



IAEA

International Atomic Energy Agency



TEN KEY LESSONS FROM OVER A DECADE OF NORM REGULATION IN SPAIN

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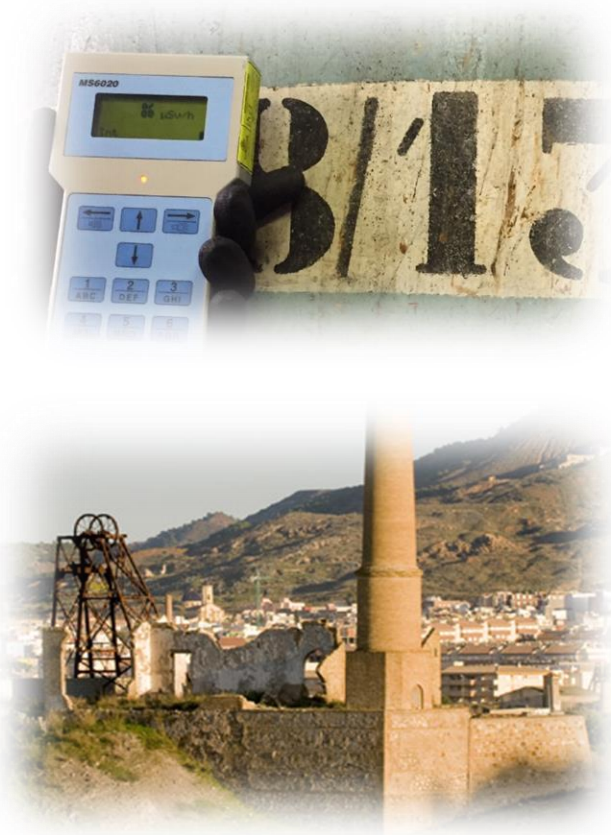


