

ENETRAP III – final publishable summary report

Executive summary

Applications of ionizing radiation in healthcare, nuclear industry, research and other sectors, require a good understanding of radiation protection (RP) aspects in order to protect workers, the public and the environment from the potential risks of ionizing radiation. Within this perspective, building and maintaining an advanced level of competence in RP, assuring sufficient well-trained personnel and organizing an adequate knowledge management, is crucial. Effective education and training (E&T) is a critical element in these matters, helping to prevent the decline in expertise, to keep the current workforce up-to-date about the latest RP findings and techniques and to meet future demands.

ENETRAP III added new and innovative topics to existing E&T approaches in RP. It further developed the European RP reference training scheme with additional specialized modules for Radiation Protection Experts working in the medical sector, geological disposal and nuclear power plants (NPPs).

ENETRAP III also introduced a train-the-trainer strategy; a unique first-of-a-kind training topic in Euratom's E&T projects. All organized pilot sessions were open to young and more experienced students and professionals. In this way, ENETRAP III aims to contribute to increasing the quality of different actions involving transfer of knowledge and skills, facilitating competence building.

A web-based platform containing all relevant information about E&T activities in RP as well as other opportunities such as jobs or internships will enable the end user to easily find a suitable opportunity for initial or advanced E&T, or career and capacity building activities. ENETRAP III built such a Platform and made it sustainable via the EUTERP Foundation who will keep the platform active beyond the project duration.

Furthermore ENETRAP III proposed guidance for implementing E&T for Radiation Protection Experts and Officers, hereby providing extremely important assistance to all Member States who were expected to transpose the Euratom BSS requirements into their national legislations.

Moreover, ENETRAP III demonstrated the practical feasibility of earlier developed concepts for mutual recognition and thus provided leading examples in Europe demonstrating effective borderless mobility.

For all these activities ENETRAP III connected with all stakeholders, i.e. end-users, E&T providers, legal authorities, and to other relevant international organizations, groups and networks dealing with E&T in radiation protection.

Summary description of project context and objectives

The perceived growth of the use of ionizing radiation in different application fields such as medical, industrial, research and other sectors, requires an advanced understanding of radiation protection in order to protect workers, the public and the environment from the potential hazards of ionizing radiation.

Within this perspective, maintaining a high level of competence in radiation protection, assuring the continued development of suitable well-trained personnel and adequate knowledge management is crucial to ensure future safe use of ionizing radiation and the development of new technologies in a safe way.

To this end, adequate high-level education and training (E&T) is crucial to prevent the decline in expertise and to ensure the availability of elevated radiation protection knowledge, skills and competences which can meet the current and future needs. In order to also contribute to a common high-level safety and radiation protection culture, the training policy and its implementation should have an international character, encourage lifelong learning and facilitate exchange of workers across national borders. ENETRAP III has developed several elements that contribute to the implementation of this approach.

In the specific case of radiation protection, training activities are also embedded in a legal framework. The Euratom Basic Safety Standards (BSS) addresses education and training in radiation protection. The revised BSS, Council Directive 2013/59/Euratom of December 5 2013, published on January 17 2014, makes use of new definitions (replacing the definition of Qualified Expert) for the Radiation Protection Expert (RPE), the Radiation Protection Officer (RPO) and the Medical Physics Expert (MPE). These definitions will provide the basis for future national development and implementation. Targeted assistance from regulators will thus be a crucial factor in the future development and implementation of E&T for RPEs and MPEs (whose ability to act as expert needs to be recognized by the national regulatory authority) and for RPOs. The feedback from Regulatory Authorities and end users regarding the developed training schemes and the proposed learning outcomes, as well as their active involvement in the dissemination/communication of relevant findings and pilot courses is a key factor in this project.

A second important cornerstone when developing education and training in radiation protection, next to the legal framework, are the education and training qualification and credit systems such as EQF and ECVET. Using the ECVET principles, this project delivered a technical framework to describe training recommended in support of the RPE and RPO job profiles, in terms of learning outcomes (including assessments where appropriate), and transfer, accumulation and recognition procedures (again, where appropriate). This was done in collaboration with the regulators, employers and other stakeholders. The developed training schemes is modular, and facilitates mobility of trainers and trainees.

