The TSO Forum initiative: supporting nuclear and radiological regulatory organisations in meeting sustainability challenges in the XXI century

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Regulatory challenges are long term also

- Engaging in nuclear energy is a long term commitment for a country, but **different phases require different capabilities** in the regulatory system: new build licensing; operational oversight; environmental and public health issues; emergency preparedness; waste management; decommissioning;

- The same is true, on a lesser scale, for radiological regulatory matters: medical technologies are innovating at a fast pace; NORM industries require oversight at all stages of their life cycle.

What's relatively new in this century?

In the XXI century,

- Many « mature » nuclear countries face the issues of down-sizing of their nuclear industry, with major decommissioning, waste and spent fuel management issues, generation change;

- Countries reaching maturity face the challenge of regulatory oversight for new and sometimes diversified NPP and other nuclear operations;

- « Embarking » countries face the challenge of going from paperwork plans to operational construction oversight and building up regulatory capacity;

- All countries face increased concerns in modern society about risks induced by nuclear operations, with increased challenges on emergency preparedness due to the growing use of internet and social networks by stakeholder activists NGO's and citizens themselves who want to be actors of their own safety.

Why is sustainability an issue for all regulatory organisations?

- As national institutions with an effective legal basis for their missions, the perennity of regulatory organisations is not usually questionned. **Sustainability remains implicit**…

- However, regulatory organisations do have to cope with the challenges induced by changes in their environment, and **a strategic approach to their sustainability can help overcome such challenges more effectively.**

The four pillars of regulatory sustainability

- **Institutional strength**
  - Independance
  - Anchorage in society : government and parliament, professional organisations, NGO's, universities, access to media
  - Funding system
- **People**
  - Authority and Staff members, turn over
  - Scientific and technical « ecosystem » (TSO, universities,…)
- **Technical resource**
  - Knowledge,
  - Data,
  - Tools : radiological surveillance , models, emergency intervention
- **Stakeholder and public confidence**
  - Communication
  - Engagement
  - Values of safety, security, and protection must be upheld at all times.

Strategies to consolidate sustainability

- **Evaluation**, to record change and effects of change, and to map evolution needs,

- **« Linkage » of activities**, to optimise the use of existing resources with an « ecosystem » approach, and prepare for the future,

- **Cooperation**, to learn from others and to develop mutual support.

Evaluation

- Periodic assessment of strengths and weaknesses, threats and opportunities helps anticipate changes in internal or external environment, and to adapt adequately

- IAEA has developped tools to guide auto-evaluation (SARCON), to provide a support service (INIR) or to organise peer evaluation (IRRS/IRIS)

- **IAEA is currently preparing an extension of its approach to better include technical and scientific issues (TSO tecdoc and derived services)**
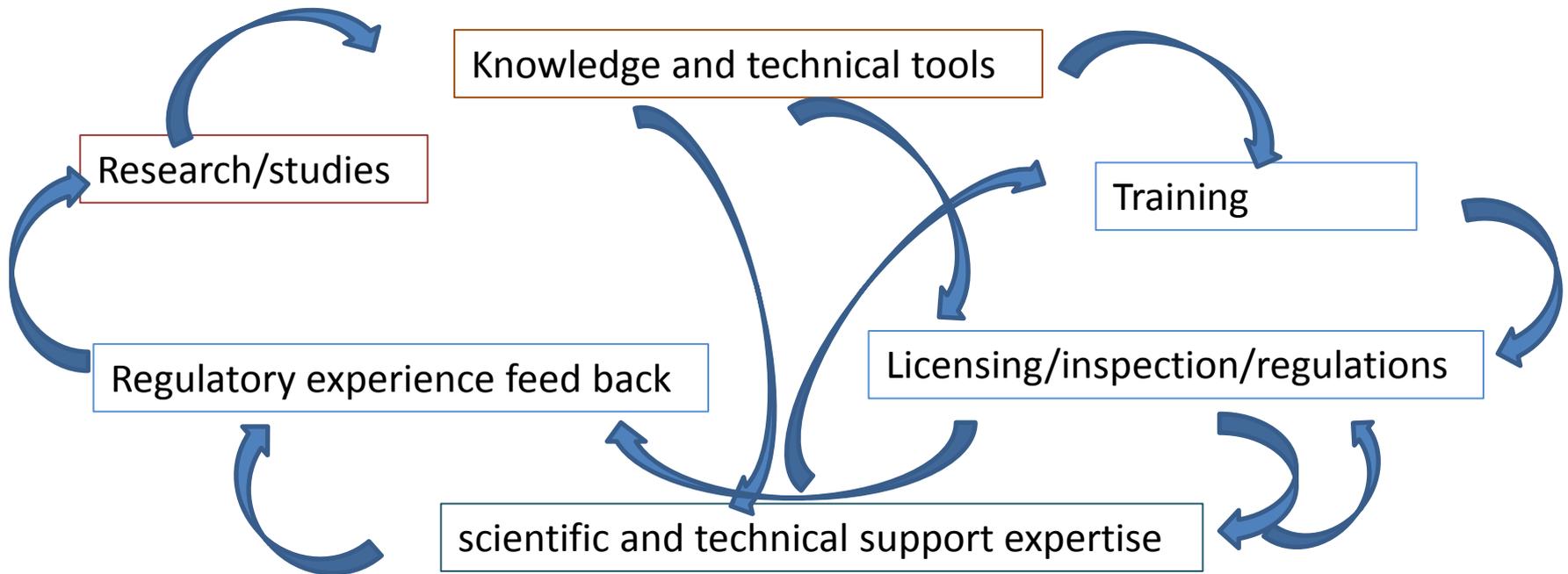
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Focus on two evaluation themes for reflecting on sustainability

