

Joint EU/CoE Project
Strategic Development of Higher Education and Qualification Standards

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**Manual for the development and use
of qualifications and occupational standards
in Bosnia and Herzegovina**

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- DRAFT -

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Glossary

European Qualifications Framework for lifelong learning (EQF) is an instrument that introduces qualification levels aimed for recognition and understanding of qualifications across national qualifications frameworks. [1]

Qualifications Framework for the European Higher Education Area (QF-EHEA) is a document adopted by the Conference of European Ministers Responsible for Higher Education in Bergen in 2005, which defines generic descriptors for each of the three cycles of higher education and is applied in all the state signatories of the Bologna Process. [2]

National Qualifications Framework (NQF) is an instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims to integrate and coordinate national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society. [1]

Qualifications Framework in Bosnia and Herzegovina (QF-BiH) is an instrument for classification of qualifications acquired in Bosnia and Herzegovina, which provides the basis for transparency, access, progression, award and quality of qualifications. [2]

Qualification means a formal outcome of an assessment and validation process, which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards. [1, 2]

Learning outcomes means statements of what a student knows, understands and is able to do on completion of learning process, which are defined in terms of knowledge, skills and competence. [1,2]

Knowledge means the outcomes of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the EQF, knowledge is described as theoretical and/or factual. [1,2]

Skills means the ability to apply knowledge and use know how to complete tasks and solve problems. In the context of the EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking), or practical (involving manual dexterity and the use of methods, materials, tools and instruments) and social (communication and cooperation skills, emotional intelligence etc.). [2]

Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the EQF, competence is described in terms of responsibility and autonomy. [1, 2]

Workload means the time spent on all the learning activities necessary for reaching certain learning outcomes, including teaching, independent learning and assessment of the

competences acquired. [2]

Credit point is a unit of measurement used for expressing the workload needed for achievement of learning outcomes, which is determined on the basis of the average time successful learners need to achieve those learning outcomes. Example ECTS credits (European Credit Transfer and Accumulation System) in higher education. [2]

Level descriptors mean generic description of learning outcomes of a particular level. [2]

Level of qualification means the complexity and the scope of the learning outcomes achieved and is described by a set of level descriptors. [2]

Lifelong learning means integration of formal, non-formal and informal learning in order to acquire abilities for continuous improvement of quality of life. [2]

Formal education means learning guided by a teacher or an instructor, acquired in educational institutions, in compliance with curricula approved by competent education authorities. [2, 3]

Non-formal learning means an organised process of learning and education focused on improving, specialising or amending knowledge, skills and competence in compliance with special programmes implemented by education providers (ordinary schools, education centres, companies, agencies, etc.). [2,3]

Informal learning means unplanned learning and acquisition of knowledge through everyday activities. [2,3]

Inclusive education means the right of every person to education throughout one's life, and in particular the right of children with developmental difficulties to be included in ordinary education, as well as the right of gifted children to develop their potentials to the maximum. [2]

Open educational resources (OER) means digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research; it includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licences; OER also refers to accumulated digital assets that can be adjusted and which provide benefits without restricting the possibilities for others to enjoy them. [3]

International Standard Classification of Education (ISCED) is the standard international classification of education. [2] In education, quality assurance means the process or set of processes

Quality Assurance means a system and procedures applied in order to preserve the agreed standards of products and services and their constant improvement. [2]
In education, as defined in the ECTS Users' Guide, quality assurance means the process or set of processes adopted nationally and institutionally to ensure the quality of educational programmes and qualifications awarded. [10]

Validation of non-formal and informal learning means a process of confirmation by an authorised body that an individual has acquired learning outcomes measured against a relevant standard and consist of a series of phases: identification, documentation, a formal assessment and certification. [2,3]

Recognition of prior learning means the validation of learning outcomes, whether from formal education or non-formal or informal learning, acquired before requesting validation. [3]

Qualifications Standard means the content and the structure of a particular qualification. It includes all the data necessary for determining the level, the credit points and the profile of a qualification, as well as information necessary for quality assurance. [2]

Occupational Standard means a list of all tasks that an individual performs within a particular occupation and a list of competences required for their successful performance. [2]

Sector means a grouping of professional activities on the basis of their main economic function, product, service or technology. [1]

Self-certification to the QF-EHEA ...

EQF Referencing to the EQF ...

Acronyms

EQF	the European Qualifications Framework for lifelong learning
NQF	National qualifications framework
QF-BiH	Qualifications Framework in Bosnia and Herzegovina
QF-EHEA	Qualifications Framework for the European Higher Education Area
ISCED	International Standard Classification of Education
OER	Open educational resources
EU	European Union
CoE	Council of Europe
EQAR	European Quality Assurance Register for Higher Education
ECTS	European Credit Transfer and Accumulation System
ESG	Standards and Guidelines for Quality Assurance in the EHEA

DRAFT - only for training purposes

Executive summary

The entire higher education system are more and more forced to prepare competitive individuals who can respond successfully to the changing economic and other society challenges in the globalised world. Dynamic and ever-growing labour market terminated the traditional view of education as a single – only initial – period of life, which has the beginning at a certain time of life and the ending after the initial education, leading to the application stage through the entire life. In modern times, education is rather a lifelong process for all individuals, but not one-stage process.

Rapid development of modern technology and its influence to labour markets and general part of citizens life in all member states of the European Union as well as those that wish to join the EU (thus including Bosnia and Herzegovina) have presented numerous challenges to the education. A leading challenge is the relevance and quality assurance of qualifications, which includes the necessity to ensure systemic validation of education and training in each country and its comparison with education systems in other countries, by means of two common European reference meta-frameworks: the EQF and the QF-EHEA.

In Bosnia and Herzegovina, as in many countries in Europe, to achieve all benefits by implementation of the QF-BiH it is important to guide all stakeholders in higher education system with intention to facilitate the development and implementation of the QF-BiH in higher education, which is the priority of these Guidelines.

The Guidelines are structured according to the Action Plan and recommendations of expert groups from different sectors who developed examples of occupational and qualifications standards, as the main elements of the QF-BiH.

When writing the Guidelines it is acknowledged that the QF-BiH and its support to quality assurance and relevance must be fit to purpose and designed according to the particular context at local higher education institutions.

...

1. Introduction

1.1. The Action Plan for development and implementation of the QF in BiH 2014-2020

The Council of Ministries of Bosnia and Herzegovina has adopted a series of decisions and documents necessary for development and implementation of the QF-BiH. Among those documents, very important documents are the Baseline of the QF-BiH and the Action Plan for development and implementation of the QF-BiH 2014-2020.

The Action Plan defines vision and mission, goals and aims of the QF-BiH. It includes also SWOT analysis and all important activities and their outcomes and responsibilities. All proposed activities of the Action Plan are organised within five interrelated work-packages (WP), as follows:

- WP-1: Designing of the QF-BiH (all components, procedures, bodies, guidelines)
- WP-2: Testing the QF-BiH (examples of occupational and qualifications standards, programmes, procedures and bodies, IT platform)
- WP-3: Development of legal and other documents for the QF-BiH and its implementation (legal documents at appropriate levels of governance, improvement of quality assurance systems, self-certification and reference reports to the EQF and QF-EHEA, relevant bodies, IT platform, occupational and qualifications standards, modernisation of programmes, recognition of foreign qualifications)
- WP-4: Developing human resources and quality assurance of the Action Plan implementation (training, international cooperation, dissemination of lifelong learning, quality assurance of the Action Plan implementation)
- WP-5: Review and further development of the QF-BiH (analysis of the QF-BiH implementation, changes of amendments, validation of non-formal and informal learning, revision of self-certification and referencing reports).

This Action Plan facilitates a harmonisation of main educational international projects in BiH. It ensures that outcomes of those projects the best possible fits to the interest of BiH, including sustainable modernisation of higher education and quality assurance system, which further makes the base for quality of qualifications and their relevance to the labour market, further education or other needs of individuals and society.

1.2. Current and previous joint EU/CoE projects in BiH

In BiH there has been already a set of activities and relevant international projects, which already fit very well to the Action Plan, such as the joint European Union/Council of Europe (EU/CoE) project “*Strategic Development of Higher Education and Qualification Standards*”.

The overall objective of this project is to advance the reform of the higher education system in BiH to support the development of the economy and society in line with the objectives of the EHEA. The specific objective of the project is to increase mobility and employability of the labour force within BiH and within other countries through further development of the

qualifications system, harmonised with European recommendations, and in accordance with labour market and society needs. The project also aims to strengthen the higher education system by developing and applying common standards for higher education qualifications across the country. The objectives of the project are:

- Priorities for further development of higher education in BiH
- Occupational standards and subject benchmarks (qualifications standards) for selected HE qualifications
- Guidelines for further development and use of qualifications standards in BiH
- Capacity building for further development and use of qualifications standards and occupational standards in BiH and recommendations for further development and implementation of BiH Qualifications Framework, including training modules.

The project also supported finalisation of the Action Plan for development and implementation of the QF-BiH 2014-2020.

Beside the above-mentioned project, other joint EU/CoE projects, which are related to the QF-BiH development, are as follows:

- "*Strengthening Higher Education in BiH III*". This project was focused on the implementation of four of the Seven Key Strategies and Guidelines. The project assisted the Agency for the Development of Higher Education and Quality Assurance (HEA) and BiH universities with drafting the corresponding criteria and procedures and to prepare them for the actual external evaluation in line with the European standards and guidelines. In addition, the project assisted BiH universities and the BiH Rectors Conference with the implementation of the QF-BiH. The assistance was accompanied by a set of recommendations related to the legislative framework for higher education and a proposal for a single expert body for taking forward the strategic implementation of Bologna reforms in BiH. The project developed the "*Curriculum Development Good Practice Guide*" and a set of templates for curricular design and program validation.
- "*Strengthening Higher Education in BiH II*". This project assisted BiH to fulfil its commitments from the Bergen Communiqué in May 2005: namely the preparation and introduction of state-level strategies and guidelines for the recognition of qualifications and for the evaluation and accreditation of higher education institutions and programs. The outcome, "*Seven Key Strategies and Guidelines to Implement the Bologna Process in BiH*", was adopted by the BiH Council of Ministers in December 2007 and published in the BiH Official Gazette 13/08.
- "*Modernising Governance and Management Capacities of Universities in BiH*". The project carried out an institutional evaluation with all public universities in BiH in cooperation with the European University Association (EUA), provided professional expertise on the core issues of higher education reform and governance in BiH and created practical tools for their implementation, such as Prototype statute and Priorities for management of integrated university in BiH.