Taking into account the most recent developments in regulation, and in the E&T tools and European credit systems, ENETRAP III added new and innovative topics to the existing E&T approaches in radiation protection. The objectives of the ENETRAP III project were the following:

1. Building further on the European radiation protection training scheme for Radiation Protection Experts developed in ENETRAP II, which exists of a basic module complemented by specialized modules related to the specific field in which the RPE is working, ENETRAP III will develop and implement three new specialized modules for RPE training in (i) the medical area, (ii) geological disposal and (iii) nuclear power plants (NPP). The developed modules aim at stimulating competence building and will use learning outcomes for knowledge, skills and competences like foreseen in the ECVET approaches.

2. The project will also establish a Regulatory and End-users Consultancy Group (CG). Training schemes will be developed taking into account the advice from the end users. Endorsement of the European regulators will be sought through HERCA and the EUTERP Associates, prior to organizing the training.
3. In addition, attention will be given to the training of the trainers. Although the competence and suitability of those delivering the radiation protection training is one of the key factors in qualitative high-level training, this issue was never addressed before in FP7 E&T projects. ENETRAP III will develop a train-the-trainer (TTT) strategy and will organise TTT events, promoting -amongst other things- the ECVET concepts and giving attention to the challenges involved in teaching difficult scientific/technical topics that have a significant societal impact.
4. ENETRAP III will develop tailored guidance with respect to the implementation of the requirements for the RPE and the RPO, as described in the Euratom Basic Safety Standards. For RPE this guidance will address E&T (both initial and refresher training), competence, professional experience and suitability requirements, as well as methodologies for national and mutual recognition. For RPOs the guidance will address the RPO role and function and the E&T and competence, required to support effective execution of those roles/functions.
5. Finally, as ultimate deliverable, ENETRAP III will demonstrate the practical feasibility of the developed concepts for mutual recognition of RPEs.
6. Next to these specific objectives, it is a continuous concern of the project Consortium to disseminate the project activities and results to relevant E&T in radiation protection stakeholders in order to achieve constructive dialogues leading to a maximum usability of the project deliverables. The EUTERP Foundation will foresee a sustainable platform for information on E&T matters beyond the project duration.

Description of main S&T results/foreground

This paragraph describes the main results of ENETRAP III. These are listed per WP, with exemption of the project management WP.

WP2 - Establish partnerships ensuring feedback from stakeholders

The objective of WP2 is (i) to closely involve regulatory authorities who are supposed to provide the legal framework for implementing roles and functions of RPE, RPO and MPE as well as the appropriate E&T requirements of the Euratom Basic Safety Standards in the development of the project work and the dissemination of ENETRAP III results, and (ii) to facilitate cooperation and exchange of information with technology and radiation research platforms, such as SNETP (nuclear safety), IGDTP (waste management) and MELODI (low dose research), and other associations and institutes, with respect to E&T. Such cooperation should help to ensure consistent and comparable approaches to radiation protection training activities.

Similar as for ENETRAP II, various stakeholders contacted in the beginning of the project and invited to join. These were HERCA, IAEA, IRPA, EC DG ENERGY. They accepted to join. Connections with ENEN, and other E&T networks, projects and platforms were set up. H. F. Boersma joined in 2017, with an eye on the organization of the IRPA2018 regional conference and the organization of the EUTERP Workshop during one afternoon of that conference.

RCG members were invited to workshops and other events where results of ENETRAP III were presented, such as:

- RPW weeks (Oxford and Paris)
- EUTERP Workshop (Athens)
- Others (ETRAP conference, ...)

Unfortunately effective participation to dedicated activities was limited, due to overloaded agenda's. However, the ENETRAP III Consortium concludes that lack of participation of RCG members to dedicated RCG meetings did not hinder the advancement of the project because constructive individual contacts were kept active during other occasions in the domain of RP where involved persons met.

Constructive contacts are set up with IRPA. The ENETRAP training scheme is referred to by the IRPA E&T working group. Most likely the Association will also be using the database concept, developed within this project, in the coming years.

