss of a radiation source such that it ceases to be in the possession of the licensee, 3) any other abnormal observation or information of essential significance for the radiation safety of workers or the environment. Procedures within STUK are described in practice specific quality manuals of STUK´s different departments (in Finnish)
Norway	

Cyprus	**1**	See attached copies of relevant publications
Cyprus	**2**	Yes, see attached copies
Malta		
Estonia		
Latvia		
Lithuania		No special documents are available. Requirements are given in the above mentioned Basic Safety Standards and hygiene norms.

7 Is the reporting system mandatory or voluntary or a mixture?	
Czech Republic	It is up to SONS to create the system for registration of reported events.
Austria	
Switzerland	Voluntary
Germany	It is a mixture.
Iceland	The construction of the reporting system is voluntary.
Slovakia	Mixture
Hungary	
Luxembourg	As mentioned above, each user of radioactive sources has to announce an incident or accident immediately to the responsible authorities. This information obligation is a formal component of the individual permission. There is no obligation for the authorities to create such a register.
Netherlands	Mixture: name of the company, address, date of inspection(s), actions, correspondence, etc. The way of reporting the criteria describing a radiation incident (see question 12) is voluntary
Bulgaria	
France **1**	Mixture Mandatory for the nuclear; voluntary for the other sectors (request for assistance) but in case of work accident, there is then an obligation to declare it to the regulatory body

France	**2**	Totally voluntary
France	**3**	Mandatory for the nuclear
Belgium		
Spain		Mandatory. Required by Regulatory Body as Complementary Instruction to Radioactive facilities Operating Permit.
Portugal		
Italy		
Greece		Mandatory
Romania	**1**	The reporting system is mandatory. According to the Law no. 111/1996 with amendments non-observance of the reporting condition provided in the license constitute infrigement. In some cases we received incident reports for orphan sources from other persons who are not licensees, voluntary. The reporting of overexposures are mandatory according to Radiological Safety Fundamental Norms /24 January 2000, published in Official Gazette no. 404 bis on 29 August 2000.
Romania	**2**	The reporting system is mandatory. According to the Law no. 111/1996 with amendments non-observance of the reporting condition provided in the license constitute infrigement. In some cases we received incident reports for orphan sources from other persons who are not licensees, voluntary. The reporting of overexposures are mandatory according to Radiological Safety Fundamental Norms /24 January 2000, published in Official Gazette no. 404 bis on 29 August 2000.
Poland		
Slovenia	**1**	n. a.

Slovenia	**2**	Every report on an incident is dispatches to appropriate authority and recorded in the database.
Turkey		
United Kingdom	**1**	Reporting to IRID is voluntary. There are three principle reporting routes. – Health and Safety Executive (HSE) – Environment Agency (EA) These are regulatory bodies. Reports through them tend to be incidents which are legally reportable under legislation. One problem is that many involve enforcement action and are not reported to IRID until this is complete. – NRPB: These reports mostly come from NRPB's position as Radiation Protection Adviser (RPA–UK equivalent of Qualified Expert). These often include 'near misses' and other incidents that are not legally reportable. We are looking to expand the reporting routes to include via professional bodies.
United Kingdom	**2**	A mixture. The events include those that are required to be notified by legislation and those that are not, but are reported voluntarily.
Irish Republic		
Sweden		It is mandatory for the licensees to report but reports can also come other ways.
Denmark		
Finland		Mandatory
Norway		
Cyprus	**1**	Mixture

Cyprus	**2**	Mandatory due to international conventions
Malta		
Estonia		
Latvia		
Lithuania		Reporting is mandatory.

8 Are there constraints to operating such systems in your country? _ legal requirements _ other	
Czech Republic	It is up to SONS to create the system for registration of reported events. SONS follows the IAEA INES and ENATOM rules with respecting these cases which shall be dealt with as confidential
Austria	
Switzerland	No
Germany	Not yet
Iceland	• legal requirements • other All treatment of personally identifiable data would have to be in accordance with the Icelandic Act and Regulations on the protection of privacy. The construction of the system is subject to funding being made available.
Slovakia	• legal requirements • other – it works in the area of nuclear safety related to NPPs; in the area of rad.protection and rad.sources not as appropriate
Hungary	
Luxembourg	Because it is an internal register without passing on data to third persons and without electronic possibility of the access, there are no restrictions to the system.
Netherlands	ILO requirements to report results of inspections by the Labour Inspectorate.

Bulgaria		
France	**1**	• legal requirements • other All what is mandatory is legal requirement ; a law on confidentiality constrain the use of the raw data
France	**2**	• no legal requirements • other: a confidentiality chart is signed by all moderators of the IRID system
France	**3**	• legal requirements • other yes 1963 decree on nuclear installations
Belgium		
Spain		None
Portugal		
Italy		
Greece		Legal requirements; other Yes, Legal, Joint Ministerial Order No. 1014(ΦΟΡ)94, Official gazette 216B/06.03.2001
Romania	**1**	Legal requirements
Romania	**2**	Legal requirements - yes, according to the Law no. 111/1996 with amendments. Other - international recommendations
Poland		
Slovenia	**1**	Legal requirements