1.3. Other EU projects in BiH and publications

Besides the joint projects of the European Union and the Council of Europe, through different programmes and projects many other international key donors have supported reform and modernisation of qualifications system in BiH, including general education, vocational

education and training and higher education. As outcomes of those projects, a considerable number of relevant documents have been issued, which give recommendations and the basis for new legislative frameworks, new bodies and procedures. Example of those documents are “*Roadmap for the development of occupational standards in BiH*”, “*Handbook: Development of occupational standards*”, “*Curriculum Development Good Practice Guide*”, and “*BiH Impact assessment of vocational education and training reform*”, etc.

The last mentioned document, for example, is a report which aims to assess the impact of VET reform in Bosnia and Herzegovina from 1998 to 2009 with particular focus on the VET Development Strategy and Action Plan for period between 2007 and 2013 in terms of progress in six priority areas: legislation; institutional development; classification of occupations, standards and curricula and the QF-BiH; management and administration in VET; teacher training; and adult education. Also, several of international projects have supported development of the Action Plan.

One of the current EU projects, relevant for the QF-BiH development and implementation in higher education, is Tempus project “*BiH Higher Education Qualifications Framework - BHQFHE*”. The main objectives of that project are to strengthen and support institutional capacities for the QF-BiH development in higher education, and to create the implementation model of the QF-BiH in higher education, based on the EQF and the QF-EHEA reference and self-certification criteria and procedures. In addition, the project aims to develop standards for different sectors, capacity building to write and validate effective learning outcomes in higher education relevant to labour market and other needs. The project includes development of study programmes in line to developed standards, and development of Self-certification report of the QF-BiH for higher education to the QF-EHEA.

1.4. Priorities of the EHEA Ministerial Conference 2015 in Armenia publications

The ministries at the last Ministerial Conference in Bucharest in 2012 set the following priorities for the period between 2012 and 2015:

- Reflect thoroughly on the findings of the 2012 Bologna Implementation Report and take into account its conclusions and recommendations
- Strengthen policies of widening overall access and raising completion rates, including measures targeting the increased participation of underrepresented groups
- Establish conditions that foster student-centred learning, innovative teaching methods and a supportive and inspiring working and learning environment, while continuing to involve students and staff in governance structures at all levels
- Allow EQAR-registered quality assurance agencies to perform their activities across the EHEA, while complying with national requirements
- Work to enhance employability, lifelong learning, problem-solving and entrepreneurial skills through improved cooperation with employers, especially in the development of educational programmes
- Ensure that qualifications frameworks, ECTS and Diploma Supplement implementation is based on learning outcomes

- Invite countries that cannot finalise the implementation of national qualifications frameworks compatible with QF-EHEA by the end of 2012 to redouble their efforts and submit a revised roadmap for this task
- Implement the recommendations of the strategy “Mobility for better learning” and work towards full portability of national grants and loans across the EHEA
- Review national legislation to fully comply with the Lisbon Recognition Convention and promote the use of the EAR-manual to advance recognition practices;
- Encourage knowledge-based alliances in the EHEA, focusing on research and technology.

The next Conference of Ministers of the European Higher Education Area takes place in Yerevan, Armenia, on 14-15 May 2015. Ministers will debate progress made on Bologna reforms since the previous conference in Bucharest in 2012, with an underpinning of evidence provided by the 2015 Bologna Implementation Report (a reporting exercise coordinated by the Bologna Reporting Group, supported by Eurydice and Eurostat).

At Yerevan, Ministers will set out their future commitments to the Bologna reforms. It is expected that Ministers will adopt updates to European tools supporting quality, transparency and mobility, (revised European Standards and Guidelines for Quality Assurance, revised ECTS Users’ Guide, and a European Approach to the Quality Assurance of Joint Programmes).

Ministers are likely to take forward, inter alia, recommendations from the Bologna Structural Reforms Working Group, to modernise the QF-EHEA, to include short cycle qualifications, and a request to the European Commission, the Council of Europe and UNESCO to review the Diploma Supplement and to ensure the adoption of the same revised version in both frameworks.

The Bologna Follow Up Group has endorsed the Report by the Structural Reforms Working Group. [11]

1.5. Benefit for different BiH authorities and stakeholders

By implementing the QF in BiH in higher education along with other associated reforms, it is reasonable to expect set of benefits for different institutions, bodies and individuals (BiH authorities, higher education institutions, labour market stakeholders, students, employees, employers and others) in some or all of the following areas:

- Increasing transparency, coherence and consistency of qualifications, by implementation of effective learning outcomes in relation to their assessment
- Increasing relevance and quality of qualifications, by development and implementation of standards
- Increasing currency of qualifications, by using QF-BiH to support quality assurance system of assessment, certification, and recognition
- Clarifying of learning pathways, progression and lifelong learning, by using units of learning outcomes and credits and breaking qualifications into smaller parts

- Increasing portability of qualifications and coherence of national reform policies, by using QF-BiH as a platform for stakeholders for strengthening cooperation and commitment
- Broadening range of learning forms recognised (non-formal and informal learning)
- Increasing the basis for international recognition and co-operation, understanding and comparison, by referencing the QF-BiH to the EQF and the QF-EHEA, which facilitates mobility and lifelong learning.

Examples of specific benefits for different groups are as follows:

- Higher education institutions
 - Coherent education system
 - Guidance for credit transfer
 - Competent teachers and assessors, competent institutions
 - Ensures consistency and protection of qualification titles
 - Recognition and validation of non-formal and informal learning
- Employers
 - Better understanding of qualifications
 - Study programmes linked to labour market needs
 - Competent work force
 - Using new technology to new jobs
- Students and employees
 - Transparent access to education and progression
 - Better understanding of qualifications level and title
 - Better understand where their qualifications fit in relation to their purpose
 - Sustainable employment and promotion
 - Lifelong learning and further access to higher education
 - Starting learning at the level that suits students and build up their qualifications as their needs and interests develop and change over time
 - Quality and relevance of their learning
 - Recognition and validation of non-formal and informal learning
 - Encourages lifelong learning and assists to plan the careers, and learning at whatever stage
 - Internationally and nationally recognised qualifications – for jobs and further education
- Unemployed
 - Creation of new jobs
 - Lifelong learning and further access to higher education
 - Recognition and validation of non-formal and informal learning

- Society as a whole
 - A proud learning nation with the ability to adapt to change
 - Active citizens in democratic societies
 - Building citizenship and democratic values
 - Social inclusion, etc.

1.6. Purposes and status of the Guidelines

In Bosnia and Herzegovina, as in many countries in Europe, to achieve all benefits by implementation of the QF-BiH it is important to guide all stakeholders in higher education system with intention to facilitate the development and implementation of the QF-BiH in higher education.

As it is written in the Baseline and the Action Plan, the QF-BiH is envisaged as the main instrument for reform and modernisation of the qualifications system in BiH. It is an instrument necessary for assuring development and effective use of occupational and qualifications standards to support quality assurance system and better relevance of qualifications to wide spectrum of individuals and society needs. This involves learning outcomes implementation, assessment of learning outcomes and certification of qualifications, development of professional competences and validation of education providers.

The purposes of these Guidelines are to facilitate development and implementation of the QF in BiH in line to the Action Plan, focusing on the higher education system. The Guidelines support development of qualifications and occupational standards and their usage at all levels in higher education (both, academic and higher professional qualifications).

The Guidelines are written for those individuals and stakeholders who are responsible for the initiation, development, implementation and operation of internal and external quality assurance system in higher education, and curricula developers. These individuals and institutions operate at different levels and different context (universities and other higher education institutions, quality assurance bodies, ministries, cantonal authorities, recognition bodies, labour market services, employers, public, private and voluntary sectors). The ambition of the Guidelines is to clarify the role of occupational and qualifications standards and how to benefit from them as much as possible, at individual, institutional and the country level. They advice and support higher education institutions to develop innovative and specific components of study programmes.

2. Key concepts

As national qualifications frameworks in other countries, also the QF-BiH brings more transparency in the qualifications system by introducing the minimal number of effective concepts, such as qualification and learning outcomes,

2.1. Qualification and its characteristics

As it is written in the EQF Recommendation [1] and in the BiH Action Plan [2], qualification means a formal outcome of an assessment and validation process, which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards.

This definition serves as a basis for a common understanding in the context of the EQF implementation. However, the concept of “*qualification*” in European countries differs substantially as regards to sources, degree of detail, form and structure. Differences not only occur across countries, but across sectors of education and training and between institutions within a country. But, in each definition, learning outcomes are stressed as the most useful way to express the qualification. S. Bergan gives a detailed theoretical overview on the concept of qualifications [12].

If correctly written, the title of a qualification brings the relevant understanding of the qualification, both for experts and non-experts. The title of the qualification is compact and the most important information for all stakeholders – employers, providers, employees, students, qualifications authorities, quality assurance bodies and even parents.

Usually, the title consists of two main parts:

- Generic part, and
- Subject specific part.

The generic part represents the type of the qualification (in BiH: BSc, BA, MSc, MA, PhD [13]) fully linked to QF-BiH levels. Subject specific part represents profile of the qualification (Chemistry, ICT, Ecology, Medicine, etc.). It is needed to develop precise rules on how to use types of qualifications in BiH, including generic part of titles.

Learning outcomes, as main elements of any qualification, defines basic characteristics (or components as written in [12]) of all quality assured qualifications in the QF-BiH, as follows:

- Level
- Volume, credit range, or workload (expressed in ECTS in higher education)
- Profile.

