Collected solutions for improved risk governance in the field of Ionizing Radiation

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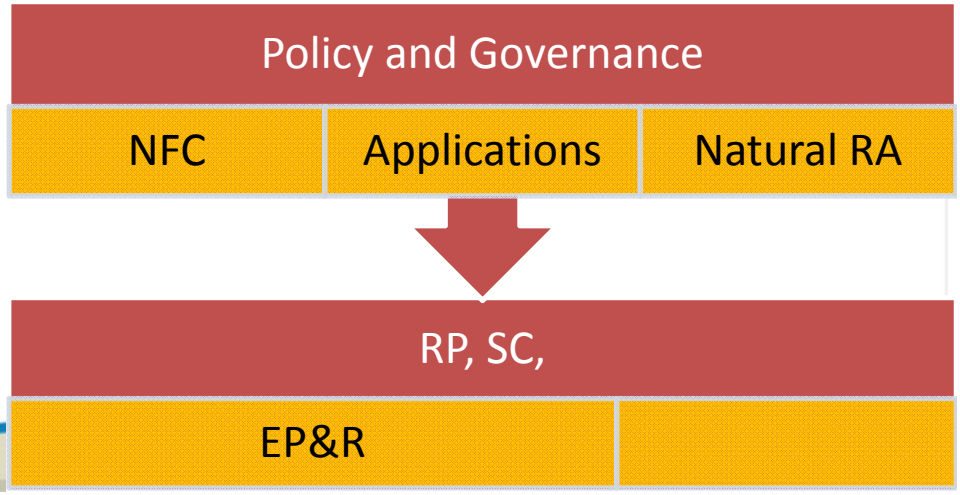
Risk governance

- There is no unified and agreed definition.
- Risk governance refers to the institutions, rules conventions, processes and mechanisms by which decisions about risks are taken and implemented.
- It can be both normative and positive, because it analyses and formulates risk management strategies to avoid and/or reduce the human and economic costs caused by disasters or potential disaster.
- For the purpose, the governance should include:
  - Communication (two way): information and discussion
  - Public participation in DM: legal frames and processes

Ionizing radiation – topics and relations

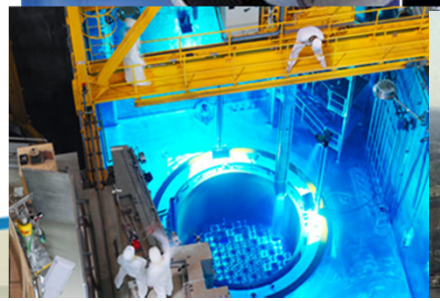
- Policy adoption and governance
  - Nuclear Fuel Cycle – NFC (mining, milling, conversion, fuel fabrication, NPP operation, decommissioning, RW and SF management, transport)
  - Nuclear applications (medicine, industry, research)
  - Natural radiation (radon, NORM)
- Cross cutting:
  - Radiation protection - RP
  - Safety culture - SC
  - EP&R

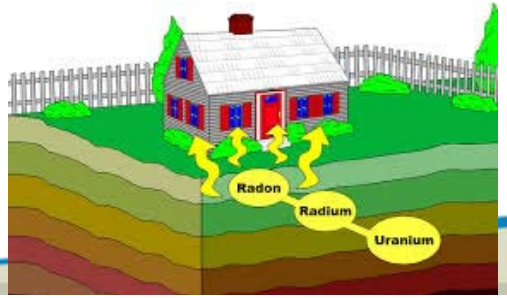


Attitudes and perception

- The attitudes and perceptions are not the same:
  - Nuclear energy – NFC facilities, with special regards to NPPs, RW & SF disposals
  - Applications:
    - industry, research and
    - medical.
  - Natural radiation







Basic observations

- Initiatives on communication on nuclear in general is still too much seen as a one-directional transfer of information from a source to a receiver:
  - The impression is that the what, why and how of communication is mainly inspired by the idea that the general public should be ‘educated’ by ‘explaining them the facts’ and by assisting it to ‘better understand’ nuclear technology.
  - One can observe that the general assumption of many nuclear communicators, scientists and managers is still that this ‘better understanding’ would logically lead to ‘better acceptance’ of nuclear.