Also contacts with IAEA are running well.

The EUTERP Foundation is the Platform that fosters E&T in RP activities. It will safeguard the main results obtained within ENETRAP III and will keep them available for the stakeholder community.

WP3 - Develop further specialized training modules for RPE and run pilot sessions

The objective of this WP is to further develop the ENETRAP reference training scheme for RPEs and expand it with specialized modules that have not yet been developed before (these are modules for the RPE working in the medical area, in NPP and in geological disposal).

The three main tasks of this WP were:

- For each module: determine the learning outcomes, develop the programme and the course requirements (training material, endorsement by authorities, etc.).

- Organize pilot sessions of three specialized modules for RPEs working in geological disposal, the medical sector and NPPs/research reactors.
- Report on effectiveness of the training, the endorsement process and the feedback from the stakeholders.

The development of the three specialized modules further completed the ENETRAP II training scheme and the organization of training events under ENETRAP III benefits from the experiences and methodologies developed in the previous ENETRAP projects:

- Each module consists of a number of training courses. These are linked to specific competences and activities that a RPE requires in compliance with Council Directive 2013/59/Euratom (BSS)
- For every competence, specific learning outcomes are defined in terms of knowledge, skills and attitudes following the Bloom taxonomy and the ECVET approach.
- An education to EQF level 6 (Geological, NPP) or 7 (Medical), respectively, was the pre-requisite for participants.
- Skills and attitudes are assessed by practical case-studies and daily wrap-ups or portfolios (Medical). Knowledge assessed by a one hour written examination on the last day of the face to face module (pass-mark 70 %).
- The specialised modules are designed to build upon the KSAs gained in the generic basic modules.

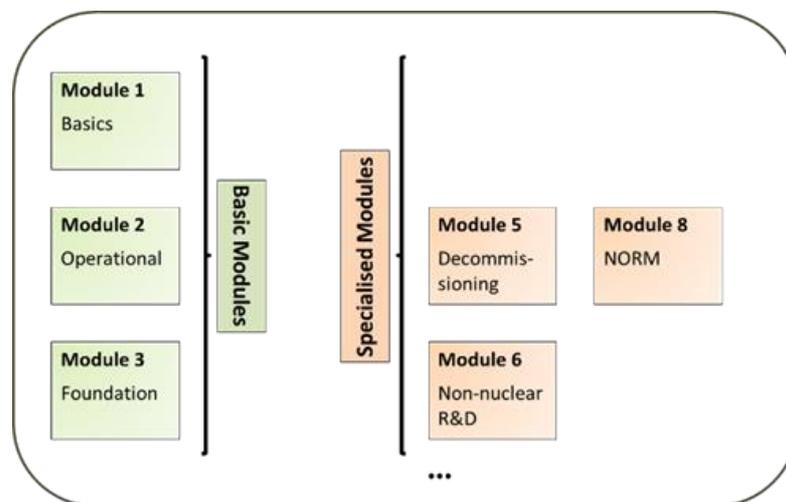


Figure 1: Simplified view of the ENETRAP training scheme

To obtain endorsement, HERCA was contacted and provided with the prepared material. It was communicated that HERCA was not able to provide endorsement. Hence, an official approval for the pilot sessions could not be obtained. For Module 7, EFOMP CPD accreditation of online phase (160 points) and face to face phase (30 points) was obtained. Total points to be awarded 190, to be doubled to 380 for those that successfully pass the portfolio assessments and examination.

Pilot session of the specialized modules were planned/organized in 2016/2017. Modules 4 and 9 had to be postponed due to an insufficient number of participants. Even without course fees none of the stakeholders were willing to participate in a training agreement. Missing of an official stamp was the major obstacle. Hence, efforts in advertising were enhanced: in addition to the four-page leaflet, compact 1 page leaflets were designed. The leaflet for Module 4 was available in Polish as well.

