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Mapping Careers
and Mobility of Doctorate
Holders: Draft Guidelines,
Model Questionnaire and
Indicators – Second Edition
– the OECD/UNESCO
Institute for Statistics/
EUROSTAT Careers of
Doctorate Holders Project

**Laudeline Auriol,
Bernard Felix,
Martin Schaaper**

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**MAPPING CAREERS AND MOBILITY OF DOCTORATE HOLDERS: DRAFT GUIDELINES,
MODEL QUESTIONNAIRE AND INDICATORS – SECOND EDITION – THE OECD/UNESCO
INSTITUTE FOR STATISTICS/EUROSTAT CAREERS OF DOCTORATE HOLDERS PROJECT**

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**By Laudeline Auriol (OECD)
Bernard Felix (Eurostat, European Commission)
Martin Schaaper (UNESCO Institute for Statistics)**

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**MAPPING CAREERS AND MOBILITY OF DOCTORATE HOLDERS: DRAFT GUIDELINES,
MODEL QUESTIONNAIRE AND INDICATORS – SECOND EDITION**

**THE OECD/UNESCO INSTITUTE FOR STATISTICS/EUROSTAT CAREERS OF DOCTORATE
HOLDERS PROJECT**

ABSTRACT

Human resources are recognised as being key to the creation, commercialisation and diffusion of innovation. Among them, doctorate holders are not only the most qualified in terms of educational attainment, but also those who are specifically trained to conduct research. In 2004, the OECD launched a collaborative project with the UNESCO Institute for Statistics and Eurostat aimed at developing internationally comparable indicators on the labour market, career path and mobility of doctorate holders.

This Working Paper presents the second edition of the technical guidelines used in the framework of the Careers of Doctorate Holders (CDH) project. The technical guidelines are composed of: *i*) the methodological guidelines; *ii*) a core model questionnaire and instruction manual; and *iii*) the output tables used for reporting data at the international level and related definitions. This second edition builds on the experience resulting from the first large scale data collection, which was based on the first edition of the technical guidelines released in 2007. In addition to a number of basic adjustments, it proposes new ways to measure post-doctoral positions and types of mobility, including international mobility.

The current draft is the result of discussions among the members of the CDH expert group. Its aim is to provide guidance to countries that wish to implement the project at national level.

**SUIVI DES CARRIÈRES ET DE LA MOBILITÉ DES TITULAIRES DE DOCTORATS :
PROPOSITION DE DIRECTIVES, QUESTIONNAIRE MODÈLE ET INDICATEURS –
DEUXIÈME ÉDITION**

**LE PROJET OCDE / INSTITUT STATISTIQUE DE L'UNESCO / EUROSTAT SUR LES
CARRIÈRES DES TITULAIRES DE DOCTORATS**

RÉSUMÉ

Les ressources humaines ont un rôle déterminant pour la création, la commercialisation et la diffusion d'innovations. Parmi cette population, les titulaires de doctorat ne sont pas seulement ceux les plus qualifiés en terme de niveau d'éducation, mais aussi ceux qui ont été spécifiquement formés à la recherche. En 2004, l'OCDE a lancé un projet en collaboration avec l'Institut statistique de l'UNESCO et Eurostat ayant pour objectif de développer des indicateurs sur le marché du travail, les carrières et la mobilité des titulaires de doctorat comparables au plan international.

Ce document de travail présente la seconde édition des lignes directrices utilisées dans le cadre du projet sur les Carrières des Titulaires de Doctorat (CTD). Les lignes directrices se composent : *i*) des directives méthodologiques ; *ii*) d'un questionnaire modèle et manuel d'instruction ; et *iii*) des tableaux de sortie utilisés pour recueillir les données au niveau international et des définitions qui y sont associées. Cette seconde édition résulte de l'expérience acquise au cours de la première collecte de données de grande échelle, laquelle était fondée sur la première édition des lignes directrices datant de 2007. En complément d'un certain nombre d'ajustements de base, elles proposent de nouvelles pistes de mesure des emplois « postdocs » et des types de mobilité.

Le document dans sa présente forme est le résultat des discussions menées par le groupe des experts CDT. Il est destiné à guider les pays qui souhaitent implanter le projet au niveau national.

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**MAPPING CAREERS AND MOBILITY OF DOCTORATE HOLDERS: DRAFT GUIDELINES,
MODEL QUESTIONNAIRE AND INDICATORS – SECOND EDITION**

**THE OECD/UNESCO INSTITUTE FOR STATISTICS/EUROSTAT CAREERS OF DOCTORATE
HOLDERS (CDH) PROJECT**

Background

The Careers of Doctorate Holders (CDH) project was initially designed in the framework of the OECD activities on human resources in science and technology (HRST). Many studies have demonstrated the link between technological innovation and economic growth and highlighted the role played by highly skilled workers in a knowledge and technology based economy. The OECD and Eurostat have as early as 1995 released a *Manual on the Measurement of Human Resources Devoted to S&T*, otherwise known as the *Canberra Manual*. This manual gives guidelines on the measurement of stocks and flows of HRST along various dimensions as well as on the data sources to be used. Because of the breadth and heterogeneity of the HRST population and as recommended in the *Canberra Manual*, focusing on certain subsets of this population was nevertheless deemed necessary.

Furthermore, the interest for certain skills and characteristics of specific populations has kept growing over the years. In particular, the 2004 meeting of the OECD Committee for Scientific and Technological Policy (CSTP) at Ministerial level urged the OECD to launch new work in the area of human resources in science and technology (HRST), notably “*Improving data on the development and mobility of human resources in science and technology: Using existing data sources and developing new statistical approaches, especially on mobility; Collecting and exchanging information on the career paths of holders of doctorates.*”

The training of doctoral graduates and of researchers is indeed a long and costly endeavour, and is regarded as essential in a knowledge-based and complex economy. Since 2000, doctoral awards have increased at the same pace as, and even slightly more rapidly than other degree awards. Doctoral graduates are considered the best qualified for creating, implementing and disseminating new knowledge and innovation. The question of the return on investment of such a long education and training is, however, a policy concern. Furthermore, until recently, not much was known about the employment patterns of doctoral graduates. It is with this in mind that the OECD, together with the UNESCO Institute for Statistics and Eurostat, has, in response to the above 2004 Ministerial mandate, launched a project aimed at measuring the labour market outcome, career path and mobility of this highly qualified population in the framework of the CDH project. Particular effort in this project was also deployed for measuring international mobility.

After a thorough review of the user needs in terms of indicators, an expert group drawn from representatives of the national statistical bodies with competence in the area was charged with developing the technical aspects of the project. It worked through a series of workshops in 2005-2006 and drew up a draft of the methodological guidelines, core model questionnaire and output tables. A pilot data collection

launched in September 2005 and results received for seven countries (Argentina, Australia, Canada, Germany, Portugal, Switzerland and the United States) were also used as inputs to fine tune the technical guidelines, the first version of which was released in 2007.¹ A first large scale data collection followed in 2007 in which some 25 countries participated and a rich set of data was made available.² The results were extensively discussed in a workshop involving the policy community held in Brussels in December 2008.

This Working Paper presents the second edition of the technical guidelines used in the framework of the CDH project. Numerous comments and interactions with the participating countries following the 2007 data collection exercise have allowed adjustments to be made to the definitions used, drafting of the questions in the model questionnaire, presentation of the output tables, data to be reported and other methodological aspects to be taken into account. A revision of the technical components was therefore deemed necessary before the next data collection.

In particular, new definitions and ways to measure two important and uncovered phenomena, *i.e.* post-doctoral positions and types of mobility (job-to-job/inter-sectoral mobility, international mobility distinguishing between first-time and multiple mobilities) have been discussed with the help of experienced institutions (*e.g.* the NSF in the case of post-docs) and introduced in this new version. The NSF is currently conducting a dedicated survey to better measure post-doctorates. Some of the questions aimed at identifying post-doctorates have been retained for inclusion in the CDH model questionnaire. This will allow to extend the measurement of the post-doctoral phenomenon to other countries on a comparative basis. An additional effort for reporting job-to-job/inter-sectoral mobility is being implemented for the next data collection through the inclusion of a more detailed output table. An improved definition of an internationally mobile doctorate holder is being implemented in the revised model questionnaire and efforts are made in the output tables for reporting international mobility according to one-time/multiple mobility and length of stay.

This working paper is thus aimed at providing guidance to the countries that wish to participate in the 2009-2010 CDH data collection exercise. It is also expected that new experiences with the model survey and comparative analysis of the data, as they become available, will continue to shape the CDH guidelines in the future.

1. See <http://www.oecd.org/dataoecd/17/57/38055153.pdf> and <http://www.oecd.org/dataoecd/6/25/39811574.pdf>

2. Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, United States.



STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

METHODOLOGICAL GUIDELINES

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1. INTRODUCTION

Statistics on careers of doctorate holders (Statistics on CDH) are compiled in order to measure the demographic, employment, international and intra-sectoral mobility, career and salary characteristics of holders of advanced research qualifications at national and international level. In the present document, we use the term “doctorate holders” for persons with an advanced research qualification, in possession of an ISCED 6 degree.

These statistics try to answer questions about the international mobility of highly skilled workers who are frequently characterised under the headings of brain drain / brain gain / brain circulation. In addition, issues of qualitative and quantitative adequacy of the education of doctorate holders for the labour market are covered as well as whether the country prevails as the primary labour market for this highly skilled group. They also address questions on how well the skills of the highest educated are used as well as the attractiveness of different career paths to doctorate holders. Questions like these often are asked on a worldwide level.

Based on an output-harmonised approach, the tabulated data to be delivered by countries to international organisations are compiled on the base of different methodological approaches. Often already existing national surveys can be used that sometimes might need to be complemented or extended. These guidelines therefore provide the general framework for national data production.

They should on the one hand help countries to improve and align their national survey methodologies. On the other hand, countries that are introducing CDH surveys find orientation on how to do this at the national level.

2. PURPOSE OF STATISTICS ON CDH

2.1 Why doctorate holders?

The doctorate holders, as being the highest educated group, are considered most likely to contribute to the advancement and diffusion of knowledge and technologies. As such, they often are seen as one of the key actors behind the creation of innovation and knowledge-based economic growth.

The CDH statistics will mainly focus on doctorate holders, but the same type of statistics could of course apply to other types of “highly qualified people”. This might for example be the case in some developing countries where highly qualified non-doctorate holders might constitute a crucial part of the S&T workforce and thus a target group for policy issue.

2.2 Needs expressed by users

The user needs for statistics on CDH were thoroughly discussed during a series of workshops between 2003 and 2009.

One of the aims of these workshops was to define links between research questions and data needs thus setting the objectives for the data collection of statistics on CDH. The policy questions observed at the national and international level are summarised under the following four headings:

- *The role of doctorate holders in innovation and the knowledge economy*

Where do doctorate holders work as compared to other tertiary graduates? Do they follow research careers and in what sector and field?

- *Labour market supply and demand*

Do we train too many or too few doctorate holders? Are there mismatches in the labour market? Why do doctorate holders choose a research career in the public sector, or in the private sector or leave research? What is their perception of career opportunities and employment situation in the public versus the private sector? Do they earn more than the average citizen and which sectors of employment are the most profitable?

- *Education to work*

How long is the time of transition to employment or post doctoral experience? How related is the job to the doctoral degree?

- *Mobility*

How mobile are doctorate holders between sectors? When do doctorate holders leave research for a career in management? How big are the flows of doctorate holders between countries? How common it is for doctorate holders to reside in a country on a non-permanent basis? What are the reasons for doctorate holders to return to their country of origin?

With the CDH statistics, policy makers should get much better information to address these questions. Countries will be able to share information at the international level, having their expatriates covered in the doctoral population observed by other countries.

2.3 The output harmonisation approach

As the national data compilation methods may be heterogeneous between countries, reflecting the diversity of the national statistical systems, a harmonisation effort is conducted on the output of the CDH statistics together with quality control.

The aim is therefore to obtain high quality results through a harmonised list of variables and indicators, together with their related definitions. The methodological guidelines additionally provide guidance on the target population, sampling frames, sampling design, survey instruments etc. that should be respected in the national survey methods.

2.4 Tabulation programme and national methodology description

The tabulation programme to be compiled by countries consists of about 35 pre-defined tables available as Excel spreadsheets. The current version of the tables is only to be compiled at national level. Breakdowns at the regional (sub-national) level might also be requested in the future and countries should consider this when developing their statistics on CDH.

A preliminary table is included to fill in metadata and the country specificities, like reference year, data collection method, coverage issues, contact details for the institution and person responsible for CDH statistics, etc. The tables are organised in four broad groups, dealing with different aspects of doctorate holders. This set of tables is expected to evolve as the project develops.

- *Personal characteristics P1-P8*

Break down the population of doctorate holders according to personal characteristics such as age, sex, country of citizenship and country of birth.

- *Educational characteristics ED1-ED5*

Information on the educational history of the doctorate holders: the population of doctorate holders is broken down by country of doctorate award, country of prior education, field of doctorate degree and source of funding during completion of doctorate. The compilation of average and median age and number of years to completion of the doctoral degree are also part of the tables.

- *Employment situations and perceptions EMP1-EMP8/PERC1-PERC2*

Employment characteristics of doctorate holders such as employment status (situation in employment, type of contract, working time), employment in research, institutional sector, median and average gross annual earnings, job mobility. The doctorate holders' perception of work and satisfaction are also part of this group of tables.

- *International mobility: Inward and outward IMOB1-IMOB4/OMOB1-OMOB2 (outward tables are optional)*

Tables on inward mobility present classification of the international mobile population of doctorate holders according to their previous country of residence, their reasons for moving into

or returning to the country and the frequency and length of their mobility. Tables on outward mobility present the population of doctorate holders broken down according to their intention and reasons to move out of the country in the next year.

At the end of each separate table, some notes on data sources and applied definitions and classifications should be entered. The corresponding variables from the questionnaire should also be completed where relevant. In a separate document, *the national methodology description (Annex 2)*, countries are asked to provide additional information on the statistical surveys and administrative data sources used. This metadata information together with the preliminary table information is of vital importance to interpret the data in the tabulations.

3. THE TARGET POPULATION

3.1 Introduction

The target population is decisive for the CDH statistics. It determines finally the usefulness of the data delivered.

The survey frame and the statistics on the target population often are put together from different national sources and surveys, each with their own survey population.

Countries are in different stages of development of the CDH statistics and working towards accomplishing the final aim of full coverage of the target population. In a transitional phase where countries make efforts to fully implement the methodological guidelines, incomplete coverage of the target population will however have to be accepted to support their efforts. This is however at the expense of comparability of the data between countries. Care should be taken to limit incomplete coverage as the project evolves and national practices are harmonised.

3.2 Definition of the target population

The total target population of the CDH statistics consists of all individuals with an education at ISCED 6 level. This global population of holders of advanced research qualifications is divided into national populations, which are considered the target populations of national surveys in each country. The national target populations consist of individuals that at the reference date are fulfilling the following criteria:

- Having an education at ISCED 6 level (doctorates) obtained anywhere in the world, and
- Being resident (permanent or non-permanent) within the national borders of the surveying country.

With these definitions and the (theoretical) assumption that all countries are conducting the survey and using the same reference date, the whole population of doctorate holders resident in all countries is covered without any overlaps.

3.3 Reference year

The recommended reference year is 2009.

3.4 Reference day

The recommended reference day, *i.e.* point in time to which the measured observation (*e.g.* length of stay in the reporting country) refers, is 1 December of the year before the year when the survey is conducted at national level. The recommended reference day therefore for the 2010 data collection is 1 December 2009. In exceptional cases, the data-compiling country is free to choose another reference date, but it should preferably be chosen as close to 1 December as possible, between 1 October and 31 December.

