IAEA INCIDENT AND TRAFFICKING DATABASE (ITDB)

Incidents of nuclear and other radioactive material out of regulatory control

2013 Fact Sheet

The IAEA Incident and Trafficking Database (ITDB) system is a unique asset that assists the IAEA, participating States and selected international organizations in improving nuclear security. The ITDB staff maintain and analyze a growing collection of authoritative information on the subject. This information is disseminated through the IAEA to Member States and certain international organizations. Reporting to ITDB is voluntary. As of 31 December 2012, 120 States participate in the ITDB programme (Annex).

The ITDB is an essential component of the information platform that supports the implementation of the IAEA Nuclear Security Plan.

Scope of the ITDB

The ITDB System was established in 1995 to record and analyse incidents of illicit trafficking in nuclear and other radioactive material. It incorporates all incidents in which nuclear and other radioactive material is out of regulatory control.

Communication with participating States is maintained through the network of national Points of Contact (POC). The ITDB System receives information from POCs on incidents ranging from illegal possession, attempted sale and smuggling to unauthorized disposal of material and discovery of lost radioactive sources.

The ITDB scope covers all types of nuclear material as defined by the Statute of the Agency (i.e. uranium, plutonium and thorium), naturally occurring and artificially produced radioisotopes and radioactively contaminated material, such as scrap metal. States are also encouraged to report incidents involving scams or hoaxes where material that is purported to be nuclear or otherwise radioactive, i.e. scams.

The Secretariat carries out analyses of all incidents in an attempt to identify trends and/or characteristics to assist in the prevention of misuse of nuclear or radioactive material.

Name Change

Participating States have indicated preference for a change to the title of the *Illicit Trafficking Database*. In 2012 a proposal to change the title was discussed. The new title would be required to retain the original intent of the system to focus upon ‘illicit trafficking’, while also more explicitly indicating that the system’s scope is broader than just ‘illicit trafficking incidents’ encompassing all nuclear and other radioactive material not under regulatory control. The new name of *Incident and Trafficking Database (ITDB): Incidents of nuclear and other radioactive material out of regulatory control*, was agreed upon and has subsequently been adopted.

Confidentiality and security of ITDB information

In order to protect the confidentiality of information reported by Member States, the ITDB upholds strict information classification and dissemination procedures. The information provided below represents a cross-section of the aggregated ITDB data that is available for the public domain.

ITDB highlights 1993–2012

Incidents reported to the ITDB show that problems persist with regard to illicit trafficking in nuclear and other radioactive material and with thefts, losses and other unauthorized activities and events.

As of 31 December 2012, the ITDB contained a total of 2331 confirmed incidents reported by participating States. Of the 2331[1] confirmed incidents, 419 incidents involved *unauthorized possession and related criminal activities*, 615 incidents involved reported *theft or loss* and 1244 incidents involved *other unauthorized activities and events*. In the remaining 69 cases, the reported information was not sufficient to determine the category of incident.

Unauthorized possession and related criminal activities, 1993–2012

Incidents included in this group involve the illegal possession and movement of nuclear material or radioactive sources and attempts to sell, purchase or otherwise use such material for illegal purposes.

Confirmed incidents involving unauthorized possession and related criminal activities, 1993–2012

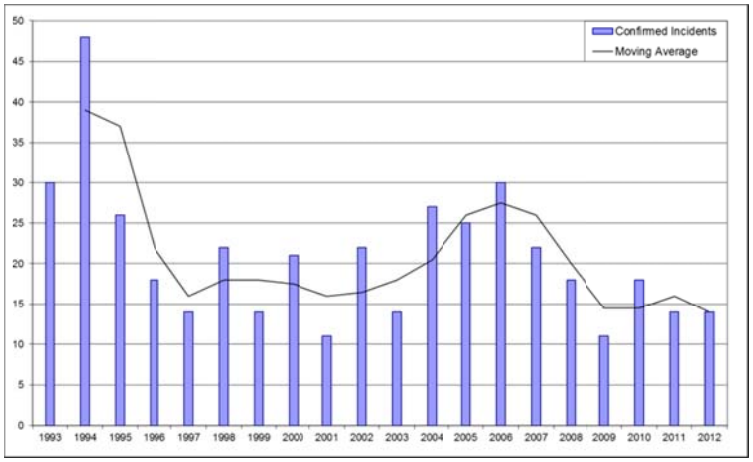

Figure 1. Incidents reported to the ITDB involving unauthorized possession and related criminal activities, 1993–2012.

