



IAEA

# Sealed Radioactive Sources **Instruction Guide**



## Introduction: The Sealed Radioactive Sources Communications Toolkit

In most countries, the use of radiation is controlled by a combination of regulatory oversight, standards, good practices, and professional expertise. Despite this layered approach towards safety, accidents with sealed radioactive sources continue to occur. Serious injuries or deaths have been reported to the International Atomic Energy Agency (IAEA) from exposure to sealed sources. Investigations into the root causes behind such accidents have often concluded that the lack of information either regarding safety practices by users or of the potential risks by third parties has been a significant factor in these accidents.

Safety is not the only concern with respect to sealed radioactive sources however. With the recent rise in concern for terrorist activity and given the widespread availability of sources, the possibility that a terrorist group could use a source to produce a radioactive dispersal device cannot be ignored.

*Cover photo:  
Decontamination  
following the  
radiological  
accident in  
Goiânia due to an  
uncontrolled  
sealed source.  
Credit:  
CNEN/Brazil.*

*Contaminated  
rubble from  
the demolition  
of a house.  
Credit:  
CNEN/Brazil.*



The IAEA developed this toolkit to help improve communication with key groups about safety and security issues related to sealed radioactive sources. Many people may benefit from improved communication skills, particularly those working with sources and those likely to be involved if control over a source is lost; especially: officials in government agencies, medical users, industrial users and the scrap metal industry. The general public may also benefit from an understanding of the fundamentals of radiation safety.

### *Government Agencies*

At the national level, several government agencies may be involved in the importation, use, transport, and disposal of sealed radioactive sources. Those working at such agencies and policy makers in general need to be aware of the safety and security issues that could arise from the use of sealed sources.

### *Medical Users*

In medical settings, those using sealed radioactive sources need to be trained in and knowledgeable about radiation protection. But they may be less familiar with broader issues that can affect safety and security, such as long term management and appropriate disposal of sources. These users could also benefit from lessons learned from previous accidents.

### *Industrial Users*

Users in industrial settings are the most diverse and may have varying levels of training regarding the safe use of sealed radioactive sources. To prevent accidents, users need information about good safety practices, as well as security issues and the potential implications should a source be lost. These users could also benefit from lessons learned from previous accidents.

### *Scrap Metal Industry*

Because improperly managed sources have often ended up as scrap metal, those working in the scrap metal industry need to be informed of the potential risks, trained how to recognize the trefoil radiation symbol and trained in what to do should they find a source.

### *General Public*

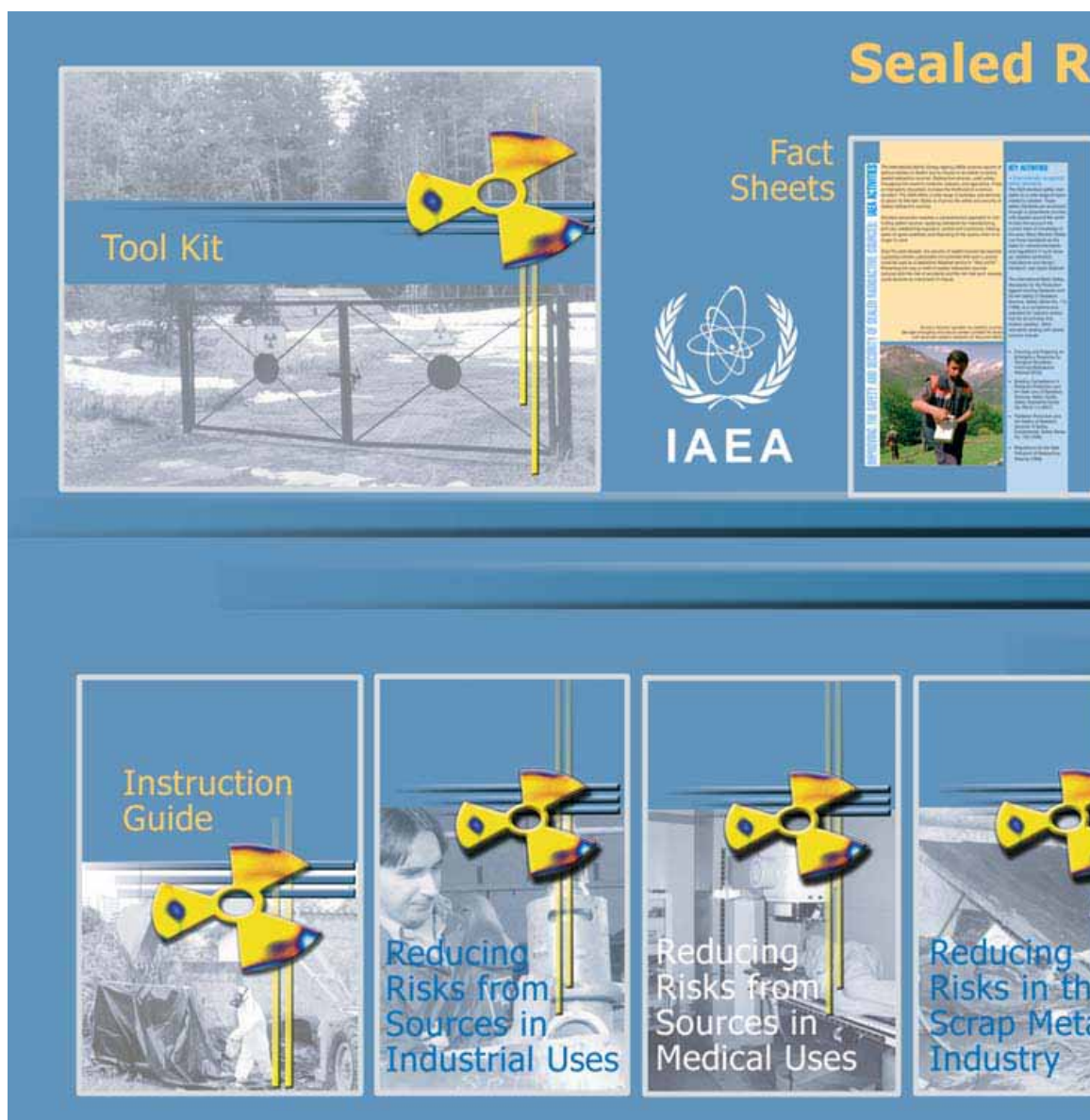
Improperly managed sources pose a risk to members of the general public who may find them, but are unaware of the potential danger.