1. MOTIVATION AND DRIVERS

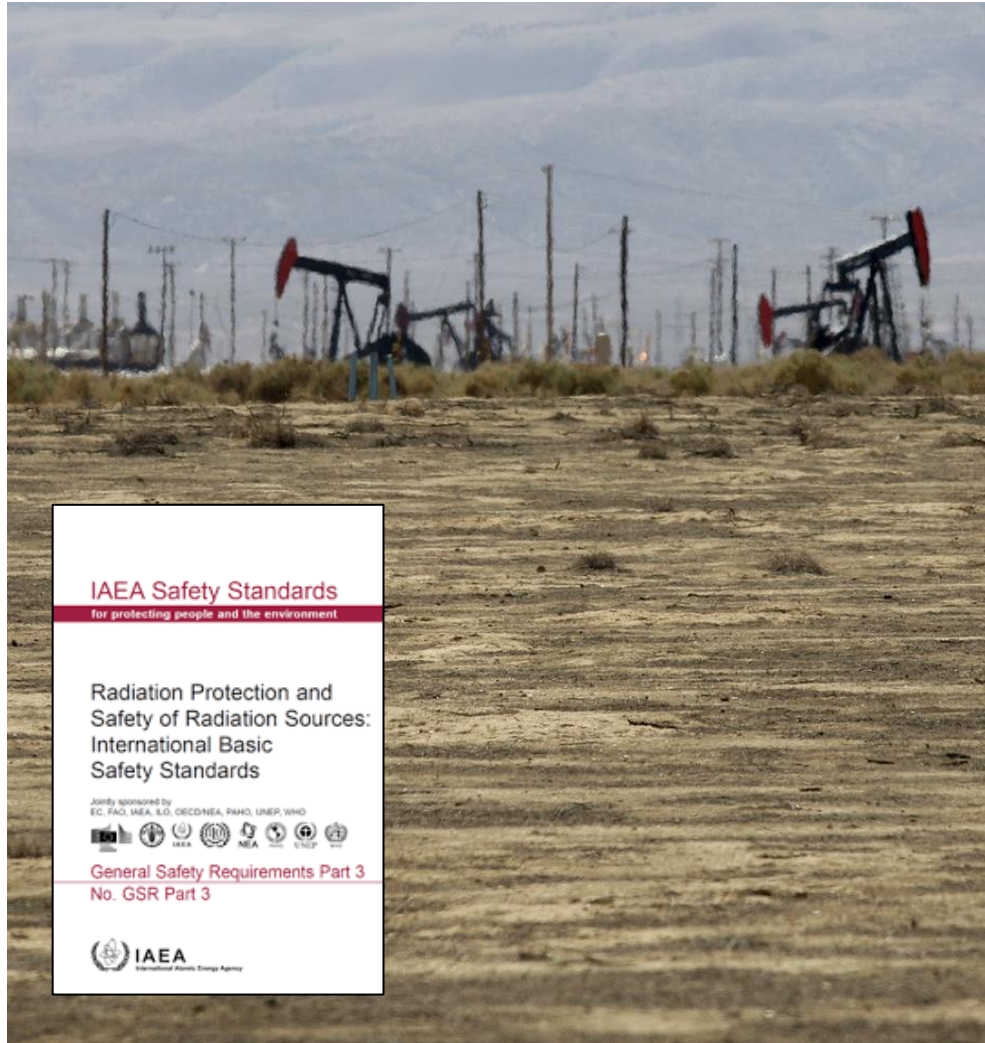
2. LEGAL AND REGULATORY CONTEXT

3. LESSONS LEARNT

WHY CONTROL NORM?