- **People**
  - Safety leadership capabilities
  - Scientific culture
  - Quality culture
- **Technical resource**
  - Access to new safety related knowledge, and maintaining existing knowledge
  - Access to and development of technical infrastructure (nuclear safety and radiological protection
  - Hierarchised identification of missing elements of resource

« Linkage »: a key to sustainability

Knowledge and technical tools

Research/studies

Training

Regulatory experience feed back

Licensing/inspection/regulations

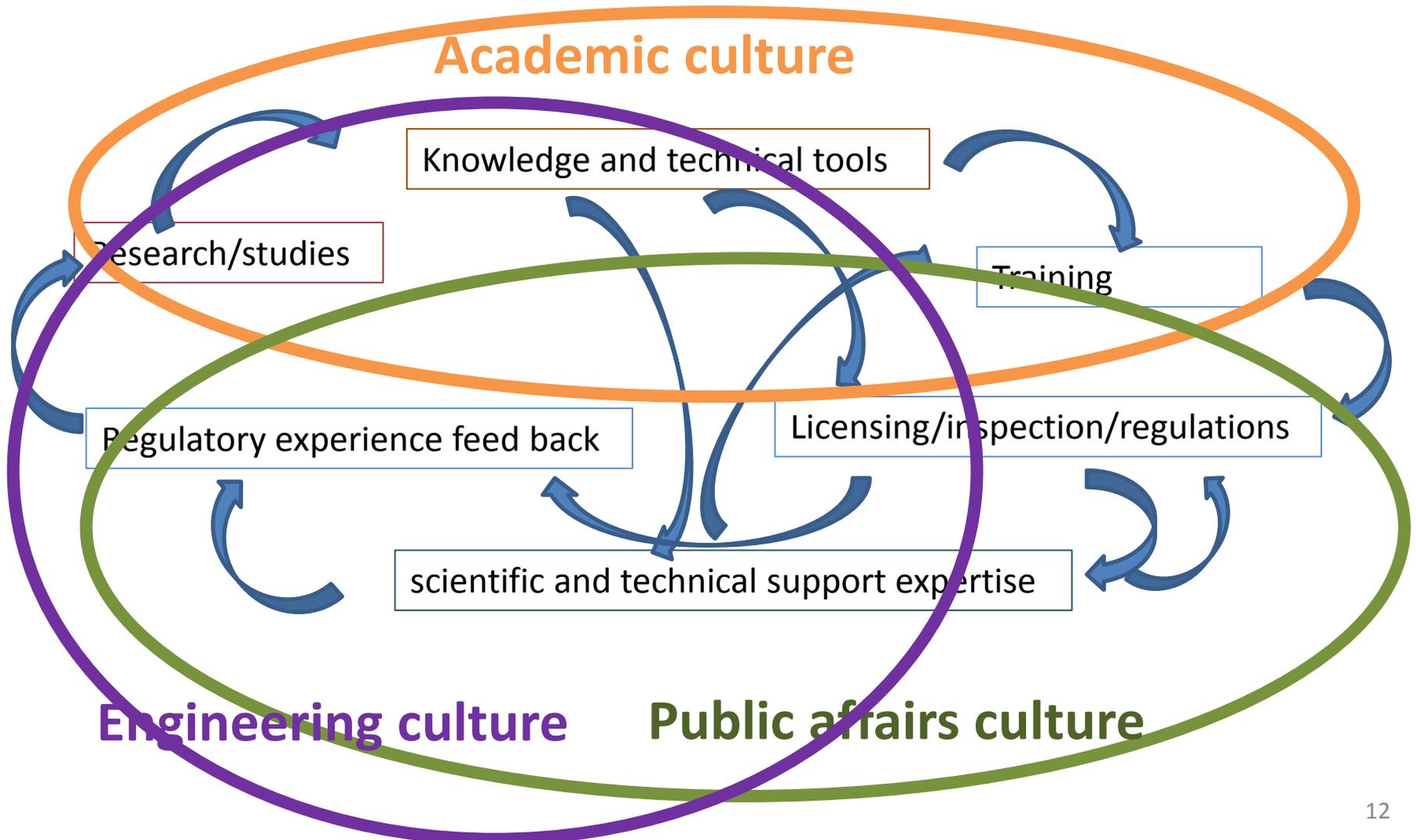scientific and technical support expertise

Regulatory related activities should not be seen as separate, but as parts of a global process which is vital for long term sustainability. The links must therefore be analysed as part of the process and not just as « outsourcing » solutions

« Linkage » of activities

- « Linkage » provides feed back or forward mechanisms linking different types of regulatory related activities, to ensure permanent improvement and natural adaptation to changing environments,

- « Linkage » does not occur unless it is planned organised, and imbedded in local cultures.