Following advertising was undertaken:

Presentations:

- EUTERP conference 2015, Athens
- Mądralin 2015, Warsaw
- XVIII Conference of Radiation Protection Officers, 2015, Skorzęcin

Announcements and posters

- A4 information in the Polish nuclear journal Postępy Techniki Jądrowej
- Central Laboratory for Radiological Protection, Poland (CLOR)
- Institute of Nuclear Chemistry and Technology, Poland (IChTJ)
- National Centre for Nuclear Research, Poland (NCBJ)
- National Atomic Energy Agency, Poland (PAA)
- KIT-FTU, Germany
- EFOMP distribution to NMOs
- EFOMP, EMP News Autumn 2016

Pilot sessions of all modules have been implemented successfully on:

- ENETRAP Module 7 for RPE's working in the medical field: a course on Radiation Protection designed for Radiation Protection Experts working in the medical field, in compliance with Council Directive 2013/59/Euratom (BSS).
Online phase as from September 2015
Face-to-face session July 4-8, 2016 (Budapest, Hungary)
- ENETRAP Module 4 for RPE's working in Nuclear Power Plants & Research Reactors: a course on Radiation Protection designed for Radiation Protection Experts working in Nuclear Power Plants & Research Reactors, in compliance with Council Directive 2013/59/Euratom (BSS).
Face-to-face session January 16-20, 2017 (Karlsruhe, Germany)
- ENETRAP Module 9 for RPE's working in geological disposal: a course on Radiation Protection designed for Radiation Protection Experts working in geological nuclear disposal, in compliance with Council Directive 2013/59/Euratom (BSS).
Face-to-face session January 16-20, 2017 (Karlsruhe, Germany)

Modules 4, 7, and 9 attracted 10, 9 (6 participants dropped out before the face-to-face session), and 4 participants, respectively. All participants took the final exam consisting of multiple choice and text questions. All participants managed to pass the 70 % pass-mark, however with a few borderline passes.

From participants' feedback following main observation can be reported:

- The level of the course was set appropriately at EQF Level 6, or 7 (Module 7).
- The training courses were run well with the faculty having the appropriate experience to deliver the content.
- The technical visits were helpful (Modules 4 and 9).
- It might be helpful to deliver more training material before course start (Modules 4 and 9).
- The assessment process was appropriate to identify the level achieved by the participants.
- The need to explain the portfolio requirements should be provided at the start of the e-learning phase (Module 7).
- The content at the face to face combined with the portfolios was appropriate to meet the participants' expectations and help them seek recognition as RPE by their national authorities (Module 7).
- The online e-learning phase was easy to access and broadly sufficient although further examples of how to meet the LOs were thought to be beneficial (Mod. 7).
- Active participation in the e-learning phase was poor (Mod. 7) for several reasons.
- More practical workshops were thought to be useful in Module 7.

In conclusion following recommendations can be drawn from from WP3:

- Mutual recognition for agreed and endorsed training events is beneficial.
- Implementation of the ECVET system increases the attractiveness of the training events and promotes borderless mobility in life-long learning.
- Implementation of an effective advertisement procedure by finalizing an EU-wide database for upcoming training events and training providers in RP is worthwhile.

- The implementation of an online learning phase for the production of portfolios is recommended.
- Joint training agreements with stakeholders are an appropriate means to attract participants.

The actions and obtained results related to WP3 are described in more detail in following deliverables:

D3.1: Learning outcomes, programme and course requirements of the ENETRAP training modules;

D3.2-3-4: Organisation of a pilot session of the specialized module for RPE in the medical area – geological disposal – nuclear power plants and research reactors;

D3.5: Report on effectiveness of the training, the endorsement process and the feedback from the stakeholders.

WP4 - Develop a train-the-trainer (TTT) strategy and organize a TTT training event

In WP4 the involved project partners developed a train-the-trainer strategy that, along with other aspects, promotes the ECVET concept. In this way ENETRAP III aims for a sustainable implementation of the most recent didactic methods in a harmonized way throughout current and future training courses in radiation protection (and other nuclear topics), facilitating good practices in training course development and implementation. Pilot sessions were organized and the training sessions evaluated.

Like for WP3, the three main tasks were to:

- Develop the curriculum and course material
- Organize pilot session
- Evaluate these sessions and make proposals for potential improvements.

