



**WORK PROGRAMME 2016-2017 OF
THE EUROPEAN UNION REFERENCE LABORATORY FOR
CHEMICAL ELEMENTS IN FOOD OF ANIMAL ORIGIN
AT THE
ISTITUTO SUPERIORE DI SANITÀ
ROME, ITALY**

LEGAL FUNCTIONS AND DUTIES

The functions and duties of the European Union Reference Laboratory, formerly named Community Reference Laboratory, are described in Article 32 of Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 (Official Journal of the European Union L 165, 30.04.2004, corrected and republished in the Official Journal of the European Union L 191, 28.05.2004).

The EURL-CEFAO work programme is drawn up on the basis of the objectives reported in the 2016/2017 EC Work programme.

1. OBJECTIVES FOR THE PERIOD 01 JANUARY 2016 - 31 DECEMBER 2017

A. General tasks

Article 32, paragraph 1 (e)

B. Development and validation of analytical methods

Article 32, paragraph 1 (a, c)

C. Quality Assurance and Quality Control, including the organisation of proficiency tests and the development of test material.

Article 32, paragraph 1 (b)

D. Technical and scientific support to NRLs and Third countries

Article 32, paragraph 1 (a, d, e, f)

Each of the objectives above will report the relevant 2015 2016 EC workprogramme objective when appropriate.

2. WORKING PLAN FOR THE PERIOD 01 JANUARY 2016 - 31 DECEMBER 2017

A. General Tasks

Article 32, paragraph 1 (e)

1. Meeting of all EURLs

In case the European Commission organizes coordination meetings of the EURLs for the two year period 2016-2017, an EURL-CEFAO representative will attend these meetings.

Objective: participation in at least 1 meeting of EURLs per year.

Expected Output: reporting of the information to EURL management and sharing of the outcome with personnel involved in the EURL activities.

2. Technical and scientific support to the Commission, co-operation with international organisations and participation in international congresses

Operational Objective 3 of the 2015-2016 EC Workprogramme

The EURL-CEFAO is available to offer professional expertise and to provide technical and scientific support upon request to the European Commission (EC) and international organizations.

The annual evaluation of the National Residues Control Plans (NRCPs) of the EU Member States for years 2016 and 2017 will be performed taking into account the criteria indicated by the EC. Specific observations will be made, if appropriate.

Particular attention will be given in checking if MSs have taken into consideration the comments expressed by the EURL-CEFAO in the Evaluation report issued the year before.

The EURL CEFAO is also available to co-operate with international organisations by expressing its technical opinion upon request.

As for the participation in international congresses, the scientific conferences to attend either as speaker or as participant, will be carefully selected among those on topics of interest for the Laboratory (connected with the activity of the EURL or that could provide new issues for future work).

Therefore, the EURL is willing to participate in at least one international congress per year (2016; 2017).

Objective: providing technical and scientific support upon request of the EC or international organizations; performing the annual evaluation of the NRCPs; participating in international congresses to spread information on the EURL activity and to improve its knowledge of topics of interest.

Expected Output: issuing of a Report on the evaluation of NRCPs per year and submission to the European Commission in due date.

Providing information for any other request (e-mails/letters/documents) of the European Commission/EC related Institutes and International Organizations among EURL CEFAO's duties and competences.

Presentation of at least one lecture or poster in each international congress.

3. Compilation of annual reports

Operational Objectives 4 of the 2015 2016 EC Workprogramme:

The reports on the activities carried out for the relevant contract period (2016-2017) will be regularly issued and submitted to EC (and to NRLs if necessary).

Objective: Drawing up of the Reports for the European Commission within the due date.

Expected Output: Releasing of: an Interim Annual Report, a Final Activity Report (2017), performance indicator report, reports on Workshop (2016 and 2017) and on NRLs visits (2016, 2017). The scope of these documents is to regularly inform the EC regarding the EURL-CEFAO activity, follow-up actions for NRLs included.

4. Documentation services, interchange of information

Operational Objectives 1, 3 of the 2015 2016 EC Workprogramme:

The EURL-CEFAO, on the basis of its competence, knowledge and duties, will be available to answer to queries on policy making and enforcement raised from the EU Commission and related organizations.