« Linkage » can only succeed if cultural differences are overcome in harmony

Academic culture

Knowledge and technical tools

Research/studies

Training

Regulatory experience feed back

Licensing/inspection/regulations

scientific and technical support expertise

Engineering culture

Public affairs culture

The optimal « linkage » approach is country culture dependent .

- There are many possible solutions to organise the complete set of regulatory related activities,
- The three basic culture components should be provided an environment where they are at the same time respected, and invited to interact closely (ecosystem approach).
- Training of managers should take this dimension into account
- IAEA's current application of evaluation instruments (such as IRRS, IRIS) does not facilitate the analysis of such complex aspects, although they are key to long term sustainability of regulatory institutions. **IAEA's TSO initiative aims to complement guidance and broaden existing services, to better encompass the full scope of regulatory activities in member states, including through examples (case studies).**

Cooperation for increased sustainability

- It is an essential strategy instrument for all countries, simply because no country is host on its own to the whole of knowledge pertinent for nuclear safety, security and radiological protection

- In the long term cooperation only works if there is sufficient mutual benefit for all parties concerned, so early identification of true benefits is a key

- Cooperation frameworks may benefit from a regional /multialteral approach

- IAEA's « tool box » provides by definition a valuable common language

- Future programs could embrace a more regional and comprehensive approach where possible, to encourage future cooperative approaches between partners, and emphasise the use of IAEA methodologies to maximize cooperation benefits.

The TSO case study approach: Why?

- The formal documentation on TSO is **not normative**, and will never be. It proposes **links to requirements** (GSR-1), **concepts**, and **open ended options/examples** to help elaborating national strategies,

- TSO operations differ widely from country to country, and there is no « one size fits all », only **organisational examples** which can inspire (or not) other national strategies

- INIR/IRRS services provide « snapshots » and analysis of the existing regulatory order, but do not provide answers for strategic evolutions in terms of sustainable regulatory technical support.

- Case study material can provide information/examples on **processes** that occured in given countries, prompted by **national circumstances and constraints**, in order to develop TSO's.

- Such information can be used as support for national purposes, for collective discussions (TSO Forum,…), or for training purposes on nuclear safety management (GSR-2).

The TSO case study approach: how?

- A case study « **tells a story** » of **what happened in a real situation**. The story describes the **evolution over a given period of time**, the roles of key actors and the **processes** that were engaged, and not just the results. The story is simplified to maximise **pedagogic goals**, and to avoid unnecessary publication of details from a particular country, but it must be close enough to reality to retain its value. The document must be concise (**max 10 pages**).

- The story is supported by « **case evidence** » that makes it credible, and can be used to support group discussions, or training sessions (e.g. letters, memos, press articles,…)

- It also includes a **short ppt presentation** of the case (max 10ppt) which can be used to introduce the case (support for conferences, national workshops, etc…) and present its key lessons.

The TSO case study approach: what?

A possible break down of complex processes into several case studies, progressively constituting a « library »:

- The **« spark »** that prompted the opening of national discussions on TSO issues, and the **« early process »** of opening such discussions, that necessarily involve partners from beyond the core culture of the regulatory body
- The **« project »** that leads to the development of a specific proposal for a TSO organisation, in response to national needs, constraints and capabilities
- The **« implementation »**, after the policy and funding decisions are taken. This phase typically last several years initially, but is never over as new challenges occur all the time

The TSO case study approach: Who?

Countries with recent evolution in the TSO context, where an initial collection of case studies could take inspiration from ?

- South Africa (TSO case study under development)
- UAE
- Belarus
- Pakistan
- Member states with mature TSO experience?

Potential themes for TSO case studies

- General TSO development (policy and organisational aspects, funding, training, technical support for assessments or inspections, R&D….)
- Specific issues
  - Development of regulations and guides
  - Licensing support at different stages (siting, construction, operation)
  - Decommissioning
  - Security
  - Waste disposal
  - Emergency preparedness
  - Radiation protection

Conclusion

- **There is a broad scope of reflexion and action to enhance the long term sustainability of regulatory organisations and related processes**

- **TSO activities are specially pertinent to contribute to technical sustainability**

- **The TSO Forum IAEA initiative is proposing a complementary approach to support member states, consistent with IAEA existing tools and services, particularly with the development of case studies to enhance cooperation.**

Thank you for your attention