Slovenia	**2**	Existing system has certain constraints due to limited capabilities of detection. Procedures on forensics investigation should be developed in the near future.
Turkey		
United Kingdom	**1**	• *legal requirements* • *other* A major constraint is confidentiality; which was a problem that took a long while to solve when setting up the scheme. To address this problem, all information contained in the database is unattributable and confidential. Only the originator of the incident entry will know the names of the organisations or individuals concerned and all data are presented to NRPB in a format that provides anonymity. There will be some instances where, because of the affiliation of the contributor, NRPB may be aware of the organisation involved (but not the names of the persons). For its part, NRPB undertakes not to divulge any such privileged information to a third party. HSE and the Agency are well aware of the natural wariness that potential contributors may have in respect of the involvement of regulatory bodies. Therefore they have given assurances that they will not seek to obtain further information from the other partners (or the contributing organisation if different) about any incident recorded on the database that was not reported to the regulators. This would not prevent HSE and the Agency following up incidents that are notified to them by other means, eg, through statutory reporting requirements or complaints from employees or members of the public.
United Kingdom	**2**	• legal requirements • other The database is kept by NRPB on behalf of the Department for Transport (DfT) and the Health and Safety Executive (HSE), with DfT being the major customer. The details in the database are confidential. However, annual summaries of the events are published as anonymous descriptions. Any information extracted from RAMTED for transmission to other organisations is done with the approval of DfT.
Irish Republic		
Sweden		Legal: Systems have to be approved by the Swedish Data Inspection Board
Denmark		
Finland		None

Norway		
Cyprus	**1**	No
Cyprus	**2**	None
Malta		
Estonia		
Latvia		
Lithuania		No constraints.

9 Please describe any quality assurance elements of the system		
Czech Republic		The system has been established on the bases of internal SONS instructions (which are prepared following the SONS QA system) and of relevant CR acts and decrees; the reports are recently registered separately in the regional centres of SONS and than they are centralised in one place and each registered item is controlled
Switzerland		Not yet defined
Austria		
Germany		In development
Iceland		QA elements have not yet been defined.
Slovakia		QA of the system is kept by IAEA and INES national officers.
Hungary		
Luxembourg		
Netherlands		Not separately applicable for the Radiation incidents.
Bulgaria		
France	**1**	It has to be declared in a writing form by a medical doctor, a qualified expert or the employer
France	**2**	It has to go though a three steps process. First someone (worker, MD, qualified expert) proposes a case to

		a moderator in a specific activity sector (industry, medical...). The moderator verifies the data quality. A validation Committee, ensures then the confidentiality and ask for more details or discuss the lessons learned. About half of the proposed cases are rejected by the Committee.
France	**3**	There is a strong QA system both at the utility and regulatory body levels
Belgium		
Spain		None
Portugal		
Italy		
Greece		
Romania	**1**	The procedure regarding NNP incidents contains the next chapters: purposes, scope, definitions, references, responsibilities, procedure, verbal notification, written notification, assessment event report, records, forms and appendix. The procedure has a number, name title, signature and data of all persons involved in revision, preparing, verification, reviewing, approval and acceptance, according to Quality Assurance Manual of NPP appoved by CNCAN.
Romania	**2**	The procedures have a number, name, title, signature and data of all persons involved in revision, preparing, verification, reviewing and approval, according to Quality Assurance Manual of CNCAN.
Poland		
Slovenia	**1**	n. a.
Slovenia	**2**	The SNSA has developed the QA procedures. The documents, listed in [6], were developed accordingly.

Turkey		
United Kingdom	**1**	All the incidents are entered by the NRPB IRID Coordinator, who independently from the provider, codes the incident from the text description. Any anomalies or inconsistencies are discussed with the provider and J R Croft (NRPB).
United Kingdom	**2**	The RAMTED project is carried out within the Environmental Assessments Department's Quality Management System. The Department's work is carried out under certification to ISO 9001: 2000.
Irish Republic		
Sweden		The report has to be in written form. If the report does not come via the licensee the licensee is contacted to check the correctness of the information. An investigation is performed at SSI. If the effective dose exceeds 10 mSv or the equivalent dose to the skin exceeds 50 mSv to workers (for the public 1/10 of the values are used) the case is to be reported to the Head of the Department of Occupational and Medical Exposures at SSI or to the Head of any other department at SSI and to the Director General and the Department of Information. Every event is reported at the weekly meeting at the Department of Occupational and Medical Exposures.
Denmark		
Finland		Quality manual of STUK and practice specific quality manuals of STUK´s departments
Norway		
Cyprus	**1**	We participate in the IAEA intercomparison program.
Cyprus	**2**	Quality assorance is performed on each remote monitoring station once per year.
Malta		

Estonia	
Latvia	
Lithuania	No quality assurance available.