As in most European countries, the level of a qualification is a new concept in qualifications system in BiH, introduced by the QF-BiH. It denotes the complexity of achieved learning outcomes of the qualification. The level of a qualification in the QF-BiH varies between 1 and 8. Higher education qualifications in BiH can have levels between 6 (currently, the level 5 is not open for higher education) and 8.

Each level in qualifications framework usually has one or more types of qualifications. But it is not possible to have the same type of qualifications at more than one level. For example, “Master” type of qualifications is at the level 7 in the QF-BiH, and never on level 6 or 8. “Bachelor” type is only at the level 6, etc. But sometimes there is more than one type at the specified level. For example, at some NQFs there are “Master” and “Specialist” at the level 7. At the level 8, there are “Doctor of science”, “Doctor of arts”, and/or “Doctor of Philosophy”. The QF-BiH will define all types of qualifications in the qualifications system in BiH.

All levels (or cycles) in the Bologna process are described by Dublin descriptors, including ECTS credits allocated to each cycle. For example, all first cycle qualifications should have 180-240 ECTS credits. Qualifications with less than 180 ECTS credits could not be at the first cycle, but are described as “short cycle” qualifications, which is the level 5 in the EQF or within the first cycle in the QF-EHEA.

Specifically, for example for level 6 qualifications, it means that a qualification with 180 ECTS credits and a qualification with 240 ECTS should be at the same level (level 6) in the QF-BiH. It does not mean that both of such qualifications are the same, but just one characteristic of those qualifications is the same – i.e. the level. One of them (the one with 240 ECTS credits) has more learning outcomes but at the same level in the QF-BiH.

2.2. Learning outcomes

In a set of European documents, as in the BiH Action Plan, learning outcomes have been introduced as statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence.

This simple and clear definition of learning outcomes can become more complex when considering the level of details that should be used to write learning outcomes and how to align them to assessment criteria and procedures. When considering how learning outcomes should be written so as to be useful, too detailed statements can be confusing, but too general statements may become meaningless. It means that the most important consideration of all is how to write learning outcomes that are fit for purpose, including their relevance to labour market, further learning needs or other individual or society needs.

In addition to the definition in the QF-BiH, there are other relevant, slightly different, definitions of learning outcomes. For example, within the Bologna process, learning outcomes are defined as statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning. Also, S. Adam defines learning outcome as a written statement of what the successful learner is expected to be able to do at the end of the module/course unit or qualification [6]. These definitions of learning outcomes do not differ significantly from each other. One definition stresses more one aspect, other definitions some other aspects of learning outcomes. But all of them stress the importance of successful completion of learning process.

In line to the EQF Recommendation, learning outcomes are expressed in the QF-BiH in terms of:

- Knowledge,
- Skills, and
- Competence.

Learning outcomes are used in different contexts and different purposes, for example in educational context and occupational context. In educational context learning outcomes are used in qualifications standards, study programmes, and units or modules.

In occupational context, learning outcomes are embedded in occupational standards, job advertisements and recruiting systems. Level of details, style and hierarchy of expression of learning outcomes depends on the context, making learning outcomes fit for purpose.

The purpose of learning outcomes in occupational standards is to define key groups of tasks and required competences of a given occupation. In occupational standards, learning outcomes serve as a basis for defining work practices, lifelong learning, recruitments, etc. Occupational standards describe all knowledge, skills and wider competence within a job. They usually specify the professional tasks and activities the holder of a qualification is supposed to be able to carry out and the competence required for that purpose.

In study programmes, learning outcomes define outcome what successful students will be able to do after learning activities. They guide students and teachers in the teaching and learning process and choice of methodology. In study programmes, learning outcomes explain to students what they are expected to know, understand and be able to do at the end of the study programme, module and each unit.

Levels of details of learning outcomes are different when they are applied to whole programmes of learning (where learning outcomes are broader) and modules or units (where learning outcomes are more specific). Learning outcomes at the level of study programme are statements of what a learner is expected to know and be able to do at the end of the whole study programme. Therefore they are written in a broad way that takes account of all of learning outcomes that are associated with all units or modules within the study programme. They are hierarchically above learning outcomes at the unit or module level.

2.3. Qualifications Frameworks

The interest for development and implementation of national qualifications frameworks in most countries in the world originates from the aspiration to increase the competitiveness of individuals and national economy and thus to increase living standards of all citizens in the country. All national qualifications frameworks include classification of qualifications, which is also well expressed in the definition in the QF-BiH (*national qualifications framework means an instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims to integrate and coordinate national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society*).

The role of national qualifications frameworks is usually different in different countries, and goes from an interest to reflect their existing education and training system up to build a new qualifications system. They go from communication (for better description of existing qualifications and the system) through reforming, transformational and up to building qualifications frameworks, which have no reference to the existing provision of education and training.

The Qualifications Framework in BiH is a comprehensive qualifications framework, covering all education and training sub-systems: general education, vocational education and training and higher education, bringing a number of benefits for individuals and the society, such as:

- Better communication among stakeholders, leading to partnerships and better relationship between education and training system, and economic growth
- More prominent role for labour market information and greater involvement of social partners
- Better understanding of qualifications, within the country, sectors and internationally
- Inclusion of all individuals in education and training throughout the life
- Developments in all education and training sub-systems towards flexibility and implementation of lifelong learning policies (e.g. modularisation, credit arrangements, recognition of non-formal and informal learning)
- Strong pressures on qualifications systems influencing modernisation, improvement of their effectiveness, use of learning outcomes and development of comprehensive quality assurance systems, which leads to greater sectoral and international trust in the reliability and relevance of qualifications
- More opportunities for development of cross-sectoral learning outcomes
- Increased international mobility, and more others.

The QF-BiH includes BiH-QFHE at levels 6, 7 and 8. Most of national qualifications frameworks in Europe are being built to become a part of a wider meta-frameworks – the EQF and/or the QF-EHEA. The EQF and QF-EHEA are best-known meta-frameworks in the world. There are currently 36 countries participating in the implementation of the EQF. The QF-EHEA is a meta-framework focused to the EHEA, and there are 47 countries participating in its implementation.

The QF-BiH includes BiH-QFHE at levels 6, 7 and 8.

The objectives of the QF-BiH includes:

- Enable employers, schools, parents, prospective learners and others to understand the achievements and attributes represented by the main qualification titles, and how qualifications relate to one another
- Assist higher education institutions, learners and others to clarify potential routes for progression and credit transfer, particularly in the context of wider participation in lifelong learning
- Create and maintain international comparability of standards, especially in intra-institutional, inter-institutional, regional and European contexts, and to facilitate mobility for all (learners, teaching, academic and non-academic staff, citizens)
- Eradicate inconsistency and confusion between qualifications by a clear description of qualifications in terms of level, learning outcomes and credit
- Help create domestic and international confidence in BiH qualifications and standards by integrating them with the new BiH quality assurance system fully consistent with the EQF Common Principles for Quality Assurance, including European Higher Education Area, European Association for Quality Assurance in Higher Education (ENQA) 'standards and guidelines' and EQAR.
- Improve the recognition of BiH qualifications and the employability of citizens by ensuring their relevance to the needs of the national and international labour market

- Ensure that access to, and the content of, BiH education and training systems are based upon the principles and values of democratic society.

2.4. Level descriptors

The purpose of level descriptors is to ensure transparent allocation of qualifications to particular levels across different sectors. They make comparisons across qualifications in different sectors, but not describing years of study.

Level descriptors in the QF-BiH are made sufficiently distinct from one level to another, thus indicating the growth of complexity and the depth. All levels are organized in such a way that the higher reference levels automatically include all that is contained by the lower levels. This is understood implicitly in the QF-BiH.

Three categories (or domains) are used in the level descriptors to describe learning outcomes across each of the eight levels of the QF-BiH:

- Knowledge
- Skills, and
- Competence.

Level descriptors of all levels in the QF-BiH are introduced in the Baseline of the QF-BiH, and presented here in the Annex.

2.5. ECTS credit system

The volume of qualifications in the Bologna process is determined in terms of total time spent on achievement of all required learning outcomes and expressed by ECTS credits. It is recommended that the volume of learning outcomes acquired in a time between 25 and 30 hours is equal to 1 ECTS, where 1 hour means 60 minutes.

In higher education systems in BiH, according to the QF-EHEA, it is important to use ECTS while defining qualifications, i.e. qualifications standards in the QF-BiH. For example, for any first cycle qualifications (level 6 in the QF-BiH) should have 180-240 ECTS.

2.6. Lifelong learning

Lifelong learning has become a necessity for all citizens in modern life. The knowledge-based economy, new technologies, the growing speed of technological changes and globalisation all influence the needs to improve knowledge, skills and competence of citizens.

In European countries there is a set of new instruments, which facilitate lifelong learning preparing learners for the above-mentioned challenges. Such of those instruments are the EQF and the QF-EHEA, including all referenced and self-certified national qualifications frameworks. All those qualifications frameworks have two main aims: to facilitate lifelong learning and mobility of citizens.

In the Action Plan for the development and implementation of the QF-BiH, the lifelong learning has been introduced as a concept, which integrates formal, non-formal and informal

learning in order to achieve knowledge, skills and competence for continuous improvement of quality of life.

As globalisation continues to confront all countries, including BiH, with new challenges, each citizen needs a wide range of key competences to adapt flexibly to a rapidly changing and highly interconnected world. Employees who leave or lose their jobs must be able to transfer knowledge, skills and competence to a new enterprise, sector or even a new country, or even all of those combinations. The European reference framework for key competences for lifelong learning sets out eight main groups of key competences for lifelong learning (knowledge, skills and competence) necessary for personal fulfilment, active citizenship, social cohesion and employability in a globalised knowledge society. They are: Communication in the mother tongue; Communication in foreign languages; Mathematical competence and basic competences in science and technology; Digital competence; Learning to learn; Social and civic competences; Sense of initiative and entrepreneurship; Cultural awareness and expression [8].

2.7. Recognition and validation of non-formal and informal learning

In general, there are different types of learning to achieve learning outcomes – formal, non-formal and informal learning, and each of them has a fundamental role and value for learners, employers and a society.