3.5 Reference periods

In the CDH output indicator template and in the CDH survey questionnaire some information sought has a specified time period as a reference. This is:

- The last ten years (immigration)
- The last three years (career-related experience)
- The last ten years (job mobility)
- The last two years (recent graduates)
- The last year (gross annual earnings)
- The next year (emigration plans)
- The next three years (career plans)

For the sake of international comparability, the country is recommended to choose reference periods that are equal to calendar years and that start or end as close to the reference date as possible. Please note that countries are not recommended to use a reference period when collecting information on employment status and occupation, but are instead encouraged to measure the actual situation on the single reference date.

3.6 Statistical units

The statistical unit is the single individual having a formal education at ISCED 6 level (awarded doctorate) and being resident (permanent or non-permanent) in the reporting country on the reference date.

3.7 The age dimension

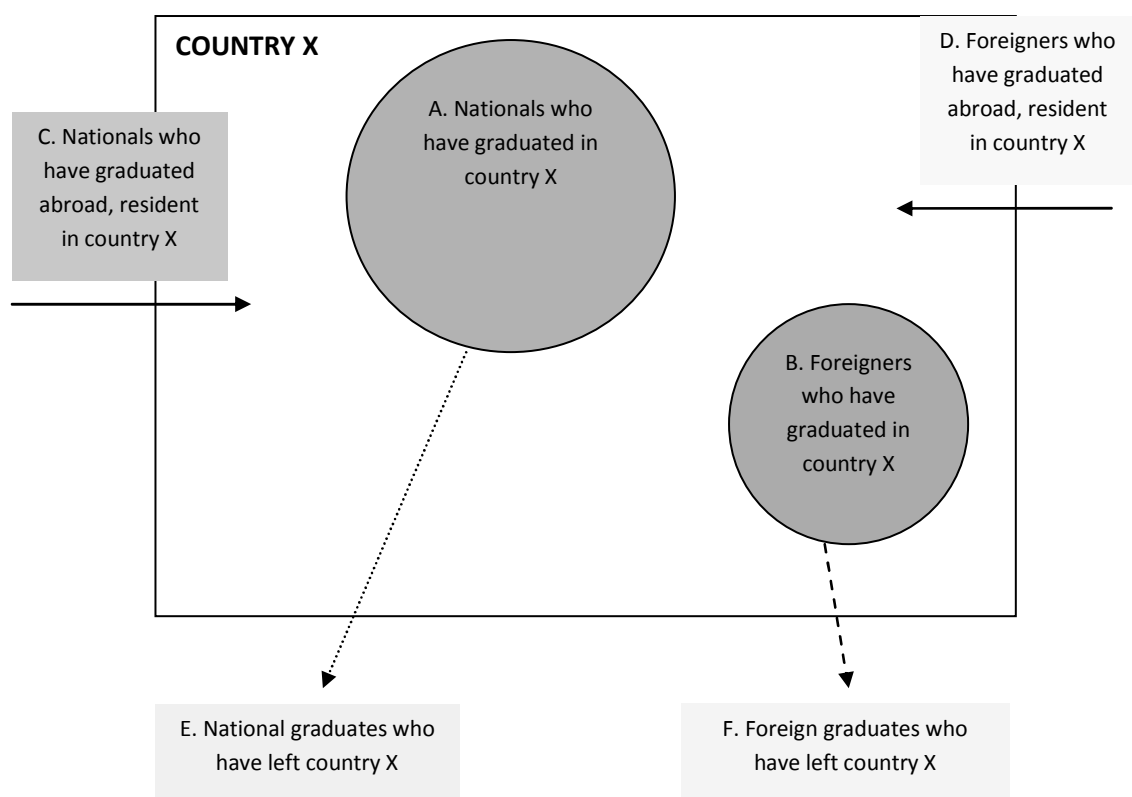
Countries should only include doctorate holders aged below 70 years (*i.e.* up to 69 years old) in the target population. Although many highly skilled people tend to work, and contribute to society with skills and knowledge at higher ages, one of the main aims of the CDH statistics, *i.e.* measuring mobility and career paths, is targeting relatively young doctorate holders.

If countries want to study doctorate holders over 70, they should be sampled separately and not reported in the output tables. Countries should leave this category out of the figures reported as national totals.

3.8 Active and inactive doctorate holders

The national target population should include economically active doctorate holders as well as the economically inactive as long as they are below the age limit.

3.9 Structure of the target population



The population of doctorate holders residing in the surveying country (country X) is structured in four broad groups namely:

Target population, residents in country X that are:

- A. Citizens of country X and doctorate awarded within country X.
- B. Citizens of foreign countries and doctorate awarded in country X.
- C. Citizens of country X and doctorate awarded abroad.
- D. Citizens of foreign countries and doctorate awarded abroad.

Two more groups of doctorate holders related to, but not belonging to the target population of country X, are defined as follows:

Non-target population, residents outside country X that are:

- E. Citizens of country X, doctorate awarded within country X who have left country X.
- F. Citizens of foreign countries, doctorate awarded in country X who have left country X.

In general, the sub-populations E and F are taken into consideration in the reporting countries where these doctorate holders are resident. For this reason and because of the general difficulties tracing these doctorate holders across borders, countries are not requested to report information on doctorate holders who are residents outside their national borders.

3.10 Recent doctorate recipients

A sub-population of particular interest is recent doctorate recipients. These are defined as the population of doctorate holders who were awarded doctorates from national institutions during the last two years. Therefore, a recent doctorate recipient is a person who received his/her doctorate degree at any time between January 200X-1 and December 200X, where 1 December 200X is the reference date for the survey. Indicators specifically related to this population are age at graduation, time to completion, source of funding, employment status and gross annual earnings.

4. SURVEY METHODOLOGY

4.1 Data collection at the national level

As countries face different conditions regarding their possibilities to identify and survey their population of doctorate holders, the national data compilation methods will be diverse.

Possible national data sources are surveys targeting university graduates, housing and population censuses, labour force surveys, migration statistics, R&D statistics, etc. Gaps between the data available and the data requested need to be identified and filled successively. Existing surveys could be extended or new complementary surveys launched.

At a certain point, an inventory of the metadata on CDH statistics will be prepared in order to assess the quality of the tabulated data delivered.

4.2 Sampling frames for surveys on doctorate holders

In order to obtain the best possible coverage of the target population, countries might have to use several national sources to build their sampling frames since these sources are targeting different sub-groups of the population of doctorate holders.

Possible overlaps between sources should be identified and remedied. For this purpose, information that makes it possible to unambiguously identify the same individual in multiple sources like *e.g.* name, year of award and date of birth could be used.

The establishment of a national register of doctorate holders, resident in the country, irrespective of the country of doctorate award, with a mechanism to update it systematically, is recommended for the elaboration of complete sampling frames. Some countries have already put effort and resources into this register.

A list of possible sources for building sampling frames for CDH-related surveys is presented below. More sources might be identified as the project evolves (when more national metadata is available).

- *National registers of education*

If a national register of education is available, this is one of the best possible sampling frames. The Swedish register of education, updated constantly with information on post-graduate exams from national universities and annually with information on the educational attainment of new immigrants, is an example of a source for a sampling frame that includes the entire target population.

- *National universities*

University information systems provide sources for sampling frames that usually consist of high-quality administrative-based information on the educational characteristics of doctorate holders as well as on personal data, including addresses and phone numbers. These types of sources

however are not sufficient to cover doctorates awarded many years ago or doctorates awarded abroad. They are for example used as the sampling frame in the Canadian *Survey of Earned Doctorates*, the Danish survey *PhDs in Natural Sciences* and the Italian survey *Employment of PhDs of the University of Rome*.

- *Previously conducted surveys on doctorate holders*

This type of source will be a good basis on which to build the sampling frame in the future, especially building on the experience of countries that have participated in the CDH data collection. However, care should be taken to constantly check the quality of this source and complement the sampling frame with recently awarded doctorate holders and other sub-groups of the target population not covered initially. The longitudinal panel *Survey of Doctorate Recipients* in the United States is for example based on a sample of the annually conducted *Survey of Earned Doctorates*.

- *International and national foundations*

Doctorate holders who have received scholarships during their studies might be identified and reached through the funding organisations. For example, the Portuguese foundation for Science and Technology is used to build a sampling frame in the survey *PhDs in the labour market*.

- *National libraries*

National libraries might be able to provide a list of theses of doctorates awarded within the country together with information like name, university, field of science, and award year. In order to use this list to build up the sampling frame, it probably needs to be complemented with contact information from other sources. Iceland uses the list of PhD dissertations available to the National and University Library in combination with other sources to compile the national register of doctorate holders (*RANNIS* database).

- *Alumni organisations*

Since membership is not compulsory, alumni organisations will often not be able to provide a complete list of all doctorate holders. Name and address registers could however be expected to hold recently updated information making it suitable for tracing individual doctorate holders. Alumni databases were used as a sampling frame in the German *Brain Drain – Brain Gain Survey on International Job Careers*.

- *The population and housing censuses*

One broad source for building up a sampling frame is the housing and population census. This survey in principle covers the complete target population, but some limitations can be expected: e.g. the low frequency of these surveys and, more importantly, the non-systematic separate identification of doctorate holders in some countries. The *Belgian CDH survey* uses the population and housing census as a sampling frame.

- *Central registers of foreigners*

If registers of foreigners are available, they should be used for building up the sampling frame of CDH statistics, in particular with regard to doctorate holders with foreign citizenship. This is only possible when the educational background of foreigners is registered, which is not always the

case. In combination with population and housing censuses, registers of foreigners could provide the link to population changes among foreign citizens (including doctorate holders) which occurred since the reference date of the census.

- *R&D statistics*

If an R&D data collection is conducted, information on citizenship, field of science, formal qualification and sector of employment might be available for doctorate holders who are employed in research positions. The OECD requests this information and so does the European Commission, where the concerned variables are included in the Commission regulation 753/2004 that applies to the EEA countries.

- *Employment/business register*

National employment and business registers are used for approaching doctorate holders through their employers. The registers comprise enterprises, organisations, institutions, etc., a first contact with which is envisaged to identify those which employ doctorate holders. In combination with other sources (*e.g.* university information systems), this approach works efficiently for tracking doctorate holders who received their doctorate abroad. However, it is not sufficient to capture unemployed and inactive doctorate holders.

- *Other surveys (LFS, EU-SILC, SBS, etc.)*

Other established surveys can be exploited in several ways for building the CDH sampling frame: identify doctorate holders, identify firms, institutions, etc. which employ doctorate holders, supplement administrative-based information (addresses, phone contacts, names, etc.) or other information related to CDH (*e.g.* LFS collects information on education level and employment status).

4.3 Survey types

Beside the extensive use of administrative sources (which is possible in some countries), different survey types could be considered when compiling information on educational history, mobility and careers of doctorate holders. Below they are categorised into three main types: *graduate surveys*, *cohort surveys* and *cross-sectional retrospective surveys*.

These three survey types are ordered according to their degree of coverage of the target population. Cross-sectional surveys are the most efficient in terms of coverage but some specific advantages could also be identified in each of the other types. The three surveys should thus not be seen as mutually excluding, but rather complementary. Countries could opt for one or for a combination of surveys that provide the most cost-efficient national data collection.

The sampling frames and their qualities are of course of crucial importance for the quality of the results. The complementary coverage of the different sampling frames used in the different survey types needs to correspond to the CDH target population. National examples and proposals³ on the different types

3. Currently available on the Eurostat CIRCA site and the OECD NESTI-NET: Proposal for cohort survey (Avveduto, Perani, Ungaro, 2005), Notes on cohort and graduate surveys (Bordt 2006).

of surveys and how they could be combined⁴ will be compiled and made available by the CDH project team.

4.3.1 Graduate surveys

Graduate surveys are surveys that capture information at the point of graduation. This type of survey is especially suitable for collecting information on the doctorate programme, the education history and conditions during the years of study. A graduate survey is also the appropriate means for obtaining information on post-graduation plans and could be the only point of contact with doctorate holders who plan to leave the country, including those that return to their country of origin. No information however can be gathered on long-time career developments and international mobility.

A graduate survey should preferably be conducted regularly on all nationally awarded doctorate holders, including foreigners, as soon as possible after graduation. Information on educational history and the doctorate programme itself (*e.g.* source of funding and time to completion) is best obtained as soon after graduation as possible. Co-operation with the educational institutions should be sought to take advantage of their information systems and establish contact with the respondents. If the educational institutions could obtain survey results pertaining to their own graduates, their motivation to participate should be high.

Records obtained through a graduate survey should be stored and used to build a register of nationally awarded doctorate holders, which will not cover doctorates awarded abroad or doctorate holders having graduated a long time ago, although the latter problem will diminish with the passage of time. Due to this limitation, graduation surveys should always be used in combination with other survey types. Besides being a useful source of information, such a register could also be used in the future to construct sampling frames for cohort and cross-sectional surveys.

4.3.2 Cohort surveys

Cohort surveys with a longitudinal approach have advantages in collecting up-to-date information about the training and working activities undertaken by doctorate holders, by following a homogeneous population over time. For instance, it can be assumed that individuals who graduated in the same year will experience similar conditions in the labour market in job searching. Such longitudinal surveys should ideally be carried out every two to three years.

On the other hand however, cohort surveys on recent doctorate holders can provide only limited information about long-time career developments and international mobility, which can be better investigated through a cross-sectional retrospective survey.

A cohort survey could be conducted as a sample survey or a census. It should in principle include doctorates awarded by all national institutions, including to foreigners, currently unemployed and inactive as well as doctorate holders entering the country having being awarded abroad. A cohort survey should be based on a sampling frame where the year of graduation is available.

4. The U.S. Experience (Burelli, 2005).

This type of survey is not expected to be efficient for countries not having participated in the previous round(s) of the collection of CDH data. However, if new cohorts are regularly introduced and surveyed in parallel to older ones the coverage with regard to the CDH target population will increase over time.

4.3.3 *Cross-sectional retrospective surveys*

A cross-sectional survey should cover doctorate holders from many different cohorts, awarded within the country and abroad. Through retrospective questions, the cross-sectional survey should provide a good picture of the career paths of doctorate holders at different stages of their career. The cross-sectional survey is thus the most appropriate tool if information on the entire target population is to be obtained through one single survey or a follow-up of other established surveys which sufficiently cover doctorate holders (e.g. LFS). In the latter case a sample or the total population of the identified doctorate holders will be surveyed for the CDH-specific needs.

Cross-sectional surveys have the potential to ensure complete coverage of the target population and moreover to collect CDH-specific information. Countries should make strong efforts to assure the full coverage of all groups, including those that are more problematic to capture (doctorate holders awarded abroad, inactive doctorate holders, unemployed doctorate holders, etc.).

The relevance of this type of survey should however be carefully assessed in terms of cost-effectiveness, given that a survey for the needs of CDH needs to be established from scratch. Another drawback with these surveys that should also be considered is the risk of recall bias; countries should make an effort to minimise that risk.

4.4 Stratification

Cohort surveys and *graduate surveys* should, if they are carried out as sample surveys, be stratified according to at least two main criteria, graduating institution and sector of employment.

For *cross-sectional sample surveys*, stratification is needed with regard to the structure of the target population and the possible use of multiple sources to build the sampling frames.

In statistical surveys, the number of domains needed often determines the number of strata. However, for multipurpose statistics like the CDH statistics, the number of domains will often exceed the desirable number of strata. Since too high a number of strata could lead to a problem with too few observations in some strata, it is important to keep stratification at a reasonable level.

The most obvious and significant stratification is to break down the population according to the sampling frames applied. As strata should be as homogenous as possible with respect to the principal variables analysed, further recommended breakdowns are according to the characteristics year of graduation, fields of science, and gender.

4.5 Allocation and sampling

The allocation of the sample on the strata may in principle be **proportional** with regard to the stratum size. If the allocation ends up giving too small sample sizes in some strata, then over-sampling may be considered for these strata. Over-sampling might also be considered in strata where high levels of non-response could be expected.

Total sample size should be chosen taking into account the detailed breakdowns in the output indicators template. The selection of the sample should be based on random sampling techniques, with

known and equal selection probabilities being applied for each stratum. The random sampling techniques should be without replacement within each stratum.