Scope of the System

10 Which groups of practices or events are covered? _ nuclear power _ military _ industrial _ medical _ research _ teaching _ transport _ orphan sources _ other (please specify)	
Czech Republic	all groups are covered and are based on relevant acts, decrees and instructions (see above) where among others the SONS requirements in this field to licensee are described
Switzerland	Military; industrial; medical; research; teaching; transport; orphan sources
Austria	
Germany	Industrial; medical; research; teaching; transport; orphan sources;
Iceland	nuclear power; military; industrial; medical; research; teaching; transport; orphan sources; The system would cover all of these.
Slovakia	Nuclear power; industrial; medical; research; teaching; transport; orphan sources;
Hungary	
Luxembourg	Industrial; research; teaching; transport; orphan sources;
Netherlands	GISAI covers all kind off companies in our Country. Military and Nuclear power are excepted for radiation incidents. Other departments (resp. Ministry of Defence en Environment) are dealing

		Over there in such cases.
Bulgaria		
France	**1**	Nuclear power; industrial; medical; research; teaching; transport; orphan sources; other individual with radium sources
France	**2**	Military; industrial; medical; research; teaching; transport; orphan sources; other
France	**3**	Nuclear power
Belgium		
Spain		Industrial; medical; research; teaching; transport; orphan sources
Portugal		
Italy		
Greece		Nuclear power; industrial; medical; research; teaching; transport; orphan sources
Romania	**1**	Nuclear power; industrial; medical; research; teaching; transport; orphan sources; other; import, export
Romania	**2**	Nuclear power; industrial; medical; research; teaching; transport; orphan sources; other; import, export
Poland		
Slovenia	**1**	n. a.
Slovenia	**2**	With the system described, following areas are covered:

		- transport of sources for all civil application (industry, medicine, research) - orphan sources - export/import arrangements, border control
Turkey		
United Kingdom	**1**	nuclear power; military; industrial; medical; research; teaching; transport; orphan sources; other See question 4 for the general scope covered. More detail can be found in the category listings for fields 13 and 14 (see attached).
United Kingdom	**2**	nuclear power; military; industrial; medical; research; teaching; transport; orphan sources; other The events concern the transport of radioactive materials.
Irish Republic		
Sweden		All of the above.
Denmark		
Finland		(Capturing information about incidents in nuclear power and fuel cycle is based on separate legislation and not described here.) Other listed (licensed) practices are covered including the use of non-ionising radiation.
Norway		
Cyprus	**1**	Industrial; medical; research
Cyprus	**2**	Other: Contamination of the environment from accidents in neighbouring countries
Malta		

Estonia	
Latvia	
Lithuania	All the types of above mentioned exposure are covered by the Order of the Minister of Health No 138 of February 23, 2001, and the above mentioned hygiene norms.

11 What types of exposure are covered? _ occupational _ public _ patient		
Czech Republic		All types
Switzerland		Occupational; public; patient
Austria		
Germany		Occupational; public; patient
Iceland		Occupational; public; patient All of these exposures would be covered.
Slovakia		Occupational; public; patient;
Hungary		
Luxembourg		Occupational; public
Netherlands		All types if there is a employer responsibility in relation to labour conditions.
Bulgaria		
France	**1**	Occupational; public; patient; + environment
France	**2**	Occupational

France	**3**	Occupational; public
Belgium		
Spain		Occupational; public
Portugal		
Italy		
Greece		Occupational; public; patient
Romania	**1**	Occupational; public; patient
Romania	**2**	Occupational; public; patient
Poland		
Slovenia	**1**	Occupational; public; patient
Slovenia	**2**	With the system described, following exposures are covered. - possible exposures of duty officers - public exposure
Turkey		
United Kingdom	**1**	*Occupational; public; patient* Occupational and public exposure is covered but patient exposure is not.

United Kingdom	**2**	Occupational; public; patient Both occupational and public. Patients would be regarded as members of the public.
Irish Republic		
Sweden		All of the above.
Denmark		
Finland		Occupational; public; patient
Norway		
Cyprus	**1**	Occupational
Cyprus	**2**	public; environmental (γ- radiation in the atmosphere)
Malta		
Estonia		
Latvia		
Lithuania		All the types of above mentioned exposure are covered. What are the reporting criteria? Are these legally mandatory? The information to be reportedis: - name and address of the place of accident, - description of accident:: a) transport accidents involving radioactive materials: - name of radioactive material, - names of consignor, consignee and conveyor, - description of radioactive mater: solid, liquid, gas,

	- gamma dose rate in the accident area, - surface contamination at the area of accident b) accidents involving use of sources of ionising radiation in medicine, industry, research, other: - description of accident (lost, spill, stolen, human error, equipment error, other), - name of radioactive material or source of ionising radiation (solid, liquid, gas, found source or contamination, unshielded sealed source, damaged sealed source, other), - dose rate at the accident area, - surface contamination at the area of accident The reporting criteria are established in the Basic Safety Standards for the accidents in medical applications of ionizing radiation: - the wring patient, tissue or organ exposed, - the wrong radiopharmaceutical or wrong activity used, - the wrong x-ray examination which did not provide the useful information performed, - the deviation of dose from the prescribed one in radiation therapy is higher than defined The precise reporting criteria are established in radiation therapy: - loss of source (theft, disappearance, etc.); - leakage of source; - loss of shielding of source; - failure of source to return to the safe, - irradiation of the wrong patient; - irradiation of the wrong target; - use of the wrong source; - in brachiterapy - dose, exceeding the planned dose by more than 15 percent, when it is caused by errors in calculations, calibration, determination of duration of irradiation, activity or positioning of source or failure in performance of equipment; - in external radiation therapy - dose, exceeding the planned dose by more than 10 percent, when it is caused by errors in calculations, calibration, determination of duration or geometry of irradiation or failure in performance of equipment; - in external radiation therapy when dose fractionation is applied - dose, exceeding the planned dose by more than 50 percent; - increased doses to workers (workers).