To develop the curriculum and the course material the EHRO-N approach was used: first the job profile for a "RP trainer" was established. Then the competence matrix for this job profile was created (for each competence the Learning Outcomes were defined as well as the assessment criteria, the modality of evaluation, the pedagogical methodology and content? and the duration). The course material was created and the programme was established making use of a pedagogical mix (using scenario's, digital tools, practical exercises, group work, interactive presentations, technical visits, (self)-assessments etc.). A 56-page document describes this entire process.

It was planned to organize the first pilot session in 2016. An announcement was made but only 4 interested applicants registered. It was decided to postpone. Unfortunately after two other attempts with only 2 more interested participants it was decided to not organize the course in English but to try a French edition. Indeed, this was much more successful. Three sessions were organized:

- February 2017, Saclay (16 participants)
- October 2017, Saclay (13 participants)
- February 2018 (8 participants)

The evaluation of the two first pilot courses was done using the Kirkpatrick model.

Kirkpatrick level 1 deals with reaction of the participants: the evaluation of both the lecturers and the training was carried out (participants' opinion)

Level 2 deals with the learning curve of the participants: assessments of the knowledge of the participants were made before and after the course.

Level 3 deals with evolution in behaviour. Feedback from 4 and 8 participants resp. was received from the February 2017 and October 2017 edition.

Level 4 deals with the results of the training. To this end the employers of the participants should be interviewed. Unfortunately no managers were found who were willing to answer to the questionnaire.

Based on the outcome of the evaluation (level 1 and 2) of the first pilot session small amendments were made to the optimize programme.

Given the great success of the organization in France, the involved Consortium partners are now planning an English version of the course in UK (beyond the project end date). We strive towards a sustainable Train the Trainer initiative for trainers in radiation protection.

Details of the development and delivery of the TTT strategy and training sessions are given in the following deliverables:

- 4.1: Development of the curriculum and course material;
- 4.2: Organisation of the pilot session;
- 4.3: Evaluation of the pilot sessions and proposal of an optimized TTT event.

WP5 - Dissemination of project results and contribution to a website for capacity building and transfer of know-how relevant to radiation protection E&T

The ENETRAP III WP5 commitment deals with the dissemination of the activities and results of the series of ENETRAP projects, through several dissemination events and a sustainable website. The latter should bring together the information that is currently spread over several websites and other carriers, and promote the E&T in RP through a "capacity building and transfer of know-how in radiation protection" tool.

Capacity building (CB) is a strategy based on a consensus on common needs, the vision and instruments for research and training in RP matters to create and transfer knowledge and to develop skills and competencies of the individuals, organizations and countries, to protect workers, the public and the environment from the potential risks of ionizing radiation, today and in the future.

It is supported mainly in 4 pillars: Education and training, Knowledge management and preservation, Knowledge networks and Human resources mobility.

Having in mind the above concepts, a detailed study of the results of previous ENETRAP-projects results and an analysis of the structure of different platforms of transparency delivering a CB strategy, has led to a proposal of website structure, requisites and functional analysis as reported in the first WP5 deliverable.

The WP5 proposal for EUTERP Capacity Building platform (Web portal), encompasses all the information for three target groups: the professionals, the people in training and the RP community.

The block for the professionals, Career Center, contains all information for RPE and RPO recognition and career building (1. Relevant legislation, 2. European Qualification Framework; 3. Professional workshops, meetings and conferences and 4. Opportunities).

The block for the people in training, Education and Training Center, contains all the information for students at all stages and young professionals in training, as well as resources for trainers (1. Education& Training database, 2. Resources for educators TTT, 3. Training guides & manuals and 4. Library).

The block for the RP community contains information to create an active virtual community, where the interchange of ideas provides a better understanding on the needs, offers and gaps in E&T (1. ENETRAP projects, 2. Other projects & related networks, 3. Glossary and 4. Forums)



Figure 2: New structure of the EUTERP website

In a second task, a database for capacity building in RP, with information on available training and academic courses, job opportunities, internship and thesis (BSc to PhD) possibilities, OJT opportunities, workshops, conferences and symposia. The database can be accessed through the home page of the EUTERP website. Currently the data can be entered by the ENETRAP III Consortium partners and the EUTERP Associates. A connection to other databases, such as the one of IAEA, is foreseen. The concept of the database is available for all E&T groups and platforms. IRPA and EURADOS have shown interest in using this frame.

