

The IAEA/WHO SSDL Network

Zakithi Msimang

A unique mandate of the UN system

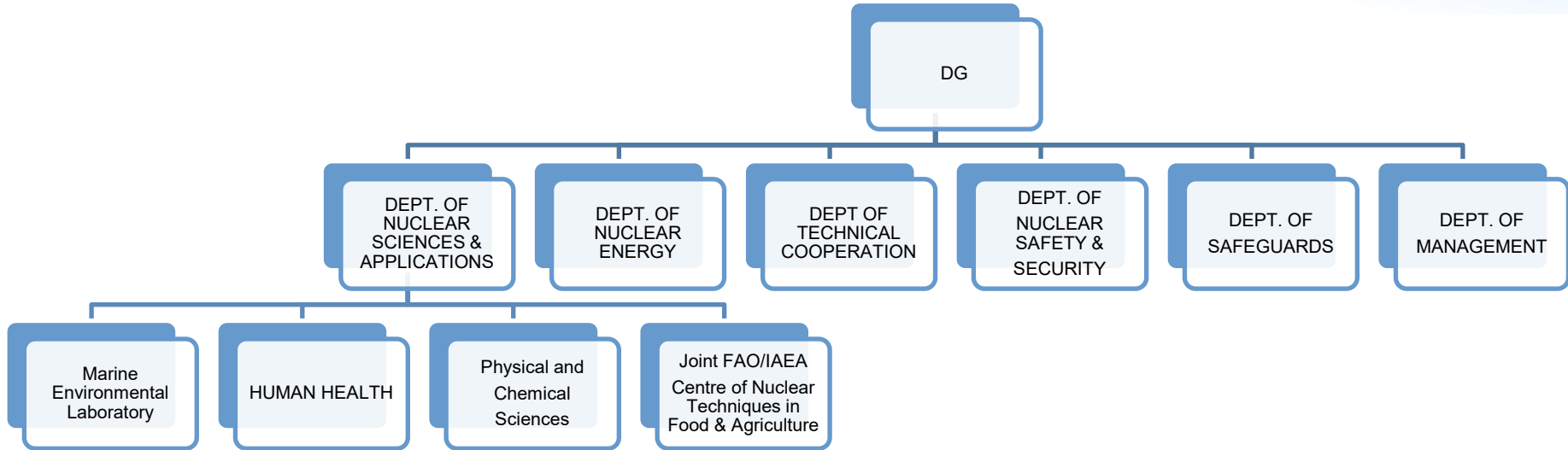
"The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, **health** and prosperity throughout the world"



*Article II of the Statutes
of IAEA*

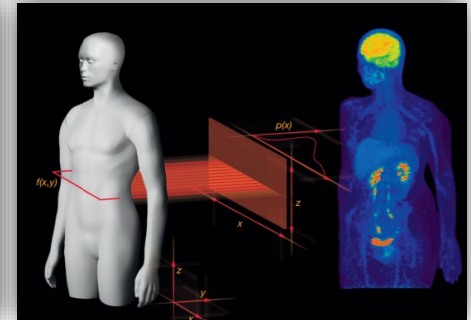


International Atomic Energy Agency

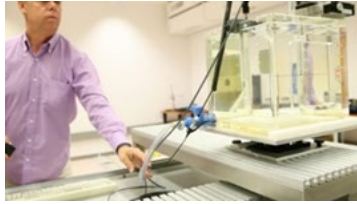


Division for Human Health

The role of the Division of Human Health is **to strengthen the capabilities of MS** to address the needs related to the **prevention, diagnosis and treatment of health problems** through the application of nuclear techniques.