It is recommended that the total sample fraction (ratio of total sample size to total population size) exceed 20%. Smaller fractions could be accepted as long as the variance of estimation is restricted to ensure accurate results.

5. COLLECTION AND PROCESSING OF DATA

5.1 Data collection methods

When collecting CDH statistics, a mixed-mode data collection adapted to the possibilities available within each sampling frame and each individuals' willingness to respond could be considered the most successful alternative. This approach, applied by most countries conducting surveys on doctorate holders, includes the use of existing data, postal and Internet surveys, telephone interviews and personal interviews.

Postal surveys are commonly used and have the advantage of being relatively inexpensive. Under some circumstances, the delivery agent also may bring back information on the new addresses of people who moved recently. Both postal and telephone reminders may be used to increase the response rate.

Computer-assisted telephone interviews (CATI) and personal interviews (CAPI) are techniques where interviewers play an active role in collecting information from respondents. Although quite costly they could be justified by the high rates of response that they normally achieve. CATI and CAPI techniques are especially useful in boosting the response rates of a postal survey.

Many national practices exist where countries give the respondent the opportunity to fill in the questionnaire electronically on the Internet. The use of questionnaires that can be accessed on line on the Internet is recommended as an alternative to other means of collection after contact with the respondent has been established.

In the special case of *graduate surveys* the relevant institutions should preferably be involved in the data collection. The institutions could considerably facilitate the data collection process by distributing and collecting the questionnaire together with their administrative requirements for graduation.

5.2 The CDH survey questionnaire

Since the CDH statistics are based on an output-harmonised approach, countries could decide what survey instruments to use. However, a full model questionnaire is now available in English, with questions adapted to the output indicator templates and definitions.

The questionnaire is divided into six different modules dealing with different aspects of the careers of doctorate holders: *doctoral education* (EDU), *early career research positions* (ECR), *employment situation* (EMP), *international mobility* (MOB), *career-related experience* (CAR) and *personal characteristics* (PER). In order to facilitate answering the questionnaire, an instruction manual has been developed as well.

The model questionnaire is recommended for countries that are going to launch a self-standing CDH survey. In addition, countries that want to revise their existing national questionnaires are encouraged to align it by using the selection of questions presented in the model questionnaire. The first section of the core model questionnaire presents *instructions for adaptation of the model questionnaire to national needs*,

pointing out necessary adaptations as well as options for the drafting of some questions. These instructions should be carefully followed when applying the core model questionnaire at the country level.⁵

5.3 Coding of data values

The definitions and the breakdowns being part of the CDH output tabulation finally determine what classifications and nomenclatures are to be used. Complementary to the tabulation programme a listing of the requested variable definitions is available in the document *Output indicators variables and definitions*.

5.4 Data editing

Throughout the data processing cycle, there should be a systematic and sustained follow up with the respondents to make sure that the data provided is of good quality. Data quality checks have to be made both at micro- and macro-level, before the data are finally processed and disseminated.

5. The model questionnaire is available on the CIRCA site of Eurostat and the OECD NESTI-NET, and will soon be available on the UIS website as well.

6. ESTIMATION OF RESULTS AND DATA QUALITY

6.1 Response rates

Doctorate holders who do not respond to the CDH survey questionnaire may not only differ from respondents in the characteristics measured, but non-response does generally not occur completely at random. Therefore, every effort has to be made to minimise unit non-response. Nevertheless, survey budgets and potential non-response bias may influence the decisions made about the acceptable degree of non-response and its treatment.

6.2 Unit non-response and non-response survey

A non-response survey is recommended if the non-response rate, as an un-weighted percentage of all sampled doctorate holders, exceeds a certain limit (*e.g.* 30%). The aim of a non-response survey is to know more about the groups of non-respondents. Therefore non-respondents should not be replaced in the sample by other doctorate holders from the survey population. If the results from the non-response analysis indicate that there is a difference between respondents' and non-respondents' indicators, this information should be used when calculating the weighting factors.

6.3 Imputation

Item non-response should be kept to a minimum. Imputation should be the last option after every attempt is made to get the needed information from other data sources, *i.e.* census data, administrative or register data or from the respondent.

Only then are item non-response imputations recommended. Imputed values need to be flagged as for the non-response analysis. The imputation methods to be used for handling missing values should be specified in the national methodology description.

6.4 Weighting and calibration

In order to produce estimates for the surveyed population as a total, the data collected from a sample survey has to be weighted. Even if the survey is a census survey, with total enumeration of the frame population, weighting is appropriate to compensate for non-response or over-coverage.

The simplest weighting technique is to use the inverse of the sampling fractions of the sampling units, the inclusion probability, corrected for non-response. If a stratified sampling technique with different sampling fractions is used, weights have to be calculated individually for each stratum. If appropriate auxiliary information is available, it is recommended that estimates are built on models or calibration for better precision and reduced bias.

6.5 Over-coverage

The size of over-coverage could be difficult to estimate, but if the over-coverage can be identified among the respondents, this has some implications. If a non-negligible amount of over-coverage is present

in the surveyed sample, the estimation weights have to be adjusted for this in order to reduce bias in the estimates.

6.6 Under-coverage

With the aid of suitable auxiliary information and calibration techniques, adequate estimators are obtained even when under-coverage is present in a survey. As it is difficult to recommend the use of certain auxiliary information, surveying countries will have to find their own auxiliary information to use. Another approach, less advanced but perhaps more practical, could be not to try to correct for under-coverage in the estimates, but to discuss its occurrence and implication in the national methodology description. Numerical estimation of the not-covered proportion of the target population and of its magnitude in the survey figures would very much facilitate the analysis of the results and comparison with data from other countries.

7. DATA TRANSMISSION

7.1 Data to be transmitted

The aggregated (tabulated) statistics to be delivered to the three international organisations (UIS, OECD, Eurostat) are determined in close co-operation with the *expert group on careers of doctorate holders*. The output tabulation comprises all variables that are to be compiled at national level, together with the necessary definitions. It also includes the necessary breakdowns for the variables in question.

For those countries which are undergoing a transitional phase to the full implementation of the CDH methodological guidelines, the reporting of the aggregated CDH statistics for part of the CDH target population will be accepted. However, this has to be explicitly stated in the accompanying national metadata.

Aggregated statistics have to be treated in accordance with the standard confidentiality rules at national level, before transmission to the international organisations. National authorities are requested to send a file with only non-confidential data, which also indicates the cells suppressed for reasons of confidentiality protection. Confidential tabulated data may however also be transmitted for EU countries to Eurostat. In that case, national authorities should send their confidential data together with the non-confidential data in a second file which Eurostat will retain for internal use in accordance with Community legislation.

Countries are also requested not to change the Excel template of the output tables requested (*i.e.* standard names used, breakdowns, etc.) or the consistency checks inserted in the form of conditional formatting. Changing the template entails extra burden for data compilation, increases the risk of errors and complicates comparison between countries.

Countries wishing to send revised data should send a revised complete file instead of delivering only the revised figures.

In addition to the tabulated aggregated statistics, national metadata are requested to be sent to the international organisations. These metadata should cover type of sources used, types and degree of under-coverage of the target population, national deviations from definitions or other key quality indicators such as non-response rates, coefficient of variation, etc. A specific structure to be used in the metadata compilation will be distributed together with the indicator templates and will also be made available at the CIRCA site of Eurostat and the OECD NESTI-NET.

7.2 Transmission tools

The CDH statistics are to be transmitted as an Excel file provided by the international organisations to the countries concerned.

UIS, OECD and Eurostat determine a common delivery format scheme, including the name of Excel sheets, name of the submitted files, numbering of revisions, etc. with which countries should fully comply.

The special metadata structure for CDH statistics should be used when reporting on survey methodology and data quality issues to the three organisations.

7.3 Deadlines

Countries are asked to return the CDH output tables 12 months after the end of the reference year at the latest.

IN ADDITION:

For more detailed information on the methodology of CDH statistics, please also consult the CIRCA site of Eurostat and the OECD NESTI-NET, where useful background documents will be loaded on a regular basis.

ANNEX 1: POSSIBLE DATA SOURCES FOR BUILDING SAMPLING FRAMES

<i>Institution</i>	<i>Available information</i>	<i>Remarks</i>
National library	<ul style="list-style-type: none"> • Author • Title of the thesis • Type (dissertation or habilitation) • University • Field of degree • Year of graduation 	Addresses are generally not available.
Population census	<ul style="list-style-type: none"> • Employment status • Occupation • Educational attainment (the possibility to identify doctorate holders has to be assessed) • Civil status • Sex • Date of birth • Citizenship • Country of birth 	Could provide a good base for identifying doctorate holders resident within a specific country at the time of the census. There is of course a problem with timeliness since the Censuses are in many instances only conducted every 10 th year. Therefore it is recommended that the information be updated from other data sources to capture recent changes in the target population.
Universities	<ul style="list-style-type: none"> • Name • Year of graduation • Field of education 	Could provide a list of awarded doctorate holders that have completed the doctorate on their premises.
Universities and research institutes	Might provide a list of doctorate holders employed.	Addresses should be available.

<i>Institution</i>	<i>Available information</i>	<i>Remarks</i>
Information-system of higher education (Switzerland, France, Italy?)	<ul style="list-style-type: none"> • Sex • Year of graduation • Field of degree • University • Length of the doctoral training • Country Citizenship • Country of birth • Year of birth 	It has to be checked if addresses are available. Data protection could be a problem.
Educational registers	<ul style="list-style-type: none"> • Age • Sex • Country of birth • Highest education • Completion year 	Educational registers are in some countries held by statistical agencies as a complement to population registers. Addresses could be obtained through a match with the population registers.
Central register of foreigners in a given country	Could contain demographic variables and geographical information about foreigners living in the surveying country.	Addresses could also be available. Probably no information on the formal educational level.
Unemployment register	Possible data source for unemployed doctorate holders. Which information is available has to be checked.	It has to be checked if addresses are available.
Professional organisation	Which information is available has to be checked.	Could be helpful to identify the addresses of the units in the survey frame. But are hardly suitable for defining the survey frame since not all doctorate holders are members of such an organisation.
ALUMNI	Know the addresses of former students.	The data available from such sources may not be complete as membership is voluntary. Not every university holds records of former students.

ANNEX 2: NATIONAL METHODOLOGY DESCRIPTION FOR STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

0. Reporting country

1. Institution

- 1.1 Institution(s) responsible
- 1.2 Contact person(s) for CDH statistics

2. Main data sources used for the compilation of CDH statistics

- 2.1 Enumeration of the statistical survey(s) used
- 2.2 Enumeration of the administrative data source(s) used

3. Main variable definitions and classifications used

- 3.1 For doctorate holder
- 3.2 For resident status
- 3.3 For time to completion of doctorate
- 3.4 For post-doc (proposal for recommendation is under development)
- 3.5 For researcher
- 3.6 For gross annual earning
- 3.7 Other definitions and classifications used

4. Statistical units

5. Detailed information on the CDH survey(s)

- 5.1 Name of the survey(s)
- 5.2 General information about survey frame(s) used
 - Name of survey frame(s)
 - Type of survey frame(s):
 1. National registers of education
 2. Universities information system
 3. Previously conducted surveys on doctorate holders
 4. National libraries
 5. Alumni organisations
 6. Censuses
 7. Central registers of foreigners
 8. Other (please explain)
 - Date(s) of creation and major changes
 - Limits of legal right of access to information within the survey frame(s)
 - Population coverage
 1. Population covered, jointly and respective, by the survey frame(s)
 2. Updating of the survey frame(s)
 3. Identified overlaps if multiple survey frames are used
 - Information available within respective frame (please describe)

- 5.3. Population coverage
 - Observation unit(s)
 - Geographical coverage (national territory only or inclusion of abroad)
 - Ages covered
 - Other specific inclusions or exclusions
- 5.4. Time span covered by data
- 5.5. Primary data collection method
 - Frequency of data collection
 - List of recent reference years
 - Timetable of data collection
 - Survey or census
 - Media used for data collection
 - Criteria for stratification
 - Threshold values and sampling percentages
 - Actions to speed up or increase the rate of response
 - Expected changes in data collection methodology
- 5.6. Production of results
 - Imputation methods to compensate for non-response
 - Estimation methods for grossing-up
 - Confrontation with other data sets
 - Other calculations made
 - Criteria for the identification of confidential data
 - Expected changes in production methods
- 5.7. Quality
 - Description of the calculation procedure of the coefficients of variation, including any procedure applied thereby to take into account misclassification or imputation of missing survey data
 - Summary description of quality criteria calculated for national purposes
 - Expected changes in quality evaluation
- 5.8. National dissemination
 - Name and media of national dissemination used
 - Description of standard tables produced
 - Timetable for the dissemination
 - Expected changes in national dissemination methods
 - Treatment of confidential data, *i.e.* are confidential data suppressed or aggregated?

6. Detailed information on other data sources

(For each of the other data source(s) enumerated in section 2, please give the following information.)

- 6.1. Name of the survey or of the administrative data source
- 6.2. Population coverage
 - Observation unit(s)
 - Reporting unit
 - Geographical coverage (national territory only or inclusion of abroad)
 - Ages covered
 - Other specific inclusions or exclusions
- 6.3. Time span covered by data
- 6.4. Typical use of the survey or of the administrative data source
- 6.5. *Please explain how this data source is used in combination with the others enumerated in 2 to produce the required statistics*



STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

CORE MODEL QUESTIONNAIRE

INSTRUCTIONS FOR ADAPTATION OF THE MODEL QUESTIONNAIRE TO NATIONAL NEEDS

The present questionnaire has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the Careers of Doctorate Holders (CDH) project. Please consult the accompanying manual comprising the definitions and other guidelines which should be followed in order to facilitate international comparison of the statistics provided by different countries.

This questionnaire consists of six modules which concern the education of those with advanced research qualifications (module EDU), their early career research positions (module ECR), employment history (module EMP), international mobility (module MOB), career-related experience (module CAR) and personal characteristics (module PER). The present document proposes the following sequence for the modules: EDU-ECR-EMP-MOB-CAR-PER. However, countries are encouraged to organise the questionnaire according to their own needs and national policy priorities.

Remarks applicable to all modules

Questions marked with (*) are essential to cover information for filling out the CDH output tables. When organising your national questionnaire, please make sure that ALL these questions are included. You are free to incorporate extra questions in order to reflect your national requirements. **ONLY QUESTIONS**

MARKED WITH * ARE REQUIRED ELEMENTS FOR THE INTERNATIONAL SURVEY. ALL OTHER QUESTIONS ARE OPTIONAL AND DERIVE FROM PREVIOUS USAGE IN NATIONAL SURVEYS.

Please pay particular attention to adapting ALL filter questions (accompanied by SKIP or GO TO) with the actual order of modules chosen, even if the proposed order is adopted. <NEXT MODULE> should be substituted by the denomination of the next module in your national questionnaire design.

Many questions require respondents to refer to a table provided in the instruction manual to identify the corresponding classification code. As there are several tables of classification codes provided in the manual, it is possible that respondents could use the wrong table and enter the wrong code in their survey. The accuracy and ease with which these questions are completed may be improved by including the relevant classification table within the questionnaire itself, particularly if the questionnaires will be administered electronically. If this is not possible, the table should be referred to by its exact and complete title given in the Instruction Manual provided to the respondents (e.g. Classification 1: Fields of Science and Technology). These questions could also ask for plain text instead of codes. Countries are free to adapt these in both ways.

Please note that ALL elements in brackets <> should be replaced accordingly.

In <200X>, <200X-1>, <200X-2>, <200X-9>, 200X should be substituted by the year of the survey, 200X-1 with the previous year, and so on.

<The country X> should be replaced by the name of your country.

Section “SCOPE AND PURPOSE”

This section should be complemented with some information on the particular objectives of the survey in the country.

