

# Experiences in implementing NORM-legislation

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## This contribution

- presents personal opinions derived from several projects.
- tries to summarise some experience gathered from international projects I was involved in but also from dealing with the German RPO and different other regulatory systems in other European countries.
- shall hit a discussion about chances and benefits of networking in legislation development but also in implementation and execution of RP regulations in Europe.



	Population in Mio.
Romania	21,6
Bulgaria	7,6
Albania	3,2
Bosnia-Herzegowina	4,5
Croatia	4,5
Kosovo	2,1
Macedonia	2,2
Montenegro	0,7
Serbia	7,3

In 2008/09 I was involved in European projects dealing with investigation of NORM in South-East European countries and intended to support the implementation of Title VII EU-BSS into national legislations.

Project partners were:

- Wisutec Chemnitz
- IAF Dresden
- (Partly) BfS Berlin

## My German experience

- Germany is (believed to be) a rich European country
- We have implemented the Title VII in the RP regulations in 2001.
- There were several studies and investigations regarding NORM/TENORM in German industry lasting several years.
- There was an extended discussion among the different parties involved and significant influence of industrial interests.
- As a result a regulation was obtained which delegates a lot of responsibility to the undertakings.
- Despite very weak regulations, the concept of self-control used as a regulatory approach in the RPO does not really run smoothly.
- 8 years after passing the legislation procedure, many companies in Germany have not actively adopted some (essential) parts of our regulations.

## My starting point

- NORM legislation based on Title VII of the Directive 96/29/EURATOM (EU-BSS) represents a new philosophy in RP.
- In the focus of this philosophy is the exposure of workers and persons of the public from natural radiation sources, which are not used for their radioactive properties but generally are amenable to control.
- The RP is based on
  - new terms (work activities, natural radiation sources, materials, ...),
  - new goals (limiting exposures for members of the public to a level of 1 mSv/a instead of 10  $\mu$ Sv/a), and
  - new regulatory approaches (positive list, no justification, self-control of undertakings, ...)

and has to develop a system, which obliges undertakings to establish measures for the protection of workers and if necessary members of the public.

## My starting point

- RP is established in all countries as RP of practices.
- In all countries exists a well established regulatory system with many detailed regulations (which partly may cover natural radiation sources).
- Authorities (and permit holders) have long experience in this kind of RP (there is a RP culture)
- Situations, which may result in significant exposures from natural radiation sources (exceeding 6 mSv/a) need a regulatory control, which is analogue to such applied for practices.
- Situations, where activity concentrations in materials exceed exemption levels (for practices) but do not result in significant exposures don't need a licensing regime.

Any NORM legislation has to be fitted into the existing RP legislation. Therefore, a first and very important step of any implementation is the analysis of the existing regulations.



Any development of new regulations requires education of the involved authorities regarding these new approaches in RP.

→ **“They” have to learn from us** about the new RP philosophy, our experience and our points of view!

But it is also required to understand the established RP-culture in the beneficiary countries.

→ **We have to learn from the beneficiaries** about the national traditions in RP, about their experience and their points of view!

Questions	(Possible) answers	Remarks
What is the purpose of regulations?	Protection of workers & members of the public (& environment)	Usually regulated in “Fundamental Norms”
What has to be regulated?	Special sectors of non-nuclear industry: work activities & residues (“Positive List(s)” PL)	<p>Needed as a basis for legal access into private companies. May be used</p> <ul style="list-style-type: none"> <li>• Definitive / narrow</li> <li>• Indicative / broad</li> </ul> <p>Should be supplemented by an opening clause.</p>
Who shall be responsible for what?	<p>Employer: for all (?) duties</p> <p>Worker: has to tolerate (Approved RP expert / officer)</p> <p>Authority / Inspector: licensing</p>	<p>Must the employer become “Holder of an approval”? - or can he/she otherwise obliged for duties?</p> <p>Are independent experts useful or are permanently attendant RP officers needed?</p>
How shall the graded approach be implemented?	“Top down” or “bottom up”	<p><b>PL defines all work activities included in regulation (e.g. Residues)</b></p> <p><b>Top down:</b> Employer has to make sure, that work is in compliance with RP. He has to provide evidence, if a lower level of RP is sufficient. Authority confirms by approval. (*)</p> <p><b>Bottom up:</b> Employer has to demonstrate, what level of exposure occurs / may occur. Authority decides what protection is required (notification, authorisation). (*)</p> <p>(*) Special case: Release of residues from regulatory control.</p>
What is needed for regulatory execution?	Levels for assessment of measuring results; Sampling guidelines, dose calculation models (default parameters; ....)	Exemption – clearance levels: what are representative values of bulk amounts? (average, maximum, median values?)

## What has to be regulated (“Positive List”)

- Article 40 BSS requires implementation of natural radiation sources to the extent the member states declared the exposure to need regulatory attention.
  - PL defines the sectors, which are included into the regulation.
  - International PL are too general. They do not give sufficient indications regarding the relevant work activities or residues
  - PL of different European countries differ not only in the sectors they include as relevant for national perspective.
  - “Broad approach” preferred.
- a) Sludge, scales, incrustations and other materials contaminated with them such as sediments and soils from the **precipitation or sorption of natural radionuclides from water**, among them from
    - a. the oil and gas industry,
    - b. the production, processing, storage and distribution of water in regions with enhanced natural radioactive background,
    - c. radon baths and spas, geothermal plants and spas,
    - d. and treatment and discharge of mine effluents,
  - b) Sludge, sands, precipitates and incrustations **from the chemical or hydrometallurgical processing** of bauxite, ilmenite, rutile, phosphate ores, rare earth ores or other raw materials with enhanced natural radioactivity

- Existing exemption values (of the EU BSS) are given as activity concentration and total activity.
- Activity concentrations values are useful and can be applied for NORM/TENORM too.  
/advantage: decay chains in the secular equilibrium are covered by the regulations)
- Shall we adopt the future levels of 1 Bq/g –despite the fact that there are questions regarding their compliance with 1 mSv ?
- Total activity limits of the BSS are not feasible for NORM.
- Do we need such limits? How can the limits modified in a reasonable extend?
- Clearance of NORM-wastes (“Residues”) is a pivotal element of any NORM-regulation. It defines the interface between RP and waste management.
- But: Waste management is poorly developed in some of the beneficiary countries.

## Conclusion

- Execution of any new regulation will result in new questions and new problems.
  - Execution of new regulations requires tools, guidelines and rules.
  - We may be interested in a successfully execution of regulations we assisted to develop - we will not be able to support all beneficiaries and answer all their questions.
  - Networking can help to solve simple problems fast and efficient
  - Networking can contribute to the further education needed in the East-European countries – but also needed in Central or Western Europe.
  - Networking offers all of us chances to improve the RP – and harmonize it in reality in Europe.
- But
- Networking is an easy spoken word – and a complicated task, which needs more than good will.