Division Of Human Health



DIVISION OF
HUMAN
HEALTH



Radiotherapy &
Applied
Radiobiology

Dosimetry &
Med Rad Phys

Nuclear Med. &
Diag. Imaging

Nutrition &
Health Related
Environmental
studies



Project 1

Dosimetry and Auditing Services (Lab)

- Dosimetry audits
- Support to national audit networks
- Calibration and comparisons of reference standards
- QMS
- Developments in laboratory services and equipment
- Maintenance of laboratory databases
- Laboratory support to research

Project 2

Development in radiation dosimetry

- Support to the IAEA/WHO SSDL Network
- Dosimetry protocols
- Coordinated research projects
- Guidelines and methodologies for dosimetry laboratories

Project 3

Clinical Medical Physics

- Coordinated research projects
- Guidelines and methodologies
- Education and clinical training
- Technology assessment
- Support to other sub-programmes
- Databases



The members of the Scientific Committee of the IAEA/WHO SSDL Network present in person at the 19th Scientific Committee meeting: (from left) David Followill (Chair), Jan Seuntjens, Maria-Ester Brandan, Penelope Allisy (Rapporteur), Mehenna Arif, John Dickson and David T Burns. Zhang Jian could not attend the meeting and he is missing from the photo. See page 4.

IAEA/WHO SSDL NETWORK



- Established in 1976
- SSDLs designated by the IAEA Member States, provides a traceability route of national dosimetry standards to the International System of Units (SI)
- The aim of the Network is to disseminate and encourage correct use of the dosimetry quantities and units through the proper calibration of field instruments by the SSDLs.

IAEA / WHO SSDL Network

**88 SSDLs in 75 MS; 16 PSDLs;
5 Collaborating organisations**

Network objectives:

Accuracy

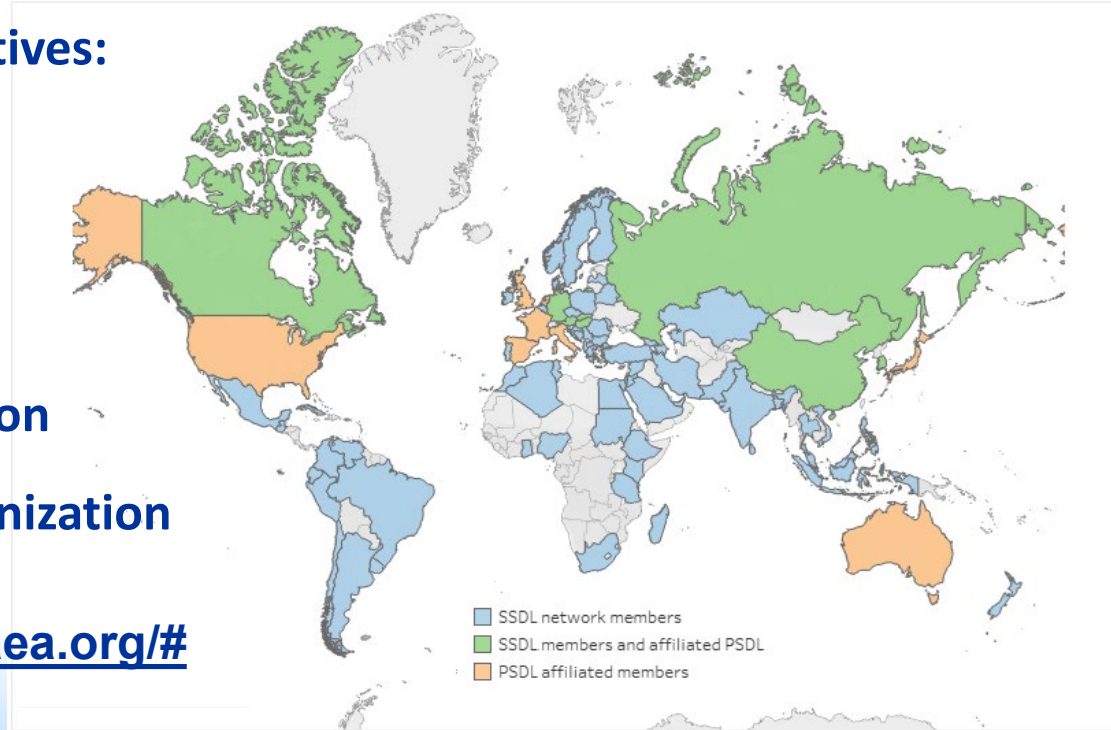
Traceability

Consistency

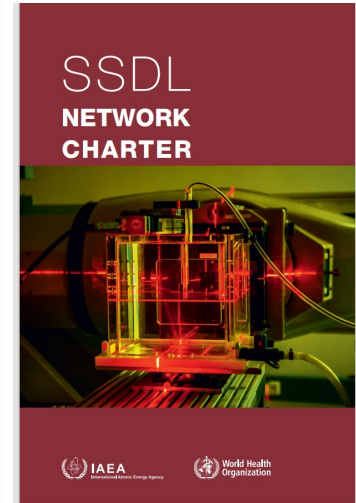
Cooperation

Harmonization

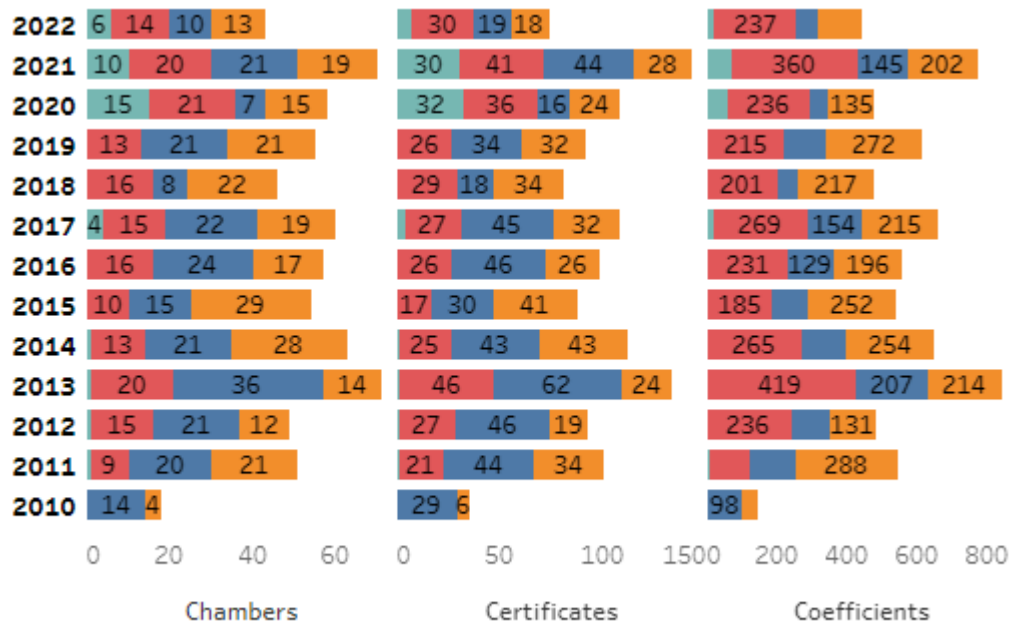
<https://ssdl.iaea.org/#>



**IAEA Dosimetry
Laboratory:**
central laboratory
for the Network



Linking MS to the international measurement system

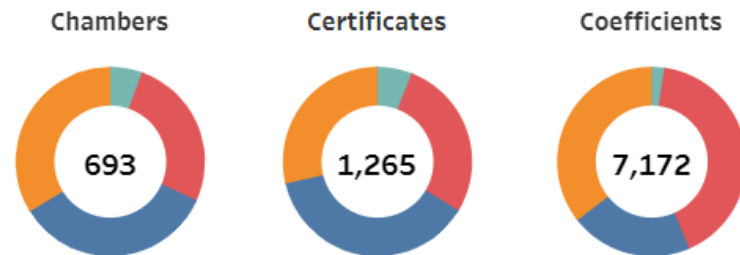


- IAEA mostly traceable to the BIPM
- Calibration for reference chambers only
- Bilateral comparisons

