SITEX

SUSTAINABLE NETWORK FOR INDEPENDENT TECHNICAL EXPERTISE OF RADIOACTIVE WASTE DISPOSAL

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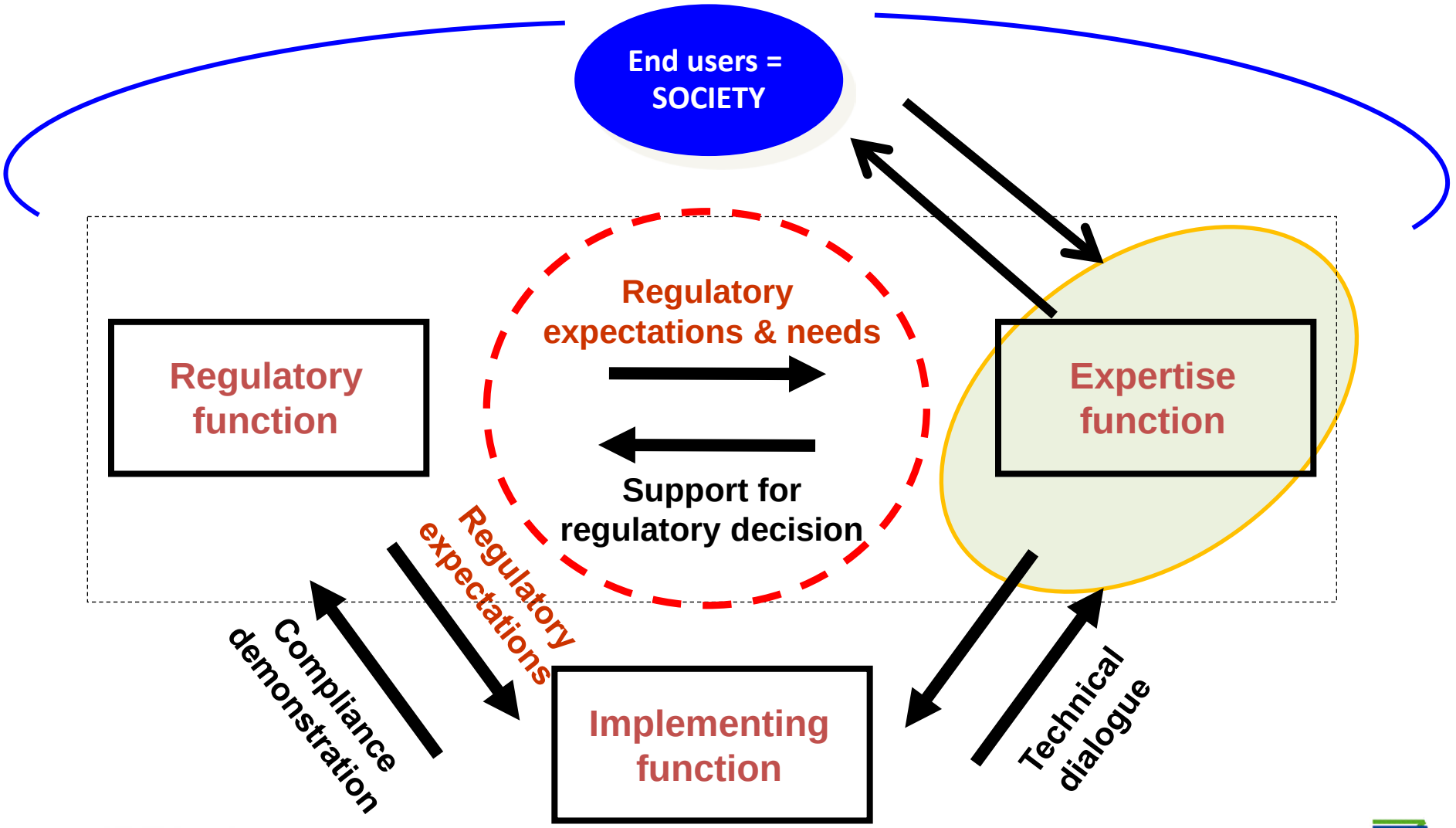
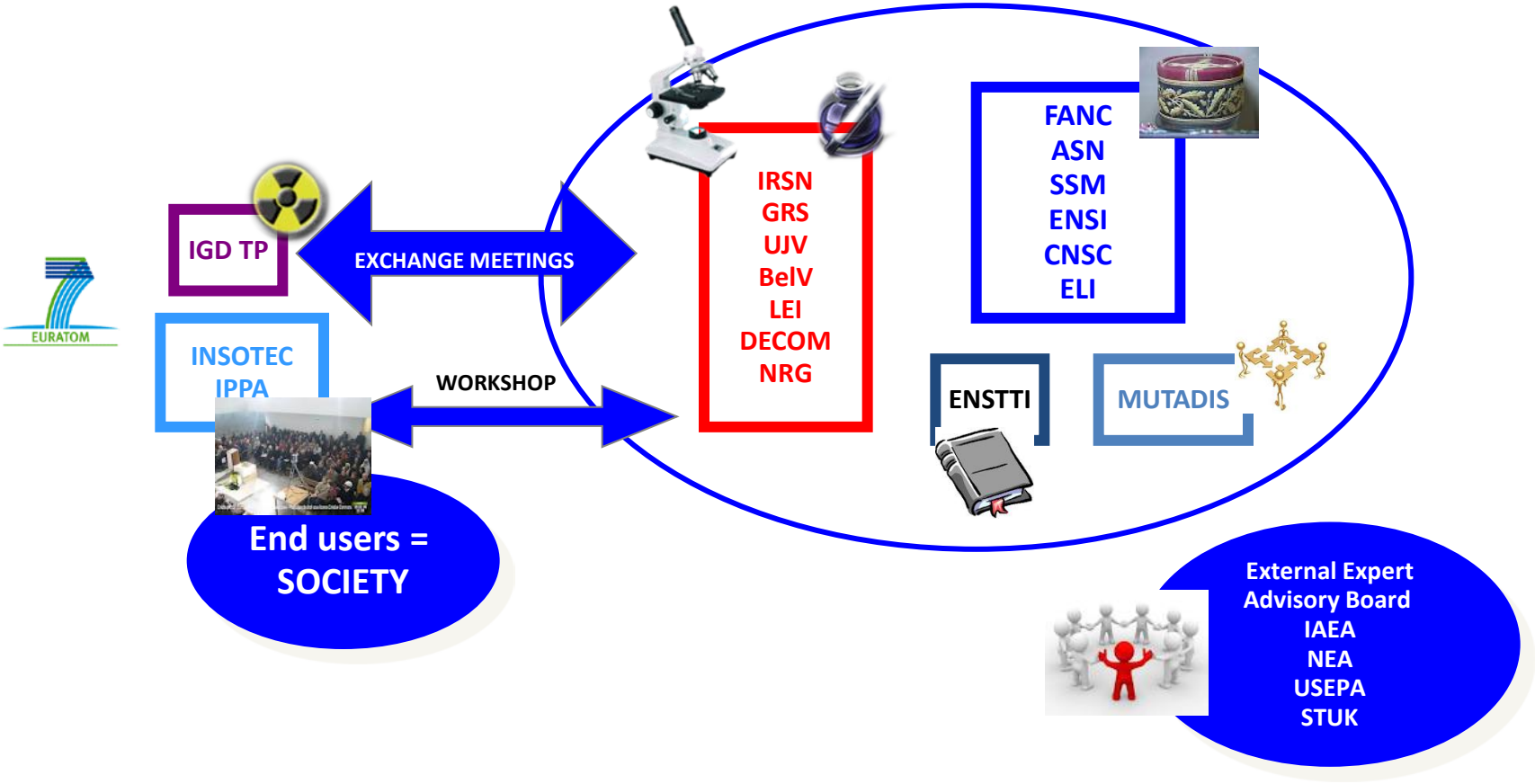
Decision Making Process



