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International Physical Protection Advisory Service

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Abstract

Since its inception in 1996, the purpose of the International Physical Protection Advisory Service (IPPAS) has been to provide advice and assistance to International Atomic Energy Agency (IAEA) Member States on strengthening and enhancing the effectiveness of their state system of physical protection of nuclear materials and facilities. Since the protection of nuclear materials and facilities is a Member State's responsibility, participation within the IPPAS program is voluntary.

At the request of a Member State, the IAEA forms a multinational IPPAS team consisting of physical protection specialists. These specialists have broad experience in physical protection system design, implementation, and regulatory oversight. The exact make-up of the team depends upon the needs of the requesting state. IPPAS missions to participating states strive to compare the domestic procedures and practices of the state against international physical protection guidelines (IAEA Information Circular 225) and internationally accepted practice. The missions utilize a top to bottom approach and begin by reviewing the legal and regulatory structure and conclude with reviews of the implementation of the state regulations and international guidelines at individual facilities. IPPAS findings are treated as IAEA Safeguards Confidential Information. To date, IPPAS missions have been concluded in Slovenia, Bulgaria, Romania, Hungary, and Poland.

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Background

As an international body providing a forum for scientific and technical co-operation in the nuclear field, the International Atomic Energy Agency (IAEA) has offered peer review services to assist requesting member states. In previous years, these services have included operational safety and regulatory reviews of nuclear activities. The IAEA has organized Operational Safety and Review Teams (OSART) and International Regulatory Review Teams (IRRT) to conduct such reviews.

In recent years, world events have indicated a need for greater emphasis on securing nuclear materials. To address some of that need, the IAEA has taken a more active role in the area of physical protection. In October 1995, the IAEA convened a meeting of physical protection specialists to initiate a new peer review service, modeled after OSART and IRRT, but focused on the physical protection of nuclear materials and facilities. Draft "Guidelines for IAEA International Physical Protection Advisory Service (IPPAS)" were developed as an outcome of this meeting.

Prior to the start of the IPPAS program, the IAEA's primary role in physical protection has been as the repository for the Convention on the Physical Protection of Nuclear Material, which came into force in February 1987. The IAEA also issues and periodically revises guidelines contained within Information Circular 225 (INFCIRC/225) on "The Physical Protection of Nuclear Material". Supplemental clarifications are contained within "Guidance and Considerations for Implementation of INFCIRC/225/Rev.3, The Physical Protection of Nuclear Material". This IAEA document is published as TECDOC 964.

Introduction

Since its inception in 1996, the purpose of the IPPAS has been to provide advice and assistance to IAEA Member States on strengthening and enhancing the effectiveness of their physical protection of nuclear materials and facilities. While each Member State is ultimately responsible for the physical protection of nuclear materials and facilities within its boundaries, the IPPAS does not strive to review and pass absolute judgement on a state's physical protection system. Consequently, the IPPAS is completely voluntary and initiated at the discretion of the Member States.

Typically, implementation of physical protection will vary from state to state. Differences in culture, perceived threat, financial and technical resources and national laws are some of the many reasons for the variation. What the IPPAS does strive to achieve is to compare a requesting state's system of physical protection against international guidelines (INFCIR/225) and internationally recognized practices.

An international team of specialists who use their experience and expert judgement to identify deficiencies and to recognize good practice conducts an IPPAS review of a national physical protection system. Judgements are made on the basis of the combined expertise of the international team. While the review is not a regulatory inspection or an audit, the comparison to international standards fosters an exchange of experiences and

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good practices directed at strengthening organizations of the national authorities and facility operators.

The specific IPPAS objectives are:

- Provide assistance to national authorities on how to translate the INFCIRC/225 recommendations into specific requirements for the design and operation of systems for physical protection of nuclear materials;
- Provide assistance to facility operators on the various methods by which the requirements of the national authorities can be satisfied;
- Provide assistance in the development of an adequate design basis threat, which is fundamental to any physical protection system;
- Provide key staff of the national authority and facility operators with an opportunity to discuss their practices with experts who have experience of other practices in the same field;
- Provide other Member States with information regarding good practices identified in the course of the review; and
- Provide experts from Member States with opportunities to broaden their experience and knowledge of their own field.

