

DEVELOPMENT OF PROFESSIONAL COMPETENCIES ASSESSMENT CENTER ECOIND

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ABSTRACT

European Parliament and Council by a recommendation, in April 2008, established the European Qualification Framework (EQF) which stipulates that the professional competencies development and evaluation are done based on units of competence described in the professional training standards and the occupational standards.

INCD ECOIND participated as a partner in a POS DRU project at the development of infrastructure for assessment of professional competencies obtained by other means than the formal one, through the development and authorization of eight centers for assessment of environmental protection occupations. One of these, the Professional Competencies Assessment Centre ECOIND founded in institute was authorized for *Environmental Responsible* occupation.

This paper presents the technical documentation developed for evaluation and authorization of the center: operational documentation of the center, assessment tools and forms used in the candidates' assessment process.

Keywords: assessment center, units of competence, occupational standards, elements of competence, assessment tools.

INTRODUCTION [1]

By the Europe 2020 strategy of economic growth, in 10 years European Union wants to become a smart, sustainable and favorable to social inclusion economy. Stimulation of this new type of increase is achieved, inter alia, by increasing the personal competencies and strengthening the education throughout life.

National strategy for sustainable development of Romania emphasis on continuing education through the lifelong learning from initial education up to various forms of training, retraining, specialization and professional improvement such in formal as well in non-formal or informal contexts

European Council Resolution from June 2002 on lifelong learning invited the Commission, in collaboration with the Council and the member states, to develop a framework for the recognition of qualifications in the field of education and training. So was drawn up the European Qualifications Framework (EQF) for lifelong learning (Recommendation 2008 of the European Parliament and Council) which recommends to the member states:

- to promote the lifelong learning and equal opportunities in the knowledge based society
- to use the EQF as a reference tool to compare the qualification levels of the various qualification systems
- to adopt an approach based on learning results for the definition and description of qualifications and to promote the validation of non-formal and informal education

Alignment of the Romanian national qualifications frame (CNC) with EQF led to reform the vocational education and training system in Romania based of occupational standards and proper professional qualifications.

Occupational standards are documents that specify what a person must know and be able to do, in order to be considered competent at the workplace. These are focused on what is needed to do to get the expected results in a professional activity and not on the modalities for obtaining them.

The occupational standards define the knowledge and practical skills necessary to practice the occupational areas in the form of units of competence. Occupational standards used in our country starting from the second half of the 1990s serve as referential such to providers of vocational training to develop vocational training programs as well to professional competencies evaluators to develop tools for professional competencies assessment.

TERMS AND DEFINITIONS: [1], [3]

- Profession - specialty (qualification) obtained by studies.
- Occupation - specialty (qualification) actually exercised at work, can be expressed by function or job.
- Learning – is a cumulative process by which a person gradually assimilates notions increasingly complex and abstract (concepts, categories and types of behavior or models) and/or acquires skills and general competencies.
- Context of formal learning - the process of learning takes place in an environment organized and structured (in school/training center or at the workplace) and which is explicitly designed as learning process with objectives, allocated time and well established resources.
- Context of non-formal learning - learning that is included in the activities not designed explicitly for learning processes but which contain important elements of learning. Non-formal learning is a process carried out with the

intention of whom studying, occurs outside of curriculum of formal education system.

- Context of informal learning - learning that results from daily activities that take place at work, family or leisure. It is not organized or structured in terms of objectives, time or learning materials allocated. Informal learning is in most cases unintentional from the learner.
- Knowledge - the result of assimilation of information by learning. Knowledge is the body of facts, principles, theories and practices related to a particular field of work or study.
- Skills - the ability to apply and to use knowledge to complete tasks and to solve problems; means the ability to perform an action, either naturally or as a result of learning and practice.
- Competence - the proven ability to use knowledge, skills and personal, social, and/or methodological capabilities in situations of work or study and for personal and professional development.
- Unit of competence - defines a major activity of an occupation and the result associated with it;
- Element of competence - describes an key activity as part of a unit of competence, and the result associated with it;
- Critical aspect - quality benchmark of the competence, it refers to the knowledge and essential skills for a person to perform the activities and to achieve the results described in the competence.
- Evaluation of the professional competencies obtained in other ways than the formal - the process of collection of competence evidences and their judgment in relation to the requirements of the occupational/ professional training standard
- Competencies certification – is the official process of validation of the knowledge, know-how and/or skills, acquired by a person, following a standardized assessment procedure. Certification validates the result either of learning (training activities) carried out in a formal context, either of learning carried out in informal/non-formal contexts.
- Occupational standard - is the document which specifies the units of competence and the quality level associated to the activities results contained in an occupation

THE APPLIED METHOD [2], [3], [4], [5], [6]

Professional competencies assessment is made in the assessment centers developed and authorized in accordance with the following:

- Order 468/2004 for the approval of the procedure for the assessment and certification of professional competencies acquired in other ways than the formal

- Methodology for certification of qualifications and competencies, CNA 2009
INCD ECOIND participated, as a partner, with a team of 3 long term experts and 15 short-term experts in carrying out the strategic project *PRO*

COMPETENT! Qualifications and certifications of competencies for a sustainable development in the Sectoral Operational Program for development of Human Resources, contract no. POSDRU/ 58/ 1.4/S/32519.