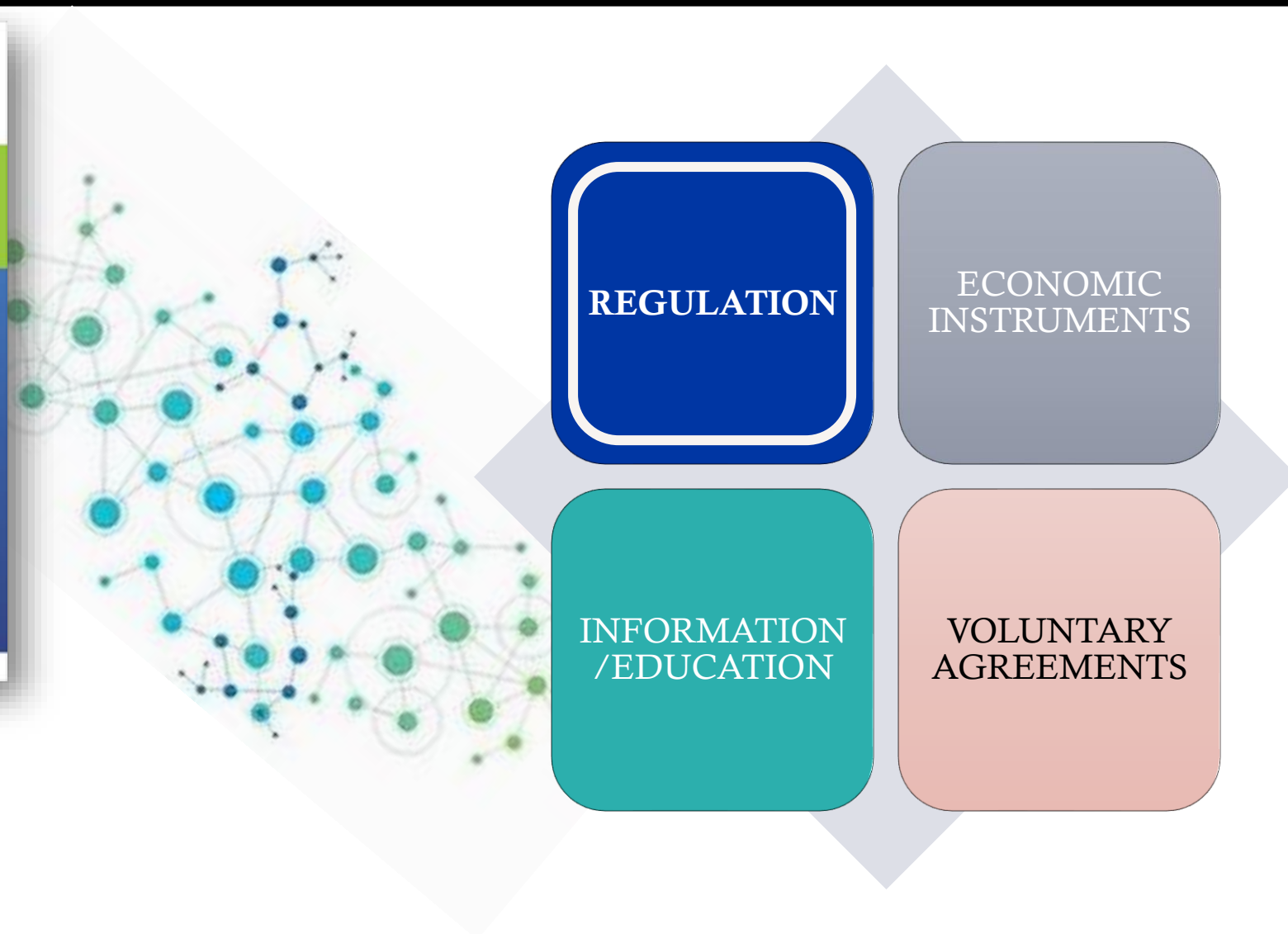


- High **occupational radiation doses**, which can be effectively reduced with the introduction of radiation controls
- **Environmental degradation** due to poor waste management practices
- Potential **health hazard** to local population (chemical risks often outweigh radiation risk)



UNIQUE CHALLENGES

- Unknown **inventories**
- Managing **very large quantities of NORM residues**, a great part of which still needs disposal as waste
- **Often multiple regulators for NORM**
- **Misperception of risk**



- Safety
- Sustainability



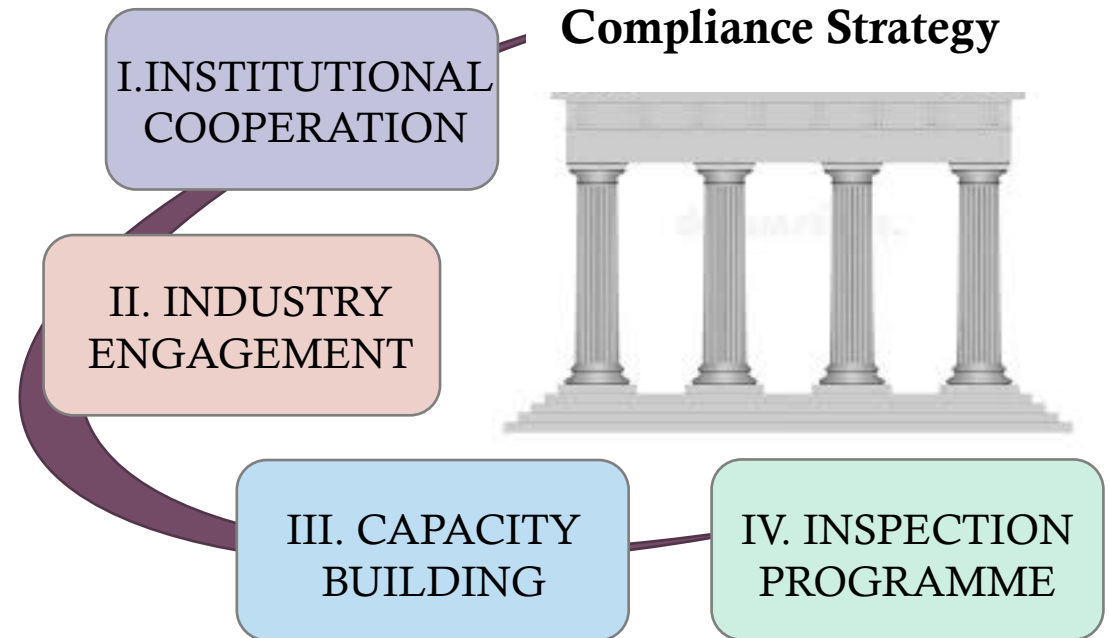
EUROPEAN CONTEXT

- European Directives are legal acts issued by the EU that set out objectives Member states must achieve by transposing them into their national laws.
 - **Directive 2013/59/Euratom** establishes the basic safety standards (BSS) for protection against the dangers arising from exposure to ionizing radiation within the European Union.
 - Some requirements on NORM control were already established in the **1996's BSSD**, but BSSD 2013/59 fully **equates work activities involving NORM with other ionizing radiation related practices.**
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SPAIN – EARLY STEPS

- **2004-2009:** CSN-funded R&D projects on NORM
- **Legislative and regulatory changes in 2010** to ensure that the sanctioning regime would cover NORM involving activities and to clearly assign responsibilities
- **CSN Instruction IS-33** issued in **2012**, requiring all industrial activities on a positive list to conduct safety assessments and introduce radiation protection controls when warranted
- Creation in **2015** of a dedicated **Natural Radiation Section** within CSN to oversee work activities involving exposure to NORM