In the QF-BiH, formal education is defined as learning guided by a teacher or an instructor, acquired in educational institutions, in compliance with curricula approved by competent education authorities. Non-formal learning means an organised process of learning and education focused on improving, specialising or amending knowledge, skills and competence in compliance with special programmes implemented by education providers (schools, education centres, companies, agencies, etc.). Informal learning means unplanned learning and acquisition of knowledge through everyday activities.

The EU Council Recommendation on the validation of non-formal and informal learning gives the basis for development and implementation of the validation process in EU member states, offering individuals the opportunity to demonstrate what they have learned outside formal education and training – including through mobility experiences – and to make use of that learning for further careers and further learning, and with due regard for the principle of subsidiarity.

The purpose of the validation of non-formal and informal learning is to make visible the entire scope of knowledge, skills and competence held by an individual, irrespective of the context where the learning originally took place. For an employer it is a question of human resource management, for individuals a question of having the full range of knowledge, skills and competence valued and for society a question of making full use of existing knowledge, skills and competence, thus avoiding waste and duplication.

The validation of non-formal and informal learning is a process of confirmation by an authorized body that an individual has acquired learning outcomes measured against a relevant standard. According the EU Recommendation [3], the validation process should consist of the following four distinct phases:

- Identification of an individual's learning outcomes acquired through non-formal and informal learning, through dialogue of particular experiences of an individual
- Documentation to make visible the individual's experiences

- Formal assessment of an individual's experiences
- Certification of the results of the assessment, which may lead to a partial or full qualification.

An individual can take advantage of any of these phases, either separately or in combination, in accordance with his/her needs [3]. Also, draft ESG supports recognition of validation of non-formal and informal learning [7].

DRAFT - only for training purposes

3. Quality assurance system in higher education

3.1. Autonomy and modern structure of higher education institutions

EUA's Lisbon Declaration sets out four basic dimensions of university autonomy [14, 15]:

1. Academic autonomy (deciding on degree supply, curriculum and methods of teaching, deciding on areas, scope, aims and methods of research)
2. Financial autonomy (acquiring and allocating funding, deciding on tuition fees, accumulating surplus)
3. Organisational autonomy (setting university structures and statutes, making contracts, electing decision-making bodies and persons)
4. Staffing autonomy (responsibility for recruitment, salaries and promotions).

University autonomy helps to improve quality standards and better respond to societal expectations. The European Commission and European governments have also recognised the need for university autonomy but linking it to the university accountability, which should not be divided.

The modern strong universities are distinguished from other traditional universities by the quality, breadth and depth of their commitment to research, making effective links to education and innovation. Such modern universities make great contributions to innovation and sustainable social and economic development, including creation of new jobs, growth, and international attractiveness.

There are several characteristics of modern universities and other similar higher education institutions, such as:

- Excellence across all operations, calibrated through external validation
- Research effort, producing internationally recognized research results
- Commitment to research training, especially through PhD programmes, advancing the frontiers of knowledge and contributing to innovation and development
- Commitment to teaching at all cycles, producing broadly educated students able to contribute to the welfare in the country
- Tolerance, recognition and welcoming of competing views
- Having its own priorities, based on mission and strategic development plan and its assessment of society's needs
- Local and national commitments and internationalization
- Transparent governance structure, which protects and supports commitment to characteristics that define sustainable world-class research universities and public responsibilities, etc.

Modern universities have a set of professionals to support management of the university, usually organised within set of offices, such as: Office for international affairs; Office for innovation and technology transfer; Business and technology parks with spin-offs; Public relation office; etc.

The quality of staff and specially academics is very important for effective modern universities. Recruitment and selection is a legally complex activity on which the committee and its officers are increasingly asked for advice.

3.2. The concept of quality assurance

In the QF-BiH Action Plan, the quality assurance is defined as a system and procedures applied in order to preserve the agreed standards of products and services and their constant improvement. In the QF-BiH the qualifications standards and occupational standards give a platform for quality, relevance and constant improvement of qualifications, study programmes and all processes linked to them, such as teaching and learning, assessment, awarding, recognition and validation of all elements in the QF-BiH. Qualifications standards and occupational standards in QF-BiH should be used for better implementation of the ESG in higher education and common principles for quality assurance for other sub-systems in BiH.

The quality assurance in the EQF is necessary to ensure accountability and improvement of higher education and vocational education and training in all member states. Thus, the EQF Recommendations sets the common principles for quality assurance in higher education and vocational education and training, as follows:

- Quality assurance policies and procedures should underpin all levels of the EQF.
- Quality assurance should be an integral part of the internal management of education and training institutions.
- Quality assurance should include regular evaluation of institutions, their programmes or their quality assurance systems by external monitoring bodies or agencies.
- External monitoring bodies or agencies carrying out quality assurance should be subject to regular review.
- Quality assurance should include context, input, process and output dimensions, while giving emphasis to outputs and learning outcomes.
- Quality assurance systems should include the following elements
 - Clear and measurable objectives and standards;
 - Guidelines for implementation, including stakeholder involvement;
 - Appropriate resources;
 - Consistent evaluation methods, associating self-assessment and external review;
 - Feedback mechanisms and procedures for improvement;
 - Widely accessible evaluation results.
- Quality assurance initiatives at international, national and regional level should be coordinated in order to ensure overview, coherence, synergy and system-wide analysis.
- Quality assurance should be a cooperative process across education and training levels and systems, involving all relevant stakeholders, within Member States and across the Community.

- Quality assurance orientations at Community level may provide reference points for evaluations and peer learning

Higher education has a specific role in education systems in all countries, giving a base for research and innovation, which all together play a crucial role in supporting social cohesion, economic growth and global competitiveness of individuals and countries. The role of quality assurance is crucial in supporting higher education systems and institutions in responding to a set of different types of changes while ensuring the qualifications achieved by students remain relevant and at the forefront of institutional missions.

In addition to the Common principles set within the EQF, the quality assurance in the EHEA has been developed by contribution of the Standards and Guidelines for Quality Assurance in the EHEA (ESG), which play important role in the development of national and institutional quality assurance systems across all countries in the EHEA and cross-border cooperation.

Higher education institutions and quality assurance agencies use the ESG as a reference document for internal and external quality assurance systems. The ESG are also important for the European Quality Assurance Register in Higher Education (EQAR), which is responsible for the register of quality assurance agencies that comply with the ESG [7].

The existing ESG, adopted in 2005 by the Ministers responsible for higher education, are not fully harmonized to the EQF Common principles, but the new draft revised ESG are fully in line to those EQF common principles.

The draft revised ESG is the subject for approval by the Ministerial Conference in Yerevan, on 14-15 May 2015. As stressed in the EQF Common principles, the draft revised ESG cover all main parts of the quality assurance system:

- Internal quality assurance
- External quality assurance
- Quality assurance agencies.

3.3. Internal and external quality assurance system

In the draft revised ESG, there are standards and guidelines for internal and external quality assurance in higher education, including standards for quality assurance agencies [7].

For example, standards and guidelines for internal quality assurance include:

- Policy for quality assurance
- Design and approval of study programmes
- Student-centred learning, teaching and assessment
- Student admission, progression, recognition and certification
- Teaching staff
- Learning resources and student support
- Information management
- Public information
- On-going monitoring and periodic review of programmes

- Cyclical external quality assurance.

Standards and guidelines for external quality assurance in the draft revised ESG include:

- Policy
- Consideration of internal quality assurance
- Designing methodologies fit for purpose
- Implementing processes
- Peer-review experts
- Criteria for outcomes
- Reporting
- Complaints and appeals.

Quality assurance agencies should undertake external quality assurance of all relevant activities at higher education institutions on a regular basis, and the draft revised ESG gives standards and guidelines for them, for the following items:

- Policy
- Activities, policy and processes for quality assurance
- Official status
- Independence
- Thematic analysis
- Resources
- Internal quality assurance and professional conduct
- Cyclical external review of agencies.

3.4. Role of quality assurance agencies and higher education institutions

To ensure the effective work of external quality assurance, it is important that higher education institutions and the public trust quality assurance agencies. Therefore, the goals and objectives of the quality assurance agencies are described and published along with the nature of interaction between the agencies and relevant stakeholders in higher education, especially the higher education institutions, and the scope of the agencies' work. The expertise in the agency is increased by inclusion of international members in agency committees.

Quality assurance agencies carry out a variety of external quality assurance activities to achieve different objectives. Among those activities are evaluation, review, audit, assessment, accreditation or other similar activities at study programme or institutional level that may be carried out differently.

Quality assurance agencies can also carry out other activities, but a clear distinction between external quality assurance activities and those other fields of work is needed.

In the course of their core work within the external quality assurance activities, quality assurance agencies gain information on study programmes and institutions that can be

useful beyond the scope of a single process, providing material for structured analyses across the higher education system. These findings can contribute to the reflection on and the improvement of quality assurance policies and processes in institutional, national and international contexts. Agencies undertake external quality assurance activities according to the ESG on a regular basis.

The effective quality assurance agencies have clear and explicit goals and objectives that are part of their publicly available mission statement. These are translated into the daily work of agencies. Those agencies ensure the involvement of stakeholders in their governance and work.

3.5. The use of qualifications frameworks in recognition of foreign qualifications

Usually, individuals face recognition issues when moving across boarder, either when returning home after studies abroad, to continue studies at universities in their own countries or when moving to another country to continue studies or to work there. It means that individuals can have different specific interests when applying for the recognition of foreign qualifications, some examples of which are:

- General or restricted access to higher education
- Access to professional training
- General access to the labour market or access to a specialized area of the labour market
- Access to a regulated profession, etc.

There are two main cases of recognition depending upon the purpose for which recognition is sought – academic and professional recognition.

Academic recognition is the recognition of a foreign qualification for the purpose of further studies. In academic recognition the main task is to assess whether the applicant is capable of continuing studies in the chosen direction and at the chosen level.

Professional recognition is the recognition of a foreign qualification for the purpose of employment in a certain profession. In professional recognition it should be found out whether the knowledge, professional skills and competence of the applicant are sufficient to pursue a particular profession in the receiving country.