The EURL website will be regularly updated in order to share information among the NRLs. The restricted area will be updated on the basis of the EURL CEFAO activity as well as the open access area. This area will be updated with respect to new legislation, amendments of existing legislation and topics of interest for the NRLs (e.g. EFSA opinions and documents, scientific publications, etc.). In particular, in case of amendments of the EU legislation, the latest versions will be included in the website and the NRLs will be informed by e-mail.

The sections dedicated to the bibliographic references and to the EURL-CEFAO publications will be updated on regular basis.

In the restricted area, the control charts of the z-scores obtained by NRLs in the PTs will be updated after the relevant PTs. Moreover, control charts for new matrix/analytes will be made available to the NRLs (i.e. honey).

The update version of the “Handbook of the NRLs Analytical Methods” will be published in the website yearly. In particular, as of 2016 it will be organized according to the new format distributed to the NRLs in 2015. This new format is conceived to collect more complete information on the analytical methods and to make the document easier and faster to read.

As for the interchange of information, the EURL-CEFAO will be available, upon request, to give support to the NRLs and to Official Laboratories of Third Countries. In particular, it will be strengthened the collaboration with the Brazilian National Laboratory (Laboratório Nacional Agropecuário, Ministério da Agricultura, Pecuária e Abastecimento).

The collaboration and interchange of information with the EURL for Feed and Food (Geel) will be continued.

Objective: Regular updating of the restricted area (indicators of the NRLs performance in PTs; reports of the PTs; reports of workshops; handbook of analytical methods) and the opened access area (EU legislation; EURL’s publications; work programmes; etc).

Expected Output: preparation of 4 Short and 4 Final reports of PTs (2 per year for each type of report); issuing of updated/new z-scores Control Charts of each NRL (two per year); updating of the Handbook of Analytical Methods of the NRLs (on annual basis); list of Official Methods, bibliography of interest for the network and EURL-CEFAO publications (on annual basis).

5. Analytical methods

Operational Objective 1 of the 2015 2016 EC Workprogramme:

the development of new analytical methods as well as the maintenance and improvement of those already validated/accredited is an important part of the EURL's activity. In particular, two objectives are pursued in planning the study of new methods: provide the NRLs with analytical procedures to be applied to the new

matrix/analyte combinations included in the EURL-CEFAO PTs and develop new methods of particular interest for the network or necessary to face emerging topics. In both cases, the results of this activity is shared with the NRLs as these methods are usually distributed to the NRLs or made available upon request.

5.1 Maintenance of analytical methods

As the EURL-CEFAO is a laboratory accredited according the ISO/IEC 17025:2005 enlarged with the flexible scope, the maintenance of the accredited methods entails an important analytical activity. In fact, the accreditation according to this Standard requires a regular updating/validation reassessment of the accredited methods as well as a continuous verification of the methods performance. All the analytical methods included in the fixed/flexible scope of accreditation will be regularly monitored by means of control charts, using of certified reference materials/reference materials and participating in external PTs. In particular, depending on the availability and pertinence of analytes and matrices offered by commercial PT providers, the EURL-CEFAO will plan the participation in at least one external Proficiency Test per year using an accredited method so as to check its performance.

Objective: give evidence that the performance of the accredited analytical methods is steady (fulfilment of rules established for control charts; satisfactory recoveries when CRMs/RMs are used; satisfactory z-scores in external PTs)

Expected Output: confirmation of all methods included in the scopes of accreditation by the Accreditation Body.

5.2 Development of analytical methods

Operational Objective 1, line 1, 2 and 3 of the 2015 EC Workprogramme:

Based on the growing interest from some NRLs in the analysis of aluminium in food matrices by means of GF-AAS, a procedure will be developed by the EURL and distributed to the laboratories (2016). The method will be developed in a food matrix of common interest and the best way to overcome the contamination problems related to the analysis of this chemical element will be studied. In fact, on the basis of the EURL-CEFAO experience, the preparation of blanks with a negligible content of Al as well as the maintenance of environmental contamination under control, is key in developing a method for the analysis of Al. Therefore, the guideline distributed to the NRLs will be especially focused on this aspect.

