

# Ethical guidance, stakeholder involvement and radiation protection culture in the Belgian Society for Radiation Protection

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**Abstract.** The Belgian Association for Radiological Protection BVS-ABR ([www.bvsabr.be](http://www.bvsabr.be)), affiliated to IRPA, has set up guidance for ethical conduct and stakeholder involvement as required by IRPA. This was developed by a working group and submitted to the members for comments with final discussion and approval in the plenary meeting of the society.

Guidance is framed within the strategic objectives of the society and based on IRPA principles and on results of research and field inquiries integrating social research within the trans-disciplinary science of radiation protection. Participatory experiments at local and national level in nuclear waste decision making processes and with particular groups such as patients and workers have generated feedback of experience. Particular attention was also given to the modelling of risk communication as done in RISCOm.

The results of these exercises in generating guidance by a professional society are annexed in the paper while being illustrated by case references for present challenges in radiation protection (nuclear waste forum, round tables).

ALARA and radiation protection culture is discussed proactively with international IRPA representatives preparing IRPA13 in Glasgow, while building a bridge with safety & security culture as met in the field. Some definitions and proposals are put forward.

**KEYWORDS: (IRPA, protection, ethics, stakeholder engagement, culture)**

## INTRODUCTION

The Belgian Association for Radiological Protection, (BVS-ABR) is a professional scientific organisation for radiation protection, affiliated to IRPA. The society has about 400 members. It organises regularly seminars on current issues such as radiation protection culture, medical protection challenges, basic safety standards, reports of and debates at the level of UNSCEAR, and a yearly training session for its members. Typical topics are ALARA in specific sectors or response to contamination incidents. A debate was directly organised on for instance Fukushima.

BVS-ABR operates in a small country with an extended nuclear industry (fuel cycle as well as reactors), nuclear research centres, numerous medical facilities including isotope production and several NORM industries. Nuclear waste management has been developed and projects for surface as well as geological disposal are in stepwise preparation.

The society has an active executive board and different working groups. The Belgian language diversity allows to organise events with societies in neighbouring countries. BVS-ABR actively supports the structuring of a European IRPA network and organises young scientist awards. The association financially supports the European ALARA networking EAN. The society has a website, an electronic quarterly

newsletter and a journal, the Annals of the BVS-ABR, in which mainly contributions on its seminars are published.

Working groups operate on communication, on regulation, on education and training and criteria for expert certification. During the last years particular attention was given to the implementation of IRPA guidance on ethics and stakeholder engagement.

This work resulted in position documents of the society, approved by the general assembly and presented in this paper.

Moreover a proactive initiative was made to prepare ongoing work in IRPA international on ALARA culture for which a definition had been proposed earlier by a Belgian contribution to the EAN network conference in Prague. The brainstorming on Radiation Protection Culture should result in proposals at the IRPA-13 conference in Glasgow in 2012. Bernard LeGuen, European delegate in the IRPA executive board, introduced the subject in December 2010, followed by a discussion considering as well safety as security culture as ALARA culture. This discussion is briefly summarised at the end of this paper and is taken up currently by the working group.

## THE MISSION OF BVS-ABR AS REFERENCE BASE

The mission of BVS-ABR as defined in the statutes of the organisation was used as starting framework for developing the implementation in the Belgian context of the guidance set up by IRPA and approved at the Madrid meeting in 2004 and the Buenos Aires conference of 2008 respectively for Ethical Guidance and Stakeholder Engagement IRPA 2008).

The BVS-ABR as scientific organisation aims to:

1. provide its members with objective and high level information regarding all aspects of radiological protection,
2. contribute to the knowledge of radiological protection among interested citizens and organisations,
3. promote the development of radiological protection by bringing together various scientific disciplines and through international networking,
4. put forward independent opinions on scientific, legal or organisational aspects of radiological protection when the association judges it necessary or on request.

According to this mission, the members of the BVS-ABR take on, as individuals, high-level responsibilities concerning public health and safety. This code will offer them appropriate and useful ethical guidance. Due to this specific context, the following guidance is not formulated in an institutional perspective, as ethical rules for the staff of an institution should be. The guidance is also different from the deontological codes that are elaborated in a professional perspective, like the deontological code for the physicians. It is conceived in a societal perspective and can be seen as an expert's deontology *ensuing from social expectations* regarding competence, neutrality and objectivity.