- **2016–2019**

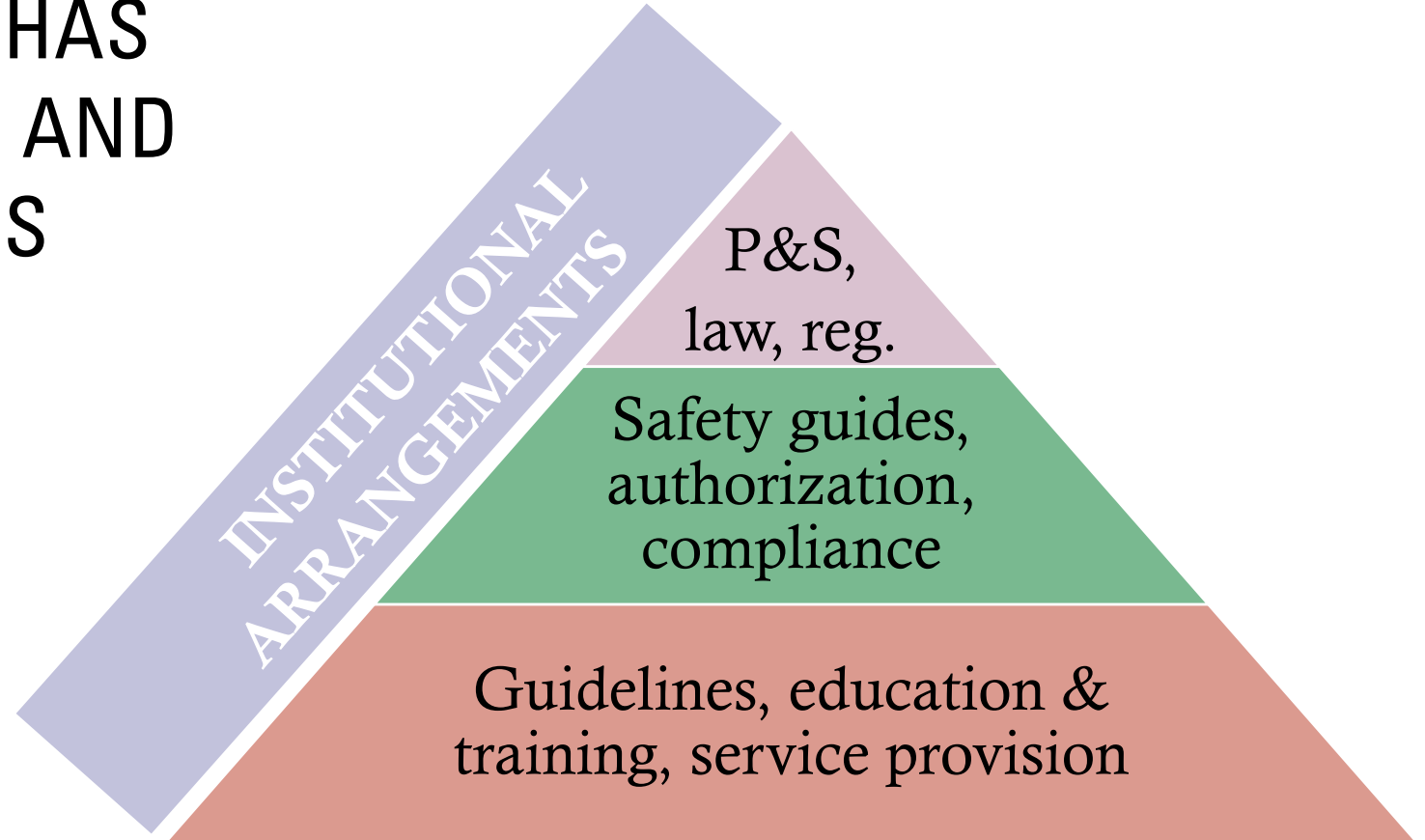


LESSON 1: KNOW THYSELF




- Situation and gap analysis:
 - Number of potentially affected facilities; distribution by sector and geography.
 - Rough estimate of NORM residues national inventory. Current management routes.
 - Infrastructure and services; number of RP educated professionals who can acquire competence in NORM management and potential trainer providers.
 - Related policies and regulation.
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LESSON 2: ENSURE THE REGULATORY BODY HAS STATUTORY POWER AND ENOUGH RESOURCES