As Calcium (Ca) is considered an appropriate and important chemical parameter used to distinguish mechanically separated meat (MSM) from non-MSM products (EFSA Journal 2013;11(3):3137), the development of an analytical method for its quantification in such a matrix can be of particular interest for the network. In fact, the EURL was already requested to give information on Ca determination so the development of an analytical method by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) in a transformed food matrix will be planned in 2017. In particular, the occurrence of possible interferences will be taken into account and, in case, the best way to overcome them will be considered. A guideline containing all the

necessary information on the application of this method together with some validation parameters will be distributed to the NRLs.

A special application of ICP-MS is the isotope dilution (ICP-IDMS) in which the sample is spiked with an enriched isotope of the element of interest. The enriched isotope acts both as a calibration standard and as an internal standard. Moreover, having the same chemical and physical properties as the element to quantify, the enriched isotope is the best possible internal standard. The entire analysis is based upon ratio measurements of one isotope of the element to another so this technique is regarded among chemistry measurement methods of the highest metrological standing. Therefore, it is often used to certify standard reference materials for its high accuracy. In the field of routine analysis it is of high potential if the accuracy is of predominant analytical importance. The method is applicable exclusively to chemical elements having more than one isotope (e.g. Cd and Pb) and, even if this technique is free from matrix effect, the occurrence of isobaric interference has to be carefully evaluated and solved. The development of a ICP-IDMS method can be difficult and time consuming but it would be extremely useful for setting the reference values of certain analytes in the EURL-CEFAO PTs materials. In this early stage, it would be used to compare the obtained reference values to the assigned values based on the consensus from participants so as to confirm the effectiveness of the procedure used by the EURL to set the assigned values in its PTs. Thus, a specific method will be developed by the EURL's experts and will be made available to the NRLs upon request (2017).

Considering that the EFSA “Scientific Opinion on the risks to public health related to the presence of nickel in food and drinking water” (EFSA Journal 2015) underlines that: “... Among the different age classes, ‘Toddlers’ and ‘Other children’ showed the highest chronic dietary exposure to nickel. Overall, the main contributors to the dietary exposure to nickel across the different dietary surveys and age classes were ‘Grain and grain-based products’, ‘Non-alcoholic beverages’ (except milk-based beverages), ‘Sugar and confectionery’, ‘Legumes, nuts and oilseeds’, and ‘Vegetables and vegetable products (including fungi)’. **‘Milk and dairy products’ were also important contributors to the dietary exposure to nickel in the young population, in particular in toddlers...**”, the development of analytical methods for the determination of Nickel in a food matrix (milk or dairy products) will be carried out (2017). In particular, the main drawbacks of each analytical technique used by the laboratories of the network will be considered. The developed methods will be made available to the NRLs as guideline.

Objective: development or validation of above indicated analytical methods.

Expected Output: development of methods for determination of Al in food by GF-AAS and for quantification of Ca in transformed food by ICP-OES; Ni in food, development of a ICP-IDMS method. Dissemination of methods to NRLs.

C. Quality Assurance and Quality Control, including the organisation and implementation of proficiency tests

Article 32, paragraph 1 (b)

6. Maintenance of the QA/QC system

Operational Objective 2 of the 2015 2016 EC Work programme

The EURL-CEFAO activity has been focused over the years on the organization of Proficiency Testings compliant with internationally accepted protocols. In particular, as of 2010, the scheme has been accredited according to ISO/IEC 17043:2010 so as to be able to provide NRLs with exercises equivalent to the highest quality level. Therefore, this accreditation represents an added value for the participants with respect to their Accreditation Bodies. The EURL-CEFAO not only produces materials for its scheme but also assesses the homogeneity and stability of the PT test items using in house validated or accredited methods. As a consequence, the maintenance of the accreditation status according to ISO/IEC 17025 extended with the flexible scope is a key point in the annual analytical activity of the laboratory.