These principles are intended to aid members of BVS-ABR in maintaining a professional level of ethical conduct related to radiation protection. They are to be regarded as guidelines. Members may use them to determine the propriety of their conduct in all relationships in which they are exercising their professional expertise.

For the second phase on stakeholder engagement not only reference was made to the code of ethics but the second text has been considered as a later annex of the ethical code.

## PROCES OF IMPLEMENTATION

The working group was composed of 6 former presidents and of members from regulatory bodies, research centers, universities and industry, having reacted on a general call for interest. It was directed by one of the authors, Patrick Smeesters, involved since many years in ethical reflections on health and safety related to ionising radiation and chairman of RIHSS, a working party of the art 31 advisory group on radiation protection of the EC on Research Implications for Health and Safety Standards.

External expertise on ethics and philosophy was implemented. A professor in philosophy of the Université Catholique de Louvain (UCL), Bernard Feltz, was invited to join the working group. He studied the ethical dimension of scientific practice (Feltz, 2008). He also contributed in the past in reflections and discussions organised by the Belgian Nuclear Research Centre SCK•CEN within their Program on the Introduction of Societal Aspects in nuclear research, called PISA (Eggermont et al, 2006; Eggermont and Feltz, 2008).

The research experience from this "PISA program" (Eggermont et al, 2004) was actively used as two of its researchers took part in the working group (Eric Laes, ir and PhD on sustainable development in nuclear and Gaston Meskens, ir and science philosopher). In particular the results of the ethical project within this program which had helped to develop an ethical charter for the researchers working at this nuclear research centre showed valuable. The late general manager of SCK-CEN, Paul Govaerts, strongly involved in radiation protection reflections on ethics (P.Govaerts, 2008) had also used part of this research work to establish a code of ethics for the art 31 EC advisory group (EU, 2001) together with Annie Sugier of IRSN which is still of application.

Different members of the working group had been involved in the Belgian Health Council to handle conflict of interests in Health policy advisory work.

For the second phase of activity on stakeholder engagement a professional in public relations and communication from the Belgian Federal Agency for Nuclear Control (FANC) joined the group: Karina De Beule.

Lessons of local participatory experiments on nuclear waste disposal in Belgium and of the European network COWAM ([www.cowam.com](http://www.cowam.com)) were considered as well.. PISA results from risk perception studies and communication research, in particular applying the RISCUM model for transparency of Karita Research<sup>1</sup>, were given attention in this phase.

Moreover input was given from the Belgian nuclear regulatory agency (FANC), which had set up experiments to involve patient groups in round table discussions on problems and new policy proposals in medical radiation protection.

After a number of editing meetings, the drafts were presented and discussed with the executive board of BVS-ABR, leading to some amendments. Finally the proposals were submitted for written remarks to all members

The result of the both processes was discussed in the executive board, slightly amended and then submitted to the members of the Association for comments. These were taken into account in the final approval by the general assemblies of respectively 2009 and 2010 (BVS\_ABR 2009 and 2010).

## CODE OF ETHICS OF BVS-ABR

The IRPA guidance was almost completely followed up by BVS-ABR, but additional elements were added emerging from the experience and reflections of the members and from the input elements discussed above.

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<sup>1</sup> [http://www.karita.se/our\\_approach/riscom\\_model.php](http://www.karita.se/our_approach/riscom_model.php)

The final BVS-ABR code of ethics specifies that:

1. Members shall give priority to the protection of public health, including for future generations, to the safety, to the protection of the environment and to the development of the best available operational radiation protection. They may express views on political, economical, financial and liability matters but the health and safety considerations must always be clearly identifiable in their opinions, proposals, guidance and statements.
2. Members shall exercise their professional skill and judgment to the best of their ability and carry out their responsibilities with integrity.
3. Members shall not allow conflict of interest, management pressures or possible self-interest to compromise their professional judgment and advice, in particular when public welfare and safety are at stake. Members are invited to declare potential conflicts of interest and could, as appropriate, notify possible management pressures or actions in favour of the interests of their company, institution or professional organization.
4. Members shall take all reasonable steps to ensure that persons carrying out work done under their supervision or direction are competent, and not under undue pressure from workload or other causes.
5. Members shall not undertake any employment, function or consultation that is contrary to the public welfare or to the law.
6. Members shall not undertake professional duties in activities beyond their competence and/or qualifications.
7. Members shall strive for the maximum possible transparency towards society. However, where necessary, they shall protect the confidentiality of information obtained during the course of their professional duties, provided that such protection is not contrary to the public welfare or to the law.
8. Members shall ensure that relations with interested parties, other professionals and the general public are based on, and reflect, the highest standards of integrity, professionalism and fairness. They will commit themselves to communicate in a form unequivocal and appropriate to the target audience with the aim of facilitating correct interpretation. In particular, they shall make clear if there are uncertainties, value judgments or ethical issues, what these are exactly and what is at stake.
9. Members should strive to improve, and regularly assess in an appropriate way, their competence (professional knowledge, skills and attitudes). With this aim in view, they shall use adequate means to take into account all the available scientific information and to avoid inappropriate selection of the sources.
10. Professional reports, statements, publications or advice produced by members should be based on sound radiation protection principles and science, be accurate to the best of their knowledge, specifying uncertainty, and be appropriately attributed.
11. Members should, whenever practicable and appropriate, correct misleading, sensational and unwarranted statements by others concerning radiation and radiation protection.

12. Members should take advantage of opportunities to increase public understanding of radiation protection and of the aims and objectives of the BVS-ABR.

## GUIDING PRINCIPLES FOR RADIATION PROTECTION PROFESSIONALS ON STAKEHOLDER ENGAGEMENT

According to its mission, the members of the BVS-ABR take on, as individuals, responsibilities concerning public health and safety. The document complements the code of ethics and offers them useful guidance regarding stakeholders engagement, stakeholders meaning all relevant individual and institutional actors that could be affected by a decision or have a substantial impact on the decision making process. These Guiding Principles are intended to aid members of the BVS-ABR in promoting the participation of all relevant parties in the process of reaching decisions involving radiological protection which may impact on the well being and quality of life of workers and members of the public, and on the environment. In promoting this approach, radiological protection professionals will aid to develop trust and credibility throughout the decision making process in order to improve the sustainability of any final decisions.

As well the BVS-ABR as members of the BVS-ABR should endeavour to:

1. *Identify opportunities for engagement and ensure the level of engagement is proportionate to the nature of the radiation protection issues at stake and their context, including the associated scientific uncertainties and the implicit value judgements which could require the application of a precautionary approach.*

The primary purpose of engagement is to contribute to decision making on radiological protection measures so that:

- the measures are more widely understood and respected;
- the measures are optimal and work in practice across a broad range of foreseeable situations;
- the measures, if needed and coherent, can be tailored to the specific context (social, economic, environmental etc);
- the measures will continue to be effective and have credibility for some reasonable period of time.

Engagement will add real value to the decision-aiding process and its outcome but its extent and nature need to be proportionate to the radiation protection issues and concerns at stake. This includes being realistic about the co-operation that can be achieved and about the resources and time that might need to be expended on interacting with the more challenging stakeholders. The more complex the radiological protection problem and the more serious the risk, or even the perception of the risk, the greater is the justifiable investment in engagement.

In identifying opportunities for engagement it is important to be aware of changing societal expectations. Changes such as increasing awareness about the risks associated with some activities, concerns over environmental deterioration or loss of public confidence in some organisations are all likely to broaden or shift the range of stakeholders that need to be engaged.

2. *Initiate the process as early as possible, in principle already during the justification phase for a new practice (allowing for consideration of alternatives), and develop a sustainable implementation plan.*

Feed-back experience has shown that involving stakeholders, as early as possible, in decision-aiding processes will generally improve the mutual understanding of the situation, and therefore may avoid reaching a deadlock at a later stage. Although it may increase the duration of the process, involving

stakeholders could facilitate better cooperation between all participants and lead to more acceptable and robust decisions.

