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# Methodology for the development of a sector profile

the Objectives,  
the Process,  
the Actors,  
the Instruments,  
the Outcomes



**METHODOLOGY**  
FOR THE **DEVELOPMENT** OF A  
SECTOR PROFILE

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# LIST OF ABBREVIATIONS

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ALLED	ALIGNING EDUCATION WITH LABOUR MARKET NEEDS
AGR	AGRICULTURE
ARDP	AGRICULTURE AND RURAL DEVELOPMENT PLAN
CVETAE	COUNCIL FOR VOCATIONAL EDUCATION AND TRAINING AND ADULT EDUCATION
HE	HIGHER EDUCATION
ICT	INFORMATION AND COMMUNICATIONS TECHNOLOGY
KAA	KOSOVO ACCREDITATION TECHNOLOGY
KARD	KOSOVO AGRICULTURE RURAL DEVELOPMENT
KAS	KOSOVO AGENCY OF STATISTICS
LFS	LABOUR FORCE SURVEY
MEST	MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MLSW	MINISTRY OF LABOUR AND SOCIAL WELFARE
NQA	NATIONAL QUALIFICATION AUTHORITY
NQF	NATIONAL QUALIFICATION FRAMEWORK
PM	PRIME MINISTER
VET	VOCATIONAL EDUCATION AND TRAINING

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# 1.

## INTRODUCTION

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The path to employability and competitiveness in a global setting is becoming more and more a question of ability to absorb and apply knowledge. Every day know-how and new skills are being created in workplaces as firms and employees struggle to develop new products and services, to solve problems in a demanding market and create value. However, this knowledge only rarely finds its way to the education sector. The same is true of the opposite direction of knowledge flow; research results and theoretical as well as practical skills which develop in research and education institutions filter down to employers with difficulty, mainly through the knowledge and skills of graduates.

Every country needs to think about ways to bridge this gap which exists between the creation, application and dissemination of knowledge. It would be too slow to wait for employers and training providers as the main actors in the link between education and the labour market to develop mutual links on their own. This process should be continually facilitated particularly by introducing new tools such as regular employers' surveys which would monitor and articulate the need for new competences and occupations and sector profiles which will give a picture of the supply and demand for skills in the economy at the macro level.

In the process of adjusting supply of training and skills to labour market demand, the National Qualification Framework plays a crucial role. Firstly, it ensures that occupational standards reflect the needs of employers and secondly that qualifications are developed based on these standards and provide a guarantee that graduates have all the competences for the workplaces required by the employers.

In order to fulfil their role, all validating and accrediting institutions should use instruments which will help to identify the needs of the labour market in a dynamic setting and to make this knowledge available to institutions both private and public who plan education both in terms of skills and the enrolment quotas which have to manage the inflow of young people into education at the various levels.

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## WHAT IS A SECTOR PROFILE?

A sector profile is a document which describes the structure of demand and supply of skills in a national setting. It provides labour market information which indicates the movements in employment and unemployment by occupation or groups of occupations and also shows the flows of graduates from training institutions into the labour market. Its purpose is to provide an evidence base for the planning of education and for the assessment of relevance of standards and training programmes.

### **A sector profile should indicate skill gaps which appear between demand and supply of skills such as:**

- The labour supply in the skill sector may be too large for the labour market to absorb (indicator 4: unemployment of the skill sector occupations is higher than average, the vacancy to unemployment ratio is low, employment from the register of the unemployed is slow; indicator 6: there is larger supply than demand for occupations).
- The structure of labour supply is inadequate i.e. there are workers who have the right occupations but the skills they have are inadequate for the job (the employers' survey on competences should show that expectations about skills in jobs are different from learning outcomes from education – this gives rise to structural unemployment)
- Demand is larger than supply (indicator 6: demand is larger than supply of occupations; indicator 4: the vacancy to employment ratio is very high, indicating that employers are demanding workers but either the numbers of unemployed are inadequate or their skills are not the right ones for the vacancies).

### **The questions that a profile has to answer are the following:**

- How important is the skill sector on Kosovo in terms of the labour force which has sector specific occupations?
- Do these occupations have above average or below average unemployment rates for their level of complexity?
- How many registered unemployed have these occupations?
- How many graduates join the labour force every year with sector specific qualifications?
- Is there a skills gap between the demand and supply of sector specific occupations?
- How many economic sectors employ these occupations?
- Is employment in key economic sectors growing, stagnating or increasing in time?
- What are the technological and organisational specifics of the sector?
- What is the position of the sector on Kosovo in the future?

With answers to these questions it will be possible to assess the labour market relevance of occupational standards as well as programmes which have been based on them. This will be relevant in the processes of accreditation and reaccreditation of training institutions, approval of programmes at both VET and university level and possibly adult education as well.

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## INDICATORS OF LABOUR MARKET RELEVANCE

For the purposes of assessing labour market relevance 6 different indicators have been designed. Most of them are indicators of demand and there is one supply side indicator and a supply and demand balance indicator. Each of the indicators has a range of values that it can take based on which the evaluators can come to the conclusion whether demand or supply of skills is adequate.

Whenever possible, results are also given by NQF level requirements for certain groups of jobs. This is necessary if we want to understand demand for higher education, secondary and below secondary education in the economy. Sometimes, there is substantial demand for occupations which require secondary qualifications while there is very little demand for occupations which require higher education. Overall values for the whole sector would then hide more than they show since these opposite values would cancel out at the level of the whole sector.

The interpretation of the indicator values is crucial for the process of evaluation and each of the indicators has an influence on others, i.e. if the scope of a sector (indicator of demand no.1) is small but job creation is high, the conclusion may be that the scope will increase under this influence which is a more important bit of information than the static view of a skill sector scope which is currently small. This was the case in all 3 sectors which were analysed in the Alled project.

Finally, the actual values of indicators could be said to cover the quantitative aspects of supply and demand and this is perhaps ½ of the final evaluation decisions by experts. Their job is to take into account the indicator values seriously, but also to judge, based on strategic goals and development objectives, both national and regional, whether the skills presented as standards may be important for Kosovo in the future even though they are not so important at the present moment.

# 2.

## HOW TO USE THIS METHODOLOGY

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This methodology consists of two parts. In the first part we cover the methodological aspects of the concept of aligning education with labour market needs and the preparation of the databases for the analysis. In the second part we present detailed instructions on how to prepare the tables and the graphs from the relevant databases (excel file DATA.xlsx). Additional materials to be used from the Alled Resource Pack is the Concept for aligning education with labour market needs which is available on the project web site [www.alledkosovo.com](http://www.alledkosovo.com) which could be a good introductory material for using the methodology.

# 3.

## STEPS IN DEVELOPING A SECTOR PROFILE

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1. Define the **skill sectors** on Kosovo
2. Develop a **correspondence table** between occupations and qualifications by determining the NQF levels of qualifications required by chosen occupation groups
3. Define the **scope** of the sector
4. Define the **dispersion** of skill sector occupations in the economy
5. Analyse **job growth** in skill sector occupations in the economy
6. Work out the **vacancy to unemployment ratio** for skill sector occupations
7. Analyse **training coverage** of occupation groups by training provision
8. Identify **skill gaps between the demand and supply of labour.**

### BASIC CONCEPTS

In order to analyse the supply and demand for skills we have to find a mechanism which will link data on employment and unemployment by occupation and enrolment (graduates) by training programme on the other. The definition of supply and demand is shown in the chart below.

The units of demand are quantified by taking employment and vacancies by occupation and looking at how they are used in the economy. On the demand side we take the unemployed by occupation and graduates by training programme to assess the supply of skills<sup>1</sup>.

To work out the balance between the demand and supply we have to make a correspondence table between occupations on the one hand and qualifications/training programmes, on the other.

As shown in the Concept for aligning education with labour market needs<sup>2</sup>, skill sectors are groups of occupations and training programmes associated with the same field of knowledge. Occupations represent the use or application of knowledge, while training programmes develop skills necessary to work in these occupations.