Therefore, the EURL-CEFAO plans its activity so as to maintain both the accreditation status according to the above mentioned regulations by carrying out analytical and documental activities as requested by the QA/QC systems.

Two surveillance audits per year (ISO/IEC 17025:2005 and ISO/IEC 17043) will be carried out by the Italian Accreditation Body ACCREDIA so as to check the maintenance of the accreditation status.

Objective: maintenance and improvement of a proper Quality System according to both regulation EN ISO/IEC 17025:2005 and ISO/IEC 17043:2010

Expected Output: maintenance of the accreditation status and successful outcome from each surveillance audits by the Accreditation Body without Non Conformities

7. Proficiency test

Operational Objective 2 of the 2015 2016 EC Workprogramme

Two PTs per year will be organized in the 2016-2017 period. In particular, an exercise on the determination of chemical elements in Infant Formula will be carried out in 2017 preparing and sending to the participants two different materials (infant formula in liquid form and powdered form).

The planned scheme of the PTs is reported below.

2016

- 24th PT on the determination of Cd, Pb in honey
- 25th PT on the determination of total As, Cd and Pb in liquid milk.

2017

- 26th PT on the determination of Cd, Cu, Pb and total Hg in freeze dried meat
- 27th PT on the determination of Cd, Pb and total As in powdered and liquid Infant Formula based on animal proteins

The system of communication with the participants will be implemented by activating a dedicated section in the restricted area of the EURL-CEFAO web site. This will allow the NRLs to register their participation in PTs and to submit their results together with analytical details (e.g. method used; method parameters; etc).

The NRLs will be free to use their methods as routinely applied or the EURL guidelines, when provided. The performance of the participants will be evaluated

through the z-scores that will be calculated using a standard deviation for proficiency assessment based on specific equations developed by the EURL (σ_{pEURL}). In particular, the possibility of a refinement will be considered for existing algorithms taking especially into account the level of performance reached by the network. For new chemical elements and new element/matrix combinations new equations will be set on the basis of the intrinsic analytical difficulty of the analysis as well as the state of art of the techniques available to the NRLs. In order to allow the comparison with commercial programmes, the z-scores calculated by the Horwitz equations ($\sigma_{pHorwitz}$) will be supplied as well.

Within forty days after the deadline of the PT, a “Short Report”, containing the results and the z-scores, will be published in the Restricted Area of the website. The “Final Report” including several issues (e.g. rationale of the round, appropriate statistics, homogeneity and stability data, comments) will be uploaded on the restricted area replacing the Short Report.

All the PT test items will be prepared by the EURL-CEFAO qualified personnel in its facilities. The planned concentration of chemical elements in each matrix will be obtained by adjusting the elements content of the starting material. The lyophilisation and the sterilization processes will be subcontracted to qualified suppliers.

Each exercise will be planned taking into account the EU Regulations (amendments included), the needs of the NRLs and emerging topics. Details of each rationale and plan are summarised below.

24th PT on the determination of Cd, Pb in honey (2016)

Honey was already proposed in the 19th PT (2013) as it was a matrix widely analysed by many European Union control laboratories. When this exercise was conducted no MLs were set for Cd and Pb in this matrix although most of the MSs included this analyte/matrix combination in their National Residue Monitoring Control Plans setting specific action levels. Almost all NRLs participated in the exercise proving the great interest in this matrix even considering the scarcity of commercial PTs and or Certified Reference Materials. Based on this successfully outcome and taking into account that the COMMISSION REGULATION (EU) 2015/1005 amending Regulation (EC) No 1881/2006 as regards maximum levels of lead in certain foodstuffs will come into force in 2016, a new exercise on honey is considered extremely useful. In fact, the CR (EU) 2015/1005 sets ML for Pb also in honey so it is important to check and harmonize the performance of the EURL-CEFAO network on the analysis of Pb on this matrix. Cd will be included in the exercise together with Pb planning a value of concentration suitable for testing if the network performance is steady. Furthermore, the selection of this matrix gives the participants the chance to face again a matrix quite different from the PT test items usually proposed. In fact, its high sugary content can cause problems to the sample treatment.

