

ЗБОРНИК РАДОВА



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**06-08. октобар 2021.
Београд, Србија**

**ДРУШТВО ЗА ЗАШТИТУ ОД ЗРАЧЕЊА
СРБИЈЕ И ЦРНЕ ГОРЕ**



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**A NEW EUROPEAN RADIATION PROTECTION NETWORK DEVELOPED
BY THE SUPPORT BSS JOINT NETWORK PROJECT**

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ABSTRACT

European Metrology Networks are organized under the umbrella of EURAMET in order to improve Europe's metrology capabilities based on the high-quality research and metrology service. One of the proposed European Metrology Networks is currently prepared by the EMPIR 19NET03 supportBSS Joint Network Project to address the needs in metrology for radiation protection and radiation protection regulation. The new network EMN for Radiation Protection (short name: RadiationProtect) that was approved by EURAMET in the General Assembly 2021 aims to improve communication between regulatory bodies, metrology institutes, and their stakeholders, promote smart specialization of calibration laboratories, establish a knowledge sharing program, and create roadmaps for future research priorities in the field of radiation protection metrology.

1. Introduction

National Metrology Institutes (NMI) and Designated Institutes (DI) in Europe have a long tradition of cooperation in EURAMET, within Technical Committees and metrology research programmes. In 2017, a workshop attended by NMIs and DIs was held to explore possibilities for further collaboration. As a consequence of the workshop, there was a consensus on the need to create new European Metrology Networks (EMN) that would deal with the topics and problems not covered by the existing bodies and organizations. The role of the EMNs is to deal with the wider problems that are not easily addressed by single metrology institutes. The problems will be identified by assessing European and Global metrology needs, and addressed in a coordinated manner by creating common strategies for research, infrastructure, knowledge transfer and development of services. The EMNs will also provide a single point of contact for metrology institutes and their stakeholders. Because of this, EMNs will help Europe to maintain world-leading metrology capabilities, in the time of rapidly changing technology, which causes the constant need to develop new and update existing metrology services. In general, three types of EMNs will be founded: scientific EMNs, with focus on leadership and scientific excellence, EMNs for societal challenges, with goal to underpin standardization and regulation, and EMNs for infrastructure and services, with focus on raising overall level of metrology capability and quality of service in Europe [1].

At the EURAMET General Assembly in 2018, six metrology networks were approved. As of July 2021, a total of nine EMNs were approved, some of them are already operational, and some of them are still forming.

In this paper, a new EMN addressing the needs in metrology for radiation protection and radiation protection regulation will be presented, together with the EMPiR 19NET03 supportBSS Joint Network Project (JNP), which was created to support the forming of the network.

2. Supporting the development of the EMN for Radiation Protection: The role of JNP EMPiR 19NET03 supportBSS

In 2014, the new EURATOM directive was published laying down the basic safety standards for protection against the dangers arising from exposure to ionising radiation [2]. The new directive was developed to better protect the citizens, partially as a consequence of the Fukushima accident. The new directive is more comprehensive, covering occupational, medical, public and environmental risks. Due to the broader scope of the directive, new digitalization trends, the fast development of technology, including new modalities in medicine, as well as the increasing needs for measurements in pulsed fields, it is not possible for one institution or one country to address all the future research, calibration and measurement needs. Because of this, a JNP was proposed in 2019 in order to support the creation of an EMN dealing with radiation protection. The network would help with future defining of Strategic Research Agendas (SRA), smart specialization and would facilitate the dialogue between the NMIs and DIs and stakeholders. The network will also involve regulators as stakeholders and provide feedback to regulators from metrology community.

The project was selected for funding and started in June 2020. The project involves NMIs and DIs for ionizing radiation from 16 European countries and will last for four years. The project is organized in 6 work packages (WP), with WP6 dealing with

creating impact and WP7 dealing with administration, see Fig. 1. It is important to note that the stakeholder needs are driving this development.