LESSON 3: ONE SIZE DOES NOT FIT ALL

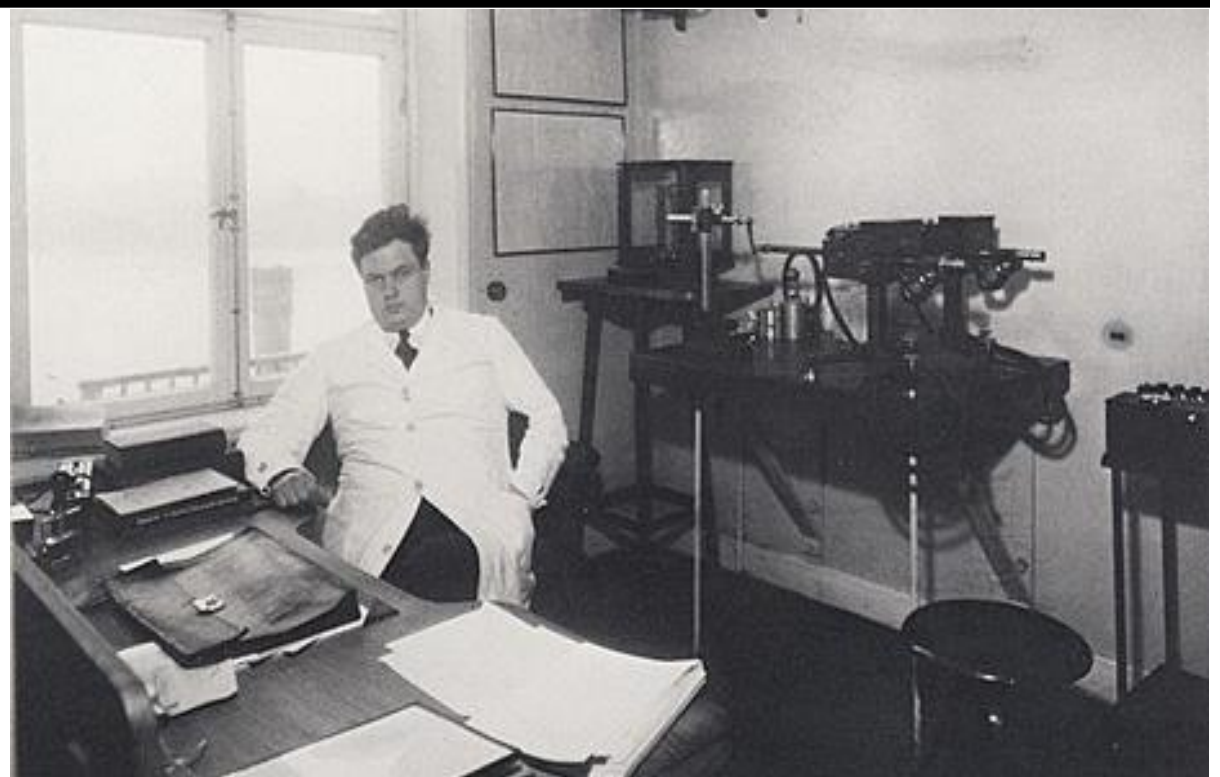
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- (1) Extraction of rare earth elements
 - (2) Production and use of thorium and its compounds
 - (3) Production of tantalum, niobium and ferro-niobium
 - (4) Mining of ores other than uranium ore
 - (5) Production of oil and gas
 - (6) Manufacture of titanium dioxide pigments
 - (7) The phosphate industry
 - (8) The zircon and zirconia industries
 - (9) Production of Sn, Cu, Al, Zn, Pb, Fe and steel
 - (10) Combustion of coal
 - (11) Water treatment

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LESSON 4: RELY ON YOUR CORE VALUES