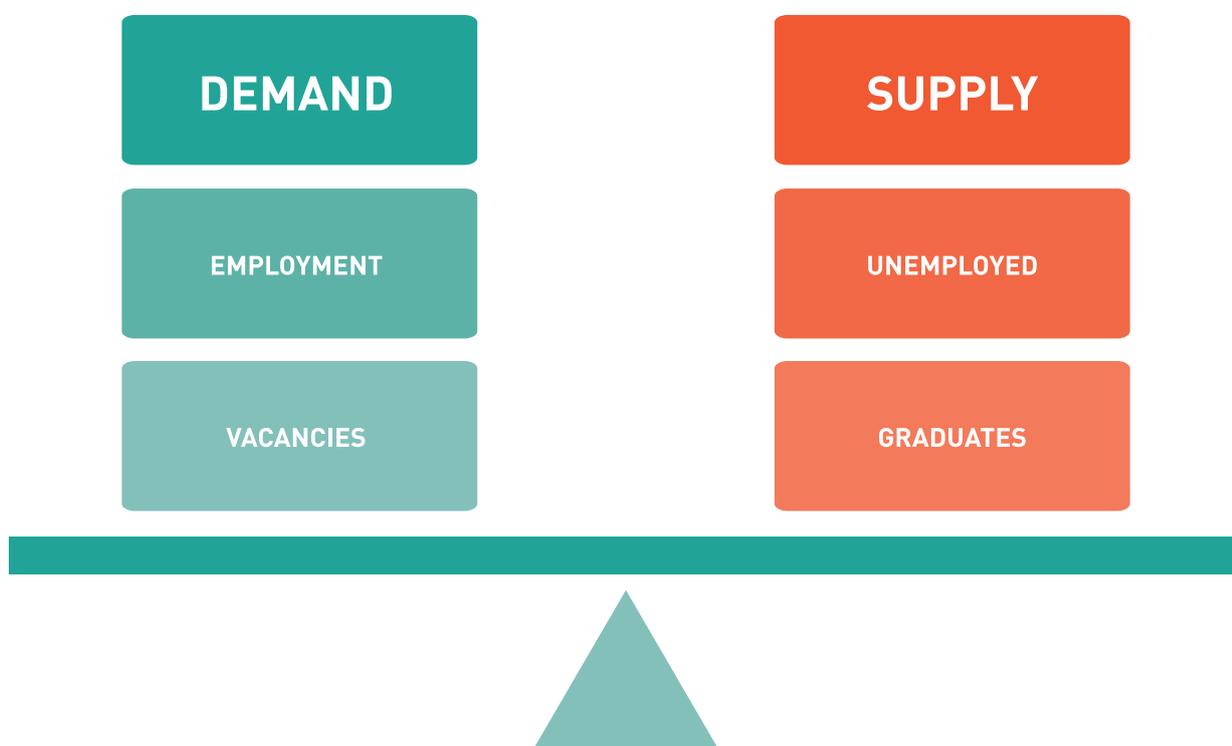
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<sup>1</sup> There are possible refinements to this set up which could be introduced if we had adequate data sources. On the demand side we could add the numbers of workers who will retire in the next period as potential demand for labour and on the supply side we could include the inactive who are likely to enter the labour market if and when demand for labour rises. At this time such data are not very reliable on Kosovo and we leave them out of the analysis.

<sup>2</sup> See the project website [www.alledkosovo.com/publications](http://www.alledkosovo.com/publications)

The link between occupations and training programmes is very direct in some occupations such as regulated professions where a person can practice a certain profession only if they have a certain type of qualification and work experience in particular controlled circumstances and who get an approval to practice on the basis of the above. For example, doctors can not practice their profession if they did not graduate from the medical faculty, if they have not had practical experience and if both of the above is not verified by the Chamber of medical doctors (different in each country). However, in many other jobs, the link between qualifications and occupations is much weaker.

For example, to work as a job broker one can be an economist, sociologist, phychologist, etc. The fact that persons with different qualifications can work in one job, our focus has to be on the job – the occupation and not the qualification. We derive the demand for qualifications from the demand for occupations and not the other way round. In order to do that we have to set up a framework of correspondence between occupations and qualifications so that we can convert the demand for occupations into demand for qualifications.



## DETERMINING SKILL SECTORS BY USING THE ISCED-F CLASSIFICATION

A skill sector is a group of qualifications and training programmes from a particular field of knowledge and occupations which use the sector skills in the economy.

In order to identify skill sectors, we have to code the training programmes as well as occupations of the labour force<sup>3</sup> with some sort of classification which focuses on fields of knowledge. Such a classification in the UNESCO classification of fields of knowledge ISCED-F.

This classification allows coding by field of knowledge rather than by levels which is usual for ISCED classifications. The first step is to take the Kosovo ISCO classification and code it with ISCED-F codes.

Experts for a certain field of knowledge should know when they see a name of a particular occupation what field of knowledge is required for a particular occupation. For example, a carpenter is an occupation which comes from a field of knowledge concerning the creation, repair and work with products made out of wood. In F-ISCED this field of knowledge is called Manufacture of wood products. In the second step, we have to code training programmes which prepare individuals for this job. Therefore, each training programme and each occupation should have 2 codes: an NQF code referring a particular occupation and qualification to a certain level of the National qualification framework and the F-ISCED code which aligns it with a particular skill sector. When this is done we will have the definition of a national skill sector: occupations using one field of knowledge and training programmes which cater for these needs and the levels of skill which are required.

The coding should be done by expert groups with knowledge from the labour market concerning occupations and training programmes. They should code the employment data from the LFS, the education data at secondary school and university from the PM office data and the unemployment data. In this way we will connect occupations with training programmes at all levels. On the basis of this we will be able to develop a Table of correspondence between ISCO and NQF levels by skill sector.

## OCCUPATIONS AND QUALIFICATION LEVELS – LINK BETWEEN ISCO AND ISCED

The link between occupations and qualifications has been recognized in the development of classification of occupations ISCO and the classification of education, ISCED. In the ISCO88 version, the complexity of occupations was linked to ISCED levels so that it was possible to determine which level of education is necessary to perform up to standard in a particular occupation. ISCO-08 has also continued this practice<sup>4</sup>.

<sup>3</sup> Labour force = Employed + Unemployed

<sup>4</sup> See: <http://www.ilo.org/public/english/bureau/stat/isco/isco08/>

In the text below coming from Volume 1 of the ISCO-08 we have the following explanations:

### ***Skill level and skill specialization***

43. *Skill* is defined as the ability to carry out the tasks and duties of a given job. For the purposes of ISCO-08, two dimensions of skill are used to arrange occupations into groups. These are *skill level* and *skill specialization*.

44. *Skill level* is defined as a function of the complexity and range of tasks and duties to be performed in an occupation. Skill level is measured operationally by considering one or more of:

- the nature of the work performed in an occupation in relation to the characteristic tasks and duties defined for each ISCO-08 skill level;
- the level of formal education defined in terms of the International Standard Classification of Education (ISCED-97) (UNESCO, 1997) required for competent performance of the tasks and duties involved; and
- the amount of informal on-the-job training and/or previous experience in a related occupation required for competent performance of these tasks and duties.

45. The concept of skill level is applied mainly at the top (major group) level of the classification, giving more emphasis to the first of these operational measures, the nature of the work performed, than to the formal and informal education and training requirements.

46. Bearing in mind the international character of the classification, only four broad skill levels are defined. As a result, eight of the ten major groups in ISCO-08 contain occupations only at one of four skill levels. For example, ISCO Major Group 2: Professionals includes only occupations at the highest ISCO skill level, Skill Level 4. All groups below the major group level contain occupations at only one skill level.

47. *Skill specialization* is considered in terms of four concepts:

- the field of knowledge required;
- the tools and machinery used;
- the materials worked on or with; and
- the kinds of goods and services produced.

48. Within each major group, occupations are arranged into unit groups, minor groups and sub-major groups, primarily on the basis of aspects of skill specialization. In the case of ISCO-08 Major Group 1: Managers, and Major Group 0: Armed Forces Occupations, the concept of skill level is applied primarily at the second hierarchical level.

Based on these guidelines we have to build the correspondence table between occupations and qualifications and to classify both by field of knowledge.

## DETERMINING LEVELS OF SKILLS

We have seen that the correspondence should take place at the level of major group (1-digit of ISCO) and that there are only 4 skill levels.

Table 1. Mapping of ISCO-08 major groups to skill levels

ISCO-08 major groups	Skill level
1 Managers	3 + 4
2 Professionals	4
3 Technicians and Associate Professionals	3
4 Clerical Support Workers	2
5 Services and Sales Workers	
6 Skilled Agricultural, Forestry and Fishery Workers	
7 Craft and Related Trades Workers	
8 Plant and Machine Operators, and Assemblers	
9 Elementary Occupations	1
0 Armed Forces Occupations	1 + 2 + 4

67. In those cases where formal education and training requirements are used as part of the measurement of the skill level of an occupation, these requirements are defined in terms of ISCED-97. A mapping between ISCO skill levels and levels of education in ISCED-97 is provided in table 2.