The project has been led by Sectoral Committee for Vocational Training in the Environment Protection with internal partners: National Research and Development Institute for Industrial Ecology, the Association of Environmental Auditors and Assessors from Industry and SC EUROLINK CONSULTANTS Ltd and external partners: The Scottish Qualifications Authority and Athens Network of Collaborating Experts.

A specific goal of the project was the development of the competencies assessment and certification centers to support the improving of the prior learning certification system structure and training sectoral evaluators in the environmental protection field. One of these centers has been developed in INCD ECOIND for occupation *Environmental Responsible* code COR 325710.

The development of Assessment Center for Professional Competencies ECOIND included the following major activities:

1. Establishment, designation and certification of the assessment center staff
2. Development of assessment tools
3. Development of documentation for operation and authorization of the assessment center
4. Validation of the assessment tools by testing them in the assessment process
5. Authorization of the assessment center

Evaluation of the candidates' occupational competencies is carried out within the evaluation processes using assessment tools. These tools are developed by center's evaluators based on the occupational standard of the evaluated occupation and are used to assessing the knowledge and the practical skills of the candidates.

The development of assessment tools is made in accordance with the *Practical guide of the professional competencies evaluators*.

The guide sets out the assessment methods to collect the competence evidences of the candidates:

- a) self assessment
 - b) oral questions
 - c) writing test
 - d) project
 - e) portfolio of works
 - f) direct observation
 - g) simulation/case study
 - h) reports from other persons
- a)--e) knowledge evaluation; (e)-- (h) skills and attitudes evaluation

These assessment methods customized become assessment tools.

The assessment tools include:

- objectives of assessment
- requirements which must be fulfilled by the candidate
- expected results
- details of how to apply or solving, if applicable,
- method of appreciation of obtained results

Self assessment consists in appreciation of the own capacities and the results of its own activities in relation to the requirements of the occupational standard. Direct observation is the activity through which the information is collected in concrete work situations.

Simulation/case study consists in proving of knowledge and skills in similar reality situations, under the experimental conditions.

Oral questions and written test consists in verifying of knowledge and ability to operate with them by means of a series of questions.

The project has as its object to develop a product or to resolve problems.

Reports from other persons are opinions based on before assessment activity of some colleagues, bosses, beneficiaries, collaborators.

Portfolio includes diplomas, certificates, certifications, significant work before assessment, publications etc.

The assessment tools are developed through the following steps:

- analysis of the occupational standard units of competence
- identifying the critical aspects for each unit of competence
- establishment of the assessment methods for the identified critical aspects
- development of the assessment tools

RESULTS AND DISCUSSION

1. Establishment, designation and certification of the assessment center staff **[2]**

The staff of the assessment center consists on:

- executive director
- two professional competencies evaluators
- secretary

The staff is designated by a decision of INCD ECOIND general director.

The professional competencies evaluators, in accordance with the Order 468/2004, are specialists with proven recent experience in the occupation for which they are appointed to carry out the assessment and they must be certified by the National Authority for Qualifications (ANC).

Appointed evaluators have been assessed by ANC in accordance with the occupational standard *Evaluator in continuing vocational training system*. Their knowledge has been evaluated by written and oral examination took place at ANC headquarters and their skills and practical experience by drawing up a project on a given theme. As a result of the evaluation the INCD ECOIND evaluators have obtained the certificate of professional competence for occupation *Evaluator of professional competencies*.

2. Development of assessment tools [7]

Occupational standard *Environmental responsible* comprise 19 units of competence: 6 key competence units, 4 general competence units and 9 specific competence units.

Following the examination of these competence units have been identified the critical aspects and have been established the assessment methods for each unit of competence.

Example:

For the unit of competence *Development of the program for the monitoring of environmental factors* has been identified 5 critical aspects:

a) Identify with caution and responsibility the sources of pollution on environmental factors in accordance with the environmental legal requirements, the significant environmental aspects and the environmental goals, according to EMS documentation.

Methods of evaluation: written test, simulation/direct observation, portfolio, oral questions

b) Established rigorously the check and control points for environmental factors in accordance with the environmental legal requirements, the location and organization's plans, according to EMS documentation.

Methods of evaluation: written test, simulation/direct observation, portfolio, oral questions

c) Identify with responsibility and objectivity the quality indicators of environmental factors in compliance with the legal requirements and the interested parties' requests, according to EMS documentation

Methods of evaluation: written test, simulation, portfolio, reports from other persons.

d) Establish with care the frequency of monitoring in compliance with the legal requirements, according to EMS documentation

Methods of evaluation: simulation, reports other persons, oral questions

e) Possesses sufficient basic knowledge in the field of chemistry and concerning the methods of measurement and control for monitoring of environmental factors

Methods of evaluation: writing test, portfolio

Next, have been developed the assessment tools through the operationalization of the set methods:

a) The self-assessment sheet - includes 36 items relating to knowledge and 51 items relating to skills

b) The writing test - contains 48 questions and answers with related scoring.

