

## **Developing and Maintaining Safeguards Expertise: Australia's experience**

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### **Part I - History**

The Australian Safeguards and Non-Proliferation Office (ASNO) started out as a small, specialist group dealing with nuclear materials accountancy and control within the former Australian Atomic Energy Commission (AAEC). This group was established in 1974, following Australia's conclusion of an NPT safeguards agreement with the IAEA. Within a short period the need for functional independence from the operator was recognised, and the safeguards group was moved from the AAEC and attached to the department dealing with energy issues. As an independent organisation it took on the name "The Australian Safeguards Office" (ASO) and was given a series of tasks:

1. Fulfil the reporting obligations under Australia's safeguards agreement with the IAEA and various bilateral nuclear agreements.
2. Provide technical advice and support for the Australian Government on safeguards and related non-proliferation issues
3. Support the IAEA's efforts to develop an effective safeguards system<sup>1</sup> (which at that stage was still in the process of developing its underlying concepts).
4. Develop and maintain the capacity to fulfil the first three tasks.

The AAEC had long recognised that international engagement was a vital element of its efforts to attract, retain and develop professional staff in the various forms of nuclear technology. Starting in the immediate aftermath of World War II, the AAEC had sent scientists to work with nascent nuclear energy programs in the UK and the USA. Senior officials from the AAEC engaged in a regular program of engaging in scientific conferences and visits to the facilities of similar organisations world-wide. This was an expensive investment for the time, but it resulted in a high degree of professional expertise and engagement in nuclear issues. ASO inherited this underlying organisational attitude from the AAEC.

From the 1970s ASO worked with the IAEA at a variety of levels to both develop its own expertise and to influence the development of the safeguards system. In effect ASO developed its expertise in parallel with the development of the IAEA safeguards inspectorate.

- Australia-based ASO officers regularly took part in the Introductory Course on Agency Safeguards (ICAS), the training course that is used by the IAEA to develop new safeguards inspectors<sup>2</sup>.

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1. It has been common since the mid-1990s to refer to the twin goals of safeguards effectiveness and efficiency, but in the 1970s and 1980s it was more common to focus on effectiveness alone. Efficiency and effectiveness have a complex inter-relationship and making them explicit goals that should be considered together has substantially improved the safeguards system overall.

2. The IAEA has not allowed non-Agency staff to take part in ICAS since the beginning of the 1990s

## 2.

- ASO staff members worked as IAEA inspectors and worked in the key System Studies section with the Department of Safeguards.
- Former IAEA staff members returned to ASO, not just as a last step before retirement, but in the full vigour of their professional career.
- ASO officers took part in IAEA consultant services meetings and technical working group meetings on a very wide range of topics that reflected and affected key developments in the safeguards system.

In addition to working with the IAEA, ASO officials worked with likeminded counterparts internationally and attended safeguards training activities (either as participants or lecturers) worldwide. From its earliest days ASO recognised that nuclear safeguards and security were fields that required their own levels of specialisation and professional development. Having developed its level of expertise, ASO began a program of broadening the spread of this expertise.

In the early 1980s ASO entered into a cooperative arrangement with the Australian School of Nuclear Technology (ASNT) to develop and deliver a domestic safeguards training course for Australian Government officials. This yearly course was intended as part of a broader effort by ASO to expand awareness of safeguards issues among people involved in the development of safeguards policy.

ASO's domestic program of training attracted the interest of the IAEA and demonstrated that Australia possessed a level of safeguards expertise and interest that was worth sharing with our region. In the mid-1980s ASO, Japan and the IAEA entered into an arrangement to alternate in the delivery of safeguards training to counterpart organisations across the Asia-Pacific region. Japan's first such course was held in 1985, and Australia held its first course in 1986.

The first Australian regional course of State Systems of Accountancy and Control was held in Darwin and Sydney – and run jointly by ASO and ASNT with the active cooperation and support of the IAEA. The course attracted 17 course participants (from Australia, China, Indonesia, Democratic People's Republic of Korea (DPRK), Japan, Malaysia, Republic of Korea (ROK), Thailand, Vietnam and the Philippines) and made use of a total of 26 invited lecturers (from Australia, Indonesia, Japan, German Democratic Republic (GDR), IAEA, and the USA). It was very much an international effort and was enthusiastically judged a great success by all partners.

The initial 1986 course has been followed by five other courses, all held in conjunction with the IAEA and with the active support of counterpart safeguards organisations in many other countries. Due to this active training program ASNO has a very well developed network of links with counterpart organisations across the region. In every country in our region with significant nuclear activities or an interest in ensuring the effective operation of the safeguards system there are people who have received at least some of their safeguards training in Australia. This has been an effective means of enabling ASNO to work well with the broader safeguards community in our region.

The provision of training to others is a key part of ASNO's program to foster the professional development of its own staff. In preparing training materials and delivering courses, ASNO staff receive a very thorough grounding in the fundamentals of safeguards. This solid training in fundamentals underpins the effectiveness of ASNO as an organisation.

## **Part II – The importance of Networks**

### **PERSONAL CONTACTS**

The international non-proliferation safeguards community consists of a relatively small group of scientists, researchers, officials and policy makers who tend to work with each other on a regular basis. To a large extent, personal relationships within this community are important tools in achieving good safeguards outcomes. Well-developed networks of contacts within this community are an important tool that ASNO uses to:

- develop staff
- gather information necessary to provide advice to government; and
- provide technical support to the IAEA.