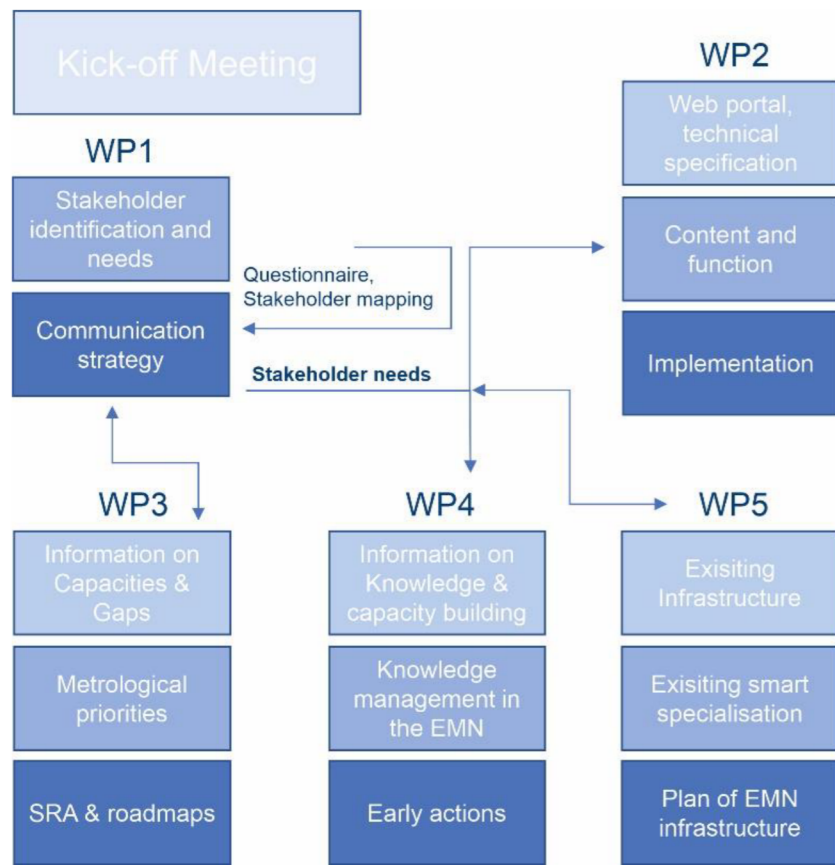


Fig.1 The work packages in EMPIR 19NET03 supportBSS. The figure describes the route for the implementation of the EMN for Radiation Protection. The stakeholder needs are central for all work packages

The goal of WP1 is to establish regular, constructive dialogue and liaison between the project and stakeholders of radiation protection regulation. The stakeholders include regulatory bodies and standards development bodies on one side, and manufacturers, technical services and users of radiation sources on the other side. International organizations dealing with radiation protection, such as HERCA, EURADOS and IAEA are also important stakeholders.

The goal of WP2 is to develop a web-based portal for radiation protection regulation stakeholders. This platform will be developed by the project partners with consideration to the feedback from the stakeholders identified during the project. The web-platform will provide easy access to information regarding the regulatory requirements and metrology capabilities, and will also facilitate the networking between metrology institutes and stakeholders.

WP3 is dealing with the future research and development of metrology capabilities. New EURATOM directive requires establishment of new and improved services. For example, some limits have been significantly reduced, such as the dose limit for the eye lens or the radon activity concentration. These changes require significantly improved

metrology capabilities, which require additional research. In this work package, SRA will be developed, as well as two roadmaps for the metrology needs of the Council Directive (EU-BSS) and the EURATOM treaty.

The goal of WP4 is to improve the knowledge transfer within the metrology community and between the metrology community and stakeholders. This WP will identify the needs for knowledge sharing among the stakeholders, identify the existing opportunities, identify the gaps and finally improve the knowledge sharing by promoting and organizing the activities, such as the exchange of researchers between organizations, metrology workshops, training courses and interlaboratory comparisons.

Finally, WP5 is dealing with European metrology infrastructure underpinning radiation protection regulation. Among other activities, this WP will support smart specialization and promote the development of emerging member states.