Proposals for effective solutions - 1

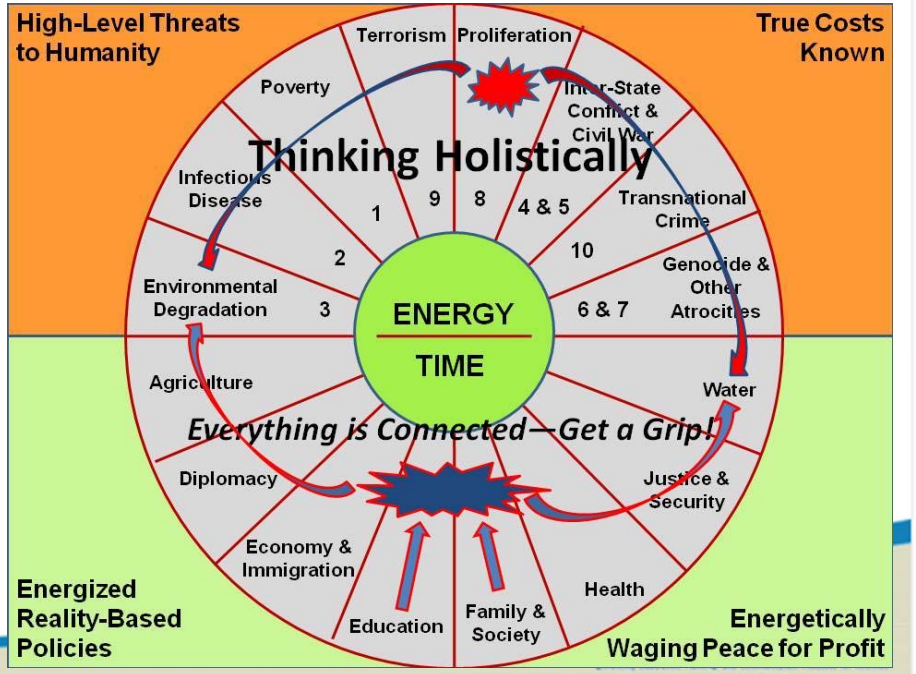
- The communication should aim to embed factual information in reflections to knowledge-related uncertainties and value pluralisms associated with nuclear technology and application:
  - communication activities should become joint reflections instead of one-directional deliveries of information,
  - as there is no ultimate truth in favour or against nuclear, trust related to nuclear policies can be built by the method of knowledge generation and discussion,
  - therefore public participation in the decision making process should be established by the responsible institutions (usually also information sources),

Proposals for effective solutions - 2

  - people will accept a risk simply when they trust that the way it is justified is fair,
  - hiding of information, or even intentionally falsifying the data from information sources (nuclear industry and even responsible governmental institutions) is not supporting the building of trust,
  - in the case of nuclear accident, the problems with communications are even greater: there are much unreliable, incomplete, poor information in the evolving situation.
- In the interest of this, it is not only the general public that should be educated, but also nuclear scientists, environmental activists and policy makers.

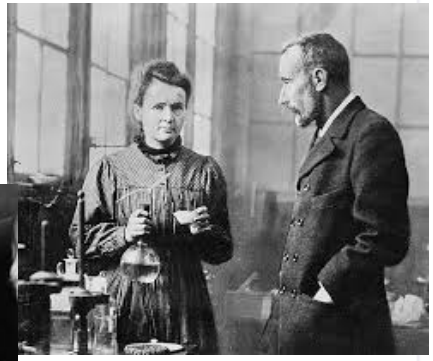
Some examples - Information

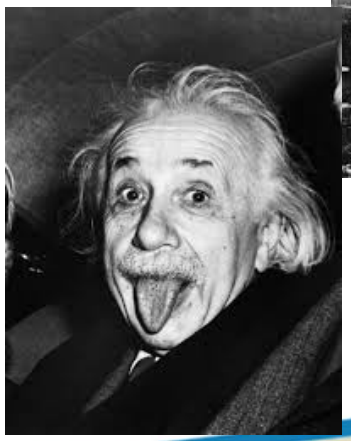
- A public right is to be informed about the ionising radiation, so the information from the information sources should be comprehensive, transparent, available, accessible, on time and should include information about practices, benefits, potential health and environmental risks, in particular:
  - radioactive waste management,
  - safety of NPPs and
  - EP&R.

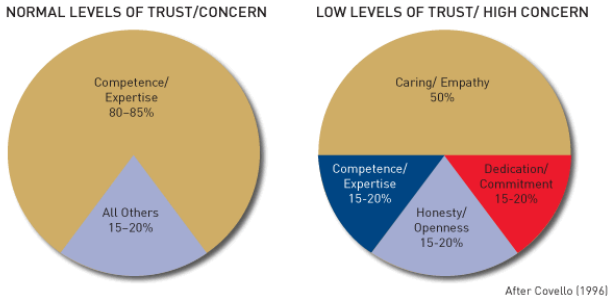


Some examples - Trust

- The information sources should build confidence in their trustfulness over long term in order to establish positive relationship with the public and to assure that their information materials which is many times good, attractive and understandable, is used and can be trusted.
- Elements of trust:
  - Empathy and care 45 %
  - Honesty and openness 20 %
  - Commitment and dedication 20 %
  - Competence and experience 15 %