Table 2. Mapping of the four ISCO-08 skill levels to ISCED-97 levels of education<sup>3</sup>

ISCO-08 skill level	ISCED-97 groups
4	6 Second stage of tertiary education (leading to an advanced research qualification) 5a First stage of tertiary education, 1st degree (medium duration)
3	5b First stage of tertiary education (short or medium duration)
2	4 Post-secondary, non-tertiary education 3 Upper secondary level of education 2 Lower secondary level of education
1	1 Primary level of education

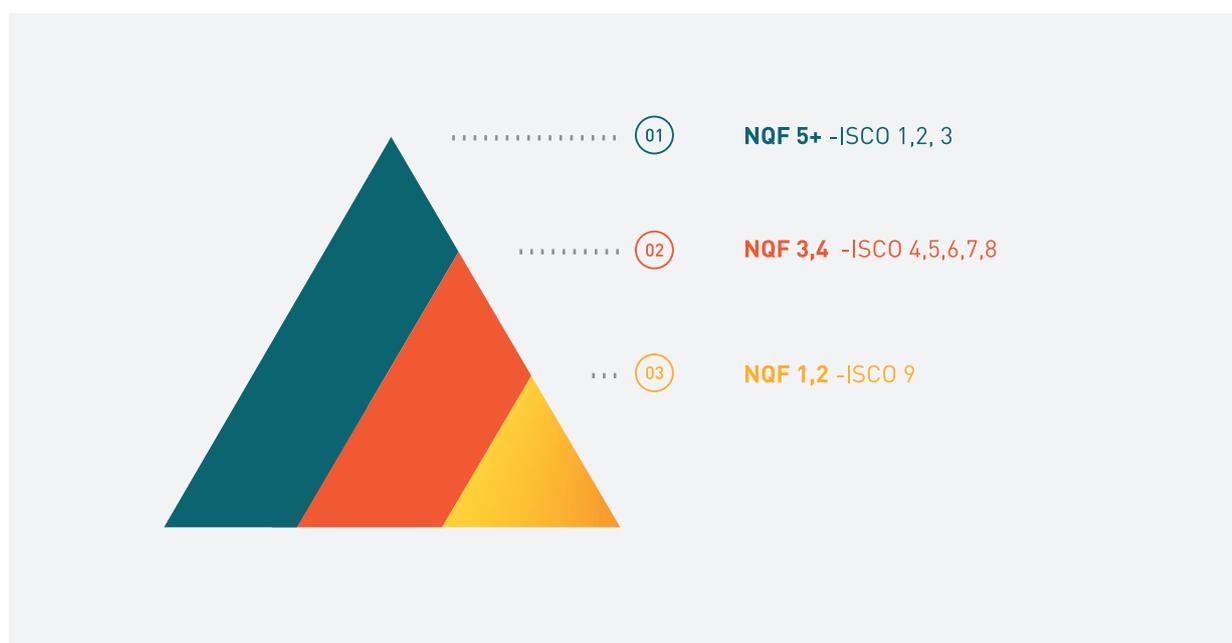
Source: International standard classification of occupations ISCO-08, Vol. 1, ILO  
<http://www.ilo.org/public/english/bureau/stat/isco/docs/publication08.pdf><sup>5</sup>

<sup>5</sup> The new ISCED-11 classification which came out in 2012 has provided 8 instead of 6 ISCED groups which can be seen at <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>. The changes are shown in the table below:

**If we take into account the changes that were made to ISCED in 2011 we can conclude that:**

- skill level 4 is associated with ISCED levels 5,6,7 and 8 and ISCO major group 1,2
- skill level 3 is associated with ISCED levels 5,6 and ISCO major group 3
- skill level 2 is associated with ISCED levels 2,3,4 and ISCO major group 4,5,6,7,8
- skill level 1 is associated with ISCED level 1 and ISCO major group 9.

In our analysis on which sector profiles are based we use the correspondence table as shown in the chart. The reason why we do not differentiate between NQF level 5, 6, 7 and 8 is due to the fact that our data sources are unable to show such details and all we can do at this point is to see what the demand is for all occupations which require NQF level 5 and higher.



On the other hand, there is possible overlap between NQF level requirements in levels 3 and 4. Namely, in many occupations employers have different hiring practices and if we ask them what level of education they require for their jobs some will choose higher, and some lower qualification levels. Since this required level is an empirical rather than a formal requirement, we have decided not to differentiate between NQF levels 3 and 4 **so we will only have 3 complexity levels of occupations on Kosovo:**

1. Level 5 and higher – which includes upper secondary, non-university level 5 as well as bachelor, master and doctoral programmes
2. Level 3 and 4 which includes 2 and 3 year secondary school VET programmes and adult training programmes at this level
3. Level 1 and 2 which includes one year secondary school programmes as well as adult training programmes of shorter duration.

If we had more reliable data sources it would have been possible to differentiate demand for skills at each of the NQF levels, but at this time, the quality of the data does not allow this level of detail.

The correspondence table should be the work of experts in every country<sup>6</sup> (for example those responsible for upgrading of the ISCO classification and those who code the training programmes according to ISCED or FOET classifications). In this sense, the institution which has the most benefit from aligning occupations and qualifications should put into motion this activity and invite experts from all fields to choose the qualifications and occupations which they think belong to their skill sector. Such an institution for occupations is the public employment service since the matching function is carried out by reliance of the National classification of occupations. As the basis, they should use the National classification of occupations and code each occupations with one of the fields of knowledge as described in the UNESCO classification of fields of knowledge ISCED-F [http://ec.europa.eu/education/tools/isced-f\\_en.htm](http://ec.europa.eu/education/tools/isced-f_en.htm).

## USING THE CORRESPONDENCE TABLE IN THE PROCESS OF VALIDATION OF OCCUPATIONAL STANDARDS

The process of validation starts when an application is submitted to the Council for VET in the Ministry of science and education which then signals the NQA to proceed with the validation process. If the application is correctly filled in, the name of the occupational standard should be identical or at least similar to an occupation or group of occupations from the National classification of occupations on Kosovo.

The first step is to find the code of the occupation and then check which sector the occupation belongs to. Once we know the sector we can define the following:

- Is there an existing qualification which is serving this occupation or not
- How many students are enrolled in this training already
- Is there demand for these and similar occupations in the economy (what are the values of indicators of demand in the sector profile) at the relevant NQF level

Therefore, the responsible institution must have a database of all the occupations and training programmes coded with ISCED-F codes which is the basis for any analysis of the skill sectors.<sup>7</sup>

<sup>6</sup> The present coding was done by Alled senior expert based on experience in similar procedure sin Croatia for the purposes of the development of the Croatian Qualification Framework in 2013-2015.

<sup>7</sup> More detailed guidelines for users of the sector profiles and other tools for validation of standards will be available separately.

# 4.

## CALCULATING THE INDICATORS OF DEMAND AND SUPPLY OF SKILLS

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Each sector profile portrays the demand and the supply of skills which belong to a certain skill sector.

Labour demand is assessed based on the value of 4 indicators: SCOPE, DISPERSION, JOB GROWTH AND EMPLOYMENT POTENTIAL but the profile provides more data on a wider description of demand by gender and qualification level. Below we will describe how to calculate the indicators but also how to use the data to reconstruct the tables and the graphs in the sector profile. More detailed instructions are available in the document DATA.xlsx .

Labour supply is portrayed through the indicator of COVERAGE of occupation groups with qualifications and the indicator of supply and demand balance.

Below we look at how indicators of supply and demand are calculated while existing sector profiles can be used to provide help with interpreting the data.

# 5.

## INDICATOR OF DEMAND 1: SCOPE OF THE SKILL SECTOR

The first step in the development of a sector profile is to analyse the employment data from the Labour Force Survey<sup>8</sup> and to define the scope or size of a skill sector in the economy. To do this we take the database which has been prepared for analysis (see Annex 1) and aggregate all the data which have the code AGR for Agriculture skill sector, FOOD for the Food processing skill sector and ENG for the Mechanical engineering skill sector. This will give us the number of employed in each of the skill sectors which were in the focus of the Alled project. However, other skill sectors will also be identifiable based on coding by the author. To define the scope we need also total employment which can be summed up from the LFS database<sup>9</sup>. The sources of data for the above table are the following:

- Total employment is aggregated from the LFS database in the column named Total employment
- Skill sector employment is aggregated in the column named Employed in Food processing, Agriculture or Mechanical engineering
- Total registered unemployment is aggregated in the column Unemployment total from the sheet Unemployment
- Skill sector unemployment is aggregated when the Skill sector is filtered by the skill sector code which is required
- ENG labour force, Total labour force, Total unemployment rate, ENG unemployment rate are worked out as stated in the second row with column numbers
- The scope of the sector is worked out by calculating the share of skill sector employment in total employment.