3. Current progress

Several activities have already been completed within the project. A virtual workshop was organized in September in order to identify and discuss the gaps in radiation protection metrology. In October 2020, a CCRI (Consultative Committee for Ionizing Radiation) webinar was held on the topic of Metrology for Radiation Protection, and is available on YouTube [3]. Almost 100 stakeholders were identified until now and a stakeholder committee was created in 2021. Several activities concerning the stakeholders have been conducted, such as stakeholder mapping workshops, preparing stakeholder involvement plan or developing communication strategy, in order to improve the engagement of the stakeholders and to improve the impact of the network. A virtual presentation about the project and the future EMN was held at EGU21 conference in April 2021 [4].

Proposal to form EMN RadiationProtect was submitted to EURAMET and it was accepted at the EURAMET General Assembly in June 2021. The network kick-off meeting will be scheduled for the autumn.

Several activities in other WPs are also ongoing, such as identification of the existing training opportunities and overview of regulations. These preparatory activities will provide inputs for the future work in the project and the network.

4. Significance of EMN RadiationProtect in Serbia

Serbia is currently in the process of accession to the European Union. Currently, Serbian legislation is not harmonized with the European Union. The harmonization will occur during the accession in 34 “chapters”, with only 2 of them closed until July 2021. Several of the remaining chapters will deal with radiation protection, among other topics. The most important are Chapter 27 “Environment” and Chapter 28 “Consumer and health protection”. During this process, new laws and bylaws will need to be prepared and adopted, and stakeholders from Serbia will need to comply with the new regulations. The EMN RadiationProtect will be able to offer critical help in this process. Knowledge transfer from the partners from European Union will help during the development phase of new laws and bylaws, but will also help the stakeholders to implement them in their own institutions.

5. Conclusion

European Metrology Networks provide an important platform that helps members and stakeholders to achieve and maintain scientific excellence, to answer to societal

challenges, and to develop and optimize metrology infrastructure. EMN RadiationProtect is a new network that will deal with issues related to radiation protection and radiation protection regulation. The network is supported by JNP EMPIR 19NET03 supportBSS with 16 NMIs and DIs from different European countries and the network kick off meeting will be held in autumn. Besides the significance of the network for the EU countries, the network will have global importance and will address global radiation protection metrology challenges. This network is especially important for countries aspiring to become EU members, due to the know-how already present in the network founding institutions.

6. Acknowledgement

19NET03 supportBSS has received funding from the EMPIR programme co-financed by the Participating States and from the European Union's Horizon 2020 research and innovation programme. 19NET03 supportBSS denotes the EMPIR Joint Network Project reference. The partners of the project received support from BIPM, IAEA, EURADOS e.V., BfS and PHE so far. It is foreseen that EURADOS e.V., BfS and PHE will join the EMN as partners. They were included as authors to the proposal for the GA of EURAMET in 2021 and intend to sign the memorandum of understanding as well as all supportBSS partners, which are represented here as co-authors of this paper.

7. Literature

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**NOVA EVROPSKA MREŽA IZ OBLASTI ZAŠTITE OD ZRAČENJA
RAZVIJENA U OKVIRU SUPPORTBSS JOINT NETWORK PROJECT**

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SADRŽAJ

Evropske metrološke mreže su organizovane pod okriljem EURAMET u cilju poboljšanja evropskih metroloških kapaciteta na osnovu visoko kvalitetnih istraživanja i metroloških servisa. Jedna od predloženih mreža je trenutno u pripremi u okviru međunarodnog projekta EMPIR 19NET03 supportBSS, sa ciljem da se zadovolje potrebe u okviru metrološke zajednice vezane za zaštitu od zračenja i regulativu u oblasti zaštite od zračenja. Nova mreža IRProtect je odobrena na generalnoj skupštini EURAMET u 2021. godini, i po uspostavljanju će težiti da poboljša komunikaciju između regulatornih tela, metroloških instituta i njihovih stejkholdera, zatim da promoviše "pametnu" specijalizaciju laboratorija za etaloniranje, uspostavi program razmene znanja i napravi mape puta sa budućim naučnim i razvojnim prioritetima u oblasti metrologije u zaštiti od zračenja.