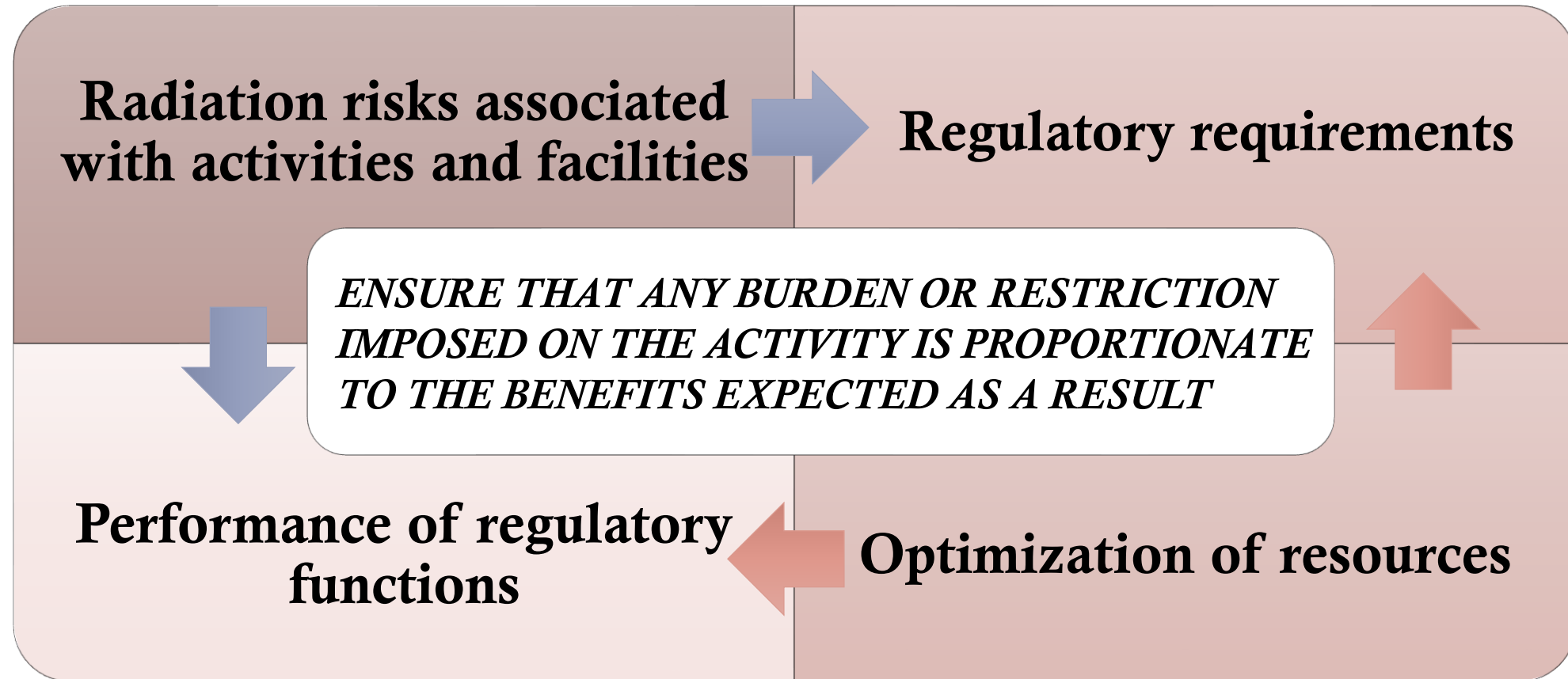
- Beneficence/non-maleficence
- Prudence
- Dignity
- Justice