The rows in the table represent different ISCO major code groups and the corresponding NQF levels as defined by the Correspondence tables for Kosovo. In this way we are able to work out the scope not only for the whole skill sector but also for occupations requiring higher education, secondary VET education or adult education. These scopes vary and it is possible that the demand for a certain group of occupations which require a certain level of qualifications can be higher or lower than for the whole skill sector.

The table below shows some of the main facts about the indicator of SCOPE.

INDICATOR NO.	INDICATOR NAME	INDICATOR VALUES	DESCRIPTION OF INDICATOR
Indicator 1	SCOPE	More than 20% share in total employment – Large scope; From 8 – 20% – MEDIUM; 3 – 8% SMALL SCOPE Below 3% - VERY SMALL	The share of employed with skill sector occupations in total employment

### GENDER ISSUES IN EMPLOYMENT AND UNEMPLOYMENT

Graph 1 and 2 show the share of women in employment and unemployment in occupations groups which need NQF levels 5+, 3 or 4 and 1 or 2 qualifications. This share provides information on the position of women on the labour market and in relation to qualification requirements. See detailed instructions in the file DATA.xlsx.

<sup>8</sup> For this analysis it is necessary to have the microdatabase of the Labour force survey from the most recent surveying. This can be obtained from Kosovo agency of statistics. This source has its good and bad characteristics from our point of view. Firstly, it is the only source which provided data on employment by occupation and by economic activity at the same time. This means that we can work out which occupations are employed in any particular economic sector. This is key information for calculating the SCOPE, DISPERSION and CONCENTRATION of skills sectors by levels of complexity of occupations or by NQF levels of training programmes.

<sup>9</sup> DATA ALL in the Resource pack

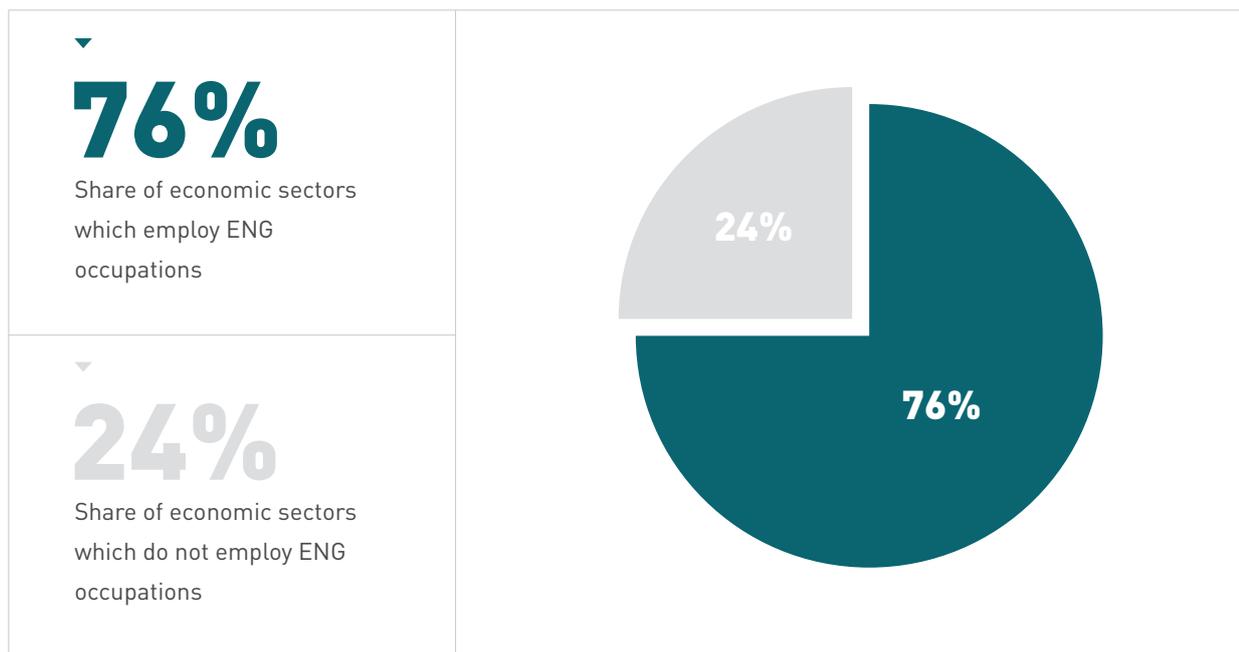
# 6.

## INDICATOR OF DEMAND 2: DISPERSION OF SKILL SECTOR OCCUPATIONS IN THE ECONOMY

For analysing the dispersion of occupations from the skill sector in the economy the LFS database is used. The database must be coded as described in Annex 1. The key variables which need to be filtered are the Skill sector column where the right skill sector is chosen, the NACE column and the column which shows the numbers of employed in the sector (AGR, FOOD or ENG).

In order to get the number of economic sectors which employ skill sector occupations, the NACE 2 digit codes with employees are counted and the % calculated in relation to the full number of economic sectors which was 86 in 2013 based on the LFS.

Graph 3 - Dispersion Of Eng Occupations In The Economy



This result is then shown in this pi-chart to show the percentage of economic sectors which employ skill sector occupations.

The DISPERSION in the skill sector is a measure of the intensity of demand for skill sector occupations and the wider the dispersion, the better is the potential demand. The values of the indicator is as follows:

Indicator 3 DISPERTION	<ol style="list-style-type: none"> <li>HIGH DISPERSION: above 60%</li> <li>MEDIUM DISPERSION: from 31 – 60%</li> <li>LOW DISPERSION: up to 30%</li> </ol>	The number of economic sectors which employ skill sector occupations in relation to all sectors	57/86 or 66%  HIGH DISPERSION for the ENG skill sector
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# 7.

## INDICATOR OF DEMAND 3: JOB GROWTH

The source of data for analysing job creation is the LFS for years 2008 and 2013. In order to analyse the job growth we make the assumption that each economic activity uses the same structure of skills in both years (changes in skill structure is usually slow enough for us to accept this assumption over a period of 5 years).

The extent of job creation is used as an index according to the following formula:

$$\left( \frac{\text{Employment in 2013}}{\text{Employment 2008}} \text{ for each of the 87 economic activities according to NACE} \right) \times 100$$

The values that the index can take are above or below 100. If they are below 100 we have a reduction of employment and if it is greater we have job growth. For each skill sector we look at all the economic activities which employ a skill sector occupations but have particular focus on key economic activities which employ most of the persons with occupations from a chosen skill sector. The growth or decrease of jobs in key economic activities will have a very important impact on job creation for skill sector occupations.

INDICATOR NO.	INDICATOR NAME	INDICATOR VALUES	DESCRIPTION OF INDICATOR
Indicator 3	JOB GROWTH	Indices values: 140+ - Strong growth 110-139 - Medium to fast growth 100 - 109 - Slow growth Less than 100 - Negative growth	Index of employment growth over the last 5 years

See detailed instructions on calculating the value of this indicator for the chosen skill sector in document DATA.xlsx in the Resource pack.

# 8.

## INDICATOR OF DEMAND 4: EMPLOYMENT POTENTIAL

Employment potential is calculated from the unemployment database provided by the Ministry of Labour and Social Welfare. The formula is as follows:

$$\text{Employment potential} = \text{Vacancies} / \text{Average unemployment} \times 100$$

From the database Unemployment we choose vacancies by occupation or groups of occupations in question and calculate the employment potential as shown in document DATA.xlsx .

This measure shows the ease or difficulty of finding a job from the Employment service register of the unemployed. Follow the range of the value the indicator can take to assess the extent of demand for occupations:

INDICATOR NO.	INDICATOR NAME	INDICATOR RANGE VALUES	DESCRIPTION OF INDICATOR
Indicator 4	EMPLOYMENT POTENTIAL	Vacancy to unemployment ratio: High demand: 100 and above; medium demand 50-99; low demand 30-50; below 30 very low demand	Vacancies over one year which were declared to the employment service for a chosen occupation divided by the average number of unemployed with the chosen occupation during that year times 100

## 9.

## INDICATOR OF SUPPLY 5: TRAINING COVERAGE

Training coverage shows whether we have qualifications available which cover a certain group of occupations which require different NQF level qualifications. By using the correspondence table we show the numbers of occupations by ISCO major group and compare them with the number of qualifications at the required NQF level. All the occupation groups should have qualifications which cover them and if some are missing there could be a problem of providing right skills in the economy in the long run. Coverage is calculated in the following way:

$$\text{Number of occupations in the group of ISCO major groups} / \text{Number of qualifications at the required NQF level} \times 100$$

INDICATOR NO.	INDICATOR NAME	INDICATOR VALUES	DESCRIPTION OF INDICATOR
Indicator 5	COVERAGE	60%+ - Good coverage 20-40% - Medium coverage Below 20% - Low coverage	Ratio between ISCO minor groups and NQF qualifications

Even if coverage is good but there are no qualifications for one of the occupation groups this has to be noted and efforts made to develop the missing qualifications, especially if the demand is growing.