The phrase <Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.> should only be included in those countries where response is voluntary. A note stating the mandatory character of the survey should be included instead, if appropriate.

<20 minutes> is the estimated time to complete the questionnaire if no other questions are added. However, countries are encouraged to estimate the time needed in each case, and give the right value in this section.

Module EDU

Question **EDU.1** could be adapted to the national context. The state or province could be removed if considered not relevant.

In question **EDU.4** <advanced research qualification work/thesis/dissertation> should be adapted to the national context according to the national education system in your country. The items given in this question could also be adapted to the national context if considered unclear in its current version.

In question **EDU.5** <Industrial interface/working with industry> should be replaced by the type of relations between academia and industry prevalent in your country.

Items in question **EDU.11** should be adapted to the institutional structures funding advanced research qualification studies in the country, while ensuring correspondence with the classification presented, also used in the output tabulations **ED5**, **EMP3** and **EMP7**. The following classification is more detailed than the one proposed and could also be applied if appropriate:

A.	1.	Fellowship, scholarship from your institution
	2.	Fellowship, scholarship from government
	3.	Fellowship, scholarship from business
	4.	Fellowship, scholarship from a private non-profit organisation (PNP)
B.	5.	Fellowship, scholarship from abroad
C.	6.	Teaching assistantship
	7.	Research assistantship
	8.	Teaching and research assistantship
D.	9.	Other occupation (full time)
	10.	Other occupation (part time)
E.	11.	Employer reimbursement / assistance
F.	12.	Loan
	13.	Personal savings
	14.	Spouse's, partner's or family support
	15.	Spouse's, partner's or family support from abroad
G.	16.	Other
H.	17.	Unknown

Module ECR

The purpose of this module is to gather data on the particular working conditions of those who are on temporary or short-term contracts, often called 'post-doctorates' which are typically held shortly after completing an advanced research qualification, but before holding a regular full time career path job.

Module EMP

In question **EMP.2** <gross annual earnings> should be replaced by the term relevant to your country.

Questions **EMP.3** and **EMP.9** could be adapted to the national context. The name of the employer, and the state or province could be removed if considered not relevant. In these questions, "Occupation" could alternatively be replaced by the following.

Using the OCCUPATIONS LIST (see *Manual: Classification 2: Occupations ISCO-08*), choose the code that BEST describes the work at this position.

CODE

If this option was chosen, the Manual should include "Classification 2: ISCO-08 Occupations" as below. With the current version, coding of ISCO occupations will have to be carried out by the national project team. In case ISCO-08 is not yet in place in the country, a correspondence table could be used from ISCO-88 to ISCO-08, such as for example the one available on the ILO site.⁶

Classification 2: ISCO-08 Occupations

Code	ISCO-08 title
1	MANAGERS
2	PROFESSIONALS
21	Science and engineering professionals
211	Physical and earth science professionals
212	Mathematicians, actuaries and statisticians
213	Life science professionals
214	Engineering professionals (excluding electro-technology)
215	Electro-technology engineers
216	Architects, planners, surveyors and designers
22	Health professionals
221	Medical doctors
222	Nursing and midwifery professionals
223	Traditional and complementary medicine professionals
224	Paramedical practitioners
225	Veterinarians
226	Other health professionals
23	Teaching professionals
231	University and higher education teachers
232	Vocational education teachers
233	Secondary education teachers
234	Primary school and early childhood teachers
235	Other teaching professionals
24	Business and administration professionals
241	Finance professionals
242	Administration professionals
243	Sales, marketing and public relations professionals
25	Information and communication technology professionals
251	Software and applications developers and analysts
252	Database and network professionals
26	Legal, social and cultural professionals
261	Legal professionals
262	Librarians, archivists and curators
263	Social and religious professionals
264	Authors, journalists and linguists
265	Creative and performing artists
3	TECHNICIANS AND ASSOCIATE PROFESSIONALS
31	Science and engineering associate professional
311	Physical and engineering science technicians
312	Mining manufacturing and construction supervisors
313	Process control technicians
314	Life science technicians and related associate professionals
315	Ship and aircraft controllers and technicians
32	Health associate professionals
33	Business and administration associate professionals
34	Legal, social, cultural and related associate professionals
35	Information and communications technicians
4	CLERICAL SUPPORT WORKERS
5	SERVICE 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
0	ARMED FORCES OCCUPATIONS

Source: International Standard Classification of Occupations (ISCO-08).

Questions **EMP.4** and **EMP.5** should be adapted to the national context according to the national education system in your country.

Question **EMP.9** asks about the most recent previous position only. If a country wants to ask for more, or all, previous positions in the last 10 years, this has to be added to the questionnaire.

Module CAR

In question **CAR.4** <three years> should be replaced by the number of years suitable for your national needs.

Module PER

Question **PER.2**: If in the national questionnaire the full date is asked, instead of only the year, the response box should be adapted according to the standard national date format.

Question **PER.3** could be adapted to the national context. The state or province could be removed if considered not relevant.

Questions **PER.4** and **PER.6** could be adapted to national standards, since categories may vary. <marriage-like relationship> should be replaced by the expression commonly used in the national context.

Instruction Manual

The Instruction Manual also bears some sections that need to be adapted to national survey context. For example, <Introduction of institution carrying out the survey> is a place keeper for some information on the national institution carrying out the CDH survey.

For any queries relating to the adaptation of this questionnaire, do not hesitate to contact the UNESCO Institute for Statistics by e-mail: stsurvey@uis.unesco.org or by fax: **+1 - 514 343 6872**.

SCOPE AND PURPOSE

The international Survey on Careers of Doctorate Holders (CDH) is a joint project carried out by the UNESCO Institute for Statistics (UIS), the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Commission (Eurostat).

The present questionnaire is designed to collect the most recent statistics on educational history, work experience and international mobility of holders of advanced research qualifications. The main objectives of the questionnaire are:

- To collect internationally comparable statistics on the careers of holders of advanced research qualifications.
- To establish and analyse trends in the career paths and mobility of highly qualified people throughout the world.

The improvement and harmonisation of data collection in a broad number of countries and its further analysis should enable policy makers, researchers and analysts to start the appropriate policies with regard to highly qualified people in order to ensure their career developments all over the world.

Any information publicly released (such as statistical summaries) will be in a form that does not personally identify you.

<Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.>

Actual time to complete the questionnaire may vary depending on your circumstances. On average, it will take about <20 minutes> to complete the questionnaire.

Your assistance is essential to ensure that the results are meaningful. Your answers will be kept strictly confidential and used for statistical purposes only.

Thank you for taking the time to complete this questionnaire. Directions for filling it out are provided in the accompanying manual. Because not all questions will apply to everyone, you may be asked to skip certain questions.

- Please use an “X” when answering questions that require marking a box.
- In order to get comparable data, we will be asking you to refer to 1 December <200X>.
- Follow all “SKIP” and “GO TO” instructions after marking a box.
<The following two bullets should be removed if an electronic questionnaire is used>
- Either a pen or pencil may be used
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.

Thanks again for your help; we really appreciate it.

The term “advanced research qualification” (doctorate/doctoral) is understood in this survey as equivalent to the degree obtained at ISCED level 6 (second stage of tertiary education).
 See Manual: Definition 1: ISCED 6 (Advanced research qualification)

Module EDU – Advanced research qualification education

*** EDU.1 In which institution did you complete your advanced research qualification?**

Department (or interdisciplinary committee, centre, institute):	
University:	
City:	
State or province:	
Country:	

*** EDU.2 Using the FIELDS OF SCIENCE AND TECHNOLOGY list (see Manual: Classification 1: Fields of Science and Technology), choose the code that corresponds best to your advanced research qualification.**

FIELD CODE: .

EDU.3 What is the exact title of your degree?

EDU.4 In which category would you place your <advanced research qualification work/thesis/ dissertation>?

Mark (X) all that apply

- | | |
|---|---|
| 1 <input type="checkbox"/> Addressed a fundamental problem | 2 <input type="checkbox"/> Made an improvement in a process |
| 3 <input type="checkbox"/> Made an improvement in methodology | 4 <input type="checkbox"/> Other-Specify |
-

EDU.5 Did your advanced research qualification involve...?

Mark (X) all that apply

- | | | |
|--|---|--|
| 1 <input type="checkbox"/> Course work | 2 <input type="checkbox"/> Field work | |
| 3 <input type="checkbox"/> Laboratory work | 4 <input type="checkbox"/> <Industrial interface/working with industry> | 5 <input type="checkbox"/> Other-Specify |
-

*** EDU.6 When did you start your advanced research qualification programme?**

MONTH (mm) YEAR (yyyy)

*** EDU.7 When was your advanced research qualification granted?**

MONTH (mm) YEAR (yyyy)

EDU.8 When you were studying for your advanced research qualification, did you register for:

Mark (X) full-time OR part-time study

1 full-time study OR 2 part-time study → **SKIP TO EDU.10**

EDU.9 If you were a full time research student please estimate the number of months it took you to complete your qualification, excluding periods longer than one week taken off for any purpose other than preparing your advanced research qualification.

MONTHS (Round to whole months)

*** EDU.10 In what country did you receive your previous university degree (ISCED 5 level, such as <Bachelor, Diploma, Master>) (see Manual: Definition 2: ISCED 5: First stage of tertiary education)?**

Country _____

*** EDU.11 Which of the following were financial sources during your research studies?**

Mark (X) which was your primary source of support (only one) and secondary source of support (only one)

	Primary source of support	Secondary source of support
A. Fellowship or scholarship from an institution in <THE COUNTRY X>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
B. Fellowship or scholarship from abroad	1 <input type="checkbox"/>	2 <input type="checkbox"/>
C. Teaching and/or research assistantship	1 <input type="checkbox"/>	2 <input type="checkbox"/>
D. Other occupation	1 <input type="checkbox"/>	2 <input type="checkbox"/>
E. Employer reimbursement or assistance	1 <input type="checkbox"/>	2 <input type="checkbox"/>
F. Loan, personal savings, support from spouse, partner or family	1 <input type="checkbox"/>	2 <input type="checkbox"/>
G. Other	1 <input type="checkbox"/>	2 <input type="checkbox"/>
H. Unknown	1 <input type="checkbox"/>	2 <input type="checkbox"/>

GO TO <NEXT MODULE>

Module ECR – Early career research positions

If you were in *permanent* employment, self-employed, unemployed or inactive on 1 December <200X>, please skip this module.

ECR.1 Listed below are common characteristics of temporary research positions held shortly after completion of an advanced research qualification. Please indicate for each of these characteristics if it applies to the position you held on 1 December <200X>.

The position...

	Yes	No
1. Requires an ISCED 6, Ph.D., or <NATIONAL ISCED 6 EQUIVALENT QUALIFICATION>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2. Requires that the advanced research qualification was recently awarded.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3. Is temporary.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4. Is intended to provide training in research.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5. Is intended to advance professional skills.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
6. Requires a full-time commitment to research.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
7. Requires that you work under the direction of a senior scholar.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
8. Is for a defined period of time.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
9. Requires publication of research in scholarly journals.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
10. Requires mentorship for professional development.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
11. Is intended to prepare you for an independent career in research.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
12. Is the result of financial support by a public body or not-for-profit institution, acquired through competitive submission of proposals.	1 <input type="checkbox"/>	2 <input type="checkbox"/>

ECR.2 What is/was the title of this position?

Title:

ECR.3 Using the Fields of Science and Technology list (see Manual: Classification 1: Fields of Science and Technology), choose the code that best corresponds to the activities in your position.

FIELD CODE: .

ECR.4 What is/was the total length of this position/contract?

months

ECR.5 Is it/was it possible to extend this position? If yes, for how long?

1 Yes, → another months 2 No

ECR.6 What were your reasons for taking this position/contract?

Mark (X) Yes or No for each item

	Yes	No
1. Additional training in advanced research qualification field	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2. Training in an area outside of advanced research qualification field	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3. Carry out research independently	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4. Work with a specific person or in a specific place	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5. Carry out and support teaching activities	1 <input type="checkbox"/>	2 <input type="checkbox"/>
6. Other employment not available	1 <input type="checkbox"/>	2 <input type="checkbox"/>
7. This type of position ("post-doc") generally expected for career in this field	1 <input type="checkbox"/>	2 <input type="checkbox"/>
8. Other-Specify <input type="text"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>

ECR.7 What percentage of your time in this position/contract is/was dedicated to:

- 1. Research activities %
- 2. Teaching activities %
- 3. Other activities (such as administrative tasks) %

ECR.8 What is/was the main source of financial support for this position/contract?

Mark (X) ONLY one

- 1 Government/Public sector agency 2 Industry/Business 3 College or university
- 4 Private foundation 5 Non-profit, other than private foundation 6 Other-Specify

GO TO <NEXT MODULE>

Module EMP - Employment situation

CURRENT EMPLOYMENT

*** EMP.1 What was your labour force status on 1 December <200X>?**

- 1 Employed
(See Manual: Definition 3)
- 2 Unemployed → **GO TO EMP.9**
(See Manual: Definition 4: Unemployed)
- 3 Inactive → **GO TO EMP.9**
(See Manual: Definition 5: Inactive)

*** EMP.2 Counting ALL jobs held, what were your <GROSS ANNUAL EARNINGS>**
(i.e. before deductions, see Manual: Definition 6: Gross annual earnings) for the year <200X>?

*** EMP.3 Please provide the details on all jobs you held on 1 December <200X>**

Present position 1 (PRINCIPAL JOB)	
Employed since	<input style="width: 80%;" type="text"/> yyyy (year)
Name of employer	<input style="width: 100%;" type="text"/>
Location	City <input style="width: 150px;" type="text"/> State/Province <input style="width: 150px;" type="text"/> Country <input style="width: 150px;" type="text"/>
Sector of employment <i>Mark (X) ONLY one (See Manual: Definition 7: Sector of employment)</i>	<input type="checkbox"/> Business enterprise sector <input type="checkbox"/> Government sector <input type="checkbox"/> Higher education sector <input type="checkbox"/> Other education sector <input type="checkbox"/> Private non-profit sector
Occupation	<i>Please be as specific as possible, including any area of specialisation:</i> <input style="width: 100%;" type="text"/>
Employment situation	<input type="checkbox"/> Employee (See Manual: Definition 8: Employee) <input type="checkbox"/> Self-employed worker (See Manual: Definition 9: Self-employed workers)
Type of position	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <i>Mark (X) ONLY one (See Manual: Definition 10: Temporary/permanent employment)</i> <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary </div> <div style="width: 45%;"> <i>Mark (X) ONLY one (See Manual: Definition 11: Full-time/part-time employment)</i> <input type="checkbox"/> Full-time <input type="checkbox"/> Part-time </div> </div>
Number of hours per week	<input style="width: 80%;" type="text"/>
Does this job include teaching activities?	<input type="checkbox"/> No <input type="checkbox"/> Yes, less than 25% <input type="checkbox"/> Yes, 25%-49% <input type="checkbox"/> Yes, 50%-74% <input type="checkbox"/> Yes, 75%-100%

Present position 2 (SECOND JOB)					
Employed since	<input type="text"/> yyyy (year)				
Name of employer	<input type="text"/>				
Location	City <input type="text"/> State/Province <input type="text"/> Country <input type="text"/>				
Sector of employment <i>Mark (X) ONLY one (See Manual: Definition 7: Sector of employment)</i>	<input type="checkbox"/> Business enterprise sector <input type="checkbox"/> Government sector <input type="checkbox"/> Higher education sector <input type="checkbox"/> Other education sector <input type="checkbox"/> Private non-profit sector				
Occupation	<i>Please be as specific as possible, including any area of specialisation:</i> <input type="text"/>				
Employment situation	<input type="checkbox"/> Employee (See Manual: Definition 8: Employee) <input type="checkbox"/> Self-employed worker (See Manual: Definition 9: Self-employed workers)				
Type of position	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;"><i>Mark (X) ONLY one (See Manual: Definition 10: Temporary/permanent employment)</i></td> <td style="width: 50%; text-align: center;"><i>Mark (X) ONLY one (See Manual: Definition 11: Full-time/part-time employment)</i></td> </tr> <tr> <td><input type="checkbox"/> Permanent <input type="checkbox"/> Temporary</td> <td><input type="checkbox"/> Full-time <input type="checkbox"/> Part-time</td> </tr> </table>	<i>Mark (X) ONLY one (See Manual: Definition 10: Temporary/permanent employment)</i>	<i>Mark (X) ONLY one (See Manual: Definition 11: Full-time/part-time employment)</i>	<input type="checkbox"/> Permanent <input type="checkbox"/> Temporary	<input type="checkbox"/> Full-time <input type="checkbox"/> Part-time
<i>Mark (X) ONLY one (See Manual: Definition 10: Temporary/permanent employment)</i>	<i>Mark (X) ONLY one (See Manual: Definition 11: Full-time/part-time employment)</i>				
<input type="checkbox"/> Permanent <input type="checkbox"/> Temporary	<input type="checkbox"/> Full-time <input type="checkbox"/> Part-time				
Number of hours per week	<input type="text"/>				
Does this job include teaching activities?	<input type="checkbox"/> No <input type="checkbox"/> Yes, less than 25% <input type="checkbox"/> Yes, 25%-49% <input type="checkbox"/> Yes, 50%-74% <input type="checkbox"/> Yes, 75%-100%				

If you have more jobs, please continue this list on a separate page.