### **SAGSI**

One of the key advantages that ASNO has experienced in its 30 years of existence has been in the near continuous involvement of ASNO safeguards professionals in the IAEA's Standing Advisory Group for Safeguards Implementation (SAGSI). In the 10 years from the late 1970s to the end of the 1980s ASO's first Director of Safeguards served with and eventually chaired SAGSI. This service gave Australia in general, and ASO in particular, a real and very effective voice in the growth and development of the safeguards system. Service with SAGSI also provided ASNO with high level personal contacts with the pre-eminent safeguards experts in IAEA member states. Following on from the first Director of Safeguards, to date a further three ASO/ASNO officers have served with SAGSI in their individual capacities as safeguards experts. The present Director General chaired SAGSI from 2001 to 2006. The most recent appointment is Dr Annette Berriman, ASNO's Safeguards Advisor, who took her place on SAGSI earlier this year.

### **SAFEGUARDS SUPPORT PROGRAM**

In the period from the 1960s to the 1980s the AAEC operated an R&D program into centrifuge enrichment of uranium. Australia participated in the Hexapartite Group, a group of six states engaged in development of commercial centrifuge enrichment, that negotiated the Hexapartite Safeguards Agreement (HSA) establishing the basis for the IAEA to implement safeguards at centrifuge enrichment plants.

Building on this program, Australia established its research program in support of IAEA safeguards in 1980, entitled the Bilateral Australian Assistance Program (BAAP). This program has continued to the current day and is now known as the Australian Safeguards Support Program (ASSP). While the focus of the BAAP (and ASSP) has been the support of IAEA safeguards, it has provided significant benefits for Australian safeguards professionals and ASNO more generally. Via the ASSP, ASNO works not only with IAEA experts on a wide variety of subjects but also with subjects matter experts representing the entire international community. On a biannual basis there is a joint meeting in Vienna of all of the Member State Support Programs (MSSP) – in 2006 this meeting was attended by representatives of 22 MSSPs.

### **Part III – ASNO’s Regional Outreach Program**

While ASNO has been involved in safeguards training since the early 1980s, there has been a marked increase in the pace and tempo of this effort in the period since 2001. At that time ASNO’s Director General (DG ASNO) launched a program to provide countries in our region with assistance in ratifying and complying with the IAEA’s additional protocol (AP). In the 1980s and 1990s there was an average of one training activity a year, since 2001 the pace of training has grown to an average of more than six activities each year.

The first major activity under this expanded program involved visits early in 2002 to Indonesia, Malaysia, Thailand and the Philippines. At that time, Indonesia had already signed and ratified an AP and was in the process of preparing for the introduction of integrated safeguards. The Philippines had signed an AP (in 1997) and needed assistance with the detailed reporting requirements that would be part of the initial protocol declaration process. Thailand and Malaysia were in the process of considering whether they should sign APs and needed a more detailed understanding both of AP requirements and their importance. This regional outreach program of visits is ongoing and ASNO expects to be able to deliver further targeted training in Thailand, Vietnam and the Philippines before the end of 2007.

ASNO also sought out knowledgeable international partners to work with on the delivery of training, support and assistance. ASNO works closely with the IAEA, the US National Laboratories (including Sandia, Los Alamos, Pacific Northwest and Oak Ridge), the US National Nuclear Security Administration and Japanese Ministries of Foreign Affairs (MFA), Economy, Trade and Industry (METI) and Education, Culture, Sports, Science and Technology (MEXT) to deliver training both in Australia and in countries in our region.

Since 2002 ASNO and METI have worked with the International Non-proliferation Export Control Program (INECP) of the NNSA to deliver Commodity Identification Training (CIT) and Analysis of Strategic Commodity Transfers (ASCOT) to countries in the Asia-Pacific region. While CIT and ASCOT are primarily aimed at frontline export control efforts, both are extremely important tools for capacity development for safeguards and non-proliferation officials.

In 2004 ASNO entered into a partnership arrangement with the IAEA Nuclear Security Fund (NSF) and Sandia National Laboratory to deliver the first ever regional training course on nuclear security and the physical protection of nuclear materials. In 2006 a second Australian course was held in this series, and ASNO is currently planning to hold a third Australian course in late 2008 or early 2009. Building on this initial Australian example the NSF now has a program for delivering this training in regional centres around the world.

In the late 1990s the IAEA received a significant, ongoing source of extra-budgetary funding from the Japanese Government to promote AP compliance. Effective use of this funding by the IAEA required the active cooperation of regional governments to host seminars and workshops and take part in training activities. ASNO has become heavily involved in this program and has hosted three seminars in Australia on the implementation of the AP and obligations arising from safeguards agreements, and has taken part in similar seminars around the world.

ASNO has facilitated ratification of the Small Quantities Protocol (SQP) among Pacific Island States through outreach to governments and through seminars, including advocacy for the 2005 revision of the model SQP.

ASNO played a significant role in amending the CPPNM (Convention on the Physical Protection of Nuclear Material) in 2005 and is a strong advocate of its implementation. Ratification of the CPPNM has been added to ASNO's outreach activities, including through the Global Initiative to Combat Nuclear Terrorism.

**Part IV – What can ASNO offer regional partners**

ASNO has experience in the provision of specialised training in:

- SSAC operation;
- Safeguards aspects of nuclear technology;
- Implementation of additional protocol measures;
- Regulation and identification of strategic commodities;
- Import and export control; and
- Nuclear security (physical protection) – both practical application and policy.

ASNO will continue its ongoing program of providing training and developing for its own staff so it can continue to foster the development of safeguards and security expertise within the Asia-Pacific region.