# 10.

## INDICATOR OF SUPPLY 6: DEMAND AND SUPPLY BALANCE

This indicator serves to bring together the absolute numbers of employed and the vacancies on the demand side and the numbers of the unemployed and the graduates from the supply side. A large disbalance between the two indicates that there are skill gaps which should be looked at and covered in the future.

On the demand side we take employment by 3 NQF level groups and vacancies for skill sector occupations minus the numbers of the unemployed and the graduates based on the correspondence table

IN THE CORRESPONDENCE TABLE WE HAVE THE FOLLOWING LINKS BETWEEN ISCO MAJOR CODES AND NQF LEVELS:



The demand and supply side balance must be made for each 3 NQF levels so that we can see what the demand and supply are for those occupations requiring higher education, secondary education or adult education. Based on this comparison we can see whether there will be a good balance between the two, excess supply or excess demand.

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In order to do that, we will use the results of the existing analyses. For the demand side we will use the number of job openings in the skill sector by NQF level requirements and the number of vacancies which were annually available for skill sector occupations at the various NQF level requirements. We have this in Graph 5 where job growth over 5 years by NQF level requirements is shown. We have to divide this number by 5 to get an estimate of annual job growth. We take the vacancies from Table 3 where annual vacancies are shown.

On the supply side we take the annual average number of unemployed at different NQF level requirements which is shown in Table 4. We have to add Professionals and technicians to get groups of occupations which require qualifications of NQF levels 5 and higher. We take ISCO 4,5,6,7 occupations which correspond to NQF levels 3 and 4 and ISCO 9 which corresponds to NQF levels 1 and 2. With these absolute numbers which are estimates of annual supply and demand we work out the balance.

If the excess demand or supply are greater than 1/3 of the total demand or supply, we could have a problem of imbalance of skills on the labour market.

# Annex 1

## PREPARING THE DATA SOURCES FOR DEVELOPING SECTOR PROFILES

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**There are 4 data sources which are used for the development of sector profiles. They are:**

1. Labour force survey micro database – a listing of all answers to questions about labour market status addressed to individuals in the chosen sample of households. The survey is conducted annually by the Kosovo agency of statistics. In order to do this analysis, it is necessary to ask for permission to use the original database where each row represents one interviewed person. According to the surveying methodology, each persons represents a groups of individuals and on the basis of this estimates are provided for the whole Kosovo population. In our analysis we are only interested in the working-age population aged 15-64. More about the survey can be looked at on the KAS website (<http://ask.rks-gov.net/ENG/labour-market/methodology>) and the responsible department is the Department of social statistics.
2. The registered unemployment database – provided by the Ministry of Labour and Social Welfare which provides data on the registered unemployed and vacancies by occupation and municipality.
3. The enrolment in VET schools – provided by the MEST department of statistics. It shows the enrolment by municipality, school, training programme by school year.
4. The enrolment in universities – provided by KAA based on the data by the universities who apply for accreditation and reaccreditation of institutions and programmes by university and training programme annually.

**Some of these databases are used to calculate the demand for labour and some are used to calculate the supply of labour as shown in the chart below:**

**Demand for labour**

Employment - LFS  
Vacancies - MLSW

**Supply of labour**

Graduates from VET and HE-MEST  
Unemployed - LFS, MLSW

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## PREPARING THE LFS FOR USE IN THE ANALYSIS

This database is available only at the level of Kosovo without data for municipalities so it is impossible to get regional data. Due to the international methodology for the definition of employment, unemployment and inactivity which is used in this survey, this is a very important source of labour market data since it is comparable with data from other countries but is also neutral to the legal frameworks of Kosovo which tend to distort the labour market figures.<sup>10</sup>

The database is used mainly to understand the following:

1. The number of employed in the skill sectors and economic activities of Kosovo (SCOPE and JOB GROWTH)
2. Where the employed by skill sector work in order to understand the DISPERSION OF SKILLS which is an indicator of the importance of a skill sector (see INDICATORS of skill sector assessment above)
3. What is the gender structure of employment by occupation and by economic activity sector, etc.

In order to be able to connect it to other databases it is necessary to prepare the LFS database by coding the occupations with the FOET codes which will place the occupations into their skill sectors and which will make the connection to the enrolment data from the MEST and PM office.

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<sup>10</sup> For example: total employment in the LFS takes into account all persons who work but perhaps do not have a regular working contract (informal sector workers), the self-employed who are not paying taxes and those who would not otherwise be considered as employed such as helping family members on a farm, own business, etc. That is why, this source usually shows higher levels of employment than other sources of employment data. The LFS also gives unemployment data according to international standards and usually this count is much smaller than the number of registered unemployed as indicated by the Ministry of labour and social welfare. This is because it is difficult to verify in the MLSW count whether the registered unemployed are actually working in the informal economy, that they are actively looking for work and that they are available for work in the coming period. These are the 3 requirements which each unemployed persons should satisfy simultaneously if they are to be counted as unemployed by international standards. That is why the registered unemployment always overstates the actual unemployment count and the LFS is much more realistic in this regard. Nevertheless, registered unemployment is a presentation of unemployment in the country, - given the current legislative framework as well as employment service practices as defined by Law on employment.

## ASSESSING THE ACTUAL EMPLOYMENT BY SKILL SECTOR FROM THE LFS

A problem we are facing for the purpose of our analysis is that the LFS publishes data only at the ISCO level of minor group, i.e. the 3 digit ISCO code. This is very aggregated and since some of the minor groups have many occupations which belong to different skill sectors which have to find a way how to see which proportion of employment in one minor code belongs to which skill sector.

For example, the ISCO minor code 214 contains all occupations which belong to the group entitled Architects, engineers and related professionals. However, we are interested only in the engineers and only certain types of engineers, i.e. Mechanical engineers and Food processing technologists. Since we do not have a good mechanism for extracting them, we have to use a method which is not entirely satisfactory but is at least does not overstate employment in any way. We do this by taking all the individual occupations within a minor group and work out the share of each occupation. Then we multiply this basic share by the number of occupations which belong to a certain sector as shown in the example below:

Minor group 214 contains 140 individual occupations (see ISCO88 classification used on Kosovo in the document DATA.xlsx). We divide 1/140 to get the share of each occupation, i.e. 0.00714. This is the weight of each occupation. We are interested in the weight of engineering occupations of which we have 9:

2145.02	Engineer, mechanical/processing technique
2145.03	Engineer, mechanical/automation
2145.04	Engineer, mechanical/energies
2145.05	Engineer, mechanical/hydraulics and pneumatics
2145.09	Engineer, mechanical
2145.10	Technologist, engineering/mechanical
2145.11	Engineer, mechanical, planner
2145.12	Engineer, mechanical/adviser
2145.13	Engineer, mechanical/ supervisor

**And we have one occupation from the Food processing skill sector:**

2146.08	Technologist, food processing
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Since each occupations has the weight 0.00714, to get the weight of all mechanical engineering skill sector occupations employment, we multiply this number by the number of occupations belonging to this skill sector:  $0.00714 \times 9 = 0.06426$ . This number is then multiplied by the estimate of employment in the minor group 214 which is given in the LFS database variable Number to get the approximate number of employed with mechanical engineering skill sector occupations. Since the Food processing skill sector has only one occupation, the Food processing technologist, we multiply the total number of employed in the minor group 214 by 0.0714 to get the approximate number of employed which belong to the Food processing skill sector.

## PREPARATION OF THE UNEMPLOYMENT DATABASE

Request should be sent to the Ministry of labour and social welfare annually for data on registered unemployment and vacancies by municipality and occupation. The structure of the database which should be a part of the request or data should be as follows:

Region	ISCO code	Name of occupation in Albanian	Name of occupation in English	Unemployed total	Unemployed women	Newly registered total	Newly registered women	Employed from the register total	Employed from the register women	Vacancies total
Ferizaj	2113.01	2113 - Kimistët / kimistet	2113 - Chemists	1	0	0	0	0	0	0
Mitrovica	2113.01	2113.01 - Kimist analitik/ kimiste analitike	2113.01 - Chemist, analysis	1	0	0	0	0	0	2
Prizren	2113.01	2113.01 - Kimist analitik/ kimiste analitike	2113.01 - Chemist, analysis	1	0	0	0	0	0	2
Prishtinë	2113.01	2113.01 - Kimist analitik/ kimiste analitike	2113.01 - Chemist, analysis	0	0	0	0	0	0	2
Mitrovica	2113.02	2113.02 - Kimist / kimiste	2113.02 - Chemist	16	3	12	2	3	2	1
Prishtinë	2113.02	2113.02 - Kimist / kimiste	2113.02 - Chemist	9	6	3	2	0	0	1
Prizren	2113.02	2113.02 - Kimist / kimiste	2113.02 - Chemist	6	3	2	1	0	0	1
Gjilani	2113.02	2113.02 - Kimist/kimiste	2113.02 - Chemist	4	1	1	0	0	0	1
Peje	2113.02	2113.02 - Kimist/kimiste	2113.02 - Chemist	2	2	0	0	0	0	1

Each row in the database represents the number of registered unemployed by occupation or the number of vacancies in each municipality.