12 What are the reporting criteria? Are these legally mandatory?	
Czech Republic	"domestic" 1. 1st degree extraordinary event - as soon as possible, till 24 hours 2. 2. 2nd degree extraordinary event – as soon as possible, till 4 hours 3. 3. 3rd extraordinary event – immediately "abroad" following IAEA INES and ENATOM requirements
Switzerland	cf question 3
Austria	
Germany	Yes, but only in accidents and severe incidents • severe personal injury or death of persons • significant exposure of persons • deficiencies or failures of safety relevant functions or equipment • extraneous cause (e. g. fire) • significant contamination of persons or areas • loss of radioactive materials • finding of radioactive materials • emission of radioactive materials above limits
Iceland	The reporting criteria would be a mixture. Reporting incidents of a radiological nature would be mandatory above a certain threshold, reporting would be encouraged of all incidents of potential use as lessons to others. Reporting of non-radiological incidents would within the present framework not be mandatory.
Slovakia	Reporting criteria are set down by the INES user´s manual.
Hungary	
Luxembourg	See answer 7

Netherlands		Reporting criteria: kind of incident, name of melder, involved other inspectorates, investigating inspector(s), objectives, conclusions, compliance, further actions. These are not mandatory, but voluntary by agreement between specialist executive inspectors and responsible management.
Bulgaria		
France	**1**	Exceeding limits in terms of releases
France	**2**	1 The pedagogical aspects of the incident as far as lessons learned are concerned. 2 no
France	**3**	Described in an official document (INES)
Belgium		
Spain		See attachment (Spanish language). They are mandatory.
Portugal		
Italy		
Greece		Reporting criteria are presented in the H.M.O. refered in 8 above and are mandatory.
Romania	**1**	The reporting criteria are according level 0 of INES - the international nuclear event scale and there are mandatory. The reporting categories are provided on NPP reporting procedure.
Romania	**2**	The reporting criteria are according level 0 of INES - the international nuclear event scale, N-1, N-2, R-1, R-2, MPA Emercon Forms, and these are legally mandatory.
Poland		

Slovenia	**1**	Prescribes limits
Slovenia	**2**	Customs and police officers has to report after each alarm, that is not associated with legal activities, to the on-duty officer at the SNSA. If the on-duty officer at the SNSA comes to conclusion that illicit trafficking is in question, he/she informs the SNSA, HIRS and police inspectors. The SNSA sends report about every event to the HIRS. All cases are analysed during regular biannual meetings of all stakeholders and are summarised in annual report.
Turkey		
United Kingdom	**1**	There are no specific reporting criteria; near misses are accepted. In essence if lessons can be learned from an incident then it is worthy of inclusion.
United Kingdom	**2**	See answer to Question 7.
Irish Republic		
Sweden		It´s mandatory for the licensees to report any event outside "normal" situation.
Denmark		
Finland		See answers 3 and 7
Norway		
Cyprus	**1**	The recording levels are as states in the basic safety standard of the IAEA.
Cyprus	**2**	A dose rate exceeding the set value of 200 nGy/h. There are no mandatory legal levels.
Malta		

Estonia	
Latvia	
Lithuania	

Means of Categorising Incidents

13 Are incidents categorised and if so how?		
Czech Republic		see 12
Switzerland		cf question 3
Austria		
Germany		No
Iceland		Incidents would be categorised, but it is not yet decided how this will be done.
Slovakia		Yes, in 7 levels, according to their consequences and importance. (INES)
Hungary		
Luxembourg		The registration does not cover a structuring arrangement according to type of the incidents.
Netherlands		No
Bulgaria		
France	**1**	Yes / 12 categories
France	**2**	Yes per categories of activities (27)
France	**3**	Yes / INES scale

Belgium		
Spain		INES Scale is being used since January 2001 as a pilot test exercise. Although Database provides with fields for events classification currently they are not being filled.
Portugal		
Italy		
Greece		Yes, according to INES scale
Romania	**1**	Yes, the incidents are categorised according to INES, User' Manual 2001
Romania	**2**	Yes, the incidents are categorised according to INES, User' Manual 2001 and Emercon Forms.
Poland		
Slovenia	**1**	No
Slovenia	**2**	Events are categorised into two groups: - legal activities with NORM or use of radioactive isotopes in medicine - illicit trafficking of NRM.
Turkey		
United Kingdom	**1**	Yes, incidents are categorised (please see attached).
United Kingdom	**2**	Events are categorised using a comprehensive system that is described in the annual reports. This includes a descriptive classification (i.e. what happened).

Irish Republic		
Sweden		By type of activity (dental x-ray, sealed or unsealed source, radiation therapy etc)
Denmark		
Finland		No categorisation
Norway		
Cyprus	**1**	According to occupation
Cyprus	**2**	As classified by the joint radiation emergency management plan of the national organisations (see attached copy)
Malta		
Estonia		
Latvia		
Lithuania		The incidents are not categorised.