There are more and more countries using qualifications frameworks to support recognition of foreign qualifications. To facilitate a broader usage of qualifications frameworks, Council of Europe and UNESCO adopted the Recommendations on the use of qualifications frameworks in the recognition of foreign qualifications [9].

The Recommendations ask the competent recognition authorities, and the ENIC/NARIC Network to develop a common understanding on how to use national, European or other overarching qualifications frameworks for the purpose of facilitating the fair recognition of qualifications and should identify the opportunities and challenges they present. It is recommended to use qualifications frameworks to make the process easier for competent recognition authorities to assess foreign qualifications.

In that respect, qualifications frameworks should be used while considering the five key elements in recognition:

- Learning outcomes
- Level
- Workload or volume
- Profile, and
- Quality.

Qualifications framework supports the transparency and the quality of the recognition of foreign qualifications [16, 17].

DRAFT - only for training purposes

4. Development of qualifications standards

To meet the expectations about the quality and given standards of qualifications it is important to develop and maintain key documents that will be used by main stakeholders in qualifications systems, including quality assurance bodies and higher education institutions. There are different documents in use across Member States and other countries for this purposes in higher education, such as quality code (which among others includes subject benchmark statements), qualifications standards, national documents based on Tuning project, etc. The purpose of such documents for higher education can be different, for example, to safeguard the academic standards in higher education in a country, to ensure quality of learning opportunities, and to provide transparent information and use of qualification titles.

In the QF-BiH, such documents are introduced and named as qualifications standards (*standardi kvalifikacija*). They have similar purpose as the above-mentioned documents in other countries.

The development of a common format for qualifications standards enables a consistency and helps that different groups of qualifications are easily understood and used by various users, quality assurance bodies, students, providers, employers and international stakeholders. Academics from different universities in BiH, and experts, have developed the drafted format of qualifications standard (minimal) for the QF-BiH, which has very simple structure, as further described in the section.

4.1. Content of qualifications standards

The QF-BiH has the aim of coordinating and linking together all the elements of the qualifications system in BiH, taking into consideration labour market and other social and individual needs and interests. For that purpose, the QF-BiH along with other important and a minimal number of simple documents, criteria and procedures that form the basis of transparency and effectiveness of the qualifications system, including access to education and progression, assessment of learning outcomes, and award and quality of qualifications. One of these documents is, the so-called, qualifications standard, the minimal elements of which are set out below.

The qualifications standard is a document that gives the base for development and validation of effective study programmes in a transparent, simple and responsible way. It includes all the data necessary for determination of the level, minimal number of ECTS credits, the core subject profile of the qualification, as well as all the needs for quality assurance of qualifications.

The minimal (or important) elements of the qualifications standard in BiH are drafted as follows:

Minimal elements of qualifications standard
1. BASIC CHARACTERISTICS
1.1 Title(s) of the qualification (Generic + Subject specific)
<ul style="list-style-type: none"> • <i>Computer Science Engineer (Generic: Engineer + Subject specific: Computer Science)</i>

- *Other titles (if necessary)*

1.2 Minimal volume

- 180 ECTS

1.3 Level

- QF-BiH: 6

1.4 Entry routes

- *Completed 4-year secondary education or equivalent (Level 4 qualifications)*

2. LEARNING OUTCOMES

2.1 Learning outcomes at the level of the qualification

Knowledge:

- *Apply basic principles and methods of computer science to a wide range of applications*
- *Apply mathematical and scientific reasoning to a variety of computational problems*
- *Etc.*

Skills:

- *Analyse and compare alternative solutions to computational problems*
- *Apply generally accepted principles to the synthesis and analysis of computer systems*
- *Etc.*

Competence:

- *Work in teams to design and implement solutions to computational problems*
- *Communicate clearly and precisely, both verbally and in writing*
- *Think critically and creatively, both independently and with others*
- *Etc.*

2.2 Learning outcomes

(Groups of learning outcomes; Minimal ECTS; List of learning outcomes)

- *Mathematics; min. 16 ECTS*
 - *Apply the basic concepts of linear algebra, mathematical analysis, discrete mathematics, probability and statistics in complex situations*
 - *Solve problems arising from mathematical situations, providing sound arguments for your view*
 - *Etc.*
- *Theoretical foundations of computer science; min. 10 ECTS*
 - *Apply the basic concepts of data structures and algorithms, theory of computation, formal methods and automata theory in complex situations*
 - *Analyse an algorithm or formal method for solving a specific problem*
 - *Solve problems by using standard algorithms for implementing and manipulating data structures*
 - *Etc.*
- *Programming paradigm and Programming languages, min. 18 ECTS*
 - *Etc.*
- *Etc.*

3. RELEVANCE

3.1 Labour market

- *Software Engineer (System Analyst, Software Designer, Programmer/Developer, Software Quality Controller, Maintenance)*
- *Information Systems Administrator*
- *Etc.*

3.2 Further education

- *The second cycle of university education in the field of computing (computer science, software engineering, computer engineering, information technologies, information systems)*
- *The second cycle of university education in a related field*
- *Etc.*

3.3 Other needs

- *General need for the computerization of the society*
- *Etc.*

4. QUALITY ASSURANCE**4.1 Expert Group Members**

- *Name of expert 1*
- *Name of expert 1*
- *Etc.*

4.2 Proponent of the qualifications standard and the date

- *Institution 1*
- *Institution 2*
- *Etc.*

4.3 The competent institution(s) and the link to the Sector Council expert opinion

- *xxx*
- *www.xxx*

4.4 The date of entry into the web-portal

- *xx.xx.xxxxx*

4.5 The deadline by which the QS should be reviewed

- *2020*

As visible from the above template (for transparency and better understanding of different types of qualifications, their purpose, quality and relevance, and thus sustainable implementation of the QF-BiH) a simple structure of a qualifications standard has been developed and organised into four groups of information:

1. Basic characteristics of the qualification, including the title(s)
2. Learning outcomes

3. Relevance of the qualification, and
4. Quality assurance.

The basic characteristics should be well understood by all stakeholders, since they give the basis for the classification of the qualification in the QF-BiH.

This part of the qualifications standard in the QF-BiH consists of:

- Title(s) of the qualification (generic and subject specific parts)
- Minimal volume (or workload or size of the qualification expressed in ECTS credits)
- Level (in the QF-BiH), and
- Entry routes to study programmes for achievement of the qualification.

The title (or titles if needed in BiH) of the qualification is crucial for understanding and its transparent usage, since it brings the first and very important picture on the qualification, its learning outcomes and all other elements and characteristics to main users. Most of relevant users, parents, qualifications authorities, employers, employment services, very often will read only titles of qualifications without intentions for detailed reading of other information on the qualification. An effective title of the qualification incorporates all information on the qualifications. If the title is properly chosen and effective then all other basic characteristics (and even all other information on the qualification) should be understood by many users, or at least by experts in the sector. For example, the title “*Bachelor of Mathematics*” gives full spectrum of information on the qualification to experts – the level, volume expressed in the ECTS, the profile, entry routes, all relevant learning outcomes, relevance for different sets of needs, higher education providers, etc.

Minimal volume of the qualification brings additional transparency to all users, especially to students. Since, very often there are different interests by different higher education institutions wishing to deliver study programmes for achievement of the qualification. Some higher education institutions would like to deliver the study programme, for example for Bachelor of Mathematics with 180 ECTS, and other institutions with 240 ECTS, in general consistent with the QF-EHEA agreement.

Level of the qualifications gives explicit information on the complexity of the qualifications and learning outcomes there according to the level descriptors. If the title has been effectively written, information on the level of the qualification should be fully understood within the generic part of the qualifications title. For example, in “Bachelor of Mathematics”, “Bachelor” should always mean a qualification at the level 6. “Master” should be linked only to the level 7, etc. At some stage a BiH agreement about the nomenclature for combined studies and qualifications (joint and major-minor combination) will need to be agreed by the QA bodies.

Entry routes give the base for assessment whether the applicant has enough knowledge, skills and competence to be capable of continuing education to achieve required qualification, giving additional indication on the level and the complexity of the qualification. For example, if a qualifications standard states that the entry routes to the study programmes are possible only by previous qualifications “Bachelor of Mathematics”, then the new envisaged qualification after the graduation of the programme should be at the level 7 in a wider field of Mathematics or interdisciplinary.

The significant part of the qualifications standard is the list of learning outcomes, which are logically organised, from the overall learning outcomes, through modules of learning outcomes, down to a list of core learning outcomes. They give a complete understanding of

the qualification. It is the combination of all the information sections that provides the coherent and complete understanding of the qualification.

The third part of the qualifications standard brings understanding on the relevance of the qualification at the labour market, for further education and relevance for any other individual or society needs.

The final part of qualifications standards, which is related to the quality assurance, consists of:

- The list of the Expert Group members
- Proponent(s) of the qualifications standard and the date, the link to the Sector Council opinion, and
- The date of entry into the web-portal and the deadline by which the qualifications standard should be reviewed.

4.2. Role of different stakeholders

Involvement of stakeholders in the process of development and implementation of the QF-BiH has been in place from the beginning. In addition, all international projects on the QF-BiH have involved a wide range of stakeholders in all relevant project activities. They have participated in projects according to their interests and the role in the qualifications system, but the most important participations have been related to the quality assurance.

The draft revised ESG emphasises the role of stakeholders in quality assurance in higher education. According to the ESG, the study programmes should be designed by involving students and other stakeholders in the work. In addition, stakeholders should be involved in the design of the methodologies for external quality assurance of study programmes and institutions, and its continuous improvement. As it is written in the ESG, it is important to involve stakeholders, ensuring the meaningfulness of the external quality assurance and that higher education institutions and the public trust agencies.

The key stakeholders in quality assurance mechanisms in higher education are students, employers, academics and other social partners.

Since the qualifications standards in the QF-BiH supports the internal and external quality assurance, it is important to include or consult key stakeholders in the process of development, validation and implementation of them.

The key potential of a qualifications standard is to give a transparent guidance for validation of study programmes at all universities intending to award the qualification defined by that qualifications standard. Thus, it is important to ensure the quality of the qualifications standard. This is possible only by involvement of all key stakeholders in the design, consultation or validation of the qualifications standards.

