

ENETRAP III TOOL FOR CAPACITY BUILDING IN RADIATION PROTECTION.

AUTHORS: M MARCO¹, C LLORENTE¹, T CLARIJS², M COECK², M SCHOUWENBURG³, H VAN ELSÄCKER-DEGENAAR⁴, P LIVOLSI⁵.

¹ CIEMAT, Madrid, Spain

² Belgian Nuclear Research Centre; SCK•CEN, Belgium

³ TUDelft, Delft University; The Netherlands

⁴ Nuclear Research and consultancy Group; NRG, Petten; The Netherlands

⁵ Commissariat à l'énergie atomique et aux énergies alternatives - CEA Grenoble, France

ABSTRACT

In the FP7 ENETRAP III (nr. 605159 Fission-2012-5.1.1), thirteen European institutions are working over seven working packages with a common objective: to enhance the education and training in radiation protection at European and national level, taking into account the needs in different sectors such as nuclear industry, healthcare, research centres or governmental institutions.

This presentation focuses on the achievements of Work Package 5. WP5 has designed a Capacity Building (CB) tool that encompasses a big amount of information around 3 target audiences, namely the professionals in radiation protection, the people in training and the RP community. The CB tool serves as a unique source of information on education and training in radiation protection, such as training references, professional workshops and an Education and Training (E&T) database. Next to specific information about E&T events, also general information about European projects and networks is available, as well as relevant legislation and the related qualification framework. With the development of this CB tool, supported by the EUTERP foundation, WP5 aims to contribute in transferring knowledge and developing skills and competences at individual and collective level in order to protect workers, the public and the environment from the potential risks of ionizing radiation today and in the future.

Collaboration with the IAEA was set up and the actions taken consolidates with the relevant actions of the NKM Group of IAEA. This allows information about European radiation protection E&T initiatives to become known and consulted at global level.

1. Introduction

The ENETRAP project series were founded in the sixth and the seventh European Framework Programs, with the aim of maintaining a high level competence in radiation protection (RP). The ENETRAP III project started in June 2014 and ends in May 2018. There are thirteen European institutions working over seven working packages and the main objective is to enhance the education and training in radiation protection, at European and national level, taking into account the different sectors such as industrial, medical, research or nuclear field.

The ENETRAP project was created with the aim of assuring the continued development of suitable well trained personnel and an adequate knowledge management (KM) to guarantee future safe use of ionizing radiation (IR) as well as the development of new technologies in a safe way, in line with EU policies on Education & Capacity Building. Innovating and modernizing education and training are key priorities in several initiatives of the Europe 2020 strategy, which aims to improve Member States capabilities by providing hands-on RP training using different tools.

All ENETRAP III activities are carried out in work packages (WP), described as coordination activities, except WP1 which is management activity, with one of the Consortium partners taking the lead and with collaboration from appropriate partners of the Consortium and external advisors. One of the most important results of the ENETRAP III project is the development of a tool for CB and transfer of know-how in RP (WP5) in order to contribute to the main objective of ENETRAP. The Capacity Building (CB) tool developed encompasses a big amount of information around three target audiences, namely the professionals in radiation protection, the people in training and the RP community.

The CB tool serves as a unique source of information on education and training in radiation protection, such as training references, professional workshops and one of the most important resources for the radiation protection community: an E&T database focussed on the radiation protection expert, the radiation protection officer and the exposed workers. Next to specific information about E&T events, also general information about European projects and networks is available, as well as relevant legislation and the related qualification framework. With the development of this CB tool, supported by the EUTERP foundation, WP5 aims to contribute in transferring knowledge and developing skills and competencies at individual and collective level in order to protect workers, the public and the environment from the potential risks of ionizing radiation today and in the future. This tool is also offered to all the European projects and Platforms to present all opportunities in radiation protection in order to build a common CB strategy based on a consensus on common needs, vision and instruments related to:

- **research: knowledge creation**
- **innovation: technological applications**
- **education and training: knowledge transfer and competence building**

This paper aims to present and share the experience of establishing platforms and networks in RP items in the context of the EU framework as well as their achievement and challenges for future development of a RP culture. The importance of networking is regarded as a tool for promoting E&T in radiation protection. In this context, the aim of this WP5 is to contribute and to improve the EUTERP portal. This includes information on European and national regulations and legislation, recognition procedures, training providers, courses, assessment tools, useful contacts, links to relevant organisations in

the field, etc.

2. Materials and Methods

The RP E&T activities are embedded in the European legal framework through the EURATOM Basic Safety Standards (BSS) [1] published on January of 2014 where the new definitions for the Radiation Protection Expert (RPE), Radiation Protection Officer (RPO) and Medical Physics Expert (MPE) are used. These definitions are the basis for the transposition of the legislation in the European countries and enable a harmonization of the RP actors across the European Union.