14 Are text descriptions of the accidents/ incidents available?	
Czech Republic	Yes
Switzerland	Yes
Austria	
Germany	Sometimes
Iceland	Not yet.
Slovakia	Yes, within the IS INES ; on INTERNET
Hungary	
Luxembourg	Because of the these forms could contain also personal data, they are not suitable for passing on to third persons. The passing on of information to third persons takes place by means of a further form. This form is used only for information of authorities of other member states when finding radioactive scrap (see appendix 2).
Netherlands	As remarks in the GISAI system, not otherwise directly available.
Bulgaria	
France **1**	Yes in a paper form; a software database is under development
France **2**	Yes on a web site

France	**3**	Yes in a paper form and in a computerised database publication on DGSNR website; http://www.asn.gouv.fr/
Belgium		
Spain		Yes
Portugal		
Italy		
Greece		Yes
Romania	**1**	Yes, according to INES.
Romania	**2**	Yes, according to INES and Emercon Forms.
Poland		
Slovenia	**1**	No (only for use by regulators), and by legitimate request.
Slovenia	**2**	In majority of cases, the alarm is triggered either by NORM or by individuals that received medical treatment by radioactive isotopes.
Turkey		
United Kingdom	**1**	Yes, text descriptions are available.
United Kingdom	**2**	The details in the database are confidential. However, annual summaries of the events are published as

		anonymous descriptions.
Irish Republic		
Sweden		Yes
Denmark		
Finland		Yes, in Annual Reports of Radiation Practices
Norway		
Cyprus	**1**	No
Cyprus	**2**	Yes, see 13 above
Malta		
Estonia		
Latvia		
Lithuania		Yes

15 Are the descriptions anonymised ie, individuals and organisations are not identifiable?	
Czech Republic	No
Switzerland	No
Austria	
Germany	In publications yes
Iceland	Descriptions relating to individuals are anonymised to the degree required according to the Icelandic Act on the protection of privacy. These requirements are considerably stricter for information accessible to parties outside the Icelandic Radiation Protection Institute. So far organisations have not been identified in information disseminated to others, unless the description refers to an incident where the identity of the organisation is widely known.
Slovakia	No
Hungary	
Luxembourg	See under 14
Netherlands	No, the remarks are registered among a so called case number and organisation name and if necessary the names of victims
Bulgaria	
France **1**	No

France	**2**	Yes
France	**3**	No
Belgium		
Spain		No. Both facilities, organisations and individuals are identified.
Portugal		
Italy		
Greece		No
Romania	**1**	The descriptions, individuals and organisations are identifiable.
Romania	**2**	The descriptions, individuals and organisations are identifiable.
Poland		
Slovenia	**1**	No, descriptions are identifiable
Slovenia	**2**	In case that orphan source is found but its owner is unknown, the state public service ("Agency for Radwaste Management") has to transfer and store it to the state storage ("Central storage for low and intermediate level waste at Brinje"). Usually, there is an investigation conveyed to identify the origin of the source.
Turkey		
United Kingdom	**1**	All incidents are anonymised.

United Kingdom	**2**	See Question 14.
Irish Republic		
Sweden		No
Denmark		
Finland		Yes
Norway		
Cyprus	**1**	Yes
Cyprus	**2**	Yes
Malta		
Estonia		
Latvia		
Lithuania		No

Use Made of Information

16 Is the information used to produce accident statistics? _ for use by regulators only _ routine publication of statistics _ other (please specify)	
Czech Republic	Statistics for regulatory body and published every year in annual report of SONS, also for the purpose of other governmental institutions on request
Austria	
Switzerland	• for use by regulators only • other (please specify) Annual Activity Report of the division
Germany	Real statistics are not possible because of voluntary information Routine publication of statistics
Iceland	• for use by regulators only • routine publication of statistics • other (please specify) Not yet in any formal manner.
Slovakia	Yes, by IAEA, INES national officers. • For use by regulators • Routine publication of statistics - x • other (please specify) - for use by NPPs
Hungary	
Luxembourg	for use by regulators only
Netherlands	For use by regulators only, to provide information for eventually new inspections or policy development.

Bulgaria		
France	**1**	Yes not only for use by regulators, routine publication of statistics (see French revue "Points et Commentaires en Radioprotection") other: input for RELIR
France	**2**	No
France	**3**	• for use by regulators only: yes, but mainly focussed on nuclear safety • routine publication of statistics: not only • other: yes (see French revue "Control")
Belgium		
Spain		Other: Information for regulatory body use.
Portugal		
Italy		
Greece		for use by regulators only
Romania	**1**	for use by regulators only, routine publication of statistics, (we communicate the statistics at international and national meetings and we publish periodical reports) Other: The information is communicated internationally
Romania	**2**	for use by regulators only routine publication of statistics - yes, we comunicate the statistics at international and national meetings and we publish periodical reports.

		Other (please specify) Emercon Forms are used by international comunity
Poland		
Slovenia	**1**	No
Slovenia	**2**	All information is evaluated [12] and is mainly used among stakeholders in the first phase and for preparation of *annual report* on nuclear and radiation safety. In case of illicit trafficking, it is used for reporting to the IAEAI I*llicit Trafficking Database* (ITDB).
Turkey		
United Kingdom	**1**	• for use by regulators only • routine publication of statistics • other One set of statistics has been produced. They were targeted at the regulators but were made generally available in publication 6(b). Because reporting is not mandatory there is significant under-reporting and the potential for bias.
United Kingdom	**2**	• for use by regulators only • routine publication of statistics • other See answer to Question 2.
Irish Republic		
Sweden		There are so few incidents so statistics on a regular basis is not produced. Some events are published in SSI´s news pamphlet, available for the public.
Denmark		
Finland		There are so few accidents that production of "statistics" is not possible.