The second part of the database preparation relates to coding all the occupations by the FOET and NQF codes in the same way that we coded the MEST and LFS database.

# Annex 2

## ISCED-F CLASSIFICATION OF FIELDS OF KNOWLEDGE

Further details about the ISCED-F 2013 classification can be found at UNESCO's Institute of Statistics' website: <http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>;

Broad field	Narrow field	Detailed field	Programmes and qualifications included
01 Education	011 Education	0111 Education science	Curriculum studies Didactics Educational assessment, testing and measurement Educational evaluation and research Paedagogical sciences
01 Education	011 Education	0112 Training for pre-school teachers	Early childhood teaching (within formal school settings) Pre-primary teacher training
01 Education	011 Education	0113 Teacher training without subject specialization	Class teacher training Indigenous teacher training Primary teaching Teacher training for children with special needs
01 Education	011 Education	0114 Teacher training with subject specialization	Teacher training - arts and crafts Teacher training - commercial subjects Teacher training - music Teacher training - nursing Teacher training - physical training Teacher training - second languages Teacher training - specific theoretical subjects, e.g. English, mathematics, history Teacher training - technical subjects Teacher training - vocational subjects Training of driving instructors Training of trainers

Broad field	Narrow field	Detailed field	Programmes and qualifications included
02 Arts and humanities	021 Arts	0211 Audio-visual techniques and media production	<ul style="list-style-type: none"> <li>Animation</li> <li>Bookbinding</li> <li>Camera operating</li> <li>Compositing (printing)</li> <li>Computer game production</li> <li>Computer type-setting</li> <li>Film and video production</li> <li>Graphic design</li> <li>Graphic reproduction</li> <li>Illustration</li> <li>Interactive media design</li> <li>Media techniques</li> <li>Multimedia production</li> <li>Photography</li> <li>Pre-press operations</li> <li>Print finishing and binding</li> <li>Printing</li> <li>Publishing design, lay-out</li> <li>Radio and TV production</li> <li>Recorded music production</li> <li>Sound techniques</li> <li>Type-setting</li> </ul>
02 Arts and humanities	021 Arts	0212 Fashion, interior and industrial design	<ul style="list-style-type: none"> <li>Costume design</li> <li>Design of industrial products</li> <li>Fashion design</li> <li>Interior architecture</li> <li>Interior design</li> <li>Stage designing</li> <li>Window dressing</li> </ul>
02 Arts and humanities	021 Arts	0213 Fine arts	<ul style="list-style-type: none"> <li>Art theory</li> <li>Calligraphy</li> <li>Etching</li> <li>Fine art printmaking</li> <li>History of art</li> <li>Painting</li> <li>Philosophy of art</li> <li>Sculpture</li> </ul>
02 Arts and humanities	021 Arts	0214 Handicrafts	<ul style="list-style-type: none"> <li>Ceramics</li> <li>Crafts, folk arts and artisan</li> <li>Decorative metal crafts</li> <li>Indigenous crafts</li> <li>Embroidery</li> <li>Floristry (flower arranging)</li> <li>Glass arts and craft</li> <li>Goldsmithing</li> <li>Jewellery</li> <li>Making of musical instruments (not industrial)</li> <li>Musical instruments (repairing and tuning)</li> <li>Silversmithing</li> <li>Stone carving (craft)</li> <li>Weaving (craft)</li> <li>Woodcarving</li> </ul>

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>02 Arts and humanities</b>	021 Arts	0215 Music and performing arts	Acting and directing Ballet Choreography Circus Composition (music) Conducting (music) Creative and performance art Dance Drama History of film and theatre History of music Music Music conducting Musicology Theatre/Theatre sciences
<b>02 Arts and humanities</b>	022 Humanities (except languages)	0221 Religion and theology	Religious history Study of sacred books Study of different religions Theology
<b>02 Arts and humanities</b>	022 Humanities (except languages)	0222 History and archaeology	Archaeology Cultural history Folklore studies History History of literature History of medicine History of science and ideas History of technology
<b>02 Arts and humanities</b>	022 Humanities (except languages)	0223 Philosophy and ethics	Ethics Logic Morals Philosophy
<b>02 Arts and humanities</b>	023 Languages	0231 Language acquisition	Classical languages Exogenous languages Foreign languages Interpretation Phonetics Second languages, for example English as a second language Sign language Sign language interpreting Translation
<b>02 Arts and humanities</b>	023 Languages	0232 Literature and linguistics	Creative writing First language Indigenous languages Linguistics Literature Literature "Mother tongue" languages Native first languages
<b>03 Social sciences, journalism and information</b>	031 Social and behavioural sciences	0311 Economics	Econometrics Economic history Economics Political economics

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>03 Social sciences, journalism and information</b>	031 Social and behavioural sciences	0312 Political sciences and civics	Civics Human rights International relations Peace and conflict studies Political history Political science Public policy studies
<b>03 Social sciences, journalism and information</b>	031 Social and behavioural sciences	0313 Psychology	Cognitive science Psychology Psychoanalysis Psychotherapy
<b>03 Social sciences, journalism and information</b>	031 Social and behavioural sciences	0314 Sociology and cultural studies	Criminology Cultural geography Cultural studies Demography/population studies Gender studies Ethnology Social anthropology Sociology
<b>03 Social sciences, journalism and information</b>	032 Journalism and information	0321 Journalism and reporting	Broadcast journalism Editing Information (wording and content) Journalism Mass communication (wording and content) News reporting
<b>03 Social sciences, journalism and information</b>	032 Journalism and information	0322 Library, information and archival studies	Archival sciences Curatorial studies Documentation Information science Library studies Museum documentation Museum studies Museology
<b>04 Business, administration and law</b>	041 Business and administration	0411 Accounting and taxation	Accounting Auditing Bookkeeping Tax accounting Tax management
<b>04 Business, administration and law</b>	041 Business and administration	0412 Finance, banking and insurance	Bank teller studies Banking and finance Finance theory Insurance Investment analysis Investments and securities Pension insurance Social insurance Stock-broking
<b>04 Business, administration and law</b>	041 Business and administration	0413 Management and administration	Administration Educational management Employment management Entrepreneurship Health administration Logistic management Management science Office management Organisational theory and behaviour Personnel administration Personnel management Start your own business' courses Supply change management Training management

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>04 Business, administration and law</b>	041 Business and administration	0414 Marketing and advertising	Advertising Consumer behaviour Market research Marketing Merchandising Public relations
<b>04 Business, administration and law</b>	041 Business and administration	0415 Secretarial and office work	Administrative and secretarial services Clerical programmes Data entry Foreign language secretary programmes Keyboard skills Legal secretary programmes Medical secretary programmes Operation of office equipment Receptionist training Secretarial programmes Shorthand Switchboard operating Typing
<b>04 Business, administration and law</b>	041 Business and administration	0416 Wholesale and retail sales	Auctioneering Consumer services Demonstration techniques Purchasing Real-estate business Retailing Stock-keeping Ware-housing Wholesaling
<b>04 Business, administration and law</b>	041 Business and administration	0417 Work skills	Company knowledge Clients' needs Customer service training 'Introduction to work' courses Organisation at work Quality assurance Trade union courses (general) Work development
<b>04 Business, administration and law</b>	042 Law	0421 Law	Commercial law Criminal justice studies History of law Indigenous law Jurisprudence Labour law Legal practice Notary/Notary's practise Paralegal studies
<b>05 Natural sciences, mathematics and statistics</b>	051 Biological and related sciences	0511 Biology	Biology Botany Cell biology Entomology Genetics Mycology Zoology