77 113 693 693 1,265 7,172

Countries Institutions Requests Chambers Certificates Calibration coefficients

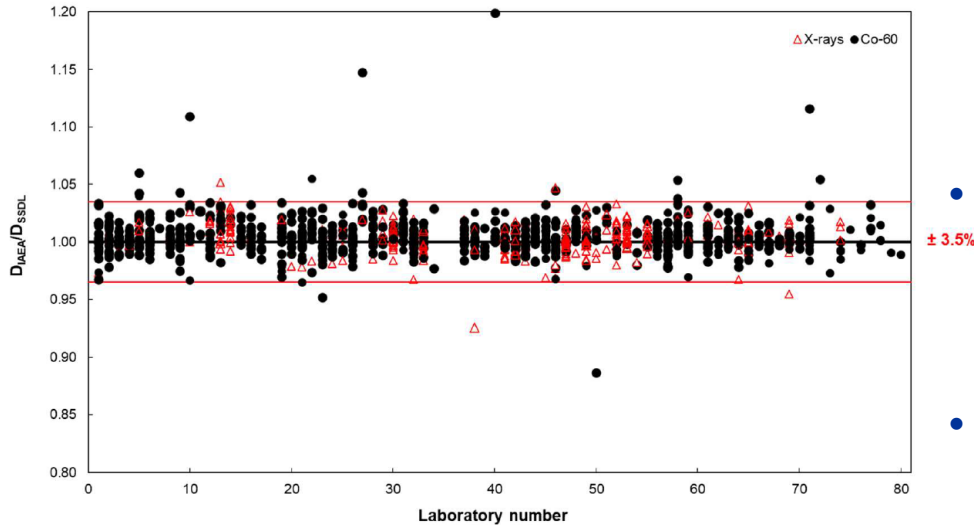
Calibration certificates issued by DOL



Dosimetry Level



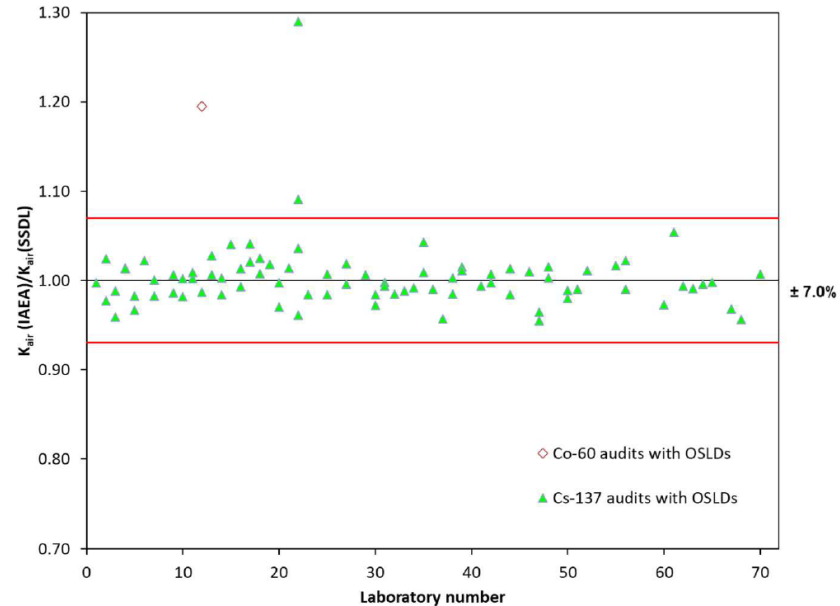
IAEA/WHO SSDL RT dose audits (2001–2021)



- A total of 1248 beam calibrations were checked in 76 laboratories, which include 890 ^{60}Co (circles) and 278 high energy X ray beams (triangles).
- The graph shows the ratio of the Agency's determined TLD (RPLD from 2017 onwards) dose (D_{IAEA}) to that stated by the SSDL (D_{SSDL}).
- Each point corresponds to the average of three dosimeters.
- In total 22 deviations outside the 3.5% acceptance limit have been detected.