Example: for the unit of competence: *Monitoring of environmental factors* are drawn up 4 questions:

- Give examples of relevant quality indicators, results of the monitoring of environmental factors (high score 4)

Answer:

- water - total suspended matter, CCOCR, CBO5, content of heavy metals,
- air - contents of particulates, CO₂, NO_x, SO₂, volatile organic substances, heavy metals

- soil - content of heavy metals, BTEX, PAHs, pesticides, petroleum products
 - waste - content of heavy metals, PCBs, PAHs, volatile organic substances
- Who and how performs the calibration of monitoring equipment? (high score 1)
Answer: Empowered organizations with the frequency required by legal regulations or specified in the QMS/EMC documentation
- The values of quality indicators resulting from monitoring should be compared with the values set out in the environmental authorization or to those required by legislation? (high score 2)
Answer: with the values set out in the environmental authorization
- With what frequency is evaluated the compliance with environmental legal requirements? (high score 1)
Answer: in accordance with the EMS procedure but at least once a year.
- c) Oral questions - were established 29 questions and answers

Example:

For the unit of competence: *Development of the program for monitoring of environmental factors* are drawn up 3 questions:

- Please list a few possible sources of water pollution

Answer: chemical substances used in the production process, chemicals used in cleaning and sanitation, loss of oil and fuel, discharges of solutions to washing facilities and equipment

- How do you set points for the monitoring of environmental factors?

Answer: based on the characteristics of the emission source in such a way that it can be measure the quality indicators for environmental factors required in the environmental authorization and in environmental legislation.

- How determine the frequency for the monitoring of environmental factors?

Answer: in accordance to the requirements of environmental and water authorization, to the legal requirements and of the environmental protection agency

d) Direct observation sheet - have been drawn up for to 3 units of specific competence.

e) Project - assess the knowledge and skills for 4 units of specific competence

f) Simulation /case study - have been drawn for 3 units of specific competence

g) Report from other persons - drawn up to collect evidences for 33 activities

h) Portfolio - collect evidences of competence regarding the initial formation, continuing education and practical experience.

To perform the professional competencies assessment process were developed necessary forms:

a) Application for assessment

b) Official acceptance confirmation of the application for assessment

c) Evaluation file

- d) Methods for the evaluation
- e) Evaluation program
- f) Table of comply with the critical aspects
- g) Registration result
- h) Questionnaire fort assessment of the candidate satisfaction

3. Development of documentation for operation and authorization of the assessment center

Have been developed the following documents for center’s operation:

- a) Professional ethics code of the competencies evaluators
- b) General regulations: Requirements relating the occupational evaluation, code RG-00
- c) Organization and functioning regulations of the commission for evaluators selection, code RG-01
- d) Center organizational chart
- e) Job description for: director, evaluator, internal verifier and secretary
- f) Procedures for conducting the evaluation process:
 - The process of evaluation and certification of professional competencies, code PG-01
 - Recruitment, assessment and training of staff component code, PG-02
 - The evaluation of the occupational competencies, code PL-01
 - Appeals, code PL-02
 - The issuance and management of professional competence certificates, code PL-03
 - Recording and archiving of the records, code PL-04
 - Internal evaluation and verification, code PL-05
 - Feedback from candidate, code PL-06
 - Evaluation and selection of the competencies evaluators, code PL-07
- g) Map with informative documents
- h) Contract for the assessment
- i) Registers:
 - Register of correspondence
 - Register of evidence of the professional competence certificates
 - Register for nominal issuance of professional competence certificates
 - Register of evidence of canceled professional competence certificates
 - Register of evidence of the files for the professional competence evaluation

For the authorization of professional competence assessment center were developed:

- a) Eligibility file
- b) Assessment tools file

- c) Professional competence evaluators file
- d) List of evidence to comply with the assessment criteria
- e) Matrix for establishing the performance level of the assessment center
- f) Application for authorization

4. Validation of the assessment tools by testing them in the assessment process

Validation of developed evaluation tools have been done through effective use of them in the assessment process. Each assessor drawn 5 evaluation files planned and completed the evaluation process in accordance with the center's procedures for 5 candidates.

5. Authorization of the assessment center

In order to authorize the assessment center, an evaluator of ANC verified compliance with the 468/2004 Order's requirements by:

- analyzing the documents submitted to ANC
- analyzing the certification of professional competence files drawn up by the center's evaluators for testing the evaluation tools
- direct observation of evaluators in the assessment process on the occasion of the visit carried out in INCD ECOIND
- checking the professional competence certification of the evaluators

CONCLUSIONS

There was developed the documentation for operation and authorization of the assessment center.

There were developed the assessment tools.

Each evaluator conducted five assessments of professional competence.

The two evaluators of the center were certified.

Finally, the professional competencies assessment center ECOIND obtained the authorization no. 00413/31.05.2013 for assessing professional competencies for *Environmental responsible* occupation.

REFERENCES

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