The number of incidents reported to the ITDB involving unauthorized possession or other related criminal activities reached a peak in the early 1990s. However, the number of incidents reported subsequently decreased and has not returned to this peak. It should be noted that due to a reporting lag time of 2–3 years, the total number of incidents recorded from 2010–2012 is likely to rise in line with previous years.

In the 1993–2012 period, 16 confirmed incidents involved unauthorized possession of high enriched uranium or plutonium. Some of these incidents involved attempts to sell or traffic these materials across international borders.

A small number of these incidents involved seizures of kilogram quantities of potentially weapons-usable nuclear material, but the majority involved gram quantities. In some of these cases, there were indications that the seized material was a sample from a larger unsecured stockpile.

[1] An incident may be categorized in more than one group—for example the theft and subsequent attempted sale of a radioactive source. Accordingly, the sum of the incidents in the groups is greater than the total number of incidents.

Incidents involving attempts to sell nuclear or other radioactive material indicate that there is a perceived demand for such material. The number of successful transactions is not known and therefore it is difficult to accurately characterize an 'illicit nuclear market'. Where information on motives is available, it indicates financial gain to be the principal incentive behind the majority of events. Many trafficking incidents could be characterized as 'amateur' in nature, as demonstrated by ad-hoc planning and a lack of resources and technical proficiency. However, there are a few significant cases that appear more organized, better resourced and that involved perpetrators with a track record in trafficking nuclear/radioactive material.

Thefts and losses, 1993–2012

Incidents included in this group involve the theft or loss of nuclear material or radioactive sources from facilities or during transport. Theft can mark the beginning of an illicit trafficking incident. Thefts and losses are also indicative of vulnerabilities in security and control systems at the originating facility.

Confirmed incidents involving theft or loss, 1993–2012

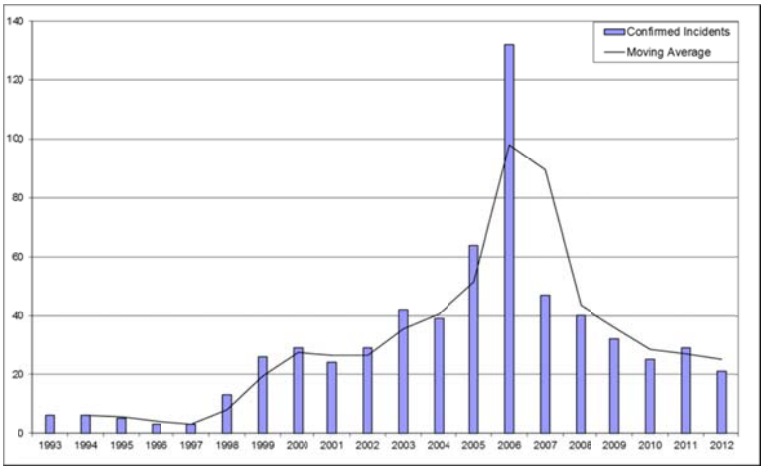

Figure 2. Incidents reported to the ITDB involving theft or loss, 1993–2012.

The number of incidents reported to the ITDB involving the loss or theft of material has steadily increased from the late 1990s. There are, however, indications that the figure has started to stabilize from 2003 onward[2].

The majority of thefts and losses reported to ITDB involve radioactive sources that are used in industrial or medical applications. Devices containing radioactive sources can be attractive to a potential thief as they may be perceived to have a high resale or metal scrap value.

The majority of industrial sources that are reported stolen or lost are those used for non-destructive testing and for applications in construction and mining. The majority of such devices use relatively long-lived isotopes such as iridium-192, caesium-137 and americium-241. Those incidents reported to the ITDB in 2012 range from potentially lethal Category 2 to significantly less hazardous Category 5 sources[3]. The information received underscores the

[2] It should be noted that the sharp increase in 2006 is related to a change in reporting procedures, rather than an actual change in incident numbers. As with the previous incident category, the apparent drop from 2009 is a regular phenomenon that has previously been attributable to a reporting time lag of 2–3 years.