All relevant universities, which have interests to deliver study programmes for achievement of the respective qualification, should be involved. A leading university for delivering such study programmes in the country should even lead the process of qualifications standard development. Other stakeholders should be actively involved in the development. Employers should take care on relevance of learning outcomes for labour market, linkage to specific occupational standards and the transparency of the qualifications standard. Policy makers and students should take care on effectiveness, sustainability and transparency of quality

assurance. Students should take care whether all learning outcomes are well linked to assessment criteria, and correctly written, including ECTS credits.

All learning outcomes should be understood to all, academics (since they should use them for delivering teaching), employers (since the qualifications is intended to be relevant for specific jobs), quality assurance agencies and policy makers (since they should use learning outcomes for validation of programmes and capacity of institutions), and students (to choose relevant programmes and better preparation for assessment).

Qualifications standards will be relevant and well accepted by all, only if all relevant stakeholders were correctly involved from the beginning, and if they fully understood the content.

For the validation of qualifications standards, different experts from key stakeholders could be consulted or involved in the process.

4.3. Grouping of learning outcomes

Learning outcomes in qualifications standards should be hierarchically organised into logical groups or units. Units include multiple learning outcomes that are required for carrying out core tasks of the qualification to be described. Any group of learning outcomes, if possible, should consist of not too small, neither too large number of statements (preferable between 5 to 10). Group of learning outcomes should be clearly linked to overall learning outcomes at the level of qualification (or programme level). It is important to ensure that the learning outcomes of the groups relate well to the overall outcomes of the qualification. One of the best ways to ensure an effective link between groups of learning outcomes and overall learning outcomes is by using two-dimensional table, as shown:

Group of learning outcomes	Overall learning outcomes at the level of qualification						
	Overall LO-1	Overall LO-2	Overall LO-3	Overall LO-4	Overall LO-5	...	Etc.
Group-1	X				X		
Group-2		X		X			
Group-3			X		X		
Etc.							

When writing effective learning outcomes, it is important to bear in mind the timescale within which the learning outcomes are to be achieved. There is always a danger that one can be over-ambitious when writing learning outcomes. Before finalising the list of learning outcomes, it is important to ask colleagues and experts and possibly former students if the learning outcomes make sense to them, and if it is realistic to achieve the learning outcomes specified within the time and resources available.

Overall learning outcomes at the level of qualifications are broader than hierarchically lower group of learning outcomes. They start, for example, as follows: *“On the successful completion of the study programme, a student will be able to:*

- *Apply advanced concepts of Mathematics and Statistics*
- *Analyse business problems and propose solutions*
- *Confidently engage in and successfully resolve building services engineering projects in both the technical and managerial aspects and communicate*

effectively their resolution

- *Work independently and effectively in a team*
- *Take responsibility for his/her own learning*
- *Etc.”*

Learning outcomes at the level of smaller unit focus on what a student can demonstrate. They define what a student must be able to do in order to pass the assessment. It is important to bear in mind when designing a smaller group of learning outcomes that all learning outcomes should be assessable. As already written above, when writing such learning outcomes, it is important to give consideration to how the group of learning outcomes fits into an overall qualification (programme) learning outcomes.

An example of a smaller group of learning outcomes: “*On successful completion of the module, a student will be able to:*

- *Identify a wide variety of learning and teaching methods that may be employed effectively in higher education*
- *Discuss the theories of learning that underpin their teaching approach*
- *Explain the role of accounting information in organisations*
- *Identify effective on-line marketing strategies and incorporate them into a marketing plan*
- *Etc.”*

According to recommendations prepared by experts, learning outcomes can be design based on different settings:

- Learning outcomes based on a theoretical or research formulation (peer learning activities, focus groups, conferences, etc.)
- Learning outcomes based on negotiation between stakeholders (workshops, focus groups, conferences, etc.)
- Learning outcomes borrowed/adapted from elsewhere (occupational standards, other qualifications standards, other study programmes, etc.)

Using any of those settings, or in reality mix of them, in order to design relevant and effective learning outcomes, it is recommended also to engage both, experts in the sector, as well as experts in learning outcomes development.

The following questions may help experts and stakeholders to use the outcome-oriented way of thinking. For example:

- What learning outcomes should students possess after completing the programme?
- What learning outcomes help students achieve a successful professional career?
- Describe the qualification to wider society by developing overall learning outcomes (knowledge, skills and competence).
- What knowledge, skills and competence have to be listed in an international and national tender (for example call for project, etc.) for candidates with that qualification?
- Explain the assessment for specific units: what knowledge, skills and competence must a student display in order to successfully pass the examinations?

- What sort of knowledge (theories, principles, formulas, etc.), skills and competence (degree of responsibility and the level of autonomy) are connected to the specific qualification?

Once the learning outcomes are drafted, a cross-check with the principles on how to formulate learning outcomes is helpful. The following checklist can be used for that purpose:

- All verbs used in the description of learning outcomes are active verbs
- There are no vague verbs
- All verbs are specified and contextualised to provide adequate information
- Written statements include all characteristics of effective learning outcomes
- Regarding the number, there are neither too many, nor too few learning outcomes, both, at qualification and module levels
- The formulations are focused on the outcomes, not the processes (teacher's perspective)
- Learning outcomes are measurable (observable) and can be assessed
- All learning outcomes are aligned with assessment
- Appropriate conditions for performance are specified, implicitly or explicitly
- Learning outcomes refer to modules or the overall qualification (not to individual student)
- Learning outcomes are realistic, taking into account prior knowledge, available time and learning opportunities
- Learning outcomes are clear and understandable for students, academics, and labour market experts
- Module learning outcomes fit within the overall learning outcomes, and all overall learning outcomes are covered with one or more module learning outcomes (groups).

Experts recommend the following practical steps for writing effective learning outcomes:

- Identify the key roles and the content of the qualification (labour market, further education and other needs)
- Classify the overall and group (unit, module) learning outcomes (cognitive, psychomotor, affective)
- Identify the level, level descriptors and type of qualification required
- Draft aims of each group and their learning outcomes, linking them to overall learning outcomes
- Choose a specific action verb for each learning outcomes
- Decide how to measure and assess the achievement of the learning outcomes; design assessment methods, criteria and tasks
- State success criteria, if not implicitly clear
- Make review and consultations to experts and stakeholders, and go to the beginning of the recommended process, until full satisfaction.

Teaching based on learning outcomes starts with effective learning outcomes. The structure

for such teaching comes from creating, managing, and aligning sets of knowledge, skills and competence to teaching and learning resources and assessments, with possibilities to track performance. Such teaching is valuable for all stakeholders. Students can have more opportunities to take ownership of their learning and expand their lifelong learning pathways. Academics can grow professionally as they articulate the learning outcomes in their areas of expertise and embed them in own learning experiences. Higher education leaders and policy makers focus on new ways of identifying barriers to success and achieving improved outcomes. Employers can participate in modernisation of study programmes.

4.4. Practical steps for the development of qualifications standards

Qualifications standards should be developed on the basis of the key qualifications roles, which are organised into three groups – employment, further education and/or other individual or society research.

Development of qualifications standards starts from the overall learning outcomes and module learning outcomes intended to be achieved. Those learning outcomes can be obtained directly from occupational standards, from other similar qualifications standards and even from other relevant study programmes. Stakeholders, while developing qualifications standards should also use other sources, research analysis, general and specific strategies, statistical data, and other relevant documents. If there are some other general or specific regulations and needs, they should be used while developing all elements of the qualifications standards.

It means that the key steps in development of qualifications standards are related to identification and development of learning outcomes at both, qualification and a smaller group levels.

Practical steps in development of qualifications standards in the QF-BiH are as follows:

- Identification on the role and the need of the qualification. The role of the qualification can be a combination of employment, further education or for other interests of individuals and the society.
- Collecting all relevant documents and information about the qualifications and related elements (occupational standards, existing study programmes, strategies, research analysis, etc.). If there are no occupational standards at the QF-BiH (which is currently the case, but proposed in the Action Plan to be developed in the future) and the main role of the qualification is for employment, then occupational standards should be developed parallel to qualifications standards. There are different techniques for collecting information about the qualification, which is intended to be designed. It includes review of data-bases on job descriptions, occupational standards from other countries, description of technological process, strategies, research of labour market forecasting and current needs, participation at conferences, interviews, questionnaire, etc. After establishment of the QF-BiH portal, in addition to occupational standards, this process should include also the review of other similar qualifications standards. All these techniques for collecting information have strengths and weaknesses, advantages and disadvantages. Therefore the use of a combination of them would be most advisable for QF-BiH.
- Identification of key stakeholders and experts, according to their potential interests regarding the qualification. It is very important to train the stakeholders and to prepare all needed for their work (all documents, methodology, etc.).

- Development of effective learning outcomes by using combination of different techniques and in partnership with stakeholders (review of documentation; interviews and questionnaire; events with focus groups; presentation and discussion at conferences; etc.). Learning outcomes should be developed according to the process explained in the above subsection of these Guidelines, taking care of all characteristics of effective learning outcomes.
- Drafting the complete qualification standard by using the adopted common format, and if needed also the occupational standards in parallel.
- Verification of the qualifications standard (and occupational standard, if needed) by sector experts and learning outcomes experts and recommendation for further improvement.
- Starting from the beginning of the process until the complete satisfaction.

The process of the development of qualifications standards should include all main aspects of the qualifications standard: the content, technical aspect, and the process.

Content will be relevant if developers were focused on the learning outcomes.

Technical aspect is relevant if all key overall learning outcomes are in accordance to level descriptors and if all groups of learning outcomes are linked to appropriate assessment. Allocation of QF-BiH level to the qualification is very important, and a preparation to that process should be carefully prepared.

The process is relevant if all relevant stakeholders are agreed on common format of qualifications standards, with methodology for development, and if developers are trained, and relevant organisations and persons were selected for reviewing the draft of standard.

4.5. Validation and further development of qualifications standards

For the validation process, it is important to select relevant organisations and experts for reviewing the draft of the qualifications standard.