Objectives

- ✓ To set the conditions and necessary means (TOR) for establishing a coordinated European (and possibly international) workforce ensuring a sustainable capability to provide a technical and independent expertise in the field of radwaste management safety and radiological protection,
    - o Why is it important to develop an expertise function on RWM safety at national level? What is its role?
    - o What are the expectations of national RWM regulators, the public, vis-à-vis a national expertise function? Its independence? expertise needs?
- ✓ Areas foreseen: harmonization, optimisation of resources (R&D), training, involvment of stakeholders in decision making process
- ✓ CA; December 2011 – December 2013
- ✓ http://sitexproject.eu/

SITEX Cartography



- A description of the **considered functions of the future European network of assessors**

Harmonization

- Opportunities for the harmonisation of the review methods and make as far as possible the expertise function consistent through the member countries

Training

- Source of harmonization of professional skills & profiles of expertise, by providing more exchanges between experts and complementary training to the existing national and international programmes

Research & Development

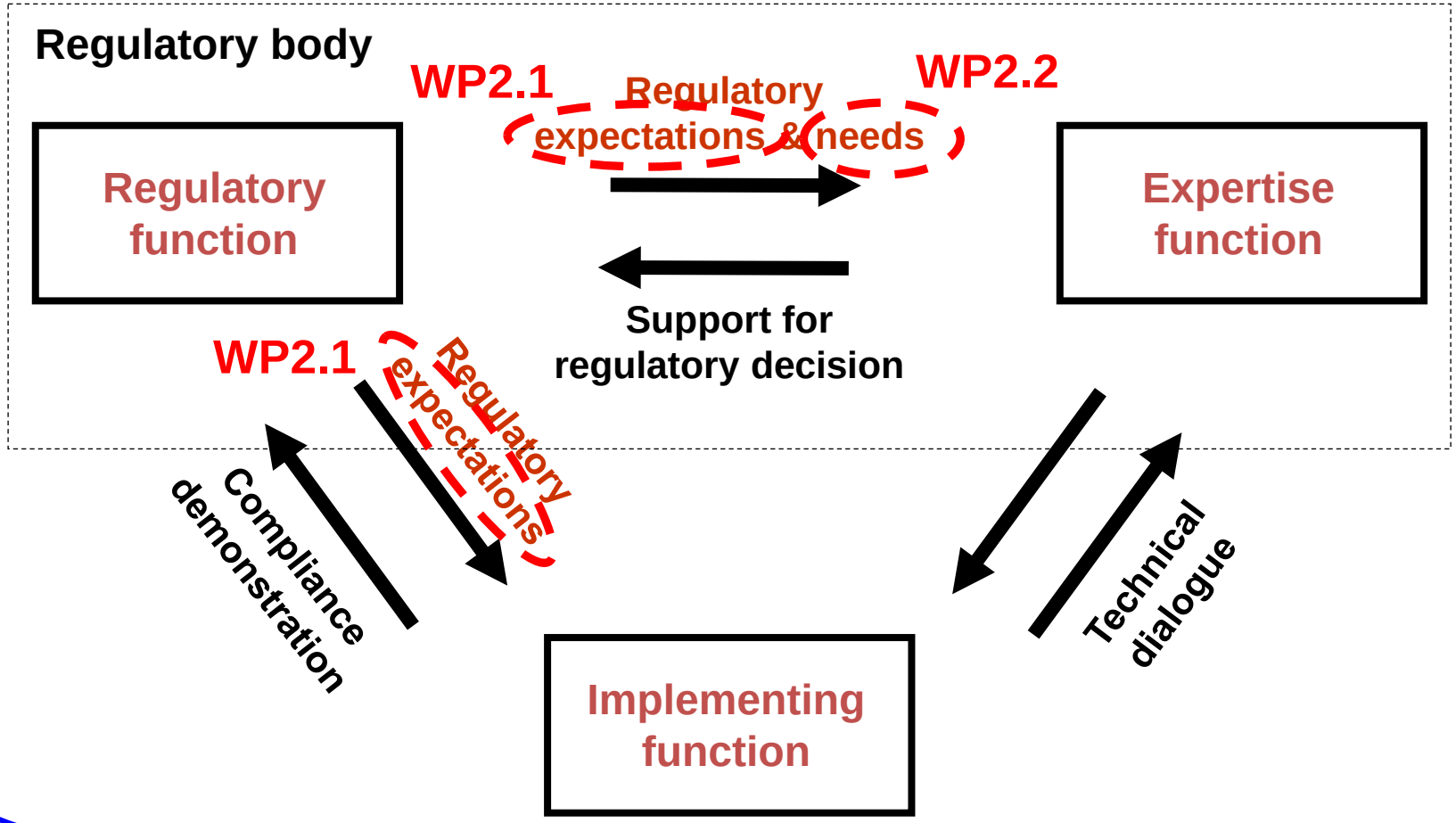
- Way to develop synergies among national organisations in order to reinforce safety, optimise the use of available resources and contribute to the harmonization and sharing of practices of research and results.

