

IAEA INCIDENT AND TRAFFICKING DATABASE (ITDB)

Incidents of nuclear and other radioactive material out of regulatory control

2015 Fact Sheet

The IAEA Incident and Trafficking Database (ITDB) system is a unique asset that assists the IAEA's Secretariat, 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 2014, 128 States participate in the ITDB programme (Annex). In the first three months of 2015, Cambodia, Guatemala, and Honduras, have joined the ITDB, raising the total to mid-year total to 131.

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.

In 2012 the title of the ITDB was aligned with the terms of reference which focuses on more than just 'illicit trafficking incidents' by explicitly including all nuclear and other radioactive material not under regulatory control. The 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.

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.

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 1993–2014

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 2014, the ITDB contained a total of 2734 confirmed incidents reported by participating States. Of the 2734¹ confirmed incidents, 442 incidents involved *unauthorized possession and related criminal activities*, 714 incidents involved reported *theft or loss* and 1526 incidents involved *other unauthorized activities and events*. In the remaining 86 cases, the reported information was not sufficient to determine the category of incident.

Unauthorized possession and related criminal activities, 1993–2014

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. These incident reports indicate a continuing nuclear security concern.

Confirmed incidents involving unauthorized possession and related criminal activities, 1993–2014

Group 1 Incidents total 442

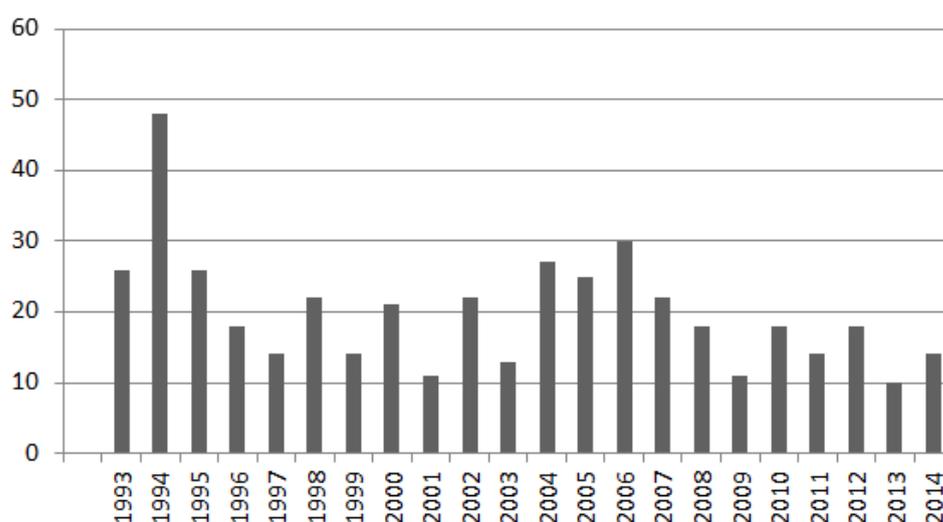


Figure 1. Incidents reported to the ITDB involving unauthorized possession and related criminal activities, 1993–2014.

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 of material out of regulatory control reported has subsequently remained relatively constant. It should be noted that due to a reporting time lag of 2-3 years, the total number of incidents recorded from 2012-2014 is likely to rise in line with previous years.

In the 1993–2014 period, group 1 confirmed incidents included highly enriched uranium (13), plutonium (3), and plutonium beryllium neutron sources² (5). 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.

² Plutonium smoke detectors were separately reported and totaled 17 in Group 1.

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, Group 2, 1993–2014

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. These incident reports indicate a continuing nuclear security concern.