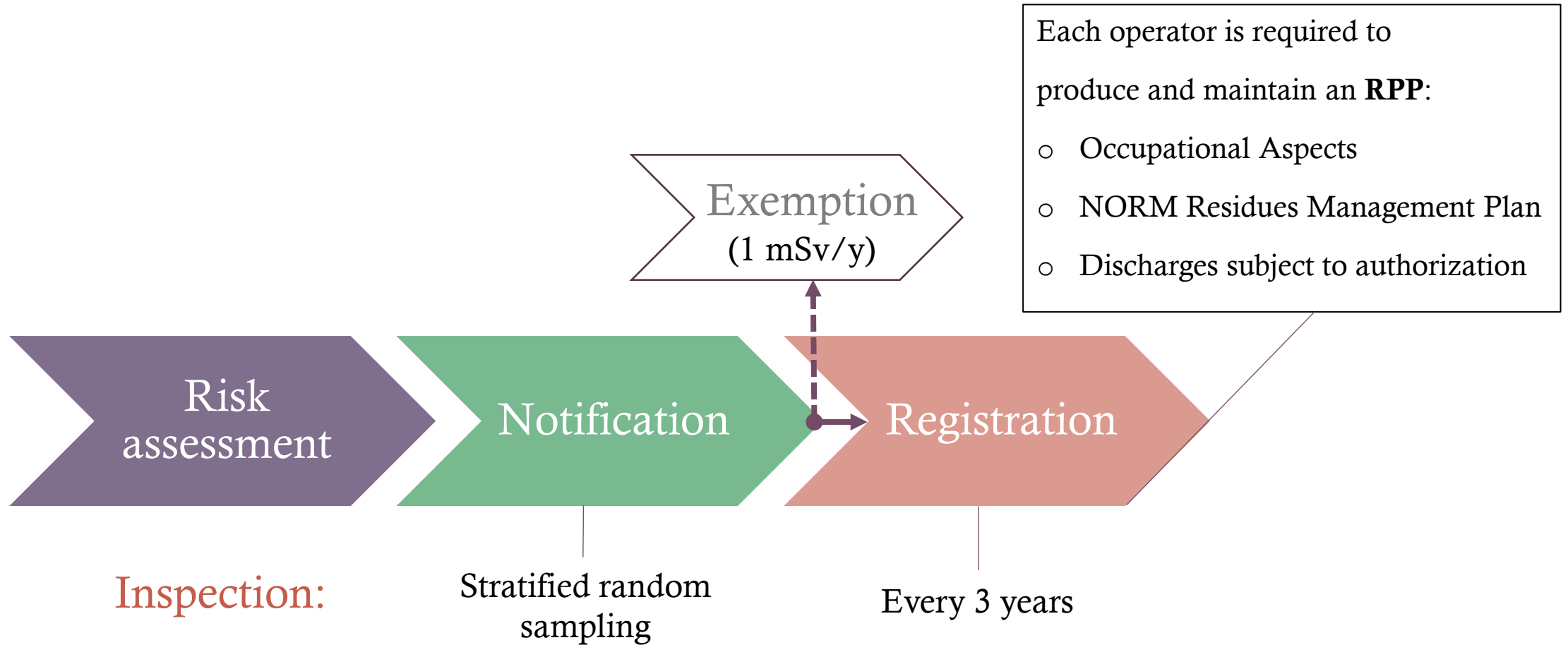
Rolf Maximilian Sievert (1896–1966): A founder and the first Chair of ICRP (originally IXCRPC)



LESSON 5: APPLY A GRADED APPROACH



REGULATORY REQUIREMENTS AND OVERSIGHT IN SPAIN



LESSON 6: CREATE ALLIANCES



Training
providers



Industry
associations



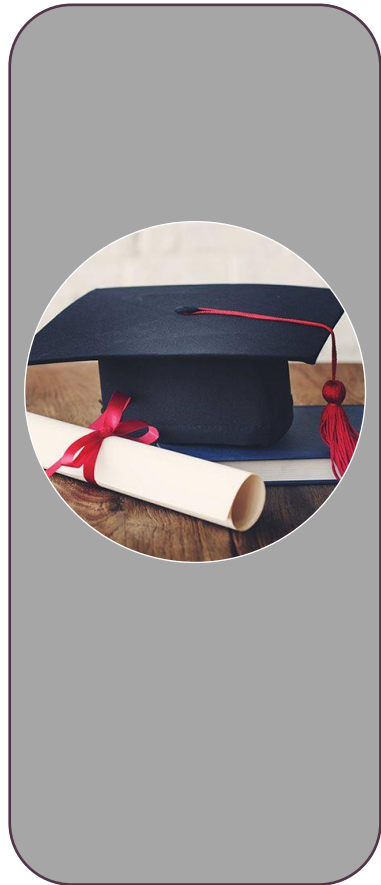
Other
regulators/
inspection
bodies



International
partners



RP ROLES AND RESPONSIBILITIES FOR NORM



RP TECHNICAL UNITS (RPTU)

- Independent from the operator
- Authorized by CSN
- Conducts the risk assessment; develops the RPP

NORM Technical Officer

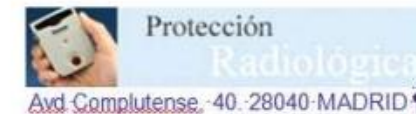
- Permanent company employee
- Education & training requirements
- Oversight of the RPP

- ✓ Diploma for RPTU Head (granted by CSN; 300 hours of specialized training required, out of which 80 on NORM/radon)



