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International Atomic Energy Agency

Atoms for Peace and Development

IAEA Support for Non-HEU Mo-99 & Tc-99m Production

T. Hanlon and J. Osso

25 September 2018

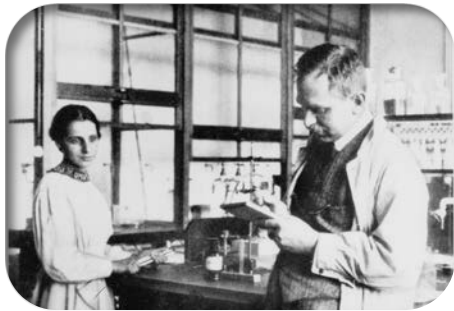
International Atomic Energy Agency (IAEA)



Yukiya Amano
Director General, IAEA

"Our motto is Atoms for Peace and Development. Transferring nuclear technology to developing countries, working to prevent the spread of nuclear weapons, and serving as a global platform for nuclear safety and nuclear security, are core Agency business and most important areas of our work."

Historical Milestones



1930s
Discovery of fission



1957
IAEA Statute entered into force



2005
Nobel Peace Prize



2014
ReNuAL



2015
Road-map for the Clarification of Past and Present
Outstanding Issues regarding Iran's Nuclear Program



2015
LEU bank

As **an autonomous international organization** within the United Nations system, IAEA is the global centre for cooperation in the nuclear field.

IAEA at A Glance



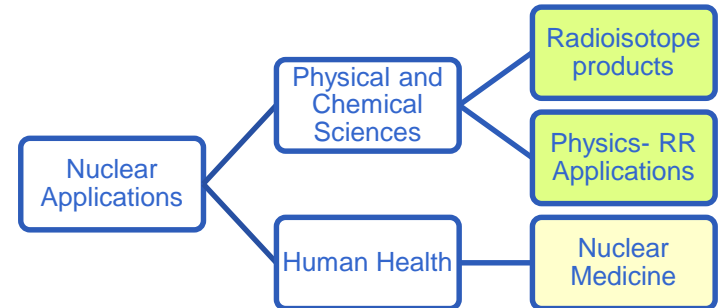
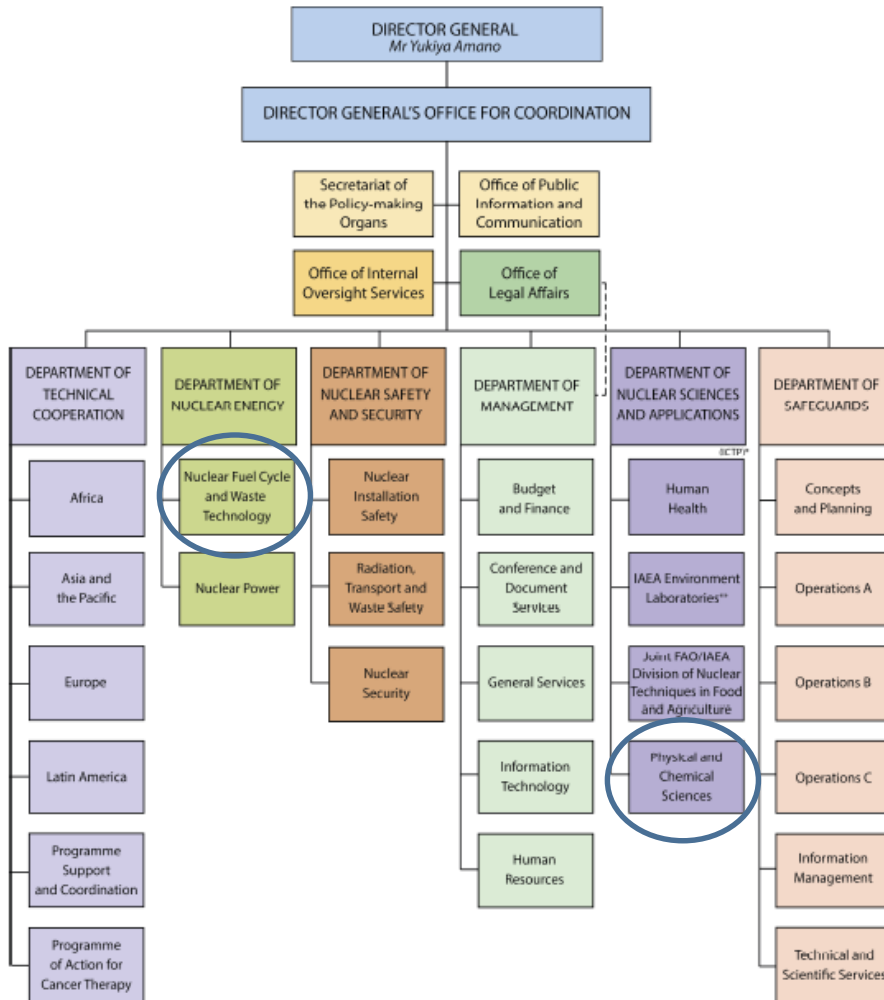
170
Member States
(as of June 2018)



2,500+ staff
from
over 100
countries

- 
- HQ in Vienna
 - Laboratories in Seibersdorf, Monaco and Vienna.
 - Regional offices in Toronto and Tokyo.
 - Liaison offices in New York and Geneva

Who Does Mo-99 Work at IAEA?