The laboratories will be requested to perform the compliance statement of the sample for Pb as another step of the exercise.

As far as the production of the PT test items is concerned, preliminary study will be performed in order to choose the most suitable “base material” and the procedure developed for the production of 19th PT test items will be applied.

As the stability of Cd and Pb in this matrix is known.

25th PT on liquid milk total As, Cd and Pb (2016)

Liquid milk is a matrix of great interest for the network, whose performances on the analysis of chemical elements in this matrix have improved over the years in spite of the low values of concentration of Cd and Pb proposed in the EURL-CEFAO exercises. This improvement could be due both to the widespread of more sensitive techniques among the NRLs (a lot of laboratories have moved their methods from AAS based techniques to ICP-MS) and to the number of PTs organized by the EURL-CEFAO as of 2006, that gave the laboratories the chance of exercising their analytical methods.

Since the EURL-CEFAO scheme is also deemed as a way of checking the long-term performance of the participants, the repetition of exercises on the same matrix is considered extremely valuable. As far as milk is concerned, the last PT (16th PT) was organized in 2012 also providing the laboratories with four extra-samples for their internal scopes. Therefore, milk is selected as matrix for the 25th PT both to check the maintenance of a steadily high level of the network’s performance and to make available to the NRLs a reference material in liquid form. Furthermore, as a new MSs has entered in the EU and other MSs have changed the national reference laboratory by 2012, the proposal of this matrix is considered appropriate. The choice of preparing the material in liquid form is due to the fact that the samples analysed on routine basis are in this physical state.

As for the chemical elements, the exercise will be based on the determination of Cadmium and Lead and the laboratories will be also requested to state the sample compliance for Pb.

Moreover, in the previous exercise on liquid milk (16th PT) the percentage of laboratories that had not submitted results for As was around 20% probably due to the absence of ML for this chemical element in the relevant Regulations. However, as Arsenic in food is becoming of particular interest to the network, this element will be included in the 25th PT to verify whether the number of As results submitted by the participants will increase. In case, this could mean that the laboratories have further improved their analytical activity by including As in their methods on milk.

The production of the PT test items will be carried out by the EURL-CEFAO personnel in the EURL facilities according to a well-established internal procedure and only the sterilization process will be performed by an external qualified supplier. The whole production will be planned so as to obtain the number of samples as high as possible without significantly increasing the costs of preparation in order to produce extra-material for the laboratories internal scopes as well.

26th PT on the determination of Cd, Cu, Pb and total Hg in freeze dried meat (2017)

In planning the annual PTs, the EURL-CEFAO repurposes some matrices as part of a programme, continuously updated, to allow NRLs to improve their performance or to undertake corrective actions in case of underperformance. The 26th PT will be organized taking especially into account this specific issue. As for meat, a different general performance of the network was noticed depending on the physical state of the material. In fact, this outcome is evident comparing the results obtained in the 15th PT on freeze-dried matrix (2011) to those obtained in the 18th PT on frozen meat (2013). Some chemical elements, namely Cu and Hg, were included in this matrix only in 18th PT and no information on the performance of the laboratories is available for these analytes in lyophilized samples. In particular, the network showed some difficulties in the analysis of Hg whereas a satisfactory performance was obtained for Cu. Based on this picture, the selection of meat in freeze-dried state is considered of great utility especially including Cu and Hg in the exercise so as to verify the influence of the sample state in the analysis of these elements. Furthermore, due to the scarcity of adequate commercial CRMs and PTs, the preparation of a freeze-dried material will allow the EURL-CEFAO to provide the NRLs with extra-samples to be used as reference material. In fact, this physical state makes the material easier to be stored and handled guaranteeing a long stability of the analytes. In this way the NRLs could use leftover samples, after the assignment of the reference values, for the maintenance of their methods.

As for the compliance statement, it will be requested for Cd and Pb.

The production of the PT test items will be carried out by the EURL staff according to consolidated procedures and only the lyophilisation and sterilization steps will be performed by qualified suppliers.