Confirmed incidents involving theft or loss, 1993–2014

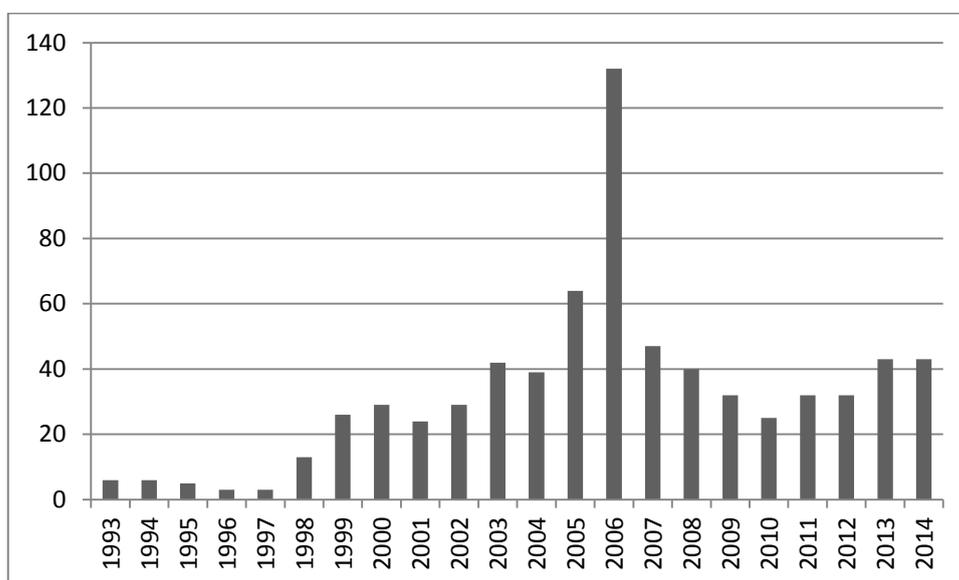


Figure 2. Incidents reported to the ITDB involving theft or loss, 1993–2014.

The number of incidents reported to the ITDB involving the loss or theft of material has steadily³ increased from the late 1990s. In the 1993–2014 period, confirmed incidents included highly enriched uranium (3) and plutonium neutron sources (3)⁴. Some of these incidents involved attempts to sell or traffic these materials across international borders.

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.

³ It should be noted that the sharp increase in 2006 is related to a change in reporting procedures, rather than an actual change in the incident numbers. As with the previous incident category, the apparent drop from 2010 is a regular phenomenon that has been previously been attributable to a reporting time lag of 2-3 years.

⁴ Plutonium smoke detectors were separately reported and totaled 6 in Group 2.

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 2013 range from potentially lethal Category 1 to less hazardous Category 5 sources. 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 can give rise to significant doses if not properly controlled.

The information received underscores the 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 less dangerous Category 5 sources that when encapsulated 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, 1993–2014

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. These incident reports indicate a continuing nuclear security concern.

Incidents involving other unauthorized activities and events, Group 3, 1993–2014

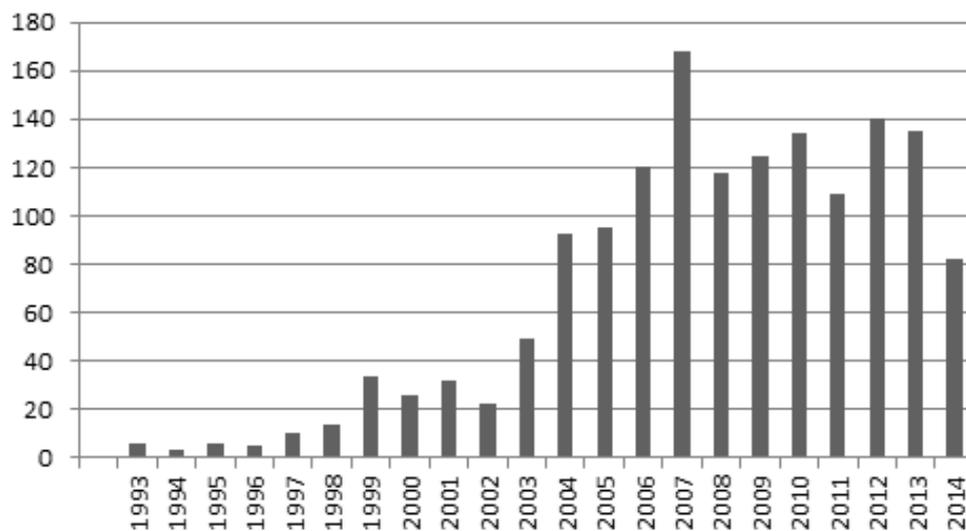


Figure 3. Other unauthorized activities and events, 1993–2014.

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 shipment (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 shipment’ 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, which continued into 2014. Of concern is the repeated appearance of high enriched uranium in metal recycling streams and outside of regulatory control. In the 1993–2014 period, confirmed incidents included highly enriched uranium (13), plutonium (1), and plutonium neutron sources⁵ (8).

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 115 States, of which 103 were IAEA Member States, have attended one or more of the 14 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.

⁵ Plutonium smoke detectors were separately reported and totaled 24 in Group 3.

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 ITDB information and 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, Division 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 2014

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