As a third task it was foreseen that this WP would deal with the organization of a project workshop. During the course of the project it was (for reasons of effective use of time and resources) decided to, instead of organizing a dedicated separate event, to use existing events to disseminate the ENETRAP III results and discuss them within the RP community. These events were:

- The EUTERP workshop, September 30 – October 2, 2015, Athens, Greece, during which a RCG meeting was held and a specific session was dedicated to the ENETRAP III objectives and obtained results so far.
- The RPW2016, 19 - 23 September 2016. Oxford, United Kingdom, during which an ENETRAP III open workshop could be organized for the RCG and all interested stakeholders.
- The ETRAP2017 6th International Conference on Education and Training in Radiological Protection, 30 May - 2 June 2017, Valencia, Spain, during which several presentations were given highlighting the results of the different WPs.

WP6 - testing of methodologies for RPE recognition and mutual recognition in practice

WP6 of the ENETRAP III project was concerned with testing the methodologies for RPE recognition proposed as the outcome of WP7 and documented in project deliverable D7.1-2, European Guidance on the Implementation of the Requirements of the Euratom BSS with respect to the Radiation Protection Expert and the Radiation Protection Officer (referred to as the ENETRAP Guidance).

The primary objective of WP 6 was to validate (and refine if necessary) the proposed methodologies with a secondary objective of promoting the methodology with EU Member States.

The work fell into three phases:

Phase I : obtain agreement and support from HERCA on the proposed methodologies

Phase II: implement the proposed methodology for RPE recognition on a test as basis in at least 2 countries that did not (at the start of the project) have formal national recognition schemes in place

Phase III: work through the process of mutual recognition of RPEs between at least 4 countries

Obtain agreement and support from HERCA on the proposed methodologies:

Phase I was completed in the early stage of the project and reported in deliverable D6.1, Report documenting the outcome of liaison with HERCA. HERCA was already involved prior ENETRAP III through participation in the Consultancy Group of ENETRAP II. HERCA encouraged and supported the ENETRAP III proposal, and accepted to be also member of the ENETRAP III RCG. Some ENETRAP III members are also involved in the HERCA Task Force on E&T in Radiation Protection and could put a discussion about the draft guidance document of WP7 on the agenda. During the HERCA/ENETRAP III Workshop in July 2015 in Paris a discussion was held about the RPO/RPE description in the revised BSS and how to translate this in a harmonized approach into the final text of the guidelines document. A first WP6 deliverable describes the detailed comments and suggestions from the workshop.

Implement the proposed methodology for RPE Recognition on a "test case" basis in at least 2 countries that did not currently have formal national schemes in place:

Phase II, which was a real-time case study, was completed at the end of July 2018 and reported in deliverable D6.2, Report on the outcome of the trial on national RPE Recognition.

The situation in UK, The Netherlands, Slovenia and Lithuania was compared to the requirements in the BSS and the proposed guidance document of WP7 (status early 2015), this for what concerns education, training and development, recognition framework, recognition in practice. Four candidate RPEs were selected in each country. Thereafter, a gap analysis was made for the following issues: (i) basic requirements for core competences (education or academic equivalent, knowledge and understanding of fundamental principles of radiation protection, knowledge of operational radiation protection methods, the ability to develop and provide appropriate advice with those topics on which the RPA is expected to provide advice, minimum of 3 years' experience), (ii) required skills and competences (see table 3 in guidance document), (iii) establishment of an RP recognition scheme (, (iv) routine operations (here also a comparison with the proposed 4-step process was made).

In 2018 an update was made regarding the national arrangements (because of the implementation of the revised BSS).