As written, validation of qualifications standards should be focused on three main aspects of the qualifications standard quality (which doesn't mean three different experts):

- Content quality, which should be validated by relevant sector experts
- Format quality, which should be validated by qualifications framework or learning outcomes experts
- Process quality, which should be validated by qualifications framework experts.

Questions that should be addressed by the validation process are the following:

- Content quality:
 - Does the qualifications standard incorporate all roles of qualifications by using information from occupational standards and further qualifications standards?
 - Does the qualifications standard incorporate underpinned knowledge, skills and competence needed as the base for learning outcomes at the qualification level?

- Does the qualifications standard incorporate transversal competences and achievements by set of modules, and not only sector specific?
- Format quality:
 - Has the qualifications standard format been agreed and adopted?
 - Each module of learning outcomes has neither large nor too small number of statements?
 - Each module with its learning outcomes is aligned to assessment criteria?
 - Overall learning outcomes are well aligned to level descriptors of the QF-BiH, and the volume is correctly specified?
- Process quality:
 - The development of qualifications standard has been based on research of relevant documents, according to the role of the qualification?
 - Sector qualifications experts have drafted the qualifications standard?
 - Validation process involved experts from the sector as well as learning outcomes and qualifications framework experts?
 - Relevant stakeholders, including all relevant potential higher education institutions, have been involved while drafting?
 - Recommendation by experts adopted or negotiated?

Important steps for the verification of the allocation of the QF-BiH level in the qualifications standard:

- Preparation:
 - Looking for the “best fit” between learning outcomes in the qualification and the QF-BiH level descriptors. Level descriptors should not be used as a checklist, expecting to find all domains of the level descriptors (knowledge, skills, competence) in the qualifications standard. And all domains will not even be relevant to every learning outcomes of the qualification.
 - Taking time to look at the QF-BiH level descriptors to get feel for some of the differences between the levels. They should be indicative, not prescriptive. The level descriptors are designed to allow broad comparison to be made between the learning outcomes and quality-assured assessment.
 - Identifying the distinguishing features between levels.
 - Reading learning outcomes of the qualifications standard, and thinking about their main objectives; if the assessment or evidence requirements indicate a level, etc. Typical words (verbs in line to the subject, e.g. analyse, describe, repeat, identify, etc.) should indicate the level of demand on an individual.
- Mapping the qualification standard using the QF-BiH level descriptors (benchmark learning outcomes of the qualification against the QF-BiH level descriptors):
 - Reading overall learning outcomes in full.
 - Reviewing the domains (knowledge, skills, competence) of a main set of levels relevant for the qualification.
 - Identifying the intended level of the qualification.

- With the intended QF-BiH level of the qualification, looking in more details at the QF-BiH level descriptors for the closest levels (e.g. if the intended level may be level 6, then a close look at the level descriptors for levels 5 and 7 is needed)
- Testing learning outcomes by looking at the QF-BiH level descriptors for the levels immediately above and immediately below the decided level
- Reviewing the allocation of the QF-BiH level to the qualifications standard
 - Looking for the “best fit” between the qualification and the level descriptors, write “best fit” level for each of domains (knowledge, skills competence). This could generate, for example, “Knowledge: level 7; Skills: level 6; Competence: level 6”, etc.
 - Ranking the domains (knowledge, skills, competence) in order of importance for the qualification, and decide which level “best fit” to the requirements and importance.
- Rationale for the level of the qualification:
 - Justifying the choice with reference to QF-BiH levels one above and one below.
 - Extracting key terms from the learning outcomes of the qualification, to support the selection of the QF-BiH level.

4.6. Potentials of qualifications standards in quality assurance

Quality assurance system in the EHEA gives emphasis to learning outcomes. Learning outcomes are the core way to express the content of qualifications standards in QF-BiH, thus, qualifications standards supports the quality assurance of qualifications and their relevance to different needs.

Higher education institutions are able to use qualifications standards as an advising tool for development of relevant study programmes much easier compared to traditional ways. They are able to design very complex and innovative study programmes in transparent manner simultaneously to all users.

Internal and external quality assurance system is fully supported by qualifications standards for initial validation of proposed study programmes and institutions. They have all needs, all benchmarks, for effective validation and monitoring of the learning outcomes implementation, their levels, workload, clear profile, and even specific requirements if they exist.

Without qualifications standards quality assurance agency is not able to process relevant validation, even if they engage the best experts in the sector.

4.7. Use of qualifications standards for design of study programmes

Study programmes are the key elements in the QF-BiH. They should be based on respective qualifications standards. Thus the process of development and validation of study programmes in the QF-BiH should be based on validated qualifications standards, and relevant occupational standards.

Development of study programmes in the QF-BiH starts from the overall learning outcomes intended to be achieved by the study programme. Drafting the list of those learning outcomes should start directly from the aligned qualifications standard. To the list of those overall learning outcomes, it is welcomed to specify some additional learning outcomes, which are specific for interests of the higher education institution and local labour market and society. Thus, it is clear that the key steps in development of study programmes are related to identification and development of learning outcomes at both, the study programme level and a smaller module or subject levels.

Practical steps in development of study programmes in the QF-BiH are as follows:

- Research of society and individuals needs, trends in labour market and qualifications systems, leading to decision on qualifications that the higher education institution would like to provide for achievement.
- Research and identification of the qualifications standard and occupational standards that are going to be used as a platform for the development of study programmes.
- Collecting all relevant documents and information about the qualifications and related elements (occupational standards, existing study programmes, strategies, etc.). If there are no relevant qualifications and occupational standards at the web-portal of the QF-BiH, then qualifications standards should be developed parallel to study programme. Different techniques for collecting information, needed for the development of the study programmes, are similar to those written in the section of development of qualifications standards.
- Identification of key stakeholders and experts, according to their potential interests regarding the study programme. It is very important to train the stakeholders and to prepare all needed for their work (all documents, methodology, etc.).
- Development of effective learning outcomes by using combination of different techniques and in partnership with stakeholders (review of documentation; interviews and questionnaire; events with focus groups; presentation and discussion at conferences; etc.).
- Drafting the complete study programmes and their components, according to the ESG and internal procedures of the university. If needed, also the qualification standard and occupational standards should be developed in parallel.
- Title and basic characteristics of related qualifications defined in the qualifications standard should be correctly used, including proper ECTS credits and core learning outcomes. According to the interest and profile of the university provider, additional specific and transversal knowledge, skills and competence should be added.
- Verification of the study programmes (and qualifications standards, if needed) by sector experts and learning outcomes experts and recommendation for further improvement.
- Starting from the beginning of the process until the complete satisfaction.

All study programmes should be designed in accordance with the quality assurance mechanism written in the ESG, which stresses the importance that qualifications resulting from the study programmes should be clearly specified and communicated and referred to the correct level of the qualifications frameworks.

Since the idea of qualifications standards in the QF-BiH is to give a base for levels and other characteristic of respective qualifications, it means that the design of study programmes should use the qualifications standards effectively in the process.

4.8. Approval of study programmes and further development

According to the ESG, higher education institutions should have their internal process for the design and approval of their study programmes (1.2 in [7]). The study programmes should be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a study programme should be clearly specified and communicated, and refer to the qualifications standard, which includes correct level of the QF-BiH and, consequently, meta-frameworks.

Validation and approval by internal and external quality assurance should ensure that study programmes are:

- Designed with overall programme objectives that are in line with the institutional strategy/-ies and have explicit intended learning outcomes
- Designed by involving students and other stakeholders in the work
- With benefit from external expertise and reference points
- Reflect the four purposes of higher education of the Council of Europe (Preparation for sustainable employment; Preparation for life as active citizens in democratic societies; Personal development; The development and maintenance, through teaching, learning and research, of a broad, advanced knowledge base)
- Designed so that they enable smooth student progression
- Define the expected student workload in ECTS
- Include well-structured placement opportunities where appropriate
- Subject to a formal institutional approval process, which includes the reference to qualifications standards in the QF-BiH.

The review whether the study programme refers well to the qualifications standard helps all, design of the programme, and internal and external validation and approval. Institutions should monitor and periodically review study programmes to ensure that study they achieve meet the objectives and respond to the needs of individuals and society. It means that in the QF-BiH, institutions should have interests to review respective qualifications standards according to agreed time-lines.

5. Development of occupational standards

In the QF-BiH Action Plan, the occupational standard is defined as a document with a list of all tasks that an individual performs within a particular occupation and a list of competences required for their successful performance.

Occupational standards include standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. They classify and define the main jobs that people do. Following the logic of employment, these standards will focus on what people need to do, how they will do it, and how well they do it. Occupational standards have to be written as competences and formulated in terms of outcomes. They exist in all European countries but each country has its own style of derivation and presentation of the standards. Occupational standards give links for bridges between the labour market and qualifications system.

The development of a common format for occupational standards enables promote a consistency and helps that occupational standards are easily understood by various users, employers, human resource managers, academics, and students.

Labour market professionals, academics from different universities in BiH, and experts, have developed the drafted format of occupational standard for the QF-BiH, which has very simple structure, as further described in the section.

5.1. Content of occupational standards

In addition to qualifications standards, the QF-BiH introduces occupational standards, which make the base for some qualifications to be more relevant to labour market needs. Occupational standards can be very broad, very narrow and specific.