At the early stage of the decision-aiding process, involving stakeholders will give the opportunity to develop together a sustainable plan in terms of scope, objectives, timetable and milestones, deliverables, knowledge production, financial support etc.

In order to improve the sustainability of the process, a reasonable approach, shared by all participants, should be adopted when defining this plan. The process has to be proportionate to the realities of the situation, and takes into account the stakeholders' time and opportunity to participate according to their particular circumstances. Finally, it has to be kept in mind that it will be necessary to revise and adapt the plan as the situation evolves.

3. *Enable an open, inclusive and transparent stakeholder engagement process.*

Openness, inclusiveness and transparency, which are interrelated, should constitute the essence of a successful stakeholder engagement process and should always be present. They are the basis for understanding, creating confidence in the process and promoting it. They may be supported by collectively agreed rules and mechanisms for their assessment.

The process should include all the relevant stakeholders, extending representation beyond the obvious candidates to all those perceived to have a share in or an impact associated with the risks of the endeavour under consideration. Different expertise and sensibilities will generally enrich the process and give more validity to the results.

All the issues entering into the decision should be considered, with openness, to identify, select and discuss any associated uncertainties.

During the process, it is important to share the information needed to build a collective understanding of the problem, starting in particular with risk communication. The flow of information should be quick, concise, clear to all and honest (in terms of accuracy, uncertainty, coherency of the argumentation, etc.). By default, information should be accessible to all, but recognising that some information truly requires protection. Rather than withholding information on grounds of personal or national security or confidentiality, it is preferable, when possible, to have it presented in a different way, rather than agree its omission.

It would be helpful to build, grow, review and maintain a common knowledge pool, identifying a responsible 'gatekeeper' or 'custodian' for the knowledge pool who is trusted and respected by all parties.

4. *Seek out and involve relevant stakeholders and experts, without exclusion, in a transdisciplinary approach, aiming at obtaining a full spectrum of views.*

A key part of decision-aiding is to be very clear over what is the issue in question, the scope of the problem and the factors that may be relevant. Inherent to this process is the need to identify those who can and should contribute; in short, ensuring that an appropriate diverse range of views are included. The radiological protection professional can help to promote this approach, as radiological protection is, by its nature, a trans-disciplinary scientific approach.

There is a need to reach out to other disciplines and stakeholders, making them aware of the issues under consideration. Without this first step relevant factors may not come to light, undermining the validity and sustainability of any decisions. For example experts in one discipline may not be aware of knock on effects in other areas. Similarly if the net of consultation has been set wide enough to elicit "no comment" replies, this is useful information to support the bounding of the issue. Bringing together all

the diverse views may be an iterative process, particularly for large scale decision making that may involve socio-economic factors. Thus it should be accepted that the initial set of stakeholders may not be the final set. The process can be a dynamic one with stakeholders joining, but also leaving, throughout. There is a need to have respect for information and knowledge gained through individuals' experience as well as that from scientific and technical experts. Some issues, particularly high profile ones, bring with them stakeholders with significantly different points of views. It is important that there is engagement with, rather than avoidance of, these different groups. Inevitably there will be conflicting views and information. How these are evaluated within the decision-aiding process is a separate but important element (see principles 3 and 5), however it is clear that obtaining a full spectrum of views is important.

5. *Ensure that the roles and responsibilities of all participants, and the rules for cooperation are clearly defined.*

A clear definition, at the beginning of the process, of the roles and responsibilities of the different categories of participants (for example, experts, authorities, sponsors, lay persons, decision maker versus decision taker, ...), is important to obtain a shared understanding of what is expected from each and the extent of the influence they may have. In addition it will be helpful to set out clearly the rules under which cooperation can be achieved. A clear delineation of the consultation phase and the decision phase, as well as a clear understanding of where individuals' responsibilities and accountabilities begin and end is essential to clarify the conditions of the engagement.