At the conclusion of phase II two countries - Lithuania and Slovenia - which, prior to Council Directive 2013/59/Euratom, Basic Safety Standards Directive (2013 BSSD) did not have the required formal arrangements in place for the development and recognition of RPEs, had established requirements in legislation and supporting mechanisms for RPE recognition. In both cases, the national arrangements were based on, and in good alignment with, the proposals put forward in the ENETRAP Guidance and both countries had successfully progressed one candidate through the RPE recognition process. Two other countries (UK and the Netherlands) which had formal recognition schemes in place prior to the 2013 BSSD and which were largely unchanged in the BSSD transposition processes also progressed candidates through their respective recognition schemes.

Work through the process of mutual recognition of RPEs between at least 4 countries:

This was a very limited trial, both with respect to the number of participants and the fact that it was undertaken as desk-top exercise. However, it indicated a willingness by Member States to accept RPE recognition awarded in other Member States as satisfactory evidence of core operational competence, provided that the criteria and methodology for RPE recognition in those Member States are broadly the same.

The model for mutual recognition proposed in the ENETRAP guidance recommended that in addition to requiring evidence of core competence, Competent Authorities should consider adequacy of language

skills and an applicants' understanding of national legislative requirements before authorising the RPE to practice. These aspects were considered to be important by all participants in the trial but the rigour with which they are considered can vary, without detriment to the outcome, depending on circumstances. Details of this last step in WP6 are given in deliverable D6.3.

WP7 - writing of guidance to support the implementation of E&T requirements for RPE and RPO as defined in the Euratom BSS

The objective of WP7 is to facilitate the implementation of the new requirements for RPE and RPO in EU Member States and to help ensuring a consistent approach throughout the European Union.

The Euratom BSS (2013/59/Euratom) specifies requirements for E&T of the Radiation Protection Expert (RPE) and for the Radiation Protection Officer (RPO). Member States are expected to translate the goals and requirements into their national legislation before 6 February 2018.

Experience has shown that, even though the specific requirements in a European Directive may be quite clear, there can be widely varying approaches to the interpretation of those requirements and implementation in practice.

It is considered that the availability of clear and substantive guidance on how the new requirements for RPE and RPO would be best implemented in Member States would be of value, not only in facilitating the implementation of the requirements across Europe, but in helping to ensure a consistent approach.

ENETRAP III - WP7 produced such guidance addressing key issues for RPE and RPO:

- intended roles/functions/duties of RPE and RPO;
- required infrastructures and mechanism for RPE recognition;
- suitability and competence requirements (RPE and RPO);
- appropriate education, training and work experience (including learning outcomes, EQF level, etc.)

Following steps were essential in frame of WP7:

- WP 7 Meeting on 24 September 2014 in Brussels (Documents (BSS requirements, RP 174 + 175, results of the activities of the HERCA Task Force on E&T) were reviewed)
- WP 7 Meeting on 12/13 February 2015 in Munich (Discussion of the first draft of the guidance document)
- HERCA Workshop RPE-RPO on 6-8 July 2015 in Paris (Presentation and discussion of the draft guidance document)
- EUTERP Workshop, 30 Sep – 2 Oct 2015 in Athens (Presentation and discussion of the draft guidance document => comments received and included, Guidance Document finalised, submitted to DG Research and accepted)
- December 2015: Guidance Document was submitted as ENETRAP III Deliverable D 7.1 and D7.2 and has been accepted by EC DG Research
- Art. 31 GoE: Guidance Document presented at Art. 31 GoE meeting June 2016 for consideration and publication in the RP series, comments received November 2016
- WP7 Meeting on 2 February 2017, Valencia: Comments discussed and included, final Guidance Document sent to DG Energy for publication.

Within the framework of ENETRAP III WP7 a guidance document "European Guidance on the Implementation of the Requirements of the Euratom BSS with respect to the Radiation Protection Expert and the Radiation Protection Officer" has been developed and uploaded to the Participants Portal as deliverable D7.1-2. In this guidance document all key issues for RPE and RPO are addressed:

- adoption of requirements into legislation;
- intended roles/functions/duties of RPE and RPO;
- required infrastructures and mechanism for recognition (RPE);
- suitability and competence requirements (RPE and RPO);

- appropriate education and training.

The guidance proposed complements the guidance being developed in the medical field by facilitating the implementation of the new requirements for RPE and RPO in Member States and helping to ensure a consistent approach throughout the European Union.