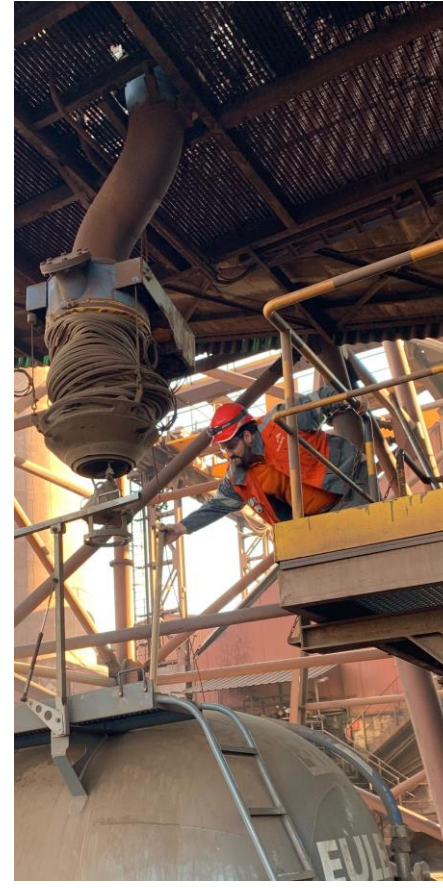
Unidad
de Formación

CURSO: Experto en Protección Radiológica.



LESSON 7: ENGAGE IN HANDS-ON WORK

- Regulators need to have a deep understanding of the sectors they regulate
- In order to better address and prevent problems, knowledge of workplace reality is paramount
- Collaboration with the sectors and other competent regulators (e.g. by joint inspection programs) contributes to acquire the necessary competences



LESSON 8: FOSTER COMPLIANCE

REGULATORY BODY

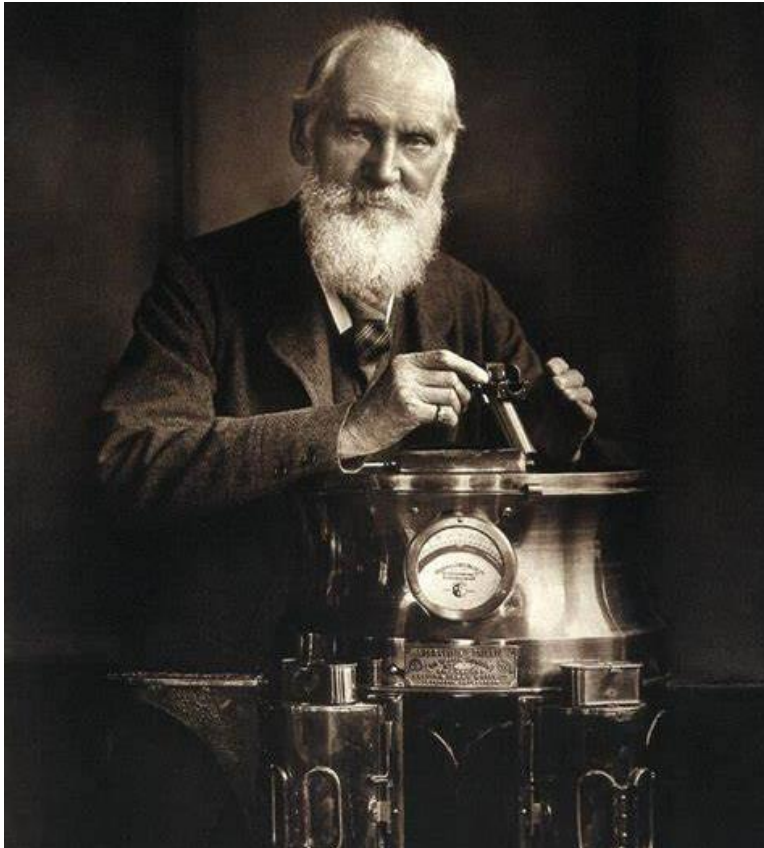
- Elaborate guidance documents
- Create steady communication channels (such as committees or WGs) with the regulated sectors
- Ensure availability of reliable services



OPERATOR

- Define and communicate expectations
- Provide information and training
- Lead by example
- Create a speak-up culture

LESSON 9: USE INDICATORS TO TRACK PROGRESS



*“What is not measured
cannot be improved”*

- Enable more **outcome-focused regulatory approaches**
 - ✓ Number of notified facilities
 - ✓ Operators’ annual reports (mandatory since 2024):
 - Worker doses
 - Amount of residues by management route
 - ✓ Benchmarking
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LESSON 10: BE PATIENT



See you in



<https://normxi2025.com/>