The occupational standard gives a list of all tasks that an individual performs within a particular occupation and a list of competences (knowledge, skills and competence) required for their successful performance. The following is an information template of the occupational standard:

Minimal elements of occupational standard
1. BASIC CHARACTERISTICS
1.1 Name(s) of the occupation <ul style="list-style-type: none"> • <i>Software developers Engineer</i> • <i>Other names (if necessary)</i>
1.2 Code of the occupation <ul style="list-style-type: none"> • 2512
1.3 Link to the international classification <ul style="list-style-type: none"> • 2512

1.4 Level of required qualifications

- QF-BiH 6

2. KEY TASKS AND REQUIRED COMPETENCES**2.1 Description of the occupation**

- *This occupation requires expertise in the field of computer science, including competencies to analyse, design programme, make prototype, test and maintain software solutions.*

2.2 Key tasks and required competences

(Task groups (key task; key task; etc.) – Knowledge, skills, competence)

- *System analysis (Receive user requests; Etc.)*
 - *Apply basic principles and methods of computer sciences*
 - *Apply mathematical and scientific inference*
 - *Etc.*
- *Software design (Design a system architecture; Etc.)*
 - *Design solutions to significant computational problems*
 - *Design software solutions that meet the specified design and performance requirements*
 - *Etc.*
- *Etc.*

3. QUALITY ASSURANCE**3.1 Justification of the introduction of the occupational standard**

- *Labour market demands in Bosnia and Herzegovina, the region and elsewhere*
- *Etc.*

3.2 Expert Group Members

- *Name of expert 1*
- *Name of expert 2*
- *Etc.*

3.3 Proponent of the occupational standards and the date

- *Institution 1*
- *Institution 2*
- *Etc.*

3.4 The competent institution(s) and the link to the Sector Council expert opinion

- *xxx*
- *www.xxx*

3.5 The date of entry into the web-portal

- *xx.xx.xxxxx*

3.6 The deadline by which the OS should be reviewed

- *2020*

4. ADDITIONAL INFORMATION
<p>4.1 Specific regulations directly related to the occupation</p> <ul style="list-style-type: none"> • xxx • etc.
<p>4.2 Occupational health risks and working conditions</p> <ul style="list-style-type: none"> • xxx • etc.
<p>4.3 Specific requirements for employment</p> <ul style="list-style-type: none"> • xxx • etc.

As visible from the above template (for better understanding to all users and sustainable implementation in the QF-BiH), similar as a qualifications standard, the content of occupational standard has been organised into 4 groups of information, similar to qualifications standard:

1. Basic characteristics
2. Key tasks and required competences
3. Quality assurance, and
4. Additional information.

Basic characteristics includes only:

- Name of the occupation
- Code of the occupation
- Link to the international classification, and
- Level of required qualification(s).

Name of the occupation is crucial for understanding and usage, since it brings the first understanding of the occupation and link to qualifications.

Code of the occupation and link to the international classification brings additional transparency to all users. It brings also a quality of the occupational standard. In addition to that, the level of required qualification gives an indication about the complexity of tasks and activities, and the responsibility of employees within the occupation.

Details about key tasks and required knowledge, skills and competence, are described with the second part of the occupational standard – Key tasks and required competences. This part includes:

- Description of occupation
- Key tasks and required competences, which are logically organised into stand-alone groups.

The third part is related to Quality assurance, which includes:

- Justification of the introduction of the occupational standard
- Expert Group members
- Proponent(s) of the occupational standard and the date, the component institution(s) and the link to the Sector Council opinion, and
- The deadline by which the occupational standard should be reviewed.

All those components support quality of the occupational standard and its effective usage.

The final part of the occupational standard is related to all other important elements – specific regulations related to the occupation, health risks and working conditions, and other specific requirements. All regulated professions need this part of the form, but there are occupations that do not.

5.2. Respective roles of different stakeholders

The key stakeholders in the process of development of occupational standards are experts in the sector. Participation of learning outcomes experts in the validation of drafts helps understanding and better usage of occupational standards by higher education institutions, students and other users.

It is important to ensure the quality of the occupational standards, which is possible if the development process of occupational standards leads relevant company, employer associations, chambers, or skill councils, etc.

Policy makers and agencies should take care of regulations in the sector. Experts in the education should take care of understanding of required knowledge, skills and competence.

All knowledge, skills and competence should be understood to all, academics (if study programmes are focused to labour market needs), employers (since the qualifications are intended to be relevant for specific jobs, so they should help better relevance of qualifications and study programmes for their needs), quality assurance agencies and policy makers (since they should use occupational standards for validation of relevance of study programmes, and they should write all regulations regarding the occupation), and students and employees (to be able to understand qualifications relevance to the labour market, forecasting, etc.).

Sector council and key experts from the labour market should be involved in validation of occupational standards.

5.3. Practical steps for the development of occupational standards

The occupational standards start from standards of performance individuals must achieve when carrying out functions in the workplace.

Development of an occupational standard requires accurate data on all knowledge, skills and competences necessary for a good performance, which can be obtained through analyses of the occupation in a rational and structured manner. The occupational analysis is the most important stage in setting up an occupational standard.

There are different techniques for collecting data about an occupation, i.e. observation of work, interviews (individual or group ones), questionnaire, review of existing documentation (job descriptions, occupational standards from other countries, description of technological

process, etc.), and conferences. As in the qualifications standards development, all these techniques have strengths and weaknesses, advantages and disadvantages therefore the use of a combination of them would be most advisable.

The recommended analysis of occupations in the QF-BiH has the following principles:

- Occupational experts (both, international and local) are the best source of information on the occupation
- Key tasks in the occupation should be directly connected to the required knowledge, skills and competence that workers must have in order to perform tasks in the occupation.

The analysis of occupation and development of occupational standards has a focus to two categories. The one is on tasks and outcomes in the occupation, and the other one is on knowledge, skills, competence, and other requirements necessary to obtain all outcomes within the occupation.

Techniques that can be used in collecting information on an occupation can be a combination of the following:

- Analysis of all documentation on the occupation, for example, job descriptions, classification of occupations, international classifications and documentation, etc. (ISCO, ESCO, etc.)
- Interviews and workshops with focus groups (experts, practitioners, supervisors, authorities, etc.)
- Direct observation, which brings better understanding of a job, tasks and required competences.
- Questionnaire and conferences.

Practical steps in effective development of occupational standards for the QF-BiH are as follows:

- Identification and definition of occupation
- Collecting information on the occupation, as described above
- Identification of key stakeholders and experts, according to their potential interests regarding the occupation. It is very important to train the stakeholders and to prepare all needed for their work (all documents, methodology, etc.)
- Identifying key groups of tasks, relevant for the occupation
- Knowledge, skills and competence analysis for each of key groups of tasks (i.e. to develop a list of both, specific and cross-sectoral competences, even for specific occupations including attitudes, values and attributes). Required knowledge, skills and competence should be developed according to the process described within the qualifications standard development.
- Drafting the complete occupational standard by using the adopted common format.
- Verification of the occupational standard by sector experts and recommendation for further improvement.
- Starting from the beginning of the process until the complete satisfaction.

The process of the development of occupational standards should include all main aspects of the occupational standard: content, technical aspect and process. Content will be relevant if developers were focused on outcomes of the occupation. Technical aspect is relevant if all key groups of tasks are linked to skills, competence and underpinning knowledge. The process is relevant if all relevant stakeholders are agreed on common format of occupational standards, with methodology for development, and if developers are trained, and relevant organisations and persons were selected for reviewing the draft of standard.

5.4. Validation and further development of occupational standards

For the validation process of the occupational standard, it is important to select relevant organisations and experts for reviewing the draft of the occupational standard.

Validation of occupational standards should be focused to three main aspects of the quality (which doesn't mean that three individuals should be involved):

- Content quality, which should be validated by relevant occupational experts
- Format quality, which should be validated by qualifications framework experts
- Process quality, which should be validated by qualifications framework experts.

Questions that should be addressed by the validation process are the following:

- Content quality:
 - Does the occupational standard incorporate all key groups of tasks?
 - Does the occupational standard incorporate underpinned knowledge, and not only skills?
 - Does the occupational standard incorporate transversal competences, and not only sector specific?
- Format quality:
 - Has the OS format agreed?
 - Each group of tasks are based on not-too large nor too small number of tasks?
 - Each group of tasks has a direct reference to its outcome?
 - Each group of tasks is directly linked to a set of knowledge, skills and competence?
- Process quality:
 - The development of OS was based on research on the occupation?
 - Occupational experts have done drafting of the OS?
 - Validation process involved experts from other occupations?
 - Relevant stakeholders have been involved?
 - Recommendation by occupational experts adopted or negotiated?

5.5. Potentials of occupational standards in description of relevance of qualifications

Quality assurance system in the EHEA gives emphasis to learning outcomes. Learning outcomes are an appropriate way to express qualifications standards in QF-BiH, thus, qualifications standards supports the quality assurance of qualifications and their relevance to different needs.

Higher education institutions and their partners are able to use occupational standards while describing the labour market relevance of the qualification and their study programmes much easier compared to traditional ways.

The occupational standards could be used in higher education also to promote investment in higher education and insure that study programmes enables students and later workers to meet requirements at labour market in order for better international competitiveness of BiH companies.

Given these purposes, occupational standards have major potentials to impact students and workers, employers, and higher education institutions in BiH.

The vision of the BiH is to add value to qualifications system in BiH by developing and supporting the implementation of occupational standards and qualifications standards, study programmes in line with occupational standards for major occupations, which provide sustainable employment.

The key potential benefits of occupational standards are in development of study programmes relevant for the labour market. It means that the main beneficiaries of the occupational standards are higher education institutions, quality assurance bodies, policy makers, and indirectly students, employees, and employers.

The occupational standards can be used also for better identification of knowledge and skills gaps, ensuring education and qualifications are more relevant to job roles. They can improve job requirements and facilitate self-assessment of individuals, and others.

6. Lifelong learning and validation of non-formal and informal learning

One of the objectives of the QF-BiH is to facilitate lifelong learning of all citizens and to support validation and recognition of non-formal learning, which is open for all adults.

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7. Training of trainers

Experts as trainers from all relevant stakeholders in the BiH are crucial for the development and sustainable implementation of the QF-BiH. This is particularly important for development of qualifications standards and occupational standards, their use for the design and validation of study programmes. Thus, selection of future trainers and their training is the strategic aim of the QF-BiH Action Plan. The workshop training agenda, its aims and learning outcomes are presented in the Annex.

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8. Next steps

Next steps in the development and implementation of the QF-BiH should be fully in line to the Action Plan, which gives all activities and needs for their effective outcomes.

Support by international projects is crucial for further development and its implementation. They should help in research and identification of best specific priority areas.

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10. Annexes

10.1. Baseline of the QF-BiH

10.2. Example of 5 qualifications standards

- *5 qualification standards*

10.3. Example of 5 occupational standards

- *2 occupational standards*

10.4. Recommendations

10.5. Training module

10.6. Training agenda

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