Potential conflicts of interest should be declared by all involved parties. It may be helpful for radiological protection professionals to make reference to their own Code of Ethics. One of the objectives of stakeholder engagement in a decision-aiding process is to promote dialogue and mutual understanding, but not necessarily to reach a consensus on all aspects of the situation. It is thus important to preserve the autonomy of the different categories of participants concerning their points of view or their evaluation of the situation. This delineation of roles is a key element to create the conditions for the participants to contribute to the improvement of the evaluation of the situation and the radiation protection options. Beyond clarifying the roles and responsibilities, sharing the rules of cooperation between the participants will also favour the success of the process.

6. *Collectively develop objectives for the stakeholder engagement process, based on a shared understanding of issues and boundaries.*

The need for a collective approach to developing process objectives is implied by application of the other principles. Principle 2 talks of the development of a sustainable plan, Principle 4 of identifying the responsibility of contributors and of scoping problems and factors, and Principle 5 of the need to cooperate.

Lack of collectivism disenfranchises stakeholders, whereas working alongside each other allows a tight group to emerge which is then capable of explicitly defining the process objectives. The group is then in a position to validate these against its shared understanding of issues and boundaries, as well as to collectively agree on the scope or remit for the work.

Once the objectives are identified in principle then the discussions can extend to ensuring that they are refined in the light of the resources available. The realism brought about by this dialogue invariably leads to more harmonious working by avoiding feelings of frustration with the process that might be perceived as more imposed than negotiated.

7. *Develop a culture which values a shared language and understanding, and favours collective learning.*

In order for all stakeholders to fully appreciate the factors entering into the decision they must be able to understand what is being said. This understanding can be seriously compromised by the use of jargon and technical language as well as acronyms and abbreviations. The radiological protection professional,

as well as experts in other disciplines, should be motivated to develop a "common language" sufficiently precise scientifically not to offend the various experts but also sufficiently rooted in common, every-day experience to be meaningful to all those involved. Part of this approach is likely to involve formal and informal training of stakeholders leading to the creation of a shared knowledge base incorporating those technical concepts essential to a full understanding of the issues.

8. *Respect and value the expression of different expertises, perspectives, sensibilities and value judgements.*

It is important that each participant in the process recognises their own and each other's uniqueness, and, because of this, is aware that other participants have different backgrounds and sensibilities and, therefore, may view issues from different perspectives and based on different value judgements.

Participants should be aware that some may be experts in their own field, and the integration of their views is an important step in the process, whilst accepting challenges to expert opinion. Evaluation of uncertainties in the assessments where expert opinion is divided should be undertaken in an open, accessible and clear manner. Experts should recognise the limits of their mandate and of their field of knowledge.

Respect for one another's view encourages a wide range of thoughts and ideas which can be evaluated as a whole during the engagement process. This acceptance of diverse perspectives, thinking and values has the potential to enrich the process, providing that the process is controlled such that any entrenched views and ideologies, if present, are managed by agreed mechanisms. In a similar way, seemingly radical or novel opinions should not be dismissed out of hand, but evaluated with respect in the same way as other ideas. It is important that each individual can see their own contribution in the record of the meetings.

Participants should be aware that rational thought, respect and acceptance of opinions will tend to be challenged or obscured when discussing issues which are emotive, or issues which have attracted significant media or political interest. Efforts should be made if this happens to restore the desirable climate of mutual respect and cooperation.

9. *Ensure a regular feedback mechanism is in place to inform and improve current and future stakeholder engagement processes.*

When engaging with stakeholders an opportunity should be provided for both the stakeholders and those responsible for the process to give feedback on the approaches and tools used and on the outcomes. This serves to inform and improve ongoing processes as well as influencing how future processes should be conducted. The following types of criteria might be included in the evaluation: appropriateness of the terms and timing of engagement, the quality and appropriateness of the information provided; comprehensiveness of the issues that were addressed; inclusivity in terms of the number and diversity of stakeholders involved and the nature of that engagement; practicability and feasibility of the eventual outcomes.

Stakeholder engagement commonly involves a series of meetings, discussions and other types of face-to-face encounters. These provide continuous learning opportunities to be discussed by the group at the end of each meeting, whereby agreements on improvements in the management of subsequent meetings are agreed. It should be recognised that implementation of changes may require additional resources and so any improvements agreed upon must be realistic and achievable.