27th PT on the determination of total As, Cd and Pb in powdered and liquid Infant Formula based on animal proteins (2017)

The entering in force of "COMMISSION REGULATION (EU) 2015/1005 amending Regulation (EC) No 1881/2006 as regards maximum levels of lead in certain foodstuffs" establishes two different MLs in infant formula depending on the physical state in which it is marketed (liquid or powder). In particular, this Regulation sets a ML of 0.050 mg/kg and 0.010 mg/kg for powdered and liquid IF, respectively. This situation will force the laboratories to consider different MLs for the compliance statement without applying any dilution factor as the MLs are set for "marketed product" (as sold). As a consequence, the EURL-CEFAO will plan a PT (27th PT) not only to check the capability of the network to face the analytical problems related to these two physical states but also to evaluate if some problems occur in stating the sample compliance. Therefore, even if an unique exercise will be organized two

different kinds of sample (liquid and powdered test items) will be produced and distributed to the NRLs evaluating the network performance for both materials.

Cadmium will be also included in the exercise bearing in mind that the Commission Regulation (Eu) No 488/2014 sets two different MLs for this chemical element in infant formulae and follow-on formulae (0.010 mg/kg for powder and 0.005 mg/kg for liquid) and that the good performance of the network obtained in the 22nd PT needs to be confirmed. As MLs exist for Cd, the participants will be requested to state the sample acceptance and particular attention will be paid on the percentage of laboratories that will express a correct judgment.

As for Arsenic, this element has been included in the exercise taking into consideration the outcome of the 22nd PT on this matrix. In fact, due to the scattering of the results, the EURL-CEFAO decided not to assign the value for this element. Therefore, it will be interesting to verify if the problem was due to the intrinsic difficulty in analysing this element at low value of concentration in a matrix containing a lot of possible interferences as IF is, or if some laboratories have still problems with this combination matrix/element.

The production of the powdered PT test items will be carried out by the EURL-CEFAO and will be based on previous experiences in the preparation of IF material. As for the liquid sample, preliminary study will be carried out in order to find a suitable starting material available in retail stores and specific procedures for its spiking, homogenization and bottling will be implemented. As far as special processes (sterilization and lyophilization) involved in the production of the 27th PT materials, they will be performed by qualified suppliers.

Objective: Checking the steadiness of the network performances repeating matrices already considered in previous exercises. Verifying the transposition of the new regulations by the NRLs in the compliance assessment of the samples. Production of suitable materials to avoid inconveniences or non-conformities to the PT scheme.

Expected Output: from the EURL point of view, the issuing of 4 Short reports (two per year) within forty days after the deadline of each PT; the issuing of 4 Final Reports (two per year) including analytical and statistical comments, and comparison with the performance in previous similar PTs, when appropriate.

From the NRLs, maintenance of the network performance in terms of z-score for consolidated analytes (Cd, Pb) in each proposed matrix; achievement of satisfactory z-scores for the new combination matrix/element; correct compliance statement.

8. New Reference materials for PTs

The selection of new matrices to be proposed as materials for the EURL-CEFAO PTs is made on the basis of the network's requests as well as taking into account the matrices included in the Regulations of interest. In particular, the possibility of producing a material based on transformed food will be explored so as to give the

NRLs the chance of facing analytical problems that could occur in their routine activity. Several matrices of animal origin will be considered according to the feasibility and difficulty to obtain a sample “fitting for purpose” of the future PTs. Due to the complexity of this work, this study will be conducted by the EURL-CEFAO over two years (2016-2017) in order to be ready to propose this new matrix in one of the 2018 PTs.

Objective: production of new homogeneous test items based on transformed food containing the elements of interest at planned concentration values. Development of a relevant analytical method for the determination of its sufficient homogeneity and stability.

Expected Output: set up of a procedure suitable for the preparation of a homogeneous material.