SITEX WP2 : Regulatory Expectations & Needs

WP2 Objective

To set up the conditions for allowing mutual understanding between National Safety Authorities (NSAs), Technical Safety Organisations (TSOs) and Waste Management Organisations (WMOs)

Interactions Between Regulatory, Expertise and Implementation Functions



WP2 Participants

Organisations	
IRSN (FR)	TSO
GRS (DE)	TSO
Bel V (BE)	TSO
NRI (CZ)	TSO
NRG (NL)	TSO
DECOM (SK)	TSO
EL&I (NL)	NSA
ASN (FR)	NSA
SSM (SE)	NSA
FANC (BE)	NSA
CNSC (CA)	NSA
ENSI (CH)	NSA
MUTADIS (FR)	Other

WP2.1 :
Needs for Technical Guidance

WP2.1 Context: Responsibilities of the Regulatory Body

Requirement 2 of IAEA SSR-5:

The regulatory body shall a.o.:

- establish **regulatory requirements** for the development of different types of disposal facility for radioactive waste
- undertake **international cooperation**, as necessary, to fulfil its regulatory functions
- provide **guidance** on:
  - the interpretation of the national legislation and regulatory requirements *as necessary*
  - what is expected of the operator

Regulatory expectations (WP2.1)

WP2.1 Objective

Identification of the areas where development and harmonization of technical guidance is needed in priority

WP2.1 Deliverable

- **Title:** "*Overview of existing technical guides and further development*"
- **Description:** An overview of existing technical guides including an identification of:
  - common points and differences
  - the needs for further development, harmonization and dialogue

WP2.1 Working Hypotheses (1/2)

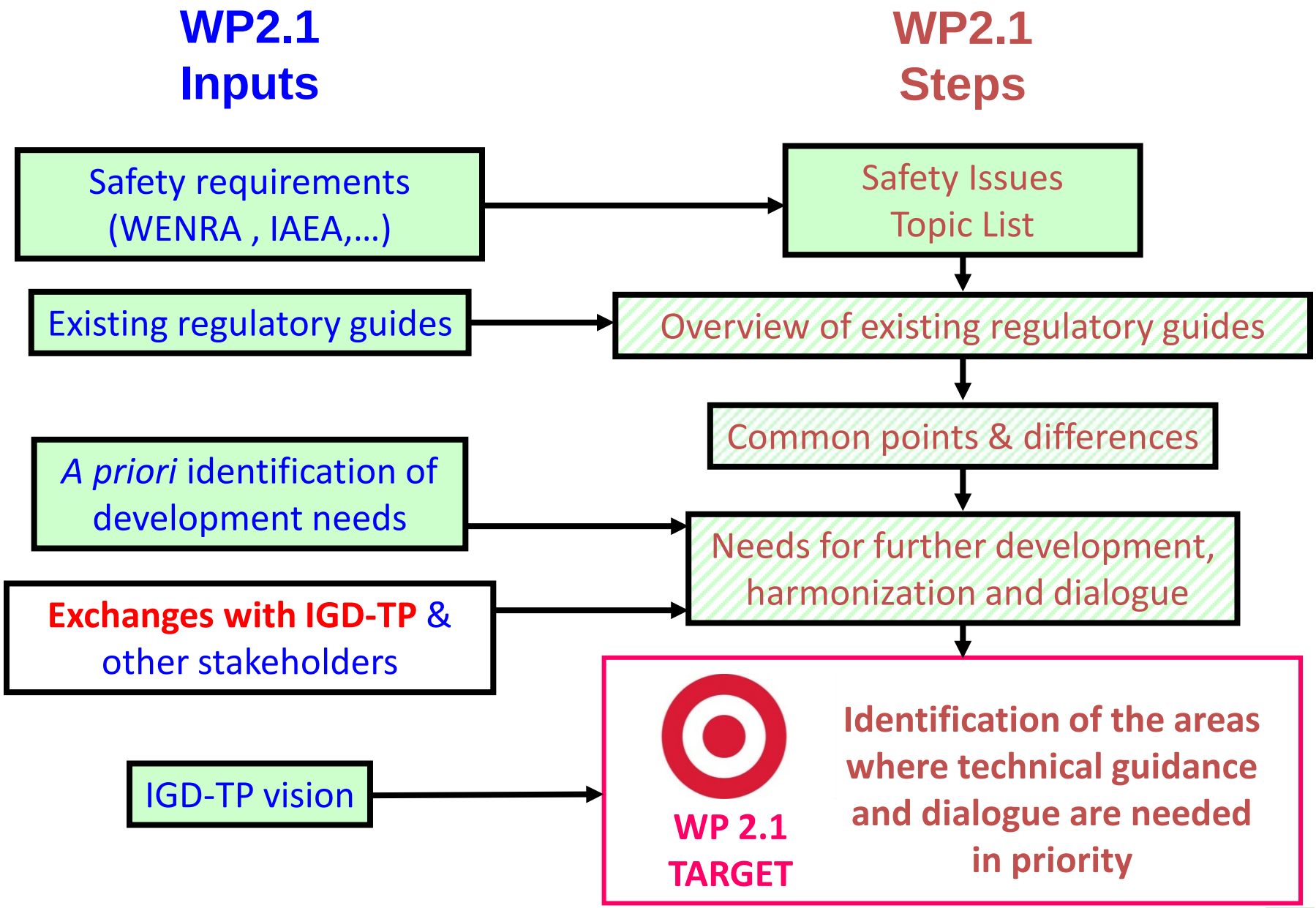
Safety requirements on which international consensus exists are taken as reference:

- EC Directive on SF & Radioactive Waste Management (2011/70/Euratom)
- Draft WENRA Safety Reference Levels (SRLs)
  - Set of requirements against which the situation of each country is assessed
  - Engagement to transpose SRLs into national regulatory frameworks of WENRA member states
- IAEA Safety Fundamentals and Requirements
- ICRP recommendations

WP2.1 Working Hypotheses (2/2)

Technical guidance:

- associated with one or several safety requirements
- may serve different purposes:
  - Interpretation of requirements
  - Explanation of how requirements can be met in practice and/or how compliance should be substantiated
  - Facilitate dialogue and interactions with the public or with other stakeholders
- possible audiences: implementers, experts fulfilling an expertise or a regulatory functions, public or other stakeholders


WP2.1
Inputs
WP2.1
Steps
Safety requirements
(WENRA , IAEA,…)
Safety Issues
Topic List
Existing regulatory guides
Overview of existing regulatory guides
Common points & differences
A priori identification of
development needs
Needs for further development,
harmonization and dialogue
Exchanges with IGD-TP &
other stakeholders
IGD-TP vision
WP 2.1
TARGET
Identification of the areas
where technical guidance
and dialogue are needed
in priority

Safety Issues (1/4)

Safety issues identified based on existing “high-level” safety requirements:

- **Governing principles**:
  - Radiation protection principles
  - Protection of present and future generations
  - Defence in Depth & Robustness
  - Demonstrability & Feasibility
  - …
- **Safety strategy:**
  - “*High-level approach for achieving safe disposal*”
  - addresses the implementation of the “governing principles”

Safety Issues (2/4)

- **Management system:**
  - Organisational structure
  - Resources
  - Process implementation (including QA included)
  - …

Safety Issues (3/4)

- Site selection
- Design
- Construction
- Operation
- Closure & Decommissioning
- Period after closure and institutional controls

Requirements associated with specific phase(s) of repository development

- Waste acceptance
- Monitoring

Safety Issues (4/4)

- **Safety case and assessment:**
  - Objectives and scope, Graded approach, SC/SA content vs. regulatory decision steps
  - Characterisation, knowledge and system understanding
  - SA methodologies, approaches & tools:
    - Timescales and timeframes, uncertainties, deterministic vs. probabilistic approaches, scenario development, models,…
  - Indicators & criteria
  - Operational safety assessment
  - Long-term safety assessment
  - Periodic safety review
  - Independent verification

Safety Issues vs. Requirements

	Requirements		
SAFETY ISSUE	**WENRA SRLs**	**IAEA Principles & Requirements**	**EC directive 2011/70/Euratom & ICRP Recommendations**
Uncertainties	**SRL 4.1.9**	**GSR Part4-R17**	**Article 7.3**

Example: Requirements associated with the safety issue "Uncertainties"

Identification of the Needs of NSAs & TSOs

Needs of NSAs/TSOs for guidance development and/or dialogue are **currently identified** based on:

- Questionnaire on existing, used and needed guidance
- Comparison of existing technical guides

These needs will be **prioritized** considering the level of « urgency », importance for safety, the level of interest,…

Identification of WMOs' Needs (1/3)

What would be the most suitable way(s) of identifying the needs and priorities of WMOs ?