PRINCIPAL JOB

The next set of questions (EMP.4 – EMP.8) asks you about the PRINCIPAL JOB you held on 1 December <200X>

EMP.4 What was the MINIMUM education level required for the PRINCIPAL JOB you held on 1 December <200X>?

Mark (X) ONLY one

- | | |
|---|---|
| 1 <input type="checkbox"/> Graduate (or lower) qualification | 2 <input type="checkbox"/> Post-graduate (non-research qualification) |
| 3 <input type="checkbox"/> Advanced research qualification | 4 <input type="checkbox"/> Postdoc |
| 5 <input type="checkbox"/> Other-Specify <input type="text"/> | 6 <input type="checkbox"/> Unknown |

EMP.5 What was the DESIRABLE education level required for the PRINCIPAL JOB you held on 1 December <200X>?

Mark (X) ONLY one

- | | |
|--|---|
| 1 <input type="checkbox"/> Graduate (or lower) qualification | 2 <input type="checkbox"/> Post-graduate (non-research qualification) |
| 3 <input type="checkbox"/> Research | 4 <input type="checkbox"/> Postdoc |
| 5 <input type="checkbox"/> Other-Specify | 6 <input type="checkbox"/> Unknown |

***EMP.6 To what extent was your work on your PRINCIPAL JOB held on 1 December <200X> related to your advanced research qualification degree?**

Mark (X) ONLY one

- | | | |
|--|---|--|
| 1 <input type="checkbox"/> Closely related | 2 <input type="checkbox"/> Partly related | 3 <input type="checkbox"/> Not related |
|--|---|--|

EMP.7 If the PRINCIPAL JOB you held on 1 December <200X> was a part-time job, were you searching for a full-time job?

- | | | |
|--------------------------------|-------------------------------|---|
| 1 <input type="checkbox"/> Yes | 2 <input type="checkbox"/> No | 3 <input type="checkbox"/> Not applicable |
|--------------------------------|-------------------------------|---|

***EMP.8 Please rate your satisfaction with your PRINCIPAL JOB's...**

Mark (X) ONLY one for each item

	Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied
1. Salary	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
2. Benefits	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
3. Job security	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
4. Job location	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
5. Working conditions	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
6. Opportunities for advancement.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
7. Intellectual challenge	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
8. Level of responsibility	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
9. Degree of independence	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
10. Contribution to society	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
11. Social status	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
12. Overall level of satisfaction	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

PAST EMPLOYMENT

*** EMP.9 If you have changed job in the last 10 years, please list your most recent previous employer here.**

Note that this section excludes your current position(s) (if any), already discussed in EMP.3.

Previous position		
Dates of employment	From: <input style="width: 50px;" type="text"/> yyyy (year) To: <input style="width: 50px;" type="text"/> yyyy (year)	
Location	City: <input style="width: 150px;" type="text"/> State/Province: <input style="width: 150px;" type="text"/> Country: <input style="width: 100px;" type="text"/>	
Sector of employment <i>Mark (X) ONLY one (See Manual: Definition 7: Sector of employment)</i>	<input type="checkbox"/> Business enterprise sector <input type="checkbox"/> Government sector <input type="checkbox"/> Higher education sector <input type="checkbox"/> Other education sector <input type="checkbox"/> Private non-profit sector	
Occupation	<i>Please be as specific as possible, including any area of specialisation:</i> <input style="width: 80%; height: 20px;" type="text"/>	
Employment situation	<input type="checkbox"/> Employee <i>(See Manual: Definition 8: Employee)</i>	<input type="checkbox"/> Self-employed worker <i>(See Manual: Definition 9: Self-employed workers)</i>
Type of position	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;"><i>Mark (X) ONLY one (See Manual: Definition 10: Temporary/permanent employment)</i></p> <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary </div> <div style="width: 45%;"> <p style="text-align: center;"><i>Mark (X) ONLY one (See Manual: Definition 11: Full-time/part-time employment)</i></p> <input type="checkbox"/> Full-time <input type="checkbox"/> Part-time </div> </div>	
Number of hours per week	<input style="width: 50px;" type="text"/>	
Reasons for having left		

Module MOB - International mobility

IF YOU ONLY LIVED IN <THE COUNTRY X>, SKIP TO MOB.6

*** MOB.1 List the countries in which you have studied, worked or carried out research for more than three months between January <200X-9> and December <200X> and indicate the period of stay or residency (include <THE COUNTRY X>).**

(See Manual: Definition 12: Internationally mobile advanced research qualification holder)

Country	Period of stay or residency			
	<i>From:</i>		<i>To:</i>	
	<i>Month (mm)</i>	<i>Year (yyyy)</i>	<i>Month (mm)</i>	<i>Year (yyyy)</i>
<THE COUNTRY X>			■■■■■■■	■■■■■■■

If you need more lines, please continue this list on an extra page.

*** MOB.2 If you moved OUT of <THE COUNTRY X> between January <200X-9> and December <200X>, please indicate the reasons for this (or these) decisions.**

Not applicable

Mark (X) Yes or No for each item

	Yes	No	
A. Completion of advanced research qualification	1 <input type="checkbox"/>	2 <input type="checkbox"/>	
B. End of job contract	1 <input type="checkbox"/>	2 <input type="checkbox"/>	
C. Other job-related or economic factors <i>E.g. job search, sent by employer, guarantee or offer of a job, or postdoc</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	
D. Academic factors <i>E.g. better access to publishing, development or continuity of thesis work, work in a specific area not existent inside <THE COUNTRY X>, possibility of creation of own research team or new research area</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	
E. Family or personal reasons	1 <input type="checkbox"/>	2 <input type="checkbox"/>	
F. Political or other reasons <i>E.g. refugee or end of residence permit or visa</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	

*** MOB.3 If you moved INTO <THE COUNTRY X> between January <200X-9> and December <200X>, please indicate the reasons for this decision.** Not applicable

Mark (X) Yes or No for each item

	Yes	No
A. Completion of advanced research qualification	1 <input type="checkbox"/>	2 <input type="checkbox"/>
B. End of job contract	1 <input type="checkbox"/>	2 <input type="checkbox"/>
C. Other job-related or economic factors <i>E.g. sent by employer, guarantee or offer of a job, or postdoc</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
D. Academic factors <i>E.g. better access to publishing, development or continuity of thesis work, work in a specific area not existent inside the country of your previous residence, possibility of creation of own research team or new research area</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
E. Family or personal reasons	1 <input type="checkbox"/>	2 <input type="checkbox"/>
F. Political or other reasons <i>E.g. refugee or end of residence permit or visa</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>

*** MOB.4 If you moved into <THE COUNTRY X> and plan to leave, indicate how long you plan to stay in <THE COUNTRY X>.** Not applicable

PLANNED TOTAL LENGTH OF STAY Months

MOB.5 Are you still linked to your country of origin? Not applicable

Mark (X) Yes or No for each item

	Yes	No
1. You keep in touch with official "Diaspora" networks (<i>i.e.</i> networks of nationals from your country of origin living abroad)	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2. You have a wide informal network formed by friends/ acquaintances/ colleagues from your country of origin	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3. You are available for various possible linkage mechanisms (visits, training, joint projects, mentoring, fundraising)	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4. You maintain business relationships with your country of origin	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5. You collaborate with national professional associations in your country of origin	1 <input type="checkbox"/>	2 <input type="checkbox"/>
6. You collaborate with scientific journals in your country of origin	1 <input type="checkbox"/>	2 <input type="checkbox"/>

MOB.6 Are you working on research with researchers in another country?

Mark (X) Yes or No for each item

	Yes	No
1. Working on a joint publication with people in another country	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2. Collaborating at a distance on a joint research project with researchers in another country	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3. You are using web-based or virtual technology to conduct this work	1 <input type="checkbox"/>	2 <input type="checkbox"/>

*** MOB.7 Do you intend to move out of <THE COUNTRY X> within the next 12 months?**

- 1 Yes, permanently
 2 Yes, temporarily 3 No → **SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>**

*** MOB.8 (IF YES) To which country do you intend to move within the next 12 months?**

Country _____

*** MOB.9 Indicate the reasons for this decision?**

Mark (X) Yes or No for each item

	Yes	No
A. End of postdoc or job contract	1 <input type="checkbox"/>	2 <input type="checkbox"/>
B. Returning to my home country <i>E.g. After secondment in <COUNTRY X></i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
C. Other job related or economic factors <i>E.g. sent by employer, guarantee or offer of a job, or research grant</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
D. Academic factors <i>E.g. better access to publishing, development or continuity of thesis work, work in a specific area not existent inside <THE COUNTRY X>, possibility of creation of own research team or new research area</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
E. Family or personal reasons	1 <input type="checkbox"/>	2 <input type="checkbox"/>
F. Political or other reasons <i>E.g. End of residence permit or visa</i>	1 <input type="checkbox"/>	2 <input type="checkbox"/>

GO TO <NEXT MODULE>

Module CAR - Career related experience

"Researchers" are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. (See Manual: Definition 13: Researcher)

*** CAR.1 In the job you held on 1 December <200X>, were you engaged in research and/or experimental development work, i.e. were you engaged in the conception or creation of new knowledge, products, processes, methods and systems or in the management of such projects?**

1 Yes

2 No

CAR.2 Which percentage of your time did you on average devote to research and/or experimental development work?

_____ % → **GO TO CAR.6**

NON-RESEARCHERS

CAR.3 Why were you not working as a researcher on 1 December <200X>?

Mark (X) all that apply

1 Not interested in research

2 Very limited job opportunities in research

3 There is no clear career structure within research

4 Low remuneration

5 Disadvantaged working conditions

6 Poor public recognition of career in research

7 Unclear long term career prospects

8 Other - Specify ↙

CAR.4 Are you considering changing your current career for a research career in the next <three years>?

1 Yes

2 No

*** CAR.5 Were you performing research activities earlier in your career?**

1 Yes

2 No → **SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>**

RESEARCHERS (CURRENT AND FORMER)

CAR.6 Why did you choose a research career?

Mark (X) all that apply

- | | | |
|--|---|---|
| 1 <input type="checkbox"/> Creativity and innovativeness of work | 2 <input type="checkbox"/> Well paid job | 3 <input type="checkbox"/> Benefits |
| 4 <input type="checkbox"/> Opportunities for advancement | 5 <input type="checkbox"/> Job security | 6 <input type="checkbox"/> Working conditions |
| 7 <input type="checkbox"/> Degree of independence | 8 <input type="checkbox"/> Contribution to society | 9 <input type="checkbox"/> Other employment not available |
| 10 <input type="checkbox"/> Research generally expected for career | 11 <input type="checkbox"/> Specific interest for research work | |
| 12 <input type="checkbox"/> Other-Specify → _____ | | |

***CAR.7 How long have you worked as a researcher?**

From: (yyyy) (year) To: (yyyy) (year)
(leave blank if still working as a researcher on 1 December <200X>)

CAR.8 How many months elapsed between the time you completed your advanced research qualification degree and the time you accepted your first CAREER PATH JOB (if applicable)?

A "career path" job is a job that will help further your career plans or is a job in a field where you want to make your career. (See Manual: Definition 14: Career path job)

NUMBER OF MONTHS Have not accepted my first
 career path job Accepted career path job either before or during
 my advanced research qualification

GO TO <NEXT MODULE>

PER - Personal characteristics

*** PER.1 Are you:**

1 Male 2 Female

*** PER.2 What is your year of birth?**

YEAR (yyyy)

*** PER.3 Where is your place of birth?**

City State/Province Country

*** PER.4 What is your citizenship/resident status in <the country X> (See Manual: Definition 15: Citizenship status; Definition 16: Resident status)?**

1 Citizen by birth 2 Citizen by naturalisation
 3 Permanent resident 4 Non-permanent resident 5 Refugee

PER.5 Please list the countries of your citizenship

Country 1 Country 2 Country 3

PER.6 What is your marital status?

Mark (X) ONLY one

1 Married 2 Living in a <marriage-like relationship> 3 Separated
 4 Divorced 5 Widowed 6 Never married

PER.7 How many dependents do you have?

Number Number Number
 5 years or younger 6 to 18 years 19 years or older

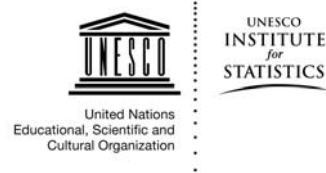
PER.8 In case we need to clarify some of the information you have provided, please list phone numbers and an e-mail address where you can be reached.

Area Code Number

DAYTIME:

EVENING:

E-mail _____@_____



INSTRUCTION MANUAL FOR COMPLETING THE QUESTIONNAIRE ON CAREERS OF DOCTORATE HOLDERS

INTRODUCTORY NOTE

The present manual has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the CDH project.

This manual should be considered as a model for countries to adapt to national needs. Countries may also include instructions or definitions directly in the questionnaire.

In the first section of this manual, countries can incorporate text describing the institution(s) carrying out the survey.

For any queries relating to the adaptation of this manual, do not hesitate to contact the UNESCO Institute for Statistics by e-mail: stsurvey@uis.unesco.org or by fax: **+1 - 514 343 6872**.

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INTRODUCTION

<Introduction of institution carrying out the survey>

The international Survey on Careers of Doctorate Holders (CDH) is a joint project carried out by the UNESCO Institute for Statistics (UIS), the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Commission (Eurostat). The project focuses on holders of advanced research qualifications (usually doctorate holders) who are considered to be crucial to the production, application and diffusion of knowledge.

The present questionnaire is designed to collect the most recent statistics on educational history, work experience and international mobility of holders of advanced research qualifications throughout the world. The main objectives of the questionnaire are:

- To build internationally comparable indicators on the careers of holders of advanced research qualifications.
- To identify and analyse trends in the career paths and mobility of highly qualified people throughout the world.

The improvement and harmonisation of data collection in a broad number of countries and its further analysis should enable policy makers, researchers and analysts to conduct the appropriate policies with regard to highly qualified people in order to ensure their career development all over the world.

This instruction manual has been prepared in order to help respondents completing the questionnaire. It comprises the definitions and other guidelines that should be followed in order to facilitate international comparison of the statistics provided by different countries.

The definitions and classification presented in this manual are based on different internationally recognised sources such as the *Frascati Manual (OECD)*, *International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians (October 1982)*, *National Science Foundation Survey of Doctorate Recipients*, *International Standard Classification of Education (ISCED-1997)*, *International Standard Classification of Occupations (ISCO-08)* and others (see sources related to the presented definitions).