RP dose audit for SSDL's (2015–2021)

- For RP, OSLDs are used.
- The acceptance limits is $\pm 7\%$.
- The graph shows the ratios of air kerma measured by OSLD at the IAEA DOL to the value stated by SSDLs



Training/Conferences

- International Symposium on Standards & Codes of Practice in Medical Radiation Dosimetry (2002, 2010 and 2019)
 - This is the only event that brings together scientists from the laboratories (PSDLs & SSDLs) and clinical medical physicists
 - Focus is on standards, applications and quality assurance in medical radiation dosimetry
- A Technical Meeting on the Developments and Trends in Secondary Standards Dosimetry Laboratories (SSDLs) and Quality Management System (QMS) (29 May – 2 June 2023)
 - Joint workshop with the CCRI(I) on “Strengthening Ionizing Radiation Metrology”

Publications

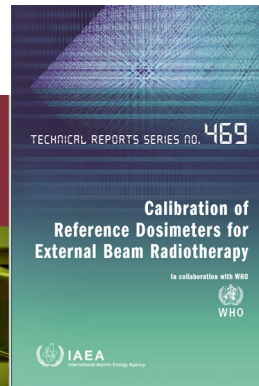
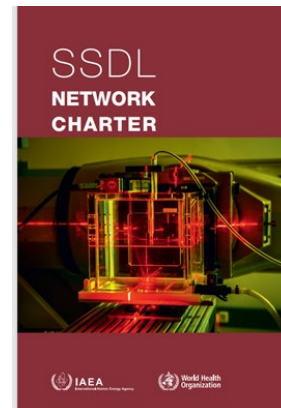
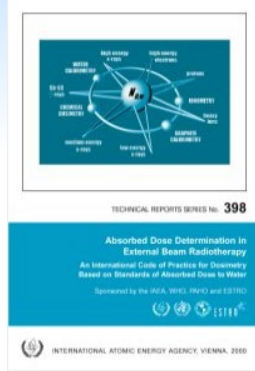
- Dosimetry Codes of Practices
- *Guidance on establishing an SSDL
- *Education of Radiation Metrologists for Secondary Standards Dosimetry Laboratories
- Guidelines for Quality Assurance & Quality Control
- Guidelines for Radiation Measurements

Many publications freely available
from our website

<https://www.iaea.org/publications>

<https://humanhealth.iaea.org/HHW/MedicalPhysics/e-learning/index.html>

* Advanced stage of publication process



Technical Cooperation

Technical Cooperation (TC) Programme is the main mechanism through which the IAEA transfers nuclear technology to Member States, helping them to address key development priorities.

All Member States are eligible for support, although TC activities focus on the needs and priorities of low & middle income countries.



TC Programmes are based on **requests from the Member States.**

TC programme is developed and **managed jointly** by the Member States and the IAEA Secretariat.



Support to Member States through the TC programme

Member States can receive different types of support through the IAEA Technical Cooperation (TC) programme.

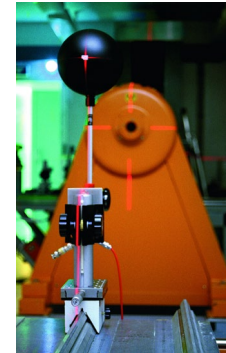
Human Health has an important role in the TC core activities.



Training course



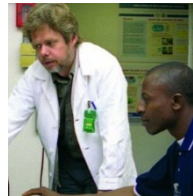
Audit missions – QUATRO – QUANUM _QUAADRIL



Procurement



Expert Missions



Fellowships



Regional Training Courses



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Thank you!

