

# APSN Meeting

## Singapore's Safeguards Experience

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*Our Environment - Sustain and Enjoy*

# Outline

- Background
- Preparations for Ratification of AP
- Ratification of AP and MSQP



# Background

- Singapore has no research reactor
- Power plants in Singapore are of conventional design, fueled by natural gas and oil
- Singapore will be conducting a feasibility study on the use of nuclear power for electricity generation



# Background (cont'd)

- Ionising radiation such as x-ray, gamma-radiation and radionuclides are used in
  - Medical applications e.g. nuclear medicine, diagnostic radiology, radiotherapy
  - Industrial applications e.g. NDT inspections and gamma-ray sterilisation of medical devices and surgical consumables
  - Scientific research in universities and educational institutions
- Such applications have been controlled under a regulatory framework since 1973



# NPT, CSA and SQP

## **Treaty for Non-Proliferation of Nuclear Weapons (NPT)**

- Singapore signed in Feb 1970, ratified in Mar 1976

## **Comprehensive Safeguards Agreement (CSA)**

- Singapore signed bilaterally with IAEA in Oct 1977
- Singapore has no nuclear facility and negligible nuclear holdings:
  - Small Quantities Protocol (SQP) was concluded at the same time



# Additional Protocol

- Singapore signed the AP on 22 Sep 05
- Ministry of Environment and Water Resources (MEWR) and National Environment Agency (NEA) were appointed as “Lead Agency” and “National Authority” respectively for implementation of AP
- Singapore ratified the AP on 31 Mar 08



# Preparation

- An inter-agency Working Group chaired by MEWR was formed in Oct 2005 to prepare Singapore for the ratification and implementation of the AP
- Working group consists of the following:  
  
NEA, Health Sciences Authority (HSA), Singapore Customs (SC), Attorney-General's Chambers (AGC), Ministry of Foreign Affairs (MFA), Ministry of Home Affairs (MHA), Ministry of Defence (MINDEF), Ministry of Trade Industry (MTI), etc.



# Preparation (cont'd)

- Following several inter-agency meetings, it was decided that we should approach IAEA to help us prepare for ratification of AP
- Singapore officers visited IAEA on 4 Sep 06 to finalise the programme of the IAEA SSAC Advisory Service (ISSAS) Mission
- Following the meeting, relevant information were sent to IAEA so that the ISSAS team has sufficient time to understand Singapore control structure ahead of its visit.





# ISSAS Mission

- In 4-8 Dec 06, the ISSAS mission came to Singapore, to evaluate and make recommendation with respect to our legal and regulatory framework for the control of nuclear material and equipment
- The ISSAS mission meetings were conducted, with the participation of all relevant agencies



# ISSAS Mission (cont'd)

- During the ISSAS mission, a 1-day National Training Course on SSAC in Small Quantities with CSA, SQP and AP was conducted
- The course was attended by officers from local government agencies



# ISSAS Mission (cont'd)

Major recommendations from ISSAS mission

- To amend the existing Radiation Protection Act (RPA) or enact an new legislation to meet the obligations under the AP for the control of nuclear material
- The Strategic Goods Control Act (2003) is enough to meet AP obligations for control of dual-use equipment
- To consider ratifying both AP and Modified SQP (MSQP) and implement both Protocols together



# Amendments to RPA

With recommendations from ISSAS mission:

- MEWR and NEA worked with Attorney-General's Chambers (AGC) to amend the RPA
- RPA repealed and re-enacted in Jul 07 to meet our obligations under AP
  - Power to obtain information for submission to IAEA
  - Power to inspect declared and undeclared sites
  - Appointment, scope and powers of National Inspector and IAEA Inspector to carry out inspections

# Formation of CRPNS

- On 1 July 2007, the Centre for Radiation Protection & Nuclear Science (CRPNS) was formed under NEA to:
  - Streamline controls on radioactive and nuclear matters
  - Consolidate resources, functions and powers to meet the obligations of AP and MSQP



# Ratification of AP and MSQP

- Singapore ratified the AP and concluded the MSQP on 31 Mar 08



- NEA serves as the overall Coordinator for reporting information to IAEA to meet AP and MSQP obligations
- Singapore Customs (SC) provide information on export and import data of dual use equipment

# Timeline of Major Milestones

|   |            |
|---|------------|
| Singapore signed the AP                             | 22 Sep 05  |
| 1 <sup>st</sup> Inter-agency Working Group Meeting  | 4 Oct 05   |
| Meeting with IAEA to discuss ISSAS programme        | 5 Sep 06   |
| Conduct of ISSAS Mission                            | 4-8 Dec 06 |
| Repeal and re-enactment of Radiation Protection Act | 1 Jul 07   |
| Ratification of AP and Conclusion of MSQP           | 31 Mar 08  |



# Reporting Obligations

- On 18 Apr 08, Initial Declaration for the MSQP and written request for “Exemptions from Safeguards of Nuclear Materials” (mostly depleted uranium) were submitted to IAEA
- On 16 May 08, IAEA approved Singapore request
- Reports submitted to IAEA subsequently:
  - Initial and annual declaration on nuclear material
  - Quarterly declarations on dual-use equipment



# Visit by IAEA

- IAEA Inspectors visited Singapore in Aug 2009
- The visit took place according to the mechanism outlined in Article 8 of the AP:
  - which allows States to voluntarily invite the Agency to visit locations not specified in the States declarations to aid in the verification of the absence of undeclared material or activities
- No illicit diversion of nuclear materials nor undeclared research into nuclear fuel cycle found



# Thank you