Potential impact and main dissemination activities and exploitation results

Art. 33 of the Euratom Treaty requires that Member States shall lay down appropriate provisions to ensure compliance with the Euratom BSS and shall take the necessary measures with regard to teaching, education and vocational training. In the legal frame of the Council Directive 2013/59/Euratom, ENETRAP III has proposed guidance for implementing E&T requirements for RPE and RPO, which will be made available to be published by the EC. In this way, ENETRAP III provides extremely important assistance to all Member States who are expected to transpose the Euratom BSS requirements into their national legislations. With the support of HERCA and other European authorities participating to the Regulatory Consultancy Group (RCG) established within this project, the effectiveness and helpfulness of this tool for the Member States will be guaranteed.

Moreover, ENETRAP III will demonstrate the practical feasibility of earlier developed concepts for mutual recognition of RPEs and methodologies for comparison of training courses in terms of specific learning outcomes. These models demonstrated by ENETRAP III can be leading examples in Europe and demonstrate effective borderless mobility of RPEs.

With the continuous extension of the ENETRAP European reference training scheme (ERTS), RPEs, RPOs and radiation protection researchers working in the fields of medical, geological disposal and NPP and research reactors have, thanks to the ENETRAP III developments, an additional possibility to follow high-level training, on a European level. The new modules developed in ENETRAP III are complementing the earlier developed modules. They are developed according to the ECVET approach and defining learning outcomes in terms of knowledge, skills and attitudes/competences.

ENETRAP III not only pays attention to the development of new scientific/technical high-level radiation protection training modules in the fields of medical, geological disposal and NPP, but it also developed a train-the-trainer (TTT) strategy and event. It is the first time this type of module is developed in E&T projects and, although developed in the frame of ENETRAP III which is concentrating on radiation protection, this TTT event will be transferable to all nuclear areas such as nuclear engineering, geological disposal, etc.

All developed training modules are implemented in practice through the organization of pilot sessions in different European Countries. The courses are open to young professionals and to more experienced RPEs, RPOs and radiation protection researchers in general. In this way, ENETRAP III aims to contribute to (i) the necessary increase of the attractiveness of nuclear careers in general and radiation protection careers in specific, and (ii) to lifelong learning activities.

Last but not least, ENETRAP III offered the radiation protection community a web based platform including all relevant information regarding E&T in radiation protection, results of European projects, legal requirements and implementations at national level. With this platform, for reasons of sustainability being built further on the existing EUTERP website, ENETRAP III aims at contributing to efficient knowledge transfer and capacity building in Europe and beyond. The design of the database is available to other groups and networks, offering the advantage of using the same fields and search functions and a harmonized approach in announcing courses, events, job opportunities etc.

During the entire project, close links will be set up and maintained with relevant international platforms, groups and projects dealing with education and training in the nuclear domains. Through the RCG members, via collaboration with relevant stakeholders, and through presentation of the project at relevant conferences, workshops and meetings, information exchange about project activities and results will be established. The aim is to optimize the results and to obtain the largest possible use within the related nuclear communities.

With these achievements, ENETRAP III aims to increase the radiation protection and safety culture at the European level and beyond. It will also put forward the vast amount of advanced expertise available in Europe in the field of radiation protection E&T development and implementation.

Web address and contact details

<http://enetrap3.sckcen.be/>

Contact:

Dr. Michèle Coeck, SCK•CEN, Boeretang 200, BE-2400 Mol, Belgium

Tel. : 0032 14 33 88 50

E-mail: mcoeck@sckcen.be

ENETRAP III Consortium

1	SCK•CEN Belgian Nuclear Research Centre (Coordinator)	Belgium
2	Department of Health DH-PHE	UK
3	Bundesamt für Strahlenschutz BfS	Germany
4	CEA-INSTN	France
5	KIT	Germany
6	CIEMAT	Spain
7	NRG	The Netherlands
8	EFOMP	UK
9	EUTERP	The Netherlands
10	ITN	Portugal
11	BME	Hungary
12	PGE	Poland
13	Université Lorraine	France

ENETRAP III logo



Schematic overview of project structure