Identification of WMOs' Needs (2/3)

Several topics identified and prioritized in the **IGD-TP's SRA 2011 & DP 2011-2016** are directly related to requirements and issues addressed in WP2.1, e.g.:

- Topic 1.1: Increase **confidence in, and testing** and further refinement **of** the **tools** (concepts, definition of scenarios and computer codes) used in safety assessment
- Key Topic 3: **Technical feasibility** and **long-term performance** of repository components
- Topic 4.1: Methodologies for **adaptation and optimisation** during the operational phase
- Key Topic 6: **Monitoring**
  - *"Explicit or implicit repository monitoring requirements in regulatory and guidance framework"*
- …

Identification of WMOs' Needs (3/3)

Would IGD-TP have an interest in answering a questionnaire on needed guidance ?

Examples of questions that could be asked for **each safety issue**:

- Do you think it is necessary to develop or further develop guidance on this issue?
- Topics that should be covered in particular by the guidance
- Requirement(s) that should be addressed by the guidance
- Level of priority of this development?
- Should the guidance address specific programme phase(s)?
- …

WP2.2 :
Needs for Expertise and Technical Support

WP2.2 Context

Requirement 2 of IAEA SSR-5:

The regulatory body shall a.o.:

- set **conditions** for the development, operation and closure of each individual disposal facility
- carry out such activities as are necessary to **ensure that the conditions are met**
- maintain **competent staff**
- acquire **capabilities for independent assessment**
- undertake **international cooperation**, as necessary, to fulfil its regulatory functions

Regulatory needs (WP2.2)

WP2.2 Context

EC Directive 2011/70/Euratom (Article 8):
"*Member States shall ensure that the national framework require* ***all parties*** *to make arrangements for education and training for their staff, as well as research and development activities to cover the needs of the national programme for spent fuel and radioactive waste management in order to obtain, maintain and to further develop* ***necessary expertise and skills***."

= Prerequisite for ensuring effective independence of the regulatory (as required by Article 6-2)

WP2.2 Objective

Identification of the expertise and technical support needed by the regulatory function in order to perform an independent assessment of compliance with safety requirements

WP2.2 Deliverable

- **Title:** "*Main key technical issues, expertise and support needed*"
- **Description:** An identification of the:
  - main key technical issues that must be assessed by regulators at the different stages of the repository development
  - types of information, expertise and support needed at each stage of repository development
  - areas where expertise/support are needed in priority

Main WP2.2 Inputs

- "High-level" safety requirements & issues identified in WP2.1
- EPG report on the review of a SC
- Answers to WP2.2 Questionnaire
- Other relevant references (IAEA DS-355, GS-G-1.1,…)

- **Decisions & stages** of a repository project development
- Key **technical issues** that must be assessed by regulators
- Types of **expertise and support** needed to verify compliance with requirements

Rationale ?

WP 2.2 TARGET

For each stage:
Expertise & Support types vs.
Key Technical Issues

Types of Technical Support Needed

- **Technical reviews**
- **Inspections**:
  - Tests, measurements and direct observations:
    - Continuous/periodic vs. specific tests and measurements
  - Interviews with personnel of the operator and the contractor
  - Examinations of procedures, records and documentation
- **R&D**:
  - Desk studies to establish the state-of-the-art and to take benefits from existing R&D
  - Modelling and calculations e.g. to identify key parameters & uncertainties, assess the level of conservatism, verify results,…
  - Lab tests & in-situ experiments e.g. to characterize components, to increase knowledge in phenomenology,…

Conclusions

WP2 is mainly aimed at:

- **fostering mutual understanding and dialogue** between NSAs, TSOs and WMOs

  => input from IGD-TP/WMOs would be most welcome !
- **identifying and anticipating the needs** for technical guidance and support
- contributing to the definition of the **functions of the future expertise network** (WP6)

Contribution of WP2 to the Definition of the Functions of the Future Expertise Network

Thank you for your attention !