### *Elements of the Toolkit*

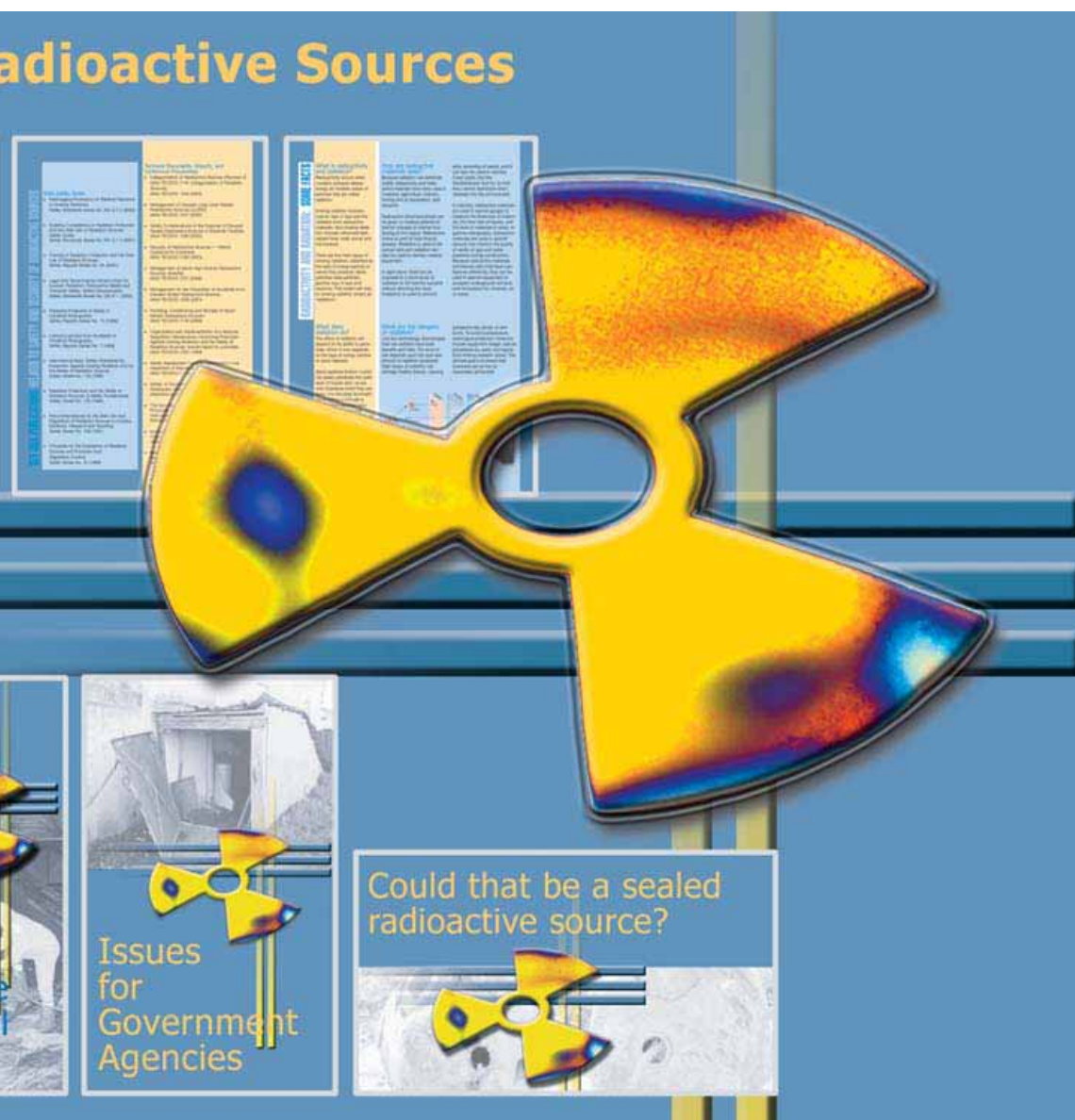
The toolkit is a starting point for communication on safety and security matters relating to sealed radioactive sources. Additional information referenced in the fact sheet under “Key Publications” is available from the IAEA.