Mechanisms for Assistance

- Coordinated Research Projects
- Training Events
- Technical Meetings
- Publications
- Conferences
- Technical Cooperation Projects





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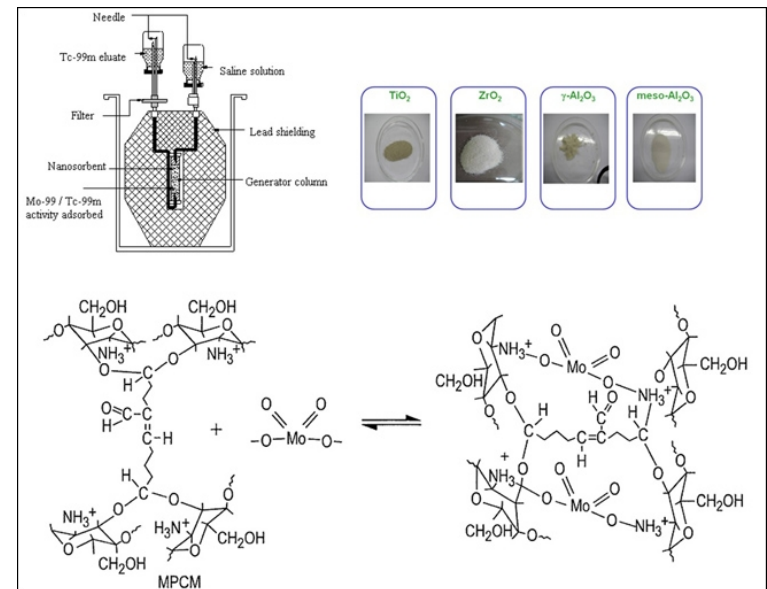
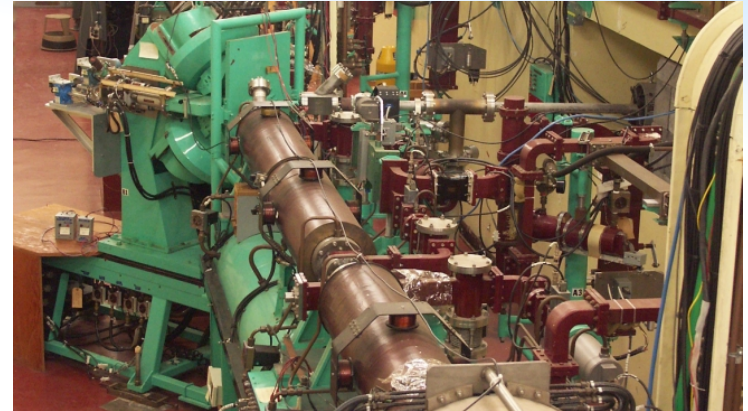
CRP: Sharing and Developing Protocols to Further Minimize Radioactive Gaseous Releases to the Environment in the Manufacture of Medical Radioisotopes, as GMP

- 2014 - **ongoing**
- Initiated as result of a request from a five Member States - May 2014
- First Research & Coordination Meeting - August 2015
- Second Research & Coordination Meeting – 06-10 March 2017
- Participants and observers from Australia, Belgium, Canada, France, Germany, Indonesia, The Netherlands, Poland, Rep. of Korea, USA.



CRP: New Ways of Producing Tc-99m and Tc-99m Generators

- First Meeting: 13-17 November 2017
- 14 approved proposals
- Recommendation from Technical Meeting on same topic (March 2016)
- Aimed as use of low specific activity Mo-99 for generator preparation and accelerator production of Tc-99m (Mo-100 (γ,n) reaction)



Interregional Training Courses & Workshops



- **Round Robin Workshop**

- To explore the use of Tc-99m radioactivity concentration units and high capacity absorbers for Mo
- Timing to be discussed

- **Kazakhstan (Institute of Nuclear Physics)**

- Performed in tandem with the closing of the round robin activity

Technical Cooperation Projects



- **Regional Project for Latin America region RLA6/0/76**
 - *Mejora de las Capacidades de Producción de Mo-99 (n,gamma) y otros radisótopos médicos seleccionados en Reactores de Investigación e Instalaciones de Procesamiento de la Región*
 - Chile, Mexico and Peru
 - 2016-2019
- **National Project in Peru**
 - Planned for **2018-2019**, to produce gel generators based on the technology of Kazakhstan



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Global Capabilities for the Manufacture of Mo-99 Targets

- 23 – 24 October 2018
- Expect 15 Member States + EU Commission
- Discuss current and upcoming techniques and capabilities for the manufacture of targets used in the production of Mo-99



LEU foil target (USA)