IPPAS Process and Methodology

An IPPAS review will only be initiated after the IAEA has received a formal request from a Member State. Requests can be initiated by the appropriate governmental body or by facility operators through the appropriate approval levels.

Following a request for review, the IAEA designates a team leader and arranges for a preparatory meeting with the national authority and facility operators from the requesting Member State. During the preparatory meeting, the IAEA reviews the features of the IPPAS; gathers advance reference materials (national laws, regulations, and facility descriptions); develops a schedule for the review and makes logistical arrangements. During the preparatory meeting the host country may also request that the team concentrate on specific areas for review. The preparatory meeting is usually held two to three months in advance of the IPPAS mission.

In consultation with the hosting state, the IAEA selects the remaining IPPAS team members. All team members are likely to have expertise in a particular area and are knowledgeable in national and international approaches to physical protection. The individual team members may have expertise in nuclear-related legislation, regulation of nuclear activities, operations of nuclear facilities, or systems analysis of physical protection systems. The IAEA may also consult with the host country to include an observer as a part of the team.

Information for the IPPAS review is collected from three sources: 1) written documentation, which includes legislation, regulations, guides, and operational plans and procedures; 2) interviews of national authority personnel and facility operators; and 3)

direct observation of the implementation of physical protection measures at nuclear facilities and during transportation activities. IPPAS missions can last from one to two weeks, during which time, the team is collecting and analyzing the information from these sources.

Technical Notes, drafted during the mission, are presented to the host nation authorities during the exit meeting. At the exit meeting, the team summarizes its observations, recommendations and also acknowledges good practices. The host nation authorities, along with other national regulators and facility operators have an opportunity to comment and ask for clarifications about the technical notes.

The IPPAS report is derived from technical notes. It identifies how national practices differ from international guidelines; offers proposal for changes; and discusses effectively laws, regulations and procedures are implemented at facilities. The IPPAS report is submitted to the host country within three months of the mission. The report is treated as IAEA "Safeguards Confidential" and its distribution is restricted to the host nation authorities, the contributors to the report, and responsible IAEA staff.

Sometime after the IPPAS mission, usually six to nine months, the IAEA approaches the host country to obtain a formal response to the IPPAS report. Additional follow-up activities may also include: providing training to the national authorities and facility operators; assisting regulators and facility operators in developing procedures; providing assistance in developing a design basis threat; and providing assistance in upgrading facilities.

IPPAS Report

The IPPAS Report is the primary output of the IPPAS mission. It identifies recommendations, suggestions, and good practice. Recommendations are advice on making improvements to areas that have been reviewed. This advice is based on international practices and strives to address root causes rather than symptoms. Suggestions may indirectly contribute to improvements or may point out better alternatives to current work schemes. Good practice is an indication of outstanding organization, arrangement, or procedure which exceeds current requirements or expectations.

The major headings of the report are:

- Governmental Organization and Nuclear Physical Protection Legislation
- Role and Responsibility of the Competent Authority
- Regulations and Guides
- Licensing Process
- Integration and Participation of Other Organizations
- Facility Implementation of Physical Protection
- Review and Assessment
- Inspection and Enforcement

Participating Countries

To date, IPPAS missions have been conducted in five countries: Slovenia, Bulgaria, Romania, Hungary, and Poland. All missions were conducted with four-person teams, were coordinated through the host country nuclear regulatory authority, and included visits to nuclear facilities. The details of these missions are summarized in Table 1.

Country	Date	Host Agency	Facilities visited		Team
			Nuclear Research	Power Plant	
Bulgaria	11/96	CUAEPP	1	1	Canada, France, UK, US
Slovenia	12/96	SNSA	1	1	UK, Canada, US, Sweden, IAEA
Romania	5/97	CNCAN	2	1	US, UK, Canada, France
Hungary	11/97	HAEC	2	0	US, UK, Canada, France
Poland	12/97	NAEA	2	0	Germany, France, UK, US

CUAEPP: Committee of the Use of Atomic Energy for Peaceful Purposes

SNSA: Slovenian Nuclear Safety Administration

CNCAN: National Commission for Nuclear Activities Control

HAEC: Hungarian Atomic Energy Commission

NAEA: National Atomic Energy Agency

Synopsis of Missions

While the specific details of the missions are treated as sensitive information, the following general statements can be made:

- All missions have been conducted in Eastern Europe. While the intent of the IPPAS program is not to be specific to a particular region, events in recent years have caused greater concern for the illicit trafficking of nuclear material in former the Soviet Union and Eastern Europe countries.
- A majority of the missions have reviewed both national aspects of physical protection and facility implementations. The host countries nuclear regulatory bodies requested these missions.
- IPPAS follow-up activities have ranged from acceptance of the IPPAS report without further comment to additional training activities and even assistance in improving

facilities' physical protection system. These activities are based on recommendations made in the IPPAS reports.

- Thus far, IPPAS teams have consisted of representatives from Canada, France, Germany, Sweden, the United Kingdom and the United States.

Future Missions

Changes in the IPPAS program are anticipated in order to gain greater international acceptance in the future and for the program to play a more substantial role. While the physical protection of nuclear material and facilities has been traditionally viewed as a national responsibility, there has been a greater emphasis in recent years for more international involvement. Three initiatives will have an influence on future IPPAS missions:

- 1) Although INFCIRC/225 is only intended to be an international guideline, many countries have incorporated all or portions of the guidelines into their national laws and regulations. INFCIRC/225 is undergoing its fourth revision. Some of the proposed substantive changes include placing greater and perhaps more restrictive guidelines on protection against sabotage of nuclear facilities and also on the transport of nuclear materials. While national regulators may fully embrace the revisions or may choose to adhere to the guidelines in the previous revision, they may call upon the IPPAS program to provide guidance on the implications of the revisions or assistance in implementing the revisions.
- 2) Changes to the Convention on the Physical Protection of Nuclear Material (INFCIR/274) may also have some impact on future IPPAS missions. The most extreme changes to this document call for the placement of military nuclear materials within certain levels of protection.
- 3) A new Convention on Nuclear Terrorism has also been proposed. This convention proposes that states adopt measures against illicit trafficking of nuclear materials and against nuclear terrorism.

Revision 4 of INFCIR/225 is imminent and will have the most immediate impact on future IPPAS missions. The latter two initiatives are not likely to cause immediate changes to IPPAS mission. It will take longer to develop international consensus on substantive revisions to the Convention on the Physical Protection of Nuclear Material. It will take even longer to develop international acceptance of a Convention on Nuclear Terrorism.

More subtle changes to IPPAS missions to be performed in the near term would include:

- Missions can be more closely tailored to meet the needs of the requesting country. IPPAS reviews could range from only a review of the national physical protection system to only a review of a facility-specific implementation of the national laws and regulations.
- Additional related topics, such as national measures to combat illicit trafficking of nuclear materials, could also be included as areas to be reviewed during an IPPAS mission.
- Other countries, beyond the six initial participating countries will be invited to participate on the IPPAS teams. Participation on the IPPAS team could be viewed as a mechanism for introducing the team member's country to the IPPAS program.

Observations / Lessons learned

The five IPPAS missions completed have proven to be invaluable for both the individual IPPAS team members as well as the representatives of the host country. The missions have been a good mechanism for exchanging experiences and information and for building upon an international network of personnel working in a common field.

Many of the facility operators encountered during an IPPAS mission view the missions as intrusive and consider them to be another inspection initiated by the state regulatory agency. They are reluctant to be forthcoming with the IPPAS team.

Some countries are reluctant to initiate an IPPAS review and discuss physical protection, a national responsibility, with foreign nationals. On the contrary, other countries are eager for an IPPAS review since they welcome an independent review and are willing to balance that against discussing national security information with foreign nationals.

Conclusion

In 1996, the IAEA's IPPAS program was initiated to provide advice and assistance to member states on strengthening and enhancing the effectiveness of the state's system of physical protection. To date five IPPAS missions have been concluded in Slovenia, Bulgaria, Romania, Hungary, and Poland. These missions have contributed to improving the physical protection of nuclear materials and facilities in those countries and have proven to be a useful mechanism for the exchange of information on physical protection. As international needs greater emphasis on physical protection, the direction and scope of future IPPAS missions will be changed accordingly.

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