The toolkit contains:

- This [instruction guide](#) — which provides an introduction to the contents and how to use them;
- A [handout for medical users of sources](#) — which provides a summary of relevant accidents and provides advice on best practices when using sources in medical procedures;
- A [handout for industrial users of sources](#) — which provides a summary of relevant industrial accidents and guidance on preventing the loss of industrial sources;
- A [handout for those working in the scrap metal industry](#) — which provides a summary of relevant scrapyards accidents, an overview of what sealed radioactive sources are, advice on how to recognize a sealed source and what to do should one be found;
- A [handout for government agencies](#) — which provides an overview of how to maintain effective control over sealed sources, as well as the long term management challenges for government officials not necessarily familiar with the issue.



- A [flyer for the general public](#) — which provides an overview of what sealed radioactive sources are, information on radiation and advice on what to do should a source be found;
- A [fact sheet on radiation and radioactive sources](#) — which provides a general overview of radiation and radioactive sources and is intended as background information for non-technical or low-technical audiences, such as the media, general public or workers in scrap metal industry;
- A [fact sheet on IAEA activities](#) — which provides a summary of key IAEA activities related to sealed radioactive sources and is intended as a reference for those working in government agencies;
- A [fact sheet on key IAEA publications related to sealed sources](#) — which provides a summary of key IAEA publications on this topic; and
- A [poster](#) — for educating members of the public on the trefoil symbol used to identify radiation hazards.



These elements could be used as the basis for a presentation or training session, or simply given out to these groups.

### *Improving Communications*

To be effective, communications is a two-way process where information is exchanged between both parties (a sender and a receiver). It is important, therefore, for the communicator to listen and respond to sensitivities, concerns or questions that may be raised. It may be possible to anticipate some of these in advance, and to some extent, these have been considered in the various elements of the toolkit. However, communications will always be a dynamic process, so those who are communicating should be:

- respectful to the audience;
- knowledgeable about the subject matter and able to answer questions;
- able to simplify scientific and technical concepts into plain language that can easily be understood;
- at ease dealing with the public;
- honest and sensitive to concerns that might be raised; and
- able to follow up if needed.

The IAEA TECDOC-1076: *Communications on nuclear, radiation, transport and waste safety: a practical handbook* provides useful information towards improving communications.

The IAEA TECDOC-1205: *Management for the prevention of accidents from disused sealed radioactive sources is an important reference document.*

### *Other Useful Information*

The toolkit provides only an introduction to the wealth of the information available from the IAEA. The IAEA produces Safety Standards and technical documents that provide technical information on a wide range of subjects related to sealed sources. These documents are available online at

[www-pub.iaea.org/MTCD/publications/publications.asp](http://www-pub.iaea.org/MTCD/publications/publications.asp).

### *In the Event of an Emergency*

While most countries may have national and local plans to deal with accidents relating to radioactive materials, experience has shown that even localized events can raise international concerns and enquiries from the media. Preparation for an emergency, therefore, may involve planning beyond national or local boundaries and must include how to communicate effectively. Elements of the toolkit may provide useful information for this purpose.

Two international conventions exist to help facilitate exchange of information and provision of assistance in the event of an accident: the Convention on Early Notification of a Nuclear Accident (the “Early Notification Convention”) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the “Assistance Convention”). Most IAEA Member States are parties to these two conventions.

[www.iaea.org/Publications/Documents/index.html](http://www.iaea.org/Publications/Documents/index.html)

To notify the IAEA of an emergency, parties to these conventions should contact  
(by phone) +43 1 26026 3911 or  
(by fax) +43 1 26007-29000.

[www-ns.iaea.org/tech-areas/emergency/default.htm](http://www-ns.iaea.org/tech-areas/emergency/default.htm)

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