Norway		
Cyprus	**1**	For improvement of the warning procedures in order to avoid unecessarn radiation dose to the workers
Cyprus	**2**	Other: to safe guard the health of the population
Malta		
Estonia		
Latvia		
Lithuania		Not yet, because no information available, but it might be used.

17 How are the case studies/lessons learned disseminated? _ only for use by regulators _ selected examples published) where? _ all reported incidents published) _ available on CD Rom _ on a website _ other	
Czech Republic	Mainly for the use of regulator, most important events are described in details in annual report
Switzerland	• only for use by regulators • selected examples published) where? • all reported incidents published) • available on CD Rom • on a website • other
Austria	
Germany	In individual publications in annual governmental reports (published by the Federal Ministry for Environment, Nature Conservation and Nuclear Safety)
Iceland	• only for use by regulators • selected examples published) where? • all reported incidents published) • available on CD Rom • on a website • other The lessons learned have until now mainly been disseminated through seminars and lectures.
Slovakia	For use by regulators; selected examples published; where ? In the IAEA reports, and on INTERNET all reported incidents published; available on CD Rom; on a website; other

Hungary		
Luxembourg		only for use by regulators
Netherlands		Like question 16.
Bulgaria		
France	**1**	• only for use by regulators: • selected examples published): Yes now through RELIR • available on CD Rom: it is envisaged
France	**2**	• only for use by regulators: no • selected examples published): Yes • on a website: http://relir.cepn.asso.fr/
France	**3**	• only for use by regulators: no, also provided to utilities and foreign regulatory bodies, but mainly focussed on nuclear safety
Belgium		
Spain		When specific lessons learned are identified the regulatory body (CSN) sends a letter to licensees of facilities potentially affected by similar events, including lessons learned and recommendations on measures to be taken to avoid occurrence.
Portugal		
Italy		

Greece		only for use by regulators
Romania	**1**	- only for use by regulators: No. The case studies/lessons learned are disseminated to the all user of the same sources and practices. - selected examples published: yes - On international and national meetings, courses, press release - all reported incidents published: yes - on a website: reported on IAEA website: www-news.iaea.org - other: letters to sources users, in some cases
Romania	**2**	- only for use by regulators: No. The case studies/lessons learned are disseminated to the all user of the same sources and practices. - selected examples published: yes - On international and national meetings, courses, press release - all reported incidents published: yes - on a website reported on IAEA website - other letters to sources users, in some cases
Poland		
Slovenia	**1**	selected examples published: Expertise
Slovenia	**2**	Majority of cases are not related to illicit trafficking. A very good inter ministerial co-operation is established.
Turkey		
United Kingdom	**1**	• only for use by regulators • selected examples published) where? • all reported incidents published) • available on CD Rom • on a website • other The first 100 cases were published in hard copy (see 6(b)) but we have now moved to publication on a website hosted by NRPB, www.irid.org.uk. The regulators will also be provided with a copy of the website on a CDROM every 3 months, so that they can access case studies on a laptop during inspections of users.

United Kingdom	**2**	• only for use by regulators • selected examples published) where? • all reported incidents published) • available on CD Rom • on a website other
Irish Republic		
Sweden		See the above question.
Denmark		
Finland		All reported incidents are published (if there is any deviation from radiation safety regulations, radiation safety is endangered or there is a lesson to learn). Incidents/accidents are reported in Annual Report of Radiation Practices. Urgent cases or other incidents raising public interest are reported immediately through press releases (& website + text-TV). Annual Report is available in STUK´s website (in Finnish and in English).
Norway		
Cyprus	**1**	The persons involved is (are) informed and the incident is examined so that corrective actions are taken.
Cyprus	**2**	only for use by regulators
Malta		
Estonia		
Latvia		
Lithuania		Lessons would be disseminated for use of regulators and selected examples published in seminars,

	training courses, etc.

18 What languages are the material published in? _ national language(s) _ English _ other Please specify	
Czech Republic	annual report is available in Czech and English, in case of IAEA INES and ENATOM system following their requirements
Switzerland	national language(s)
Austria	
Germany	national language(s) English in listings and in individual publications
Iceland	• national language(s) • English • other Icelandic has been used at all domestic presentations, English for international ones.
Slovakia	English
Hungary	
Luxembourg	National language(s);
Netherlands	National language(s);
Bulgaria	

France	**1**	National language(s); French
France	**2**	National language(s); French
France	**3**	National language(s); French
Belgium		
Spain		National language(s); Spanish
Portugal		
Italy		
Greece		national language(s) yes English yes informing INES/IAEA
Romania	**1**	national language(s) yes English yes, in the case of international meetings
Romania	**2**	national language(s) yes English yes, in the case of international meetings
Poland		
Slovenia	**1**	national language(s) English
Slovenia	**2**	Slovenian language.