For the purpose of ENETRAP III project, capacity building is understood as a strategy, based on a consensus on common needs, the vision and the means for transferring knowledge and developing skills and competences, both individually and collectively, in Radiation Protection matters to protect workers, the public and the environment from the potential risks of ionising radiation today and in the future. Capacity building considers different aspects to produce the expected change in the RP community: education & training, knowledge management, knowledge networks and human resource mobility.

The main objective of WP5 deals with the dissemination of the ENETRAP and ENETRAP II&III projects activities and results through a website.

The specific objectives are to improve the EUTERP CB portal in order to:

- provide an electronic platform where all relevant information about E&T in radiation protection can be found
- increase awareness and visibility of existing E&T resources on RP, thereby also providing a better understanding on where and which education and training actions are currently missing;
- develop an **E&T database** containing information about E&T events and providers specific designed to RPE, RPO and workers
- enable access to learning materials and useful information around E&T in radiation protection, providing support to E&T providers and enabling them to improve the quality and increase the availability of training courses;
- combine all relevant available information regarding E&T in RP, currently spread over different carriers, and offer them to the stakeholders in one coherent way.

These specific objectives have been implemented at the EUTERP portal as a management system in radiation protection. The key challenge for this tool is to make sure that the full potential of digital technologies is used for learning. And at the same time preserve the results from the ENETRAP I-II-III projects and bring together the information that is currently spread over several websites and other carriers (databases, CDROMs, papers, documents, etc.), including the promotion of the EUTERP community.

The Working Package 5 (WP5) was in charge of developing these objectives to improve the EUTERP website to become a capacity building tool and transfer of know-how in RP. This movement will increase the efficiency of the RP initiatives and will provide access to a vast amount of knowledge and thereby opening the door for new opportunities.

In order to design the structure of the Capacity Building tool, several analyses were done. This included an overview of the ENETRAP projects results (including the expected results of ENETRAP III) and an analysis of the structure of different and well recognized

web portals with a capacity building strategy in different activity fields.

3. Results and Discussion

One of the most important results of the ENETRAP III project is the development of a tool for Capacity Building (CB) and transfer of know-how in Radiation Protection (WP5) in order to contribute the main objective of ENETRAP: to maintain a high level of competence in RP, assuring the continued development of suitable well trained personnel and adequate knowledge management.

CB considers different aspects to produce the expected change in the RP community: education & training, knowledge management, knowledge networks and human resource mobility [2, 3].

Education and training (E&T): is the critical element to create capacities and prevent the decline in expertise and to meet the future demands. This is the main pillar of ENETRAP-projects.

Knowledge management: deals with the process of creation, organization, storage, preservation, transference and utilization of knowledge.

Knowledge networks: are related with the social interaction between the actors involved in the RP Knowledge (experts, regulators, E&T providers, students, young professionals, senior professionals, other stakeholders,..) in order to have communication, ask questions, share ideas, participate in constructive debates to have better understanding on where and which education and training actions are currently missing. One of the main aspects is to offer a coherent overview to the research EU projects and platforms related to RP.

Human resource mobility: easiness of the exchange of workers across the national borders, developing a common high-level safety & RP culture, supported by the EU training policy. The instruments for borderless mobility are the lifelong learning strategy and the mutual recognition of the RPE status between Member States.

As we have mentioned before, this approach is in line with the Europe 2020 strategy of the European Commission [4]. This strategy focussed on education and training, can be summarized as follows:

- Needs analysis (results of the training, knowledge, skills and competences ...)
- The convergence towards a common vision
- The development of common instruments to meet the above needs and vision (EQFs, ECVET, and continuous professional development.)
- Lifelong learning and mobility without borders

The Capacity Building Tool

To make efficient use of resources and to reach an optimal result, assuring the continuity in time, ENETRAP III collaborates with the EUTERP Foundation that already had an operational website in E&T in RP. This website served as a basis for the electronic

platform to become a knowledge and a document management system. This portal also increase the transparency in capacity building on RP, facilitate the access to available E&T material and foreseen course events, and improve the coordination between the different institutions involved in capacity building. The aims of the EUTERP foundation are in line with the objectives of the CB tool. The use of this portal as basis provides the advantages of a solid community to support the CB tool.

Taking in consideration that CB requires influencing multiple entry points to produce the expected change in the RP community (education & training, knowledge management, knowledge networks and human resource mobility), the portal structure has organized the information around three target audiences, namely the professionals in radiation protection, the people in training and the RP community. The **education and training centre** is designed to cover all the information related to the students at all stages and young professionals in training (E&T). This block includes different utilities as an “E&T Database”, “Resources for educators (TTT)”, “Training guides and manuals” and a “Library”. The CB tool serves as a unique source of information on education and training in radiation protection, such as training references, professional workshops.

The most important result of WP5 is the E&T database and the overview of valuable information that is spread in different places forming a multidimensional system of knowledge management in RP.