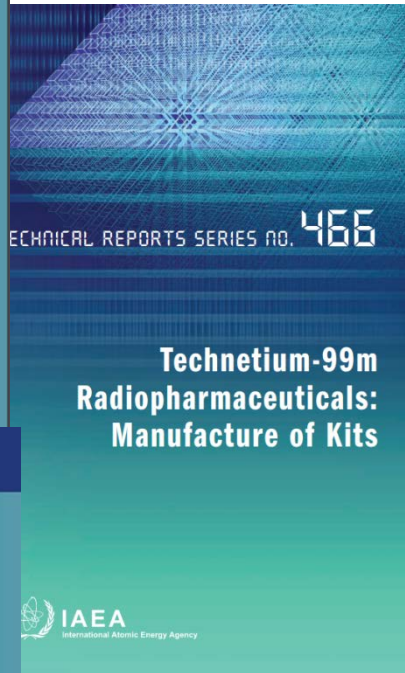
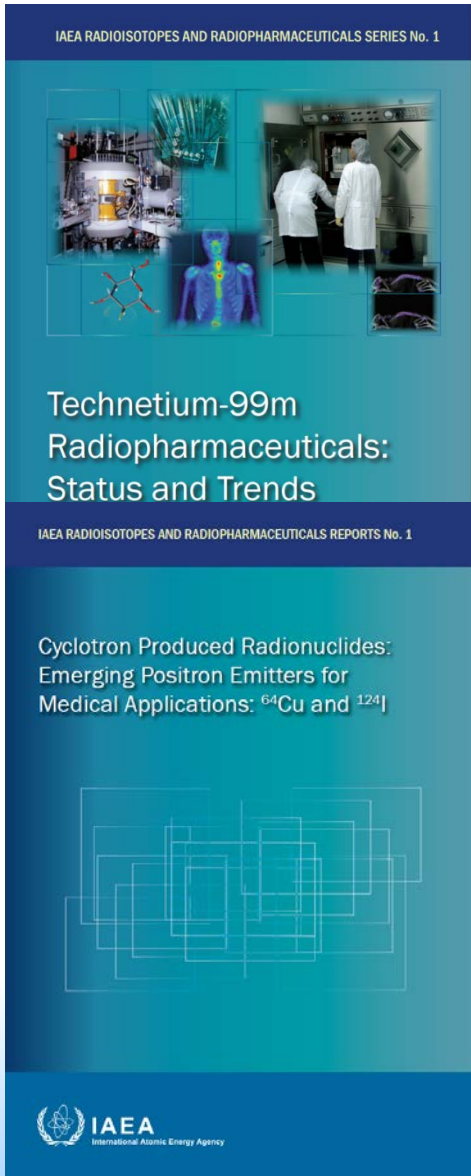
Irradiation baskets (Belgium)

Meeting in Cooperation with CNEA (Argentina)

- 26 – 28 November
2018
- Buenos Aires
- Management of
wastes (legacy and
new) from fission Mo-
99 Production

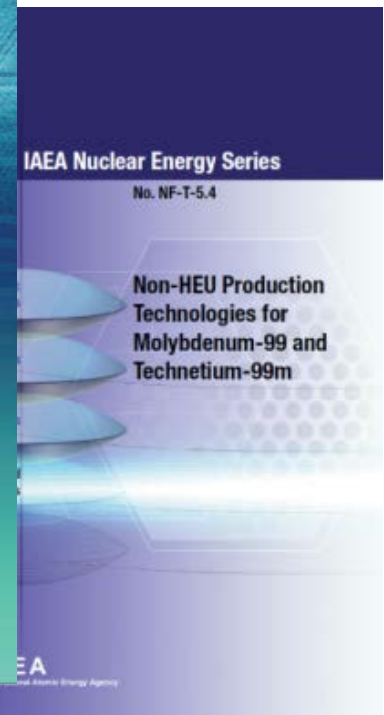
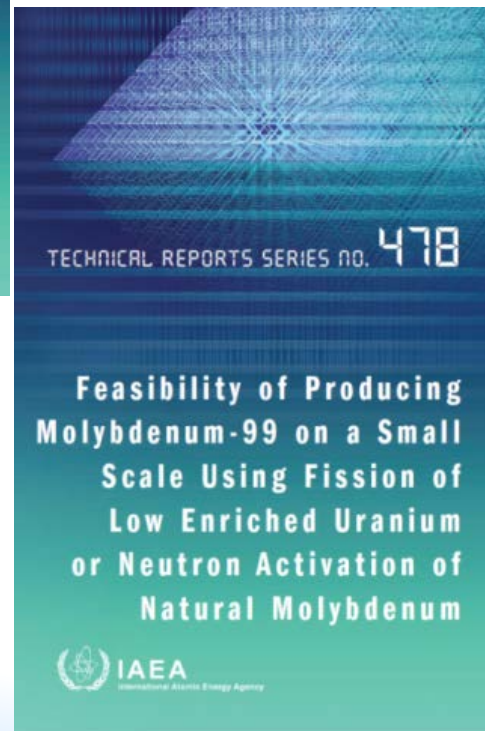


Publications on Mo-99/Tc-99m



❑ Publication in progress

- ✓ *Reference Plan for Self Sufficiency in the Supply of Selected Radioisotopes Produced in Research Reactors: Latin America Case Study*





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Thank you!