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>05 Natural sciences, mathematics and statistics</b>	051 Biological and related sciences	0512 Biochemistry	Biological chemistry Cell technology Forensic sciences Genetic code (DNA, RNA) studies Genetic engineering Tissue culture technology Toxicology Pharmacology Virology
<b>05 Natural sciences, mathematics and statistics</b>	052 Environment	0521 Environmental sciences	Ecology
<b>05 Natural sciences, mathematics and statistics</b>	052 Environment	0522 Natural environments and wildlife	National parks and wildlife management Nature conservation Wildlife
<b>05 Natural sciences, mathematics and statistics</b>	053 Physical sciences	0531 Chemistry	Inorganic chemistry Organic chemistry Physical chemistry
<b>05 Natural sciences, mathematics and statistics</b>	053 Physical sciences	0532 Earth sciences	Climate research Earth science Geodesy Geography (physical) Geology Geomatics Geospatial technology Meteorology Oceanography Seismology
<b>05 Natural sciences, mathematics and statistics</b>	053 Physical sciences	0533 Physics	Astronomy Astrophysics Chemical physics Medical physics Optics Physics Space science
<b>05 Natural sciences, mathematics and statistics</b>	054 Mathematics and statistics	0541 Mathematics	Algebra Geometry Mathematics Numerical analysis Operational research
<b>05 Natural sciences, mathematics and statistics</b>	054 Mathematics and statistics	0542 Statistics	Actuarial science Probability theory Statistics, applied Survey design Survey sampling
<b>06 Information and Communication Technologies (ICTs)</b>	061 Information and Communication Technologies (ICTs)	0611 Computer use	Computer use Software for calculating (spread sheets) Software for data processing Software for desk top publishing Software for word processing Use of Internet

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>06 Information and Communication Technologies (ICTs)</b>	061 Information and Communication Technologies (ICTs)	0612 Database and network design and administration	<ul style="list-style-type: none"> <li>Computer programming</li> <li>Computer science</li> <li>Computer system analysis</li> <li>Computer system design</li> <li>Informatics</li> <li>Operating systems</li> <li>Programming languages development</li> <li>Software development</li> <li>Software programming</li> </ul>
<b>06 Information and Communication Technologies (ICTs)</b>	061 Information and Communication Technologies (ICTs)	0613 Software and applications development and analysis	<ul style="list-style-type: none"> <li>Computer administration and management</li> <li>Computer media applications</li> <li>Computer network installation and maintenance</li> <li>Database administrator studies</li> <li>Information technology security</li> <li>IT administration</li> <li>Network administration</li> <li>Network design</li> <li>Web design</li> </ul>
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0711 Chemical engineering and processes	<ul style="list-style-type: none"> <li>Chemical engineering</li> <li>Chemical process engineering</li> <li>Laboratory technology</li> <li>Oil/gas/petrochemicals processing</li> <li>Plant and machine operation (processing)</li> <li>Process technology</li> </ul>
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0712 Environmental protection technology	<ul style="list-style-type: none"> <li>Air pollution control</li> <li>Ecological technology</li> <li>Energy efficiency</li> <li>Environmental engineering</li> <li>Noise pollution control</li> <li>Industrial discharge control</li> <li>Recycling</li> <li>Water pollution control</li> </ul>
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0713 Electricity and energy	<ul style="list-style-type: none"> <li>Air-conditioning trades programmes</li> <li>Climate engineering</li> <li>Electrical appliances repairing</li> <li>Electrical engineering</li> <li>Electrical fitting</li> <li>Electrical power generation</li> <li>Electrical trades programmes</li> <li>Energy studies</li> <li>Gas distribution</li> <li>Heating trades</li> <li>Nuclear, hydraulic and thermal energy</li> <li>Power production</li> <li>Power line installation and maintenance</li> <li>Refrigeration</li> <li>Solar power</li> <li>Wind turbines</li> </ul>

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0714 Electronics and automation	Broadcasting electronics Communication systems Communications equipment installation Communications equipment maintenance Computer engineering Computer repairing Control engineering Data processing technology Digital technology Electronic engineering Electronic equipment servicing Network technology Robotics Telecommunication technology Television and radio repairing
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0715 Mechanics and metal trades	Gunsmithing Hydraulics Locksmithing and safe repairer Mechanical engineering Mechanical trades Metal casting and patternmaking Metal fitting, turning and machining Metallurgical engineering Precision mechanics Sheet metal working Steel production Tool and die making Welding
<b>07 Engineering, manufacturing and construction</b>	071 Engineering and engineering trades	0716 Motor vehicles, ships and aircraft	Aerospace engineering Air craft engineering Air craft maintenance Automotive electrical systems Automotive engineering Avionics Coachwork Marine engineering Motorcycle engineering Panel beating Shipbuilding Train repair and maintenance Vehicle varnishing/spraying Vehicle building and repairing
<b>07 Engineering, manufacturing and construction</b>	072 Manufacturing and processing	0721 Food processing	Baking Beer brewing Butchery Confectionery Dairy foods Food and drink processing Food preservation Food science and technology Meat processing Pastry cooking Tobacco processing Wine production

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>07 Engineering, manufacturing and construction</b>	072 Manufacturing and processing	0722 Materials (glass, paper, plastic and wood)	Boat building (non-motor) Cabinet making Carpentry (furniture) Ceramics (industrial) Furniture making Glass working (industrial) Industrial diamond production Paper manufacturing and processing Plastic manufacturing Rubber manufacturing Timber technology Wood machining and turning Woodwork trades programmes
<b>07 Engineering, manufacturing and construction</b>	072 Manufacturing and processing	0723 Textiles (clothes, footwear and leather)	Clothing trades Dressmaking Footwear making Fur making Garment production Leather processing Saddlery Shoemaking Skins and leather production Spinning Tailoring Textile trades Upholstery Weaving (industrial) Wool science
<b>07 Engineering, manufacturing and construction</b>	072 Manufacturing and processing	0724 Mining and extraction	Coal mining Mineral technology Mining of minerals Oil and gas drilling Oil and gas extraction Raw material extraction
<b>07 Engineering, manufacturing and construction</b>	073 Architecture and construction	0731 Architecture and town planning	Architectural urban design and planning Architecture Building design Cartography/Land surveying City planning Community development Landscape architecture Structural architecture Surveying Town and country planning Urban planning
<b>8 Engineering, manufacturing and construction</b>	74 Architecture and construction	0732 Building and civil engineering	Bricklaying Bridge construction Building construction Building engineering Building technology Carpentry and joinery (building) Civil engineering Construction equipment Constructional metalwork (building) Dock and harbour engineering Floor and wall tiling Floor covering House building Industrial abseiling (commercial) Masonry and tile setting Painting and wall covering Plastering Plumbing and pipefitting Road building Water engineering and technology Water supply and sewerage engineer

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>08 Agriculture, forestry, fisheries and veterinary</b>	081 Agriculture	0811 Crop and livestock production	Agricultural sciences Agronomy and crop science Animal husbandry Crop growing Dog breeding Farm and ranch management Farming Fruit growing Grain growing Horse breeding Pig farming Poultry husbandry Rice farming Rye and wheat growing Sheep farming Soil science Sugar cane growing Vegetable plantation Wine growing Wool science
<b>08 Agriculture, forestry, fisheries and veterinary</b>	081 Agriculture	0812 Horticulture	Floriculture Gardening Green keeping Horticultural techniques Nursery management Turf cultivation
<b>08 Agriculture, forestry, fisheries and veterinary</b>	082 Forestry	0821 Forestry	Charcoal burning Forest keeping Forest product techniques Forestry Logging Hunting and trapping Tree felling
<b>08 Agriculture, forestry, fisheries and veterinary</b>	083 Fisheries	0831 Fisheries	Aquaculture Fish breeding Fish farms Fishery science and technology Pearl cultivating Seafood farming Shellfish breeding
<b>08 Agriculture, forestry, fisheries and veterinary</b>	084 Veterinary	0841 Veterinary	Animal health care Animal reproduction (science) Artificial insemination (of animals) Veterinary assisting Veterinary medicine Veterinary nursing Veterinary science
<b>09 Health and welfare</b>	091 Health	0911 Dental studies	Dental assisting Dental hygiene Dental laboratory technology Dental nursing Dental science Dental surgery Dental technology Odontology Oral surgery Orthodontics