What can you find on EUTERP database?

The EUTERP database is the place to search when you are looking for:

- (Training) Courses
- Academic Education
- Internships, PhD and Postdoc opportunities
- On-the-job training
- Job opportunities
- Workshops, conferences, symposia
- Organizations

All in the field of **Radiation Protection** in Europe.

The development of the database is still ongoing but is close to be finished. The “E&T database”, contains information about E&T events, opportunities and providers. This application includes the information organized by

- the nature of event: E&T courses, Degrees, PhD topics and Masters;
- the target audience: E&T: RPE, RPO, Exposed Workers
- the kind of the event: initial, retraining and specialization in any type of areas of the radiation protection.

On-the-Job-Training (OJT) is included, as well as an overview of institutes hosting on-the-job-training possibilities, conforming to the agreed standard identified in the project.

This tool can be available at the EUTERP Foundation CB Platform:

<http://www.euterp.eu/>

Further this EU database is being connected with the IAEA new development database “Integrated database for nuclear education and training” in order to promote the CB in RP not only at the European context, but at the international level minimizing the efforts and being part of the pan-database devoted to the specialized E&T.

One of the key factors ensuring qualitative high-level training is the suitability of trainers. The trainers not only need to have a high-level understanding of the scientific and technical basis they are training, but also an insight in the context and a sense for the social and philosophical aspects of the situation, and appropriate didactic skills. At the current scenario, an understanding of the existing credit and qualification systems is also very relevant. Providers and trainers must be able to develop "learning outcomes" for all new topics they will teach. In this sense we have implemented the "Resources for educators" area, devoted to the train the trainer (TTT) strategy, developed as part of the objectives of ENETRAP III (WP5) to facilitate good practices in training course development and implementation adapted to different teaching modalities (from face-to-face to b-learning).

With the aim of encouraging the knowledge management addressed to the people in training and trainers, two blocks have been developed: "Training guides and manuals" is the section containing information and documentation related with syllabus, recommendations, as well as teaching material usable by students, teachers, and general public. A library section is also added where it is possible find many references that are useful for E&T in radiation protection, some of which are free to download. The list is divided into several domains. In addition to the detailed listing, further publications and teaching materials are available from the following websites: ICRP publications, ICRU reports, IAEA scientific and technical publications, UNSCEAR reports, EC radiation protection series and an overview of EC radiation protection legislation.

This Education and Training tool in RP promotes the creation of an active knowledge networking in RP and also will promote the use of the data base with the established European platforms/projects MELODI, EURADOS, NERIS, ALLIANCE, ENEN, etc.

Table 1 Summary of the related projects and networks included in "Radiation Protection Community"

<u>Projects:</u>	<u>Related Networks:</u>
	IRPA
	ENEN Association
EUTEMPE-RX	MELODI
TRASNUSAFE	NERIS
NUSHARE	ALLIANCE
PETRUS	EURADOS
GENTLE	EAN
CINCH	EMAN
MEDRAPET	EFOMP
	HERCA

4. CONCLUSIONS

WP5 has designed a CB tool around three groups of professionals, the people in training & the RP community. With the development of this CB tool, supported by the EUTERP foundation, the WP5 aims to contribute in transferring of knowledge and developing skills and competencies, at individual and collective level, in RP matters to protect workers, the public and the environment from the potential risks of ionizing radiation today and in the future.

The design of this tool has been done to integrate, in a coherent way, all the information of

the EUTERP foundation as well as all the structure to include, given the interest of students, professionals, and the RP community. The portal offers a complete collection of information of E&T in RP: legal requirements, national approaches, European E&T standards and requirements, course material, course organizations, etc.

This tool includes support to the RPE and RPO job profiles, in terms of education and training qualification, and also in the credit systems such as ECVET and raises the profiles of the RPE and RPO as an attractive career option promoting their mobility around the European Union.

Finally, as a main part of this CB tool, ENETRAP III has developed a database of E&T events and providers, which increases awareness of, and accessibility of E&T, opportunities and resources and promote networking which brings a positive effect to the whole Community. The events included in the DB are focused on RPE, RPO and EW, belonging to different kind of training programmes as initial, refresher, specialization, on-the-job training (OJT), and others. By having the E&T information of other EU projects it is possible build up a cooperative system based on a RP community.

5. References

- [1] EURATOM. 2013/59/EURATOM. Council Directive of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation.
- [2] European Training and Education in Radiation Protection Foundation - EUTERP. <http://www.euterp.eu/>
- [3] United Nations. 2006. Compendium of basic terminology in governance and public administration. <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan022332.pdf>
- [4] European Commission. Joint Research Centre. 2014. Strategic Energy Technology (SET) Plan Roadmap on Education and Training. <https://setis.ec.europa.eu/system/files/SET%20Plan%20Roadmap%20on%20Education%20and%20Training.pdf>

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