Turkey		
United Kingdom	**1**	• national language(s) • English • other The national language (English).
United Kingdom	**2**	• national language(s) • English • Other
Irish Republic		
Sweden		Swedish
Denmark		
Finland		Annual Report is published in Finnish (national language) and in English. Press releases are published in Finnish and in Swedish (the other national language). Website is partly available also in Swedish and in English.
Norway		
Cyprus	**1**	national language(s) English (sometimes i. e. publications)
Cyprus	**2**	English
Malta		
Estonia		

Latvia	
Lithuania	It will be Lithuanian.

International Exchange Mechanisms

19 Do you currently use/publish examples from other countries? If so _ where do you get the information from? _ are there problems in accessing and using foreign information	
Czech Republic	not regularly, most information on the important or serious accident we got from IAEA
Switzerland	No
Austria	
Germany	
Iceland	Information from other countries has been used, e.g. informally in teaching and training. Individuals and organisations have not been identified in these examples, unless the incidents and the identities are already well known. The information has mainly been received from other radiation protection authorities, international organisations (such as NEA and IAEA) and other sources, such as the media. There has been no problem is using foreign information in the manner described.
Slovakia	Within IAEA IS INES No
Hungary	
Luxembourg	We receive examples of incidents in other countries: • over the INES reporting system • over the national annual reports of German and French authorities These reports we use for the extension of our own experience, and we don't hand over it to third persons
Netherlands	

Bulgaria		
France	**1**	Only when French MD are involved by the IAEA No information came from other countries database
France	**2**	No information came from other countries database
France	**3**	
Belgium		
Spain		No No. We access to information on events from IAEA, and other regulatory bodies mainly receiving written documents and via Internet.
Portugal		
Italy		
Greece		- From IAEA - No
Romania	**1**	- INES and AIRS (Advanced Incident Reporting System Database), IAEA-Nuclear Energy Agency of the OECD - We access and use 2 international sources to access the foreign information
Romania	**2**	- IAEA, INES and ENATOM information system - We receive and use IAEA, INES and ENATOM informations
Poland		

Slovenia	**1**	• Slovenia nuclear safety administr. • No
Slovenia	**2**	All information, provided by the IAEA (ITDB) is disseminated by the SNSA to the stakeholders.
Turkey		
United Kingdom	**1**	At present we do not use examples from other countries, but would like to. We would expect to have links to other relevant websites eg, those for RELIR (France) and RADEV (IAEA). Clearly language can be a barrier. We need a way of identifying key incidents that are important examples or identify new lessons to be learned, so that they can be translated and made generally available to users.
United Kingdom	**2**	No. UK only.
Irish Republic		
Sweden		We use the information we get from IAEA via the INES/NEWS and Illicit trafficking databases. We don't see any problem with information written in English.
Denmark		
Finland		Examples from other countries are used and also published if they require actions in Finland or if there is a public interest in incidents/accidents in question. Information is received from IAEA (INES), directly from authorities in an other country and/ or through media. So far, there have not been problems accessing and using foreign information.
Norway		
Cyprus	**1**	• Mainly form the IAEA from other international organisations • no problems

Cyprus **2**	• information is published and disseminated between the members of the international convention on the emergency assistance of nuclear or radiological accidents. • No
Malta	
Estonia	
Latvia	
Lithuania	• IAEA provides us with information about radiation incidents, which happened all over the world. Information on accidents in the UK were provided by the NRPB. • There are no problems in accessing and using foreign information.

20 Do you see advantages in Countries in the EU having **_ common systems of categorisation of incidents?** **_ a system to exchange information on incidents?**	
Czech Republic	Yes, but it could be useful to co-ordinate this activity with another relevant international organisations mainly with IAEA, that countries will not report the events to too much databases (INIS, RADEV, etc. !)
Switzerland	Yes
Austria	
Germany	Common systems of categorisation of incidents? Yes a system to exchange information on incidents? Yes
Iceland	Yes, we believe this would be of an advantage.
Slovakia	Yes Yes It should be consulted and co-ordinated with IAEA
Hungary	
Luxembourg	We see already the sense of such a system. However such a system must be concerned with caution. It could cause: • that member states announce in a many events are evaluated later in a certain ranking and than they are seen as countries with poor radiation protection precaution, • such a system is not allowed to be a collection of not relevant and uninteresting events, • target of this system must be the exchange of experience and the return of experience, a further target should be the fast mutual information on events, which do not fall in the context of other conventions or guidelines, however they could have a cross national effect (e.g. the sales of radioactive

		wrist-watches in French supermarkets).
Netherlands		
Bulgaria		
France	**1**	Yes Have a minimum number of rough categories (10 to 20) and let countries divide in more specific details according to national background Yes it would be interesting
France	**2**	Yes Have a minimum number of rough categories (10 to 20) and let countries divide in more specific details according to national background Yes it would be interesting
France	**3**	Yes it would be interesting
Belgium		
Spain		Yes Yes Both measures help to share experiences of interest to improve safety culture at regulatory bodies and licensees. Also they help to ease communications with media and general public.
Portugal		
Italy		
Greece		Yes Yes
Romania	**1**	Yes, very much Yes, very much