Broad field	Narrow field	Detailed field	Programmes and qualifications included
09 Health and welfare	091 Health	0912 Medicine	Anaesthetics Forensic medicine Forensic pathology General medicine Gynaecology Gerontology Medical science Medical training Medicine Paediatrics Psychiatry Surgery Training of physicians/doctors
09 Health and welfare	091 Health	0913 Nursing and midwifery	Assistant nursing Basic nursing General nursing Health care of old people Health care of the disabled Health care programmes Infant hygiene (nursing) Midwifery Nursing aide/Orderly Psychiatric nursing Specialized nursing
09 Health and welfare	091 Health	0914 Medical diagnostic and treatment technology	Ambulance technology Medical laboratory technology Radiology technology Radiotherapy Hearing aid technology Optical technology Prosthetic technology X-ray technology
09 Health and welfare	091 Health	0915 Therapy and rehabilitation	Dietician programmes Medical massage Nutrition/Dietetics Occupational therapy Physiotherapy Rehabilitation Speech therapy
09 Health and welfare	091 Health	0916 Pharmacy	Dispensing pharmacy Pharmacy
09 Health and welfare	091 Health	0917 Traditional and complementary medicine and therapy	Acupuncture and oriental medicine Aromatherapy Ayurvedic medicine Chinese herbology Herbalism Homeopathic medicine Holistic medicine Traditional medicine, for example Chinese
09 Health and welfare	092 Welfare	0921 Care of the elderly and of disabled adults	Care of the elderly Non-medical care of disabled adults Personal care of adults

Broad field	Narrow field	Detailed field	Programmes and qualifications included
<b>09 Health and welfare</b>	092 Welfare	0922 Child care and youth services	Child care Day care Children recreation programmes Non-medical care of disabled children Youth services Youth worker programmes
<b>09 Health and welfare</b>	092 Welfare	0923 Social work and counselling	Alcohol and drug abuse counselling Alcohol, tobacco, drugs (knowledge about) Crisis support Family and marriage counselling Mobbing and maltreatment (knowledge about) Parole officer training Probation officer training Social policy Social practice Social theory (applied) Social work (welfare) Vocational counselling Vocational guidance
<b>10 Services</b>	101 Personal services	1011 Domestic services	Caretaking, housekeeping and home service workers Chimney sweeping Cleaning Cooking (home) Domestic science Dry-cleaning Funeral services and mortuary science Home economics Laundry Needlework (home) Sewing (home) Window cleaning
<b>10 Services</b>	101 Personal services	1012 Hair and beauty services	Barbering Beauty therapy Cosmetology (make up) Fitness and weight control Hairdressing Manicure Pedicure
<b>10 Services</b>	101 Personal services	1013 Hotel, restaurants and catering	Catering Cooking (restaurant and hotel-type) Fast food preparation Food serving Hospitality services Hotel and restaurant studies Hotel receptionist training Hotel services Waiting and bar service
<b>10 Services</b>	101 Personal services	1014 Sports	Sport trainer studies Techniques and skills in a chosen sport Training of umpires/referees and other sports officials

Broad field	Narrow field	Detailed field	Programmes and qualifications included
10 Services	101 Personal services	1015 Travel, tourism and leisure	<ul style="list-style-type: none"> <li>Abseiling (rope climbing)</li> <li>Adventure based activities</li> <li>Guiding, tour leading</li> <li>Recreation and leisure</li> <li>Tourist trades programmes</li> <li>Travel agency services</li> <li>Travel and tourism</li> <li>Travel services</li> </ul>
10 Services	102 Hygiene and occupational health services	1021 Community sanitation	<ul style="list-style-type: none"> <li>Hygienic standards</li> <li>Hygiene, community</li> <li>Refuse collection</li> <li>Refuse/sewage disposal</li> <li>Street cleaning</li> <li>Water supply (service)</li> <li>Waste management</li> </ul>
10 Services	102 Hygiene and occupational health services	1022 Occupational health and safety	<ul style="list-style-type: none"> <li>Ergonomics (occupational health and safety)</li> <li>Health and safety in the workplace</li> <li>Industrial welfare</li> <li>Labour protection</li> <li>Labour security</li> <li>Labour welfare (safety)</li> <li>Occupational health and industrial hygiene</li> <li>Occupational safety</li> <li>Stress management</li> <li>Work environment</li> </ul>
10 Services	103 Security services	1031 Military and defence	<ul style="list-style-type: none"> <li>Air force training</li> <li>Army training</li> <li>Defence studies</li> <li>Military science</li> <li>Navy training</li> <li>War theory</li> </ul>
10 Services	103 Security services	1032 Protection of persons and property	<ul style="list-style-type: none"> <li>Civil security</li> <li>Customs programmes</li> <li>Fire technology</li> <li>Fire-protection (fire fighting)</li> <li>Life guarding</li> <li>Police work</li> <li>Policing studies</li> <li>Prison work</li> <li>Public security</li> <li>Security and loss prevention services</li> <li>Security guarding</li> </ul>
10 Services	104 Transport services	1041 Transport services	<ul style="list-style-type: none"> <li>Air traffic control</li> <li>Air traffic safety</li> <li>Aircraft operation</li> <li>Cabin crew training</li> <li>Communication (air, railway, road etc.) programmes</li> <li>Crane and truck driving</li> <li>Driving programmes</li> <li>Ground crew training (airport)</li> <li>Flying and navigation</li> <li>Navigation technologies</li> <li>Postal service</li> <li>Railway operations</li> <li>Road motor vehicle operations</li> <li>Ship operation</li> <li>Shipping</li> <li>Transport studies</li> </ul>

# Annex 3

## NACE 2007 – CLASSIFICATION OF ECONOMIC ACTIVITIES 2-DIGIT

NACE Code	Title of economic activity
01	Crop and animal production, hunting and related service activities
02	Forestry and logging
03	Fishing and aquaculture
05	Mining of coal and lignite
06	Extraction of crude petroleum and natural gas
07	Mining of metal ores
08	Other mining and quarrying
09	Mining support service activities
10	Manufacture of food products
11	Manufacture of beverages
12	Manufacture of tobacco products
13	Manufacture of textiles
14	Manufacture of wearing apparel
15	Manufacture of leather and related products
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
17	Manufacture of paper and paper products
18	Printing and reproduction of recorded media
19	Manufacture of coke and refined petroleum products
20	Manufacture of chemicals and chemical products
21	Manufacture of basic pharmaceutical product and pharmaceutical preparations
22	Manufacture of rubber and plastics products
23	Manufacture of other non-metallic mineral products
24	Manufacture of basic metals
25	Manufacture of fabricated metal products, except machinery and equipment
26	Manufacture of computer, electronic and optical products
27	Manufacture of electrical equipment
28	Manufacture of machinery and equipment n.e.c.
29	Manufacture of motor vehicles, trailers and semi-trailers
30	Manufacture of other transport equipment

<b>NACE Code</b>	<b>Title of economic activity</b>
31	Manufacture of furniture
32	Manufacturing n.e.c.
33	Repair and installation of machinery and equipment
35	Electricity, gas, steam and air conditioning supply
36	Water collection, treatment and supply
37	Sewerage
38	Waste collection, treatment and disposal activities; materials recovery
39	Remediation activities and other waste management services
41	Construction of buildings
42	Civil engineering
43	Specialized construction activities
45	Wholesale and retail trade and repair of motor vehicles and motorcycles
46	Wholesale trade, except of motor vehicles and motorcycles
47	Retail trade, except of motor vehicles and motorcycles
49	Land transport and transport via pipelines
50	Water transport
51	Air transport
52	Warehousing and support activities for transportation
53	Postal and courier activities
55	Accommodation
56	Food and beverage service activities
58	Publishing activities
59	Motion picture, video and television programme production, sound recording and music publishing activities
60	Broadcasting and programming activities
61	Telecommunications
62	Information technology service activities
63	Information service activities
64	Financial intermediation, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsory social security
66	Other financial activities
68	Real estate activities
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architecture and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities

<b>NACE Code</b>	<b>Title of economic activity</b>
<b>75</b>	Veterinary activities
<b>77</b>	Rental and leasing activities
<b>78</b>	Employment activities
<b>79</b>	Travel agency, tour operator and other reservation service activities
<b>80</b>	Security and investigation activities
<b>81</b>	Services to buildings and landscape activities
<b>82</b>	Office administrative, office support and other business support activities
<b>84</b>	Public administration and defence; compulsory social security
<b>85</b>	Education
<b>86</b>	Human health activities
<b>87</b>	Residential care activities
<b>88</b>	Social work activities without accommodation
<b>90</b>	Creative, arts and entertainment activities
<b>91</b>	Libraries, archives, museums and other cultural activities
<b>92</b>	Gambling and betting activities
<b>93</b>	Sports activities and amusement and recreation activities
<b>94</b>	Activities of membership organizations
<b>95</b>	Repair of computers and personal and household goods
<b>96</b>	Other personal service activities
<b>97</b>	Activities of households as employers of domestic personnel
<b>98</b>	Undifferentiated goods- and services-producing activities of private households for own use
<b>99</b>	Activities of extraterritorial organizations and bodies





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