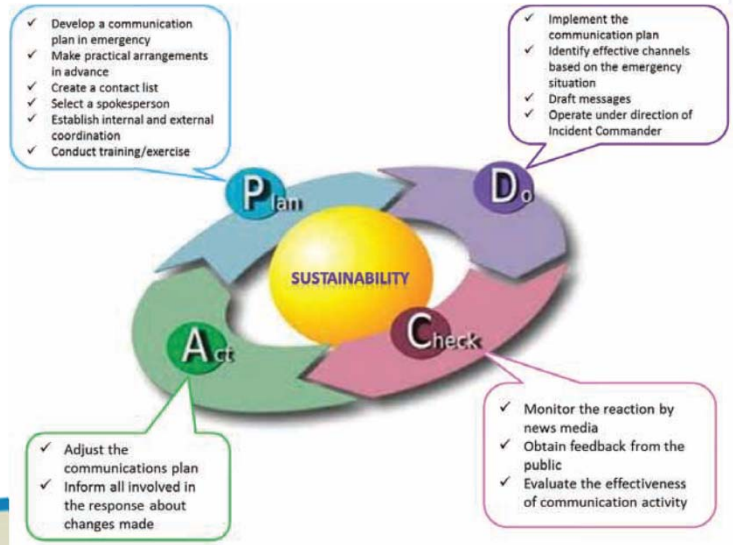






Some examples – Communication

- Responsible institutions would need to recognised the benefits of two way communication with public and not only the disadvantages.
- The communication on IR should take into account all sources of information presents in different media (also social), sometimes also providing unreliable, misleading data and rumours, which people choose and prefer no matter how trustful they objectively are.
- It is advisable to include inside the communication programs also tools to perform measurements of different levels of radioactivity (like food, environment,…) by civil society.



Some examples – Processes

- The public should obtain the information about the formal processes, the content, what are the possibilities for participations, how the decisions are taken.
- One of the issues institutions should think about is how to give the stakeholders possibility to be proactive in their processes.
- Many examples exsists, should be developed for particular societal context – the promises should be kept!



Some examples – EP&R

- Communication of nuclear accident has to be planned in advance as part of the emergency preparedness, but need to be adapted to the eventual situation with provision of all relevant information. Continuous and contextual communication over a longer period is vital.
- Public is perceiving the consequences of nuclear accident (such as Fukushima accident) on average differently than nuclear professionals - they value also other factors when assessing the impacts of the accident not just pure facts (like number of dead people due to radiation), which needs to be recognised.

Some examples – Medicine and natural radioactivity

- Medical uses of IR and natural radioactivity are not perceived as risks for the health by citizens, which could be used as a good tool for comparisons with high risks perceived IR related activities (radioactive waste management and NPP safety).
- Medical applications are used sometimes too often and without traceability of received doses. Need to establish the personal dose passports.

TABLE 3: EFFECTIVE DOSES FOR DIFFERENT RADIOGRAPHIC EXAMINATIONS			
Digital Ceph	0.0011 mSv	T-spine(AP)	0.54 mSv
Conv. Ceph	0.0023 mSv	Abdominal (AP)	0.73 mSv
Digital Pan	0.0095 mSv*	L-spine (AP)	0.78 mSv
Conv. Pan	0.0185 mSv*	L-spine (lateral)	0.84 mSv
Skull (lateral)	0.02 mSv	Head CT scan	1.8 mSv
C-spine(lateral)	0.02 mSv	C-spine CT scan	2.6 mSv
Chest (PA)	0.03 mSv	NM bone scan	3.5 mSv
Skull (AP)	0.04 mSv	NM brain scan	6.5 mSv
C-spine (AP)	0.05 mSv	Abdominal CT scan	7.6 mSv
Chest(lateral)	0.08 mSv	Chest CT scan	7.8 mSv
T-spine(lateral)	0.27 mSv		
*Denotes mean average for range			

Conclusions

- Approaches for better risk governance exist and have been implemented in many different cases.
- One important issue is information availability which improve knowledge on IR and positively impact acceptability of IR practices and applications.
- There is a clear division between medical use perception and nuclear energy production perception.
- The improvement of knowledge is not an easy task: very demanding and depends on many factors (not just the availability of information but also willingness to learn).
- Other issue is communication activities, proactive and design for purpose.
- The most important is building trust – this is very demanding task, where different nuclear institutions should work in parallel (as they are perceived linked in the eyes of public).
- Confidence building - is a continuous mission of all information sources, so it is proposed to build national strategies.

Let’s communicate about ionizing radiation

Thank you for your attention!