Romania	**2**	Yes, very much Yes, very much
Poland		
Slovenia	**1**	Yes Yes
Slovenia	**2**	The common (European) system of categorisation of incidents and a system of mutual exchange of information would be an important improvement and enhancement in this field.
Turkey		
United Kingdom	**1**	A common system of categorisation would be nice but may be difficult to achieve. However as a minimum we should be able to identify a minimum set of common fields and categorisations. To facilitate interaction with IAEA it may be relevant to look at the categorisations used by RADEV. Certainly we need a mechanism to exchange information.
United Kingdom	**2**	The national reporting/ recording of transport events will vary from country to country. However, there is an international system operated by the IAEA, called EVTRAM. All but the most trivial events from the annual RAMTED reports are supplied to EVTRAM, using the EVTRAM system of classification.
Irish Republic		
Sweden		Yes, absolutely.
Denmark		
Finland		System of categorisation could be useful if a common EU database or other system to exchange information on incidents would be launched. Putting up a new "system" for information exchange does not necessarily improve primary objective: The

		radiation safety. This goal may also be achieved by using and improving the existing information exchange systems. Maintaining an up-to-date list of relevant authorities and contact information (address, phone and fax numbers etc., and also list /links to relevant reports) would anyhow be useful for disseminating the necessary information.
Norway		
Cyprus	**1**	Common systems of categorisation of incidents? Yes a system to exchange information on incidents? Yes
Cyprus	**2**	Common systems of categorisation of incidents? Yes a system to exchange information on incidents? Yes
Malta		
Estonia		
Latvia		
Lithuania		The common systems of categorisation of incidents and a system of exchange of information on incidents in the EU countries will be helpful especially for countries which have not any system.

21 How would you like to see EURAIDE operate?		
Czech Republic		
Switzerland		Trough the internet
Austria		
Germany		Not as an international registry! It should be used for information exchange, feedback and lessons learned on special events, support for training and education
Iceland		EURAIDE could be very useful and help to stimulate safety culture. We have no specific suggestions at present, but any increase in exchange of information and experience in this field would be beneficial.
Slovakia		By means of national co-ordination centres and responsible persons.
Hungary		
Luxembourg		This system could function similar to the INES Rating System, a Web based information data base in which the member states enter safety-relevant events or events with unusual character.
Netherlands		
Bulgaria		
France	**1**	Quick information on important incidents (ASAP) Annual exchange of trends and breakdown per categories Exchange of feedback analysis
France	**2**	Allowing selection of most interesting examples in different countries; translating them into national

		languages and making them available in all countries
France	**3**	Quick exchange of information
Belgium		
Spain		It should be interesting to have an European radiological incident database. We would like to access it via Internet. It should be interesting EURAIDE to be accessible not only by regulatory bodies but also by licensees, media and general public.
Portugal		
Italy		
Greece		EURAIDE should operate in obligatory basis and should be structured according to INES (IAEA) system.
Romania	**1**	A common user manual with a system of categorisation of incidents, with established reporting requirements, a database available on line for every responsible person of every country.
Romania	**2**	A common user manual with a system of categorisation of incidents, with established reporting requirements, a database available on line for every responsible person of every country. Also we think that EURAIDE should use the experience of the existing systems and it should be harmonized with the existing systems
Poland		
Slovenia	**1**	In software (Microsoft Excel 97, Word 97)
Slovenia	**2**	The operation of the EURAIDE system ("European Union Radiation Accident and Incident Data Exchange") may bring several benefits to all counter-parts, both EU members and the Applicant Countries, because of a future European network which will facilitate exchange of the data (feedback) from incidents and accidents and bring about lessons to be learnt.

Turkey		
United Kingdom	**1**	EURAIDE should be a focus for facilitating exchange of information (both between Member States and with RADEV) and its effective use, especially in training programmes. This will not happen overnight and it is suggested that its operation should evolve under the guidance of a Steering Committee. This should start with a relatively small core group with strong links to EAN. It should aim to run one Workshop a year, possibly in collaboration with other relevant groups (IAEA, EAN) as appropriate in that year.
United Kingdom	**2**	Further to the comments supplied by Mr J. R. Croft, our experience of collecting data on transport events is that some EU Member States provide comprehensive data on a regular basis, while others provide none and are reluctant to commit any resources to such tasks. Also, on a world-wide scene, very few countries provide data on a regular basis to EVTRAM. International/ regional databases should preferably cover all countries, and the relevant organisations should therefore be encouraged to contribute.
Irish Republic		
Sweden		As a, for EU, mandatory information exchange system. Not only for fast information but also as a way to learn from experiences made by others. The system should be web based for easy reporting and access to information. Something very similar, or equal to INES/NEWS would be best, to minimize the effort needed by the reporter.
Denmark		
Finland		See previous answer.
Norway		
Cyprus	**1**	To work in achieving the aims stated in 20 above and to disseminate information openly for the benefit of mankind.
Cyprus	**2**	To work in achieving the aims stated in 20 above and to disseminate information openly for the benefit of mankind

Malta	
Estonia	
Latvia	
Lithuania	As it concerns candidate countries the EURAIDE might be helpful in: - determination of reporting criteria and information exchange mechanisms, - creation of system which will encourage and facilitate reporting about accidents, particularly in cases when it is possible to hide the fact and consequences, - review of existing national legislation and procedures on matter of their conformity with EU legislation and recommendations, - training of concerned persons, - establishment of network of operative exchange of information.