D. Technical and Scientific Support to NRLs and Third Countries

Article 32, section 1 (a, d, e, f)

9. Analytical support and training

Operational Objective 1, line 5 and 6 of the 2015 2016 EC Workprogramme:

The EURL-CEFAO will monitor the performances of the NRLs through the control charts of z-scores, updated and made available to NRLs in the restricted area of the website (2016, 2017). Moreover, adequate follow-up actions will be performed by giving the underperformer laboratories some suggestions or advises based on the information included in the form to be filled in when the PT results are submitted by the laboratories. In particular, laboratories that need analytical support will be contacted and requested to inform the EURL about the cause of their underperformances and/or if corrective actions have been undertaken and specific exercises or training will be organised if convenient.

The EURL will organize at least one training course per year in its premises for the representatives of the NRLs. The NRLs will be selected on the basis of the following criteria: underperforming laboratories, new laboratories entered the network or underperforming laboratories that have changed their analytical technique, laboratories already visited that still evidence the need of an extra dedicated training.

However, the EURL is ready to welcome the representatives of the NRLs in its laboratories and, upon request, is willing to organize training courses for them. In the same way, the EURL can also organize training courses for Official Laboratories of Candidates Member States and Third Countries, always upon request.

During the “Annual Workshop of NRLs” a technical training will be conducted by the EURL and/or international experts.

Official analyses will be performed, if requested.

Objective: meet the needs of NRLs by organising an *ad hoc* training, if necessary, and providing proper analytical support (including the organization dedicated extra-exercises).

Expected Output: general satisfaction evidenced through the questionnaire distributed to participants.

10. Provision of reference materials

Operational Objective 1, of the 2015 2016 EC Workprogramme:

Considering the policy of the EURL-CEFAO to produce a number of samples as high as possible using the foreseen found, some supernumerary samples will be produced and distributed to the NRLs for each PT. For this reason during the period 2016-2017 some extra samples will be available for the NRLs upon request.

Moreover, in order to perform the follow-up actions, reference material will be produced and distributed to the laboratories, if necessary.

Objective: provision of extra samples of PT test items useful for the NRLs analytical activity. Provision of reference materials for specific exercises foreseen for the follow up activity.

Expected Output: use of material by NRLs for their internal scopes and for specific extra exercises.

11. Visits to NRLs and international mission for scientific information

Operational Objective 1, line 5 of the 2015 EC Work-programme:

The EURL-CEFAO selects yearly the NRLs to visit in order to offer analytical support to the NRLs and enhance the follow-up actions.

Considering the performance level reached by the network, one visit to the underperforming laboratories, new laboratory or laboratory that has changed the analytical technique will be arranged each year (2016, 2017).

The EURL representatives will organize the visit to assist and train the NRL staff on practical and theoretical topics. According to the problems of the laboratory, it could be requested to perform the digestion of some samples in advance in order to carry out the analysis during the visit having the chance to consider particular aspects of the instrumental determination with the NRL staff.

Objective: visits that may be useful for NRLs from theoretical and practical point of view and to strengthen the relationship with the laboratories as well.

Expected Output: general satisfaction expressed in the questionnaire dedicated to NRLs after the visit and an improvement of the laboratory's analytical performance.

12. Organisation of the workshop.

Operational Objective 1, line 5, 6 of the 2015 EC Work-programme:

An "Annual NRLs–EURL Workshop" will be organised every year (2016, 2017) in order to propose and discuss specific topics of common interest.

During these meetings, the EURL-CEFAO representatives will show the outcome of the PTs including analytical comments. In particular, difficulties or underperformance of the laboratories will be highlighted. Experts will be invited to present topics of common interest and/or to train the participants.

The involvement in the workshops of the participant has increased throughout the years, but in order to enhance the active participation of NRLs, the EURL will propose them to prepare a presentation based on a topic of common concern during each meeting.

Representatives of laboratories in third countries, who are in touch with the EURL-CEFAO, will be also invited to attend the workshop in order to promote the collaboration and to have an exchange of opinion on scientific issues.

Objective: organize a workshop with topics of interest for the NRLs. Create occasions to exchange ideas and points of view among participants increasing the relationship with the EURL-CEFAO and among the network laboratories.

Expected Output: general satisfaction through the questionnaire distributed to the NRLs and participation of the representatives of all Member States.