1. COVERAGE OF THE QUESTIONNAIRE

The questionnaire is designed to collect data on all individuals who on the reference date are fulfilling the following criteria:

- Have an education at ISCED 6 level (see **definition 1**) obtained anywhere in the world; and
- Are resident (permanent or non-permanent) within the national borders of the surveying country.

Definition 1: ISCED 6 : Advanced research qualification

ISCED LEVEL 6: SECOND STAGE OF TERTIARY EDUCATION (LEADING TO AN ADVANCED RESEARCH QUALIFICATION)

Principal characteristics

This level is reserved for tertiary programmes which lead to the award of an advanced research qualification. The programmes are therefore devoted to advanced study and original research and are not based on course-work only.

Classification criteria

For the definition of this level, the following criteria are relevant:

Main criterion

It typically requires the submission of a thesis or dissertation of publishable quality which is the product of original research and represents a significant contribution to knowledge.

Subsidiary criterion

It prepares graduates for faculty posts in institutions offering ISCED 5A programmes, as well as research posts in government, industry, etc.

Includes also:

The part concentrating on advanced research in those countries where students beginning tertiary education enrol directly for an advanced research programme.

Source: UNESCO International Standard Classification of Education 1997 (ISCED-1997).

2. INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

Not all questions will apply to everyone. You may be asked to skip certain questions.

- Please use an “X” when answering questions that require marking a box.
 - In order to obtain comparable data, we will be asking you to refer to your situation on 1 December <200X>.
 - Follow all “SKIP” and “GO TO” instructions after marking a box.
- <The following two bullets should be removed if an electronic questionnaire is used>
- Either a pen or pencil may be used.
 - If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.

The present questionnaire has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the CDH project in order to facilitate international comparison of the statistics provided by different countries. Please refer to the definitions in this Manual for further clarification.

The questionnaire consists of the following modules:

- EDU – Advanced research qualification education
- ECR – Early career research positions
- EMP – Employment situation
- MOB – International mobility
- CAR – Career-related experience
- PER – Personal characteristics

Your assistance is essential to ensure that the results are meaningful. Your answers will be kept strictly confidential and used for statistical purposes only. Any information publicly released (such as statistical summaries) will be in form that does not personally identify you.

<Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.>

Actual time to complete the questionnaire may vary depending on your circumstances. On average, it will take about 20 minutes to complete the questionnaire.

MODULE EDU – ADVANCED RESEARCH QUALIFICATION EDUCATION

The education module aims to provide information on the educational history of holders of advanced research qualifications. This module will supply information on specific characteristics of holders of advanced research qualifications, such as date of award, field of science, sources of financial support, duration of advanced research qualification programme and country of previous degree.

You will find below the relationship between the questions and related definitions and classifications.

In order to respond to **question EDU.2** which asks you to provide information on the field of science and technology corresponding to your advanced research qualification studies, please refer to **classification 1**.

Classification 1: Fields of Science and Technology	
<p>1. NATURAL SCIENCES</p> <ul style="list-style-type: none"> 1.1. Mathematics 1.2. Computer and information sciences (excluding hardware development and social aspects) 1.3. Physical sciences 1.4. Chemical sciences 1.5. Earth and environmental sciences 1.6. Biological sciences (excluding medical and agricultural sciences) 1.7. Other natural sciences <p>2. ENGINEERING AND TECHNOLOGY</p> <ul style="list-style-type: none"> 2.1. Civil engineering 2.2. Electrical engineering, electronic engineering, information engineering 2.3. Mechanical engineering 2.4. Chemical engineering 2.5. Materials engineering 2.6. Medical engineering 2.7. Environmental engineering 2.8. Environmental biotechnology 2.9. Industrial biotechnology 2.10. Nanotechnology 2.11. Other engineering and technologies (food, beverages and other) <p>3. MEDICAL AND HEALTH SCIENCES</p> <ul style="list-style-type: none"> 3.1. Basic medicine 3.2. Clinical medicine 3.3. Health sciences 3.4. Medical biotechnology 3.5. Other medical sciences (forensic and other medical sciences) 	<p>4. AGRICULTURAL SCIENCES</p> <ul style="list-style-type: none"> 4.1. Agriculture, forestry and fisheries 4.2. Animal and dairy science 4.3. Veterinary science 4.4. Agricultural biotechnology 4.5. Other agricultural sciences <p>5. SOCIAL SCIENCES</p> <ul style="list-style-type: none"> 5.1. Psychology 5.2. Economics and business 5.3. Educational sciences 5.4. Sociology 5.5. Law 5.6. Political science 5.7. Social and economic geography 5.8. Media and communications 5.9. Other social sciences <p>6. HUMANITIES</p> <ul style="list-style-type: none"> 6.1. History and Archaeology 6.2. Languages and literature 6.3. Philosophy, ethics and religion 6.4. Arts (arts, history of arts, performing arts, music) 6.5. Other humanities
<p><i>Source: New Fields of Science Classification of the Frascati Manual (adopted by OECD NESTI in June 2005).</i></p>	

Answering **question EDU.9**, which requires that you supply an estimate of the number of months it took you to complete your advanced research qualification during the period between when you started

your advanced research qualification programme and when your advanced research qualification degree was granted, please subtract periods longer than one week taken off for reasons such as irrelevant temporary jobs to sustain funding throughout the advanced research qualification programme, or for personal, family or maternity/paternity leave reasons. However, time spent on study or work abroad relevant to your advanced research qualification programme should not be counted as “taken off”. When answering this question, please make sure that you round the indicated number of months to whole months.

Answering **question EDU.10**, which requires that you supply the country in which you received your previous university degree (at ISCED 5 level), please take into account **definition 2**.

Definition 2: ISCED 5: First Stage of Tertiary Education (not leading directly to an advanced research qualification)

ISCED 5 is composed of two different types of tertiary programmes, not leading directly to the award of an advanced research qualification (such as doctorates, which are at ISCED level 6):

ISCED 5A programmes are tertiary programmes that are largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements. They must satisfy a sufficient number of the following criteria:

- A minimum cumulative theoretical duration (at tertiary level) of three years' full-time equivalent, although typically they are of four or more years.
- Faculty with advanced research credentials.
- May involve completion of a research project or thesis.
- Provide the level of education required for entry into a profession with high skills requirements (theoretically based/research preparatory, such as history, philosophy, mathematics, etc., or giving access to professions with high skills requirements, e.g. medicine, dentistry, architecture, etc.) or an advanced research programme.

This level typically includes programmes such as “Bachelors”, as well as all the research programmes which are not part of a doctorate, such as any types of Master's degrees.

ISCED 5B programmes are tertiary programmes typically shorter than those in 5A and focus on occupationally specific skills geared for entry into the labour market, although some theoretical foundations may be covered in the respective programme. The content of ISCED level 5B programmes is practically oriented/occupationally specific and is mainly designed for participants to acquire the practical skills and know-how needed for employment in a particular occupation or trade or class of occupations or trades - the successful completion of which usually provides the participants with a labour-market relevant qualification.

Source: UNESCO International Standard Classification of Education 1997 (ISCED-1997).

MODULE ECR – EARLY CAREER RESEARCH POSITIONS

If you were in *permanent* employment, self-employed, unemployed or inactive on 1 December <200X>, please skip this module.

This module addresses persons who were in a temporary research position on 1 December <200X> that satisfies most or all of the conditions in **question ECR.1**. Often, this type of position is referred to as a postdoc position. It is generally understood that a postdoc is a temporary position for holders of advanced research qualifications (*i.e.* after finalising their advanced research qualification studies) where the main

activity is research, and the holder receives some kind of financial support. However, there are very different forms of postdoc positions worldwide. In order to assess the extent to which these positions have comparable characteristics, **question ECR.1** lists a number of characteristics, which usually correspond to this type of position. Please indicate if each of these characteristics corresponds or not to the position you held on 1 December <200X> in **question ECR.1**, and provide the exact title of your position (in your own language) in **question ECR.2**.

Please use the Fields of Science & Technology Classification (see **Classification 1**) to reply to **question ECR.3**.

MODULE EMP – EMPLOYMENT SITUATION

This module aims to furnish information on the career development of holders of advanced research qualifications.

Information that should be provided is for example your employment status, your occupation, type of contract (temporary or permanent employment, part-time or full-time job) and combined annual salary (in national currency).

This module includes a section on PAST EMPLOYMENT dealing with the retrospective career history of holders of advanced research qualifications, gathering information on work experience within the ten past years (including occupation, dates, years of experience, and reasons for leaving previous positions).

In order to respond to **question EMP.1** which asks you to provide information on your employment status on 1 December <200X>, please refer to **definitions 3, 4 and 5**.

Definition 3: Employed

The employed comprise all persons above a specified age who during a specified brief period, either one week or one day, were in the following categories:

- At work: persons who during the reference period performed some work for a wage or salary, or persons who during the reference period performed some work for profit or family gain, in cash or in kind.
- With a job but not at work: persons who, having already worked in their present job, were temporarily not at work during the reference period and had a formal attachment to their job. This formal attachment should be determined in the light of national circumstances, according to one or more of the following criteria: the continued receipt of wage or salary; an assurance of return to work following the end of the contingency, or an agreement as to the date of return; the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs.
- With an enterprise but not at work: persons with an enterprise, which may be a business enterprise, a farm or a service undertaking, who were temporarily not at work during the reference period for any specific reason.

Source: Adapted from International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 9.

Definition 4: Unemployed

The unemployed comprise all persons above a specified age who during the reference period were:

- Without work, that is, were not in paid employment or self employment during the reference period.
- Currently available for work, that is, were available for paid employment or self-employment during the reference period; and
- Seeking work, that is, had taken specific steps to seek paid employment or self-employment. The specific steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 10.

Definition 5: Inactive

The "population not currently active", or, equivalently, persons not in the labour force, comprises all persons who were not employed or were unemployed and hence not currently active because of:

- (a) Attendance at educational institutions.
- (b) Engagement in household duties.
- (c) Retirement or old age, or
- (d) Other reasons such as infirmity or disablement, which may be specified.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 12.

In order to answer **question EMP.2** in which you are asked to provide data on your gross annual earnings for the reference year, please refer to **definition 6** or adapt this question to your national needs. Please make sure that you indicate your salary in national currency.

Definition 6: Gross annual earnings

Gross annual earnings cover remuneration in cash and in kind paid during <200X> before any tax deductions and social-security contributions payable by wage earners and retained by the employer.

Source: Eurostat.

When answering **questions EMP.3 and EMP.9** which ask you to provide information on sector of employment, occupation and type of position you held, you need to refer to **definitions 7 to 11** (see next pages).

When asked about your occupation in **EMP.3 and EMP.9**, please provide a detailed description, including any area of specialisation, for example: “College professor-Electrical engineering”, “Research mathematician” or “Network engineer, communication hardware”.

Note that question **EMP.9** asks about your most recent previous position only, even if you changed job more than once in the past 10 years.

You may not be in a position to answer **questions EMP.4 and EMP.5** unless it was a specified condition of employment. If that’s the case, please tick option 6: Unknown.

Furthermore, in **questions EMP.4 and EMP.5**, the response category “postdoc” refers to the type of position as outlined under **question ECR.1**.

Definition 7: Sector of employment

The **business enterprise** sector includes:

- All firms, organisations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price.
- The private non-profit institutions mainly serving them.

The **government sector** includes:

- All departments, offices and other bodies which furnish, but normally do not sell to the community, those common services, other than higher education, which cannot otherwise be conveniently and economically provided, as well as those that administer the state and the economic and social policy of the community. (Public enterprises mainly engaged in market production and sale of goods and services are included in the business enterprise sector.)
- Non-profit institutions controlled and mainly financed by government, not administered by the higher education sector.

The **higher education** sector is composed of:

- All universities, colleges of technology and other institutions providing tertiary education, whatever their source of finance or legal status.
- It also includes all research institutes, experimental stations and clinics under the direct control of or administered by or associated with higher education institutions.

The **other education** sector is composed of all institutions providing pre-primary, primary or secondary education, whatever their source of finance or legal status.

The **private non-profit sector** includes:

- Non-market, private non-profit institutions serving households (*i.e.* the general public).
- Private individuals or households.

The market activities of unincorporated enterprises owned by households, *i.e.* consultants undertaking projects for another unit at an economically significant price, should be included in the business enterprise sector in line with National Accounts conventions (unless the project is undertaken using staff and facilities in another sector, see below). Hence, the PNP sector should only include activities undertaken by non-market, unincorporated enterprises owned by households, *i.e.* individuals financed by their own resources or by “uneconomic” grants.

Furthermore, where grants and contracts are formally awarded to individuals who are primarily employed in another sector, such as grants made directly to a university professor, unless such persons undertake the activity concerned entirely on their own time and make no use of their employing unit's staff and facilities, they should be included in the statistics of the employing unit. It therefore follows that this sector only includes activities performed by individuals exclusively on their own time and with their own facilities and at their own expense or supported by an uneconomic grant.

Source: Frascati Manual (OECD, 2002), and UIS.

Definition 8: Employee

An employee is a person who enters an agreement, which may be formal or informal, with an enterprise to work for the enterprise in return for remuneration in cash or in kind.

Source: System of National Accounts, 1993 Glossary, OECD.

Definition 9: Self-employed workers

[An unincorporated enterprise is a producer unit which is not incorporated as a legal entity separate from the owner (household, government or foreign resident); the fixed and other assets used in unincorporated enterprises do not belong to the enterprises but to their owners, the enterprises as such cannot engage in transactions with other economic units nor can they enter into contractual relationships with other units nor incur liabilities on their own behalf; in addition, their owners are personally liable, without limit, for any debts or obligations incurred in the course of production.]

Source: System of National Accounts, 1993 Glossary, OECD.

Definition 10: Temporary/permanent employment

Temporary employment comprises work under a fixed-term contract, in contrast to permanent work where there is no end-date. Employment under temporary contracts often entails a different set of legal obligations on behalf of employers; in particular, certain aspects of employment protection legislation do not apply to temporary contracts.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 12.

Definition 11: Full-time/part-time employment

Persons usually working less than 30 hours a week are considered as part-timers.

Source: Definition of Part-time Work for the Purpose of International Comparisons, A. Bastelaer, G. Lemaitre, P. Marianna, Labour Market and Social Policy Occasional Papers – No. 22, OECD, 1997, page 12.

MODULE MOB – INTERNATIONAL MOBILITY

The international mobility module is foreseen to make available information on the mobility patterns of holders of advanced research qualifications.

This module aims to measure the inflows and outflows of holders of advanced research qualifications, to distinguish temporary mobility from permanent mobility, to identify the reasons for departure and return as well as to provide data on your intentions to move out of the country within the next year including the destination planned.

When answering **question MOB.1**, which asks you to provide information on the countries in which you have stayed or lived for more than three months between January <200X-9> and December <200X>, you need to refer to **definition 12**.

Definition 12: Internationally mobile advanced research qualification holder

An internationally mobile advanced research qualification holder is an advanced research qualification holder who, since the award of his/her advanced research qualification, has moved to a country other than that of his or her usual residence for a period of at least 3 months, except in cases where the movement to that country was for purposes of recreation, holiday, visits to friends and relatives, medical treatment or religious pilgrimage.

Source: Adapted from the Recommendations on Statistics of International Migration, Revision 1 (UN, 1998).

In **questions MOB.2, MOB.3 and MOB.9**, the response category “postdoc” refers to the type of position as outlined under **question ECR.1**.

MODULE CAR – CAREER RELATED EXPERIENCE

This module is foreseen in order to provide data on your experience linked to your career path.

The module includes a section on researchers that enquires about experience in research. When answering **questions CAR.1 to CAR.8**, please refer to **definition 13**.

Definition 13: Researcher

Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.

Source: Frascati Manual (OECD, 2002).

In addition, when replying to **question CAR.8**, please refer to **definition 14**.

Definition 14: Research career path job

A “**research career path job**” is a job that will help further your career plans in research or is a job in research, in which you want to make your career.