When a stakeholder engagement process comes to an end, it is important that those responsible for the process make the results known to all those who participated. If these results do not reflect the

recommendations or findings from the stakeholders, those responsible must offer an explanation to the stakeholders for any deviation from what was agreed. In this way, the feedback of results and decisions will help to maintain confidence in the process.

Tangible improvements in stakeholder engagement resulting from the establishment of a constructive feedback mechanism will contribute to a more sustainable process, which could serve as a role model for future engagement. Dissemination of the lessons learned, achievements and how challenges can be met should be carried out as widely as possible among the radiological protection community.

10. *Apply the BVS-ABR Code of Ethics in their actions within these processes to the best of their knowledge*

## ALARA-SECURITY-SAFETY CULTURE

A major issue of optimisation of radiation protection in daily practice at the level of the working people is that radiation protection is only one aspect to consider. Within the nuclear industry, nuclear safety (reactor safety, criticality management) are vital as well. The growing concern for potential terrorist acts after 9/11 has led to an enhancement of security measures and attitudes expected. This has created a number of new ideas about storing radiological and nuclear materials that are not always compatible with existing practices or infrastructures. This is valid in routine circumstances, but especially poses problems in case of accidents. As such, the management of nuclear safety, radiological protection and security within an evolving world such as a nuclear research centre or within a nuclear facility in general sometimes looks like implementing the quadrature of the circle. International guidance exists, but is not always easily converted into an adequate policy comprehensible to all levels in a plant, from management to the work floor.

The BVS-ABR has been paying interest to the cultural dimension of safety management, and as such also spent some debate and a scientific meeting on the issues of the implementation of a safety culture, an ALARA culture and an adequate security culture within a single organisation.

Some examples to illustrate practical difficulties:

1. infrastructure related problems: from a security point of view, fuels are better stored in the heart of a protected zone, while in case of criticality, fire... a more peripheral location is appropriate.
2. Safety related problems: Protection infrastructure may lead to difficulties of evacuation in case of emergencies; access limitations may be a burden in the management of safety interventions, maintenance...
3. Administrative contradictions: inventories of fuel storages and high active sealed sources are a cornerstone of inspections and verifications; yet, this information is a treasure for terrorists aiming at actions to obtain special materials.
4. Dose management: measures taken to secure sources may lead to a dose increase (e.g. labelling of old sources).

However, the main difficulty is related to the '*cultural*' aspect. There are synergies between safety culture, "ALARA" culture and security culture. An individual aspect of desirable behaviour (e.g. questioning attitude), complemented with an organisational dimension (e.g. training, raising awareness) are obviously common. The objective is also in line: to avoid reduction of well-being of people, to protect the environment, to prevent damage to facilities.

The main difficulties arise however because of the fundamental differences being present. There are aspects of trust and distrust, supervision and coaching versus control and verification; acceptability of measures implemented; having control or being victim of global evolutions.

As a conclusion of the debate, it has been concluded that it is indispensable that some people, both at the level of regulators and operators dispose of a helicopter view on this subject, in order to achieve

optimal solutions understandable to the workforce and taking into account all aspects: safety, security and dose optimisation

## CONCLUSION

The Belgian Association for Radiological Protection has now set up guidance for ethical conduct and stakeholder involvement in full accordance with IRPA requirements.

We have the strong feeling that we have currently realized an exemplary process, in line with the most recent ideas on this field. Both documents of the BVS/ABR rely on a large experience feedback and can be used as a reference by the members of our organization. Both documents, specially the guiding principles on stakeholder engagement, can achieve a broader scope than only the radiological aspects and help to solve a lot of societal topics.

In accordance with to-day concern of radiological protection and nuclear safety community, we are now trying to take into account the nuclear security challenge. The state of our reflection shows that some work has already been done but some contradictions remain unsolved (close to the quadrature of the circle). We are confident that a good compromise can be found.

It is obvious for us that synergy between safety-, ALARA- and security culture will play a major role in the coming year in day to day life of the organizations (nuclear power stations, research centers, hospitals and so on) using ionizing radiation.

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