



# Capacity Building – Projects (Call 2016)

An overview of the funded projects from the Targeted Programme Research Potential.

The aim of these projects is to build capacity for research in less developed NMIs and DIs.

The projects underpin the coherent, efficient, sustainable and integrated development of a European metrology capacity landscape.

## Chemical analysis for food and environmental safety

### Improving Europe's chemical measurements to meet new regulations

Detecting trace amounts of chemicals within larger samples has many important applications, including food standards, air quality, waste monitoring, and soil analysis. Chemical metrology is less developed than physical metrology and lacks the calibration infrastructure. Many emerging NMIs and DIs struggle to provide the level of uncertainty required by increasingly demanding food safety standards and environmental legislation.

This project will improve chemical metrology capabilities and traceability for emerging NMIs/DIs. Specific outcomes will include calibration methods for trace element analysis based on the traceable isotope dilution mass spectrometry methodology, and pH measurement cells with low uncertainties for use in field laboratories. It will develop long term strategies to ensure the new capabilities and skills are embedded within emerging NMIs/DIs. This will give chemical analysis laboratories throughout Europe access to better quality chemical measurements, providing the infrastructure needed to support new environmental directives and food safety requirements.



#### Project 16RPT01

Development of scientific and technical capabilities in the field of chemical analysis

Paola Fiscaro

LNE  
+33 140 433 759  
paola.fiscaro@lne.fr

[www.euramet.org/project-16rpt01](http://www.euramet.org/project-16rpt01)

## Standardising drink driving tests for safer roads

### Traceable gas samples will lead to more reliable breathalyser tests

More widespread alcohol testing for drivers, especially in the Baltics and Southern Europe where alcohol related accidents are high, is seen as a key measure in reducing road deaths. Access to breathalysers of agreed standards across Europe is key to this. To accurately calibrate these breathalysers, there is a need for standardised test gases similar to human breath with defined concentrations of alcohol. Currently, only two European NMIs produce such gases.

The project will build production capabilities for ethanol/water reference materials and analytical methods for quantifying ethanol in water at NMIs/DIs across Europe, allowing them to reproducibly create alcohol reference materials traceable to the SI. Each NMI will develop a strategy for the long-term development of their measurement and production capabilities, aligned with a European wide approach. Wider access to certified reference materials will allow manufacturers of breathalysers to meet common standards and so support better enforcement of drink driving laws across Europe.



#### Project 16RPT02

Certified forensic alcohol reference materials

Rosemarie Philipp

BAM  
+49 308 1045 893  
rosemarie.philipp@bam.de

[www.euramet.org/project-16rpt02](http://www.euramet.org/project-16rpt02)

## Expanding access to reliable glaucoma testing

### Bringing state of the art intraocular-pressure measurements to Central Europe

Measuring intraocular-pressure (IOP) with medical devices called tonometers is an effective way to screen for ocular hypertension - the only treatable risk factor for glaucoma, the leading cause of blindness. State of the art IOP measurements exist only at PTB, Germany, with many countries in Central Europe falling well behind.

This project will establish a centre of excellence in IOP metrology at CMI, Czech Republic, by developing traceable IOP measurement capabilities for tonometers which reflect the different needs of Central Europe. It will also establish research capabilities allowing CMI to continuously respond to changing needs, and investigate potential new ophthalmological measurement parameters, such as corneal thickness. Longer term, the project hopes to create a European research and metrology network for a wider range of medical devices.

Through CMI, ophthalmology professionals and manufacturers of tonometers in Central Europe will have a traceability chain to validate their devices and a standardised market, ensuring patients receive more effective glaucoma screening tests.



#### Project 16RPT03

Developing research capabilities for traceable intraocular pressure measurements

Dominik Pražák

CMI  
+42 0545 555 226  
dprazak@cmi.cz

[www.euramet.org/project-16rpt03](http://www.euramet.org/project-16rpt03)

## Europe's National Measurement Institutes working together

The majority of European countries have a National Metrology Institute (NMI) that ensures national measurement standards are consistent and comparable to international standards. They also investigate new and improved ways to measure, in response to the changing demands of the world. It makes sense for these NMIs to collaborate with one another, and the European Association of National Metrology Institutes (EURAMET) is the body that coordinates collaborative activities in Europe.

The European Metrology Programme for Innovation and Research (EMPIR) follows on from the successful European Metrology Research Programme (EMRP), both implemented by EURAMET. The programmes are jointly funded by the participating countries and the European Union and have a joint budget of over 1000 M€ for calls between 2009 and 2020. The programmes facilitate the formation of joint research projects between different NMIs and other organisations, including businesses, industry and universities. This accelerates innovation in areas where shared resources and decision-making processes are desirable because of economic factors and the distribution of expertise across countries or industrial sectors.

EURAMET wants to involve European industry and universities at all stages of the programme, from proposing Potential Research Topics to hosting researchers funded by grants to accelerate the adoption of the outputs of the projects.



EURAMET e.V.  
Bundesallee 100  
38116 Braunschweig  
Germany

Dr Duncan Jarvis  
EMRP Programme Manager  
Email: [emp-rp-pm@euramet.org](mailto:emp-rp-pm@euramet.org)  
Phone: +44 20 8943 6707



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