MODULE PER – PERSONAL CHARACTERISTICS

The personal characteristics module collects information on features such as:

- Marital status
- Number of dependents
- Place of birth, date of birth, citizenship status and resident status
- Contact information

When responding to **question PER.4** which asks you to supply data on your citizenship and residential status in <the country X>, please refer to **definitions 15 and 16**.

Definition 15: Citizenship status

Citizenship is defined as the particular legal bond between an individual and his/her State, acquired by birth or naturalisation, whether by declaration, option, marriage or other means according to the national legislation.

A citizen is therefore a person with the legal nationality of a country.

In case of dual or multiple citizenships, the person should be counted only once and reported as citizen if he holds the nationality of the reporting country and as non-citizen in any other case.

Source: Recommendations for the 2000 censuses of population and housing in the Economic Commission for Europe (ECE) region and United Nations Recommendations on International Migration.

Definition 16: Resident status

Country of permanent or usual residence is the country where the person usually resides; this may be the same as, or different from, the place where he/she actually is at the time of the survey; or it may be his/her legal residence.

Permanent or usual residence in the reporting country or in other countries should be counted according to the national legislations and no attempt is made to harmonise. Legislation concerning residence can vary widely between countries and countries are asked to complete the tables in the way they can apply the concept of "permanent or usual residence". In practice, distinguishing between "permanent resident" and "non-permanent resident" can be done in a number of ways, for example according to whether the person holds a visa or permit.

Source: Recommendations for the 2000 censuses of population and housing in the Economic Commission for Europe (ECE) region and UIS/OECD/EUROSTAT (UOE) data collection on education systems 2005 manual.



STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

CDH OUTPUT INDICATORS TABLES

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PERSONAL CHARACTERISTICS

Table P1. Doctorate Holders by Sex and Age class
(Number of persons)

	2007			2008			2009		
	Men	Women	TOTAL	Men	Women	TOTAL	Men	Women	TOTAL
Less than 35 years old									
35-44 years old									
45-54 years old									
55-64 years old									
65-69 years old*									
GRAND TOTAL									

(*) If 70-year-old and over doctorate holders are included in the [65-69] age class, please specify the case in the notes below.

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

PERSONAL CHARACTERISTICS

Table P2.1. Doctorate Holders by Type of Citizenship, Resident Status and Place of Birth (optional table)

(Number of persons)

Year of reference:

	Citizens of <i>of which</i>			Non citizens of <i>of which:</i>					
	Citizens by birth	Citizens by naturalisation	Total	All foreign citizens		Total	EU foreign citizens*		
				Permanent residents	Non-permanent residents		Permanent residents	Non-permanent residents	Total
Natives									
Foreign born									
GRAND TOTAL									

* Requested for EU countries

Notes:

Source(s) of data:

Variables from the model questionnaire used (if relevant):

PERSONAL CHARACTERISTICS

Table P2.2. Doctorate Holders by Citizenship and Resident Status (optional table)

(Number of persons)

	2007					2008					2009				
	Citizens of 0	Foreign citizens			TOTAL	Citizens of 0	Foreign citizens			TOTAL	Citizens of 0	Foreign citizens			TOTAL
		of which					of which					of which			
		Permanent residents	Non- permanent residents	Total			Permanent residents	Non- permanent residents	Total			Permanent residents	Non- permanent residents	Total	
Grand Total Doctorate Holders															
<i>of which:</i> College, University and Higher Education teaching professionals (ISCO 231)															

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

PERSONAL CHARACTERISTICS

Table P3. Doctorate Holders by Sex and Country of Citizenship
(Number of persons)

	2007			2008			2009		
	Men	Women	TOTAL	Men	Women	TOTAL	Men	Women	TOTAL
GRAND TOTAL									
Citizens of									
- Citizens by birth									
- Citizens by naturalisation									
Foreign citizens of									
- Permanent residents									
- Non-permanent residents									
Region of citizenship:									
<i>Please only report data by region of citizenship if data by country of citizenship are not available.</i>									
Total European Union									
Total OECD									
Total non OECD									
Total Africa									
Total America									
Total North America (Canada, Mexico, United States)									
Total Central and South America									
Total Asia									
Total Europe									
Total Oceania									
Country of citizenship:									
Argentina									
Austria									
Australia									
Belgium									
Bulgaria									
Canada									
China									
Croatia									
Cyprus									
Czech Republic									
Denmark									
Estonia									
Finland									
Former Yugoslav Republic of Macedonia									
France									
Germany									
Greece									
Hungary									
Iceland									
India									
Ireland									
Italy									
Japan									
Korea									
Latvia									
Lithuania									
Luxembourg									
Malaysia									
Malta									
Mexico									
Netherlands									
New Zealand									
Norway									
Poland									
Portugal									
Romania									
Russian Federation									
Slovak Republic									
Slovenia									
Spain									
Sweden									
Switzerland									
Turkey									
Uganda									
Ukraine									
United Kingdom									
United States									

Add another country*

* Please, add any other individual country for which there is a significant amount of foreign citizens in your country.

If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only.

For regional groupings that are not automatically calculated in the cells, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:**Source(s) of data:****Variables of the model questionnaire used (if relevant):**

PERSONAL CHARACTERISTICS

Table P4. Doctorate Holders by Citizenship/Resident Status and Age class

(Number of persons)

	2007					2008					2009				
	Citizens of 0	Foreign citizens of which			TOTAL	Citizen of 0	Foreign citizens of which			TOTAL	Citizen of 0	Foreign citizens of which			TOTAL
		Permanent residents	Non-permanent residents	Total			Permanent residents	Non-permanent residents	Total			Permanent residents	Non-permanent residents	Total	
Less than 35 years old															
35-44 years old															
45-54 years old															
55-64 years old															
65-69 years old*															
GRAND TOTAL															

(*) If 70-year-old and over doctorate holders are included in the [65-69] age class, please specify the case in the notes below.

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

PERSONAL CHARACTERISTICS

Table P5. Doctorate Holders by Citizenship and Field of Doctorate Degree
(Number of persons)

New OECD FOS classification	2007			2008			2009		
	Citizens of 0	Foreign citizens	TOTAL	Citizens of 0	Foreign citizens	TOTAL	Citizens of 0	Foreign citizens	TOTAL
GRAND TOTAL									
1 NATURAL SCIENCES									
1.1 Mathematics									
1.2 Computer and information sciences (excluding hardware development and social aspect)									
1.3 Physical sciences									
1.4 Chemical sciences									
1.5 Earth and environmental sciences									
1.6 Biological sciences (excluding medical and agricultural sciences)									
1.7 Other natural sciences									
2 ENGINEERING AND TECHNOLOGY									
2.1 Civil engineering									
2.2 Electrical engineering, electronic engineering, information engineering									
2.3 Mechanical engineering									
2.4 Chemical engineering									
2.5 Materials engineering									
2.6 Medical engineering									
2.7 Environmental engineering									
2.8 Environmental biotechnology									
2.9 Industrial biotechnology									
2.10 Nanotechnology									
2.11 Other engineering and technologies (food, beverages and other)									
3 MEDICAL AND HEALTH SCIENCES									
3.1 Basic medicine									
3.2 Clinical medicine									
3.3 Health sciences									
3.4 Medical biotechnology									
3.5 Other medical sciences (forensic and other medical sciences)									
4 AGRICULTURAL SCIENCES									
4.1 Agriculture, forestry and fisheries									
4.2 Animal and dairy science									
4.3 Veterinary science									
4.4 Agricultural biotechnology									
4.5 Other agricultural sciences									
5 SOCIAL SCIENCES									
5.1 Psychology									
5.2 Economics and business									
5.3 Educational sciences									
5.4 Sociology									
5.5 Law									
5.6 Political science									
5.7 Social and economic geography									
5.8 Media and communications									
5.9 Other social sciences									
6 HUMANITIES									
6.1 History and Archaeology									
6.2 Languages and literature									
6.3 Philosophy, ethics and religion									
6.4 Arts (arts, history of arts, performing arts, music)									
6.5 Other humanities									

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

PERSONAL CHARACTERISTICS

Table P6. Doctorate Holders by Sex and Country of Birth
(Number of persons)

	2007			2008			2009		
	Men	Women	TOTAL	Men	Women	TOTAL	Men	Women	TOTAL
GRAND TOTAL									
Born in									
Foreign born									
- Permanent residents in									
- Non-permanent residents in									
Region of birth:									
<i>Please only report data by region of birth if data by country of birth are not available</i>									
Total European Union									
Total OECD									
Total non OECD									
Total Africa									
Total America									
Total North America (Canada, Mexico, United States)									
Total Central and South America									
Total Asia									
Total Europe									
Total Oceania									
Country of birth:									
Argentina									
Austria									
Australia									
Belgium									
Bulgaria									
Canada									
China									
Croatia									
Cyprus									
Czech Republic									
Denmark									
Estonia									
Finland									
Former Yugoslav Republic of Macedonia									
France									
Germany									
Greece									
Hungary									
Iceland									
India									
Ireland									
Italy									
Japan									
Korea									
Latvia									
Lithuania									
Luxembourg									
Malaysia									
Malta									
Mexico									
Netherlands									
New Zealand									
Norway									
Poland									
Portugal									
Romania									
Russian Federation									
Slovak Republic									
Slovenia									
Spain									
Sweden									
Switzerland									
Turkey									
Uganda									
Ukraine									
United Kingdom									
United States									

Add another country*

* Please, add any other individual country for which there is a significant amount of foreign citizens in your country.

If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only.

For regional groupings that are not automatically calculated in the cells, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:

Source(s) of data:

Variables of the model questionnaire used(if relevant):

PERSONAL CHARACTERISTICS

Table P7. Doctorate Holders by Place of Birth/Resident Status and Age Class
(Number of persons)

	2007				2008				2009				TOTAL
	Born in 0	Foreign Born of which		TOTAL	Born in 0	Foreign Born of which		TOTAL	Born in 0	Foreign Born of which		TOTAL	
		Permanent residents	Non-permanent residents			Total	Permanent residents			Non-permanent residents	Total		
Less than 35 years old													
35-44 years old													
45-54 years old													
55-64 years old													
65-69 years old*													
GRAND TOTAL													

(*) If 70-year-old and over doctorate holders are included in the [65-69] age class, please specify the case in the notes below.

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

PERSONAL CHARACTERISTICS

Table P8. Doctorate Holders by Place of Birth and Field of Doctorate Degree
(Number of persons)

New OECD FOS classification	2007			2008			2009		
	Born in 0	Foreign born	TOTAL	Born in 0	Foreign born	TOTAL	Born in 0	Foreign born	TOTAL
GRAND TOTAL									
1 NATURAL SCIENCES									
1.1 Mathematics									
1.2 Computer and information sciences (excluding hardware development and social aspect)									
1.3 Physical sciences									
1.4 Chemical sciences									
1.5 Earth and environmental sciences									
1.6 Biological sciences (excluding medical and agricultural sciences)									
1.7 Other natural sciences									
2 ENGINEERING AND TECHNOLOGY									
2.1 Civil engineering									
2.2 Electrical engineering, electronic engineering, information engineering									
2.3 Mechanical engineering									
2.4 Chemical engineering									
2.5 Materials engineering									
2.6 Medical engineering									
2.7 Environmental engineering									
2.8 Environmental biotechnology									
2.9 Industrial biotechnology									
2.10 Nanotechnology									
2.11 Other engineering and technologies (food, beverages and other)									
3 MEDICAL AND HEALTH SCIENCES									
3.1 Basic medicine									
3.2 Clinical medicine									
3.3 Health sciences									
3.4 Medical biotechnology									
3.5 Other medical sciences (forensic and other medical sciences)									
4 AGRICULTURAL SCIENCES									
4.1 Agriculture, forestry and fisheries									
4.2 Animal and dairy science									
4.3 Veterinary science									
4.4 Agricultural biotechnology									
4.5 Other agricultural sciences									
5 SOCIAL SCIENCES									
5.1 Psychology									
5.2 Economics and business									
5.3 Educational sciences									
5.4 Sociology									
5.5 Law									
5.6 Political science									
5.7 Social and economic geography									
5.8 Media and communications									
5.9 Other social sciences									
6 HUMANITIES									
6.1 History and Archaeology									
6.2 Languages and literature									
6.3 Philosophy, ethics and religion									
6.4 Arts (arts, history of arts, performing arts, music)									
6.5 Other humanities									

Notes:
Source(s) of data:
Variables of the model questionnaire used (if relevant):

EDUCATION CHARACTERISTICS

Table ED1. Doctorate Holders by Citizenship/Resident Status and Region of Doctoral Award
(Number of persons)

Year of reference:

	Citizens of 0	Foreign citizens of which			TOTAL
		Permanent residents	Non- permanent residents	Total	
GRAND TOTAL					
Doctorate degree received in					
Doctorate degree received in a foreign country					
Unknown country of doctorate award					
Region of doctoral award:					
Total European Union					
Total OECD					
Total non OECD					
Total Africa					
Total America					
Total North America (Canada, Mexico, United States)					
Total Central and South America					
Total Asia					
Total Europe					
Total Oceania					

For regional groupings, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EDUCATION CHARACTERISTICS

Table ED2. Doctorate Holders by Place of Birth/Resident Status and Region of Doctoral Award
(Number of persons)

Year of reference:

	Born in 0	Foreign born <i>of which</i>			TOTAL
		Permanent residents	Non- permanent residents	Total	
GRAND TOTAL					
Doctorate degree received in					
Doctorate degree received in a foreign country					
Region of doctoral award:					
Total European Union					
Total OECD					
Total non OECD					
Total Africa					
Total America					
Total North America (Canada, Mexico, United States)					
Total Central and South America					
Total Asia					
Total Europe					
Total Oceania					

For regional groupings, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EDUCATION CHARACTERISTICS

Table ED3. Doctorate Holders by Country of Doctoral Award and of Prior Education
(Number of persons)

Year of reference:

Place of prior education	Place of doctoral degree award		
	In	In another country	Total
Previous degree obtained in			
Previous degree obtained in another country			
<i>of which: in the same country as the doctorate</i>			
GRAND TOTAL			

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EDUCATION CHARACTERISTICS

Table ED4. Recent Doctorate Recipients: Age at Graduation and Time to Completion by main Field of Doctoral Degree
(Number of persons, number of years, number of months)

Year of reference:

	Number of recent doctorate recipients*	Age at graduation (in years)		Gross time to completion (in months)		Net time to completion (in months) (optional columns)	
		Average	Median	Average	Median	Average	Median
TOTAL (all genders)							
Natural sciences							
Engineering and technology							
Medical sciences							
Agricultural sciences							
Social sciences							
Humanities							
<i>Of which:</i>							
Men							
Natural sciences							
Engineering and technology							
Medical sciences							
Agricultural sciences							
Social sciences							
Humanities							
<i>Of which:</i>							
Women							
Natural sciences							
Engineering and technology							
Medical sciences							
Agricultural sciences							
Social sciences							
Humanities							

* Doctorate holders who were awarded doctorates from national institutions during the last two years.

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EDUCATION CHARACTERISTICS

Table ED5. Doctorate Holders by main Field of Doctoral Degree and Primary Source of Funding during Completion of Doctorate
(Number of persons)

Year of reference:

Primary source of funding	Field of Doctorate Degree						TOTAL
	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities	
TOTAL (all sources of funding)							
Fellowship, scholarship, grant from an institution in the country							
Fellowship, scholarship, grant from abroad							
Teaching and/or research assistantship							
Other occupation							
Employer's reimbursement/assistance							
Loan, personal savings, spouse's, partner's or family support							
Other sources of funding							
Total number of respondents							

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP1. Doctorate Holders by Employment Status and Year of Doctoral Award (Number of persons)

Year of reference:

YEAR OF DOCTORATE AWARD	Employed									Unemployed	Inactive
	Situation in employment			Type of contracts			Working time				
	Employees	Self-employed workers	Total	Permanent contract	Temporary contract	Total	Full-time employment	Part-time employment	Total		
TOTAL EMPLOYED (all gender)											
Total before 1990											
Total after 1990											
1990											
1991											
1992											
1993											
1994											
1995											
1996											
1997											
1998											
1999											
2000											
2001											
2002											
2003											
2004											
2005											
2006											
2007											
2008											
2009											
Of which:											
Men											
Total before 1990											
Total after 1990											
1990											
1991											
1992											
1993											
1994											
1995											
1996											
1997											
1998											
1999											
2000											
2001											
2002											
2003											
2004											
2005											
2006											
2007											
2008											
2009											
Of which:											
Women											
Total before 1990											
Total after 1990											
1990											
1991											
1992											
1993											
1994											
1995											
1996											
1997											
1998											
1999											
2000											
2001											
2002											
2003											
2004											
2005											
2006											
2007											
2008											
2009											

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP2.1. Doctorate Holders by Employment Status and Field of Doctoral Degree
(Number of persons)

Year of reference:

Field of doctoral degree	Employed									Unemployed	Inactive	Total
	Situation in employment			Type of contracts			Working time					
	Employees	Self-employed workers	Total	Permanent contract	Temporary contract	Total	Full-time employment	Part-time employment	Total			
TOTAL EMPLOYED (all fields)												
<i>of which:</i>												
Natural sciences												
Engineering and technology												
Medical sciences												
Agricultural sciences												
Social sciences												
Humanities												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP2.2. Doctorate Holders by Employment Status and Age Class
(Number of persons)

Year of reference:

Age class	Employed									Unemployed	Inactive	Total
	Situation in employment			Type of contracts			Working time					
	Employees	Self-employed workers	Total	Permanent contract	Temporary contract	Total	Full-time employment	Part-time employment	Total			
TOTAL EMPLOYED (all ages)												
<i>of which:</i>												
Less than 35 years old												
35-44 years old												
45-54 years old												
55-64 years old												
65-69 years old												

(*) If 70-year-old and over doctorate holders are included in the [65-69] age class, please specify the case in the notes below.

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP2.3. Doctorate Holders by Employment Status and Citizenship/Resident Status
(Number of persons)

Year of reference:

Age class	Employed									Unemployed	Inactive	Total
	Situation in employment			Type of contracts			Working time					
	Employees	Self-employed workers	Total	Permanent contract	Temporary contract	Total	Full-time employment	Part-time employment	Total			
TOTAL EMPLOYED (all citizenships)												
Citizens of												
Foreign Citizens												
Permanent residents												
Non-permanent residents												

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP3. Recent Doctorate Recipients by Employment Status and Primary Source of Funding during Completion of Doctorate
(Number of persons)

Year of
reference:

Primary Source of Funding	Employed								Unemployed	Inactive	Total
	Situation in employment			Type of contracts			Working time				
	Employees	Self-employed workers	Total	Permanent contract	Temporary contract	Total	Full-time employment	Part-time employment			
TOTAL EMPLOYED (all sources of funding)											
Fellowship, scholarship, grant from an institution in the country											
Fellowship, scholarship, grant from abroad											
Teaching and/or research assistantship											
Other occupation											
Employer's reimbursement/assistance											
Loan, personal savings, spouse's, partner's or family support											
Other source of funding											
Total number of respondents											

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP4. Employed Doctorate Holders by Field of Doctoral Degree and Occupations
(Number of persons)

Year of reference:

ISCO-08 classification		Field of Doctoral Degree						TOTAL
Code	Title	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities	
TOTAL EMPLOYED (all occupations)								
1	MANAGERS							
2	PROFESSIONALS							
21	<i>Science and engineering professionals</i>							
211	Physical and earth science professionals							
212	Mathematicians, actuaries and statisticians							
213	Life science professionals							
214-215	Engineering professionals							
216	Architects, planners, surveyors and designers							
22	<i>Health professionals</i>							
221	Medical doctors							
222	Nursing and midwifery professionals							
223-226	Other health professionals							
23	<i>Teaching professionals</i>							
231	University and higher education teachers							
232	Vocational education teachers							
233	Secondary education teachers							
234-235	Other teaching professionals							
24	<i>Business and administration professionals</i>							
241	Finance professionals							
242	Administration professionals							
243	Sales, marketing and public relations professionals							
25	<i>Information and communication technology (ICT) professionals</i>							
251	Software and applications developers and analysts							
252	Database and network professionals							
26	<i>Legal, social and cultural professionals</i>							
261	Legal professionals							
262	Librarians, archivists and curators							
263	Social, religious and related professionals							
264	Creative or performing artists and writers							
Other	Other ISCO-08 groups							

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP5. Employed Doctorate Holders by Sector of Employment, Field of Doctoral Degree and Sex
(Number of persons)

Year of reference:

Field of doctoral degree	Employed as researcher					Employed but not as researcher						Total Employed					
	Sector of employment					Sector of employment						Sector of employment					
	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	Total	Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector	Total	Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector	Total
TOTAL EMPLOYED (all fields)																	
Natural sciences																	
Engineering and technology																	
Medical sciences																	
Agricultural sciences																	
Social sciences																	
Humanities																	
<i>of which:</i>																	
Men																	
Natural sciences																	
Engineering and technology																	
Medical sciences																	
Agricultural sciences																	
Social sciences																	
Humanities																	
<i>of which:</i>																	
Women																	
Natural sciences																	
Engineering and technology																	
Medical sciences																	
Agricultural sciences																	
Social sciences																	
Humanities																	

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP6.1. Employed Doctorate Holders: Median Gross Annual Earnings
(Thousand of national currency)

Year of reference:

Field of doctorate degree	Employed as researcher						Employed but not as researcher						Total Employed					
	Sector of employment					of which Postdocs	Sector of employment					Total	Sector of employment					Total
	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	Total		Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector		Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector	
TOTAL EMPLOYED (all fields)																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		
<i>of which:</i> Men																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		
<i>of which:</i> Women																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		

Notes: _____

Source(s) of data: _____

Variables of the model questionnaire used (if relevant): _____

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP6.2. Employed Doctorate Holders: Average Gross Annual Earnings
(Thousand of national currency)

Year of reference:

Field of doctorate degree	Employed as researcher						Employed but not as researcher						Total Employed					
	Sector of employment					of which Postdocs	Sector of employment					Total	Sector of employment					Total
	Business enterprise sector	Government sector	Higher education sector	Private non- profit sector	Total		Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non- profit sector		Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non- profit sector	
GRAND TOTAL																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		
<i>of which:</i>																		
Men																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		
<i>of which:</i>																		
Women																		
Natural sciences																		
Engineering and technology																		
Medical sciences																		
Agricultural sciences																		
Social sciences																		
Humanities																		

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP7. Employed Recent Doctorate Recipients: Gross Annual Earnings by Primary Source of Funding during Completion of Doctorate (optional table)
(Thousand of national currency)

Year of reference:

Primary source of funding	Employed as researcher		Employed but not as researcher		All Employed	
	Average	Median	Average	Median	Average	Median
TOTAL (all sources of funding)						
Fellowship, scholarship, grant from an institution in the country						
Fellowship, scholarship, grant from abroad						
Teaching and/or research assistantship						
Other occupation						
Employer's reimbursement/assistance						
Loan, personal savings, spouse's, partner's or family support						
Other sources of funding						
Unknown source of funding						
Total number of respondents						

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table EMP8. Employed Doctorate Holders: Job Mobility over the last 10 years by Sector of Employment
(Number of persons)

Year of reference:

	Employed as researcher					Employed but not as researcher					Total Employed							
	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	Total	Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector	Total	Business enterprise sector	Government sector	Higher education sector	Other education sector	Private non-profit sector	Total	
TOTAL EMPLOYED																		
<i>of which:</i>																		
Total not having changed jobs in the last 10 years																		
Total having changed jobs in the last 10 years																		
Previous employment sector: <i>(for those doctorate holders having changed jobs in the last 10 years)</i>																		
<i>in the:</i>																		
Business enterprise sector																		
Government sector																		
Higher education sector																		
Other education sector																		
Private non-profit sector																		

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table PERC1.1. Employed Doctorate Holders: Perception regarding their Job Qualification by Sex and Year of Doctoral Award
(Number of persons)

Year of reference:

Year of Doctorate award	Job relation to the doctoral degree									All types of job		
	Related			Partly related			Not related			Men	Women	Total
	Men	Women	Total	Men	Women	Total	Men	Women	Total			
TOTAL EMPLOYED (all years)												
Total years before 1990												
Total years from 1990												
1990												
1991												
1992												
1993												
1994												
1995												
1996												
1997												
1998												
1999												
2000												
2001												
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table PERC1.2. Employed Doctorate Holders: Perception regarding their Job Qualification by Sex and Field of Doctoral Degree
(Number of persons)

Year of reference:

Field of Doctorate degree	Job relation to the doctoral degree									All types of jobs		
	Related			Partly related			Not related			Men	Women	Total
	Men	Women	Total	Men	Women	Total	Men	Women	Total			
TOTAL EMPLOYED (all fields)												
Natural sciences												
Engineering and technology												
Medical sciences												
Agricultural sciences												
Social sciences												
Humanities												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table PERC2.1. Employed Doctorate Holders: Satisfaction with their Employment Situation by Sex and Criteria of Satisfaction
(Number of persons)

Year of reference:

	Very satisfied			Somewhat satisfied			Somewhat dissatisfied			Very dissatisfied		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
TOTAL EMPLOYED (All criteria/overall level of satisfaction)												
Salary												
Benefits												
Job security												
Location												
Working conditions												
Opportunities for advancement												
Intellectual challenge												
Level of responsibility												
Degree of independence												
Contribution to society												
Social status												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

EMPLOYMENT SITUATIONS AND PERCEPTIONS

Table PERC2.2. Employed Doctorate Holders: Satisfaction with their Employment Situation by Research Status and Criteria of Satisfaction
(Number of persons)

Year of reference:

	Very satisfied			Somewhat satisfied			Somewhat dissatisfied			Very dissatisfied		
	Employed as researcher	Employed but not as researcher	Total	Employed as researcher	Employed but not as researcher	Total	Employed as researcher	Employed but not as researcher	Total	Employed as researcher	Employed but not as researcher	Total
TOTAL EMPLOYED (All criteria/overall level of satisfaction)												
Salary												
Benefits												
Job security												
Location												
Working conditions												
Opportunities for advancement												
Intellectual challenge												
Level of responsibility												
Degree of independence												
Contribution to society												
Social status												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY

Table IMOB1. Doctorate Holders by Type of International Mobility in the Last Ten Years and Citizenship
(Number of persons)

Year of reference:

	Type of International Mobility		
	Mobile doctorate holders* (having returned to or entered in the last 10 years)	Non mobile doctorate holders (having not stayed abroad in the last 10 years)	Total doctorate holders
GRAND TOTAL (all citizenships)			
National citizens			
Foreign citizens			

*Totals of this column are reported in further details in IMOB2, IMOB3 and IMOB4.

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY: INWARD

Table IMOB2. Internationally Mobile Doctorate Holders: Previous Country of Stay in the Last Ten Years by Citizenship
(Number of persons)

Year of reference:

Previous Country of Stay of Mobile Doctorate Holders	Citizens of 0	Foreign citizens	TOTAL
Mobile Doctorate Holders having returned to or entered in the last 10 years (from IMOB1)	0	0	0
<i>Previous region of residence:</i>			
<i>Please only report data by region of residence if data by country of residence are not available</i>			
Total European Union			
Total OECD			
Total non OECD			
Total Africa			
Total America			
Total North America (Canada, Mexico, United States)			
Total Central and South America			
Total Asia			
Total Europe			
Total Oceania			
<i>Previous country of residence:</i>			
Argentina			
Austria			
Australia			
Belgium			
Bulgaria			
Canada			
China			
Croatia			
Cyprus			
Czech Republic			
Denmark			
Estonia			
Finland			
Former Yugoslav Republic of Macedonia			
France			
Germany			
Greece			
Hungary			
Iceland			
India			
Ireland			
Italy			
Japan			
Korea			
Latvia			
Lithuania			
Luxembourg			
Malaysia			
Malta			
Mexico			
Netherlands			
New Zealand			
Norway			
Poland			
Portugal			
Romania			
Russian Federation			
Slovak Republic			
Slovenia			
Spain			
Sweden			
Switzerland			
Turkey			
Uganda			
Ukraine			
United Kingdom			
United States			

Add another country*

* Please, add any other individual country for which there is a significant amount of foreign citizens in your country.

If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only.

For regional groupings that are not automatically calculated in the cells, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY: INWARD

Table IMOB3. Internationally Mobile Doctorate Holders: Reasons for Moving into the Country in the last 10 Years by Citizenship
(Number of persons)

Year of reference:

<i>Reasons for Moving</i> <i>(multiple answers possible)</i>	Citizens of 0	Foreign citizens	TOTAL
Mobile Doctorate Holders having returned to or entered in the last 10 years (from IMOB1)	0	0	0
Total number of responses			
Completion of doctorate			
End of postdoc or job contract			
Other job related or economic factors ¹			
Academic factors ²			
Family or personal reasons			
Political or other reason ³			
Unspecified reasons			

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.

2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.

3. Includes refugees, end of residence permit or visa.

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY

Table IMOB4. Internationally Mobile Doctorate Holders: Frequency and Length of Mobility by Citizenship
(Number of persons)

Year of reference:

Length of Stay Abroad	Citizens of				Foreign citizens				Total			
	Number of stays abroad in the last 10 years				Number of stays abroad in the last 10 years				Number of stays abroad in the last 10 years			
	1 stay	2 to 4 stays	5 and more stays	Total	1 stay	2 to 4 stays	5 and more stays	Total	1 stay	2 to 4 stays	5 and more stays	Total
Mobile Doctorate Holders having returned to or entered in the last 10 years												
Cumulative length of stay abroad in the last 10 years:												
Less than 1 year												
1 to less than 2 years												
2 to less than 5 years												
5 to less than 10 years												

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY: OUTWARD

Table OMOB1. Mobility Intentions in the Next Year by Country of Intended Destination (optional table)
(Number of persons)

Year of reference:			
GRAND TOTAL	Citizens of 0	Foreign citizens	Total
of which:			
No intention to move out of			
Intention to move out of			
Intended region of destination:			
<i>Please report data by region of destination if data by country of destination are not available</i>			
Total European Union			
Total OECD			
Total non OECD			
Total Africa			
Total America			
Total North America (Canada, Mexico, United States)			
Total Central and South America			
Total Asia			
Total Europe			
Total Oceania			
Intended country of destination:			
Argentina			
Austria			
Australia			
Belgium			
Bulgaria			
Canada			
China			
Croatia			
Cyprus			
Czech Republic			
Denmark			
Estonia			
Finland			
Former Yugoslav Republic of Macedonia			
France			
Germany			
Greece			
Hungary			
Iceland			
India			
Ireland			
Italy			
Japan			
Korea			
Latvia			
Lithuania			
Luxembourg			
Malaysia			
Malta			
Mexico			
Netherlands			
New Zealand			
Norway			
Poland			
Portugal			
Romania			
Russian Federation			
Slovak Republic			
Slovenia			
Spain			
Sweden			
Switzerland			
Turkey			
Uganda			
Ukraine			
United Kingdom			
United States			

Add another country*

* Please add any other individual country for which there is a significant amount of foreign citizens in your country.

If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only.

For regional groupings that are not automatically calculated in the cells, please refer to <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):

INTERNATIONAL MOBILITY: OUTWARD

Table OMOB2. Reasons for Mobility Intentions in the Next Year (optional table)
(Number of persons)

Year of reference:

	Citizens of 0	Foreign citizens	Total
<i>(Multiple answers possible)</i>			
Doctorate Holders with intention to move out of the country in the next year (from OMOB1)	0	0	0
Total number of responses			
Completion of doctorate			
End of postdoc or job contract			
Other job related or economic factors ¹			
Academic factors ²			
Family or personal reasons			
Political or other reason ³			

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job;