[3] The ITDB categorizes sealed radioactive sources, in accordance with IAEA Publication RS-G-1.9, from 1-5. The exposure of only a few minutes to a Category 1 source can be fatal. Category 5 sources are potentially the least dangerous; however, even these sources could give rise to doses in excess of the safe limits if not properly controlled.

need to improve security measures for such sources as well as enhance the regulatory arrangements governing their use, storage, transport and disposal.

Medical facilities also use a wide range of radioactive sources. A significant proportion of incidents reported to the ITDB related to the loss of sources used in diagnostic and radiotherapy applications. These are generally the least dangerous Category 5 sources that pose a relatively low hazard to human health. Many hospitals also house and use high activity Category 1 sources, such as those used in radiotherapy treatment; however, it is rare to receive a report of an incident involving a source that has been used for these applications.

The recovery rate for Category 1-3 radioactive sources is high due to the concerted effort made by the authorities to recover them. The majority of incidents relating to Categories 4 and 5 radioactive sources do not have a follow-up report confirming their recovery.

Other unauthorized activities and events, 1993–2012

Incidents included in this group primarily involve various types of material recovery, such as discovery of uncontrolled sources, detection of materials disposed of in an unauthorized way and detection of inadvertent unauthorized possession or shipment of nuclear or other radioactive material.

Confirmed incidents involving other unauthorized activities and events, 1993–2012

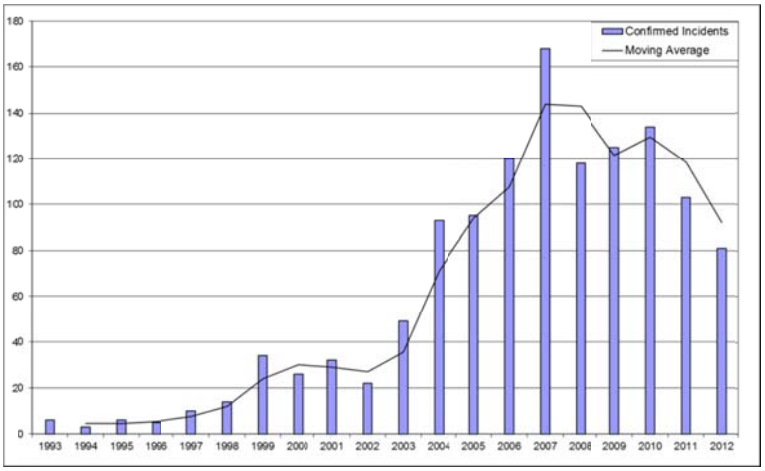

Figure 3. Other unauthorized activities and events, 1993–2012.

The majority of incidents involving 'other unauthorized activities or events', fall into one of three categories: the unauthorized disposal (e.g. radioactive sources entering the scrap metal industry), unauthorized movement (e.g. scrap metals contaminated with radioactive material being shipped across international borders) or the discovery of radioactive material (e.g. uncontrolled radioactive sources). The occurrence of such incidents can indicate deficiencies in the systems to control, secure and properly dispose of radioactive material.

The reporting of these incidents, especially 'unauthorized disposal' and 'unauthorized movement' has risen steadily since 2003. There is evidence that this rise is related to the increased number of radiation portal monitoring systems that have been deployed at national borders and scrap metal facilities.

Since 2009, the ITDB has received reports of enriched uranium associated with metal scrap received by scrapyards, these reports continued into 2012. An investigation into these finds has been carried out to determine the nature, extent, and source of the material. The IAEA in concert with Member State authorities and expert institutions, is working to determine more

about the enriched uranium detected in these cases. Of concern is the repeated appearance of high enriched uranium in metal recycling streams and outside of regulatory control.

In recent years, a growing number of incidents involved the detection of manufactured goods contaminated with radioactive material. This indicates a persistent problem for some countries in securing and detecting the unauthorized disposal of radioactive sources. The most common source of such contamination is the material (in most cases, metal) from which the product had been manufactured. This material may have originated from the metal recycling industry and, in the process of being melted down, became contaminated with material from a radioactive source such as cobalt-60. Such contaminated metal, if used to manufacture household goods, could pose a potential health problem to unsuspecting consumers.

Regional meetings on illicit nuclear trafficking information management and coordination

Since 2008, participants from 106 States, of which 93 were IAEA Member States, have attended one or more of the twelve regional information meetings that have been conducted by the IAEA across the globe. These meetings are designed, inter alia, to enhance dialogue on the illicit trafficking and related nuclear security issues that most impact the region; help to raise awareness of the ITDB programme; and highlight the support the IAEA can offer to States in improving all elements of nuclear security.

Regional information meetings also contribute to strengthening the national, regional and international capacity to combat illicit trafficking in nuclear and other radioactive material through enhanced sharing, management and coordination of information. Further meetings are scheduled for 2013.

Joining the ITDB

Non-participating States are encouraged to join the ITDB programme. States wishing to join the ITDB programme should contact the IAEA Office of Nuclear Security. States will be asked to nominate a single national Point of Contact who will provide reports on incidents to the ITDB, receive information and illicit trafficking reports produced by the Agency and facilitate responses to the Secretariat's enquiries on specific incidents. Information on the ITDB, the procedures for reporting incidents and copies of the Incident Notification Form will be provided to the POC.

Membership and Nominations

Membership applications and nominations of Points of Contact should be sent to:

Mr. Khammar Mrabit
Director, Office of Nuclear Security
International Atomic Energy Agency
Wagramerstrasse 5, P.O. Box 100
A-1400, Vienna, AUSTRIA
Tel: +43-1-2600-22299
Fax: +43-1-2600-29299 or -29250

Annex: States Participating in the ITDB, 31 December 2012

1. Albania
2. Algeria
3. Argentina
4. Armenia
5. Australia
6. Austria
7. Azerbaijan
8. Bangladesh
9. Bahrain
10. Belarus
11. Belgium
12. Bolivia
13. Bosnia and Herzegovina
14. Botswana
15. Brazil
16. Brunei Darussalam
17. Bulgaria
18. Burkina Faso
19. Canada
20. Central African Republic
21. Chile
22. China
23. Colombia
24. Costa Rica
25. Côte d'Ivoire
26. Croatia
27. Cuba
28. Cyprus
29. Czech Republic
30. Democratic Republic of the Congo
31. Denmark
32. Dominican Republic
33. Ecuador
34. Estonia
35. Ethiopia
36. Finland
37. France
38. Georgia
39. Germany
40. Ghana
41. Greece
42. Haiti
43. Hungary
44. Iceland
45. India
46. Indonesia
47. Iran
48. Iraq
49. Ireland
50. Israel
51. Italy
52. Jamaica
53. Japan
54. Jordan
55. Kazakhstan
56. Kenya
57. Korea, Republic of
58. Kuwait
59. Kyrgyzstan
60. Latvia
61. Lebanon
62. Lithuania
63. Luxembourg
64. Madagascar
65. Malawi
66. Malaysia
67. Mali
68. Malta
69. Mauritania
70. Mauritius
71. Mexico
72. Mongolia
73. Montenegro
74. Morocco
75. Namibia
76. Netherlands
77. New Zealand
78. Niger
79. Nigeria
80. Norway
81. Oman
82. Pakistan
83. Panama
84. Paraguay
85. Peru
86. Philippines
87. Poland
88. Portugal
89. Qatar
90. Republic of Moldova
91. Romania
92. Russian Federation
93. Saudi Arabia
94. Serbia
95. Sierra Leone
96. Singapore
97. Slovak Republic
98. Slovenia
99. South Africa
100. Spain
101. Sri Lanka
102. Sweden
103. Switzerland
104. Tajikistan
105. Tanzania
106. Thailand
107. The Former Yugoslav Republic of Macedonia
108. Tunisia
109. Turkey
110. UAE
111. Uganda
112. Ukraine
113. United Kingdom
114. USA
115. Uruguay
116. Uzbekistan
117. Venezuela
118. Vietnam
119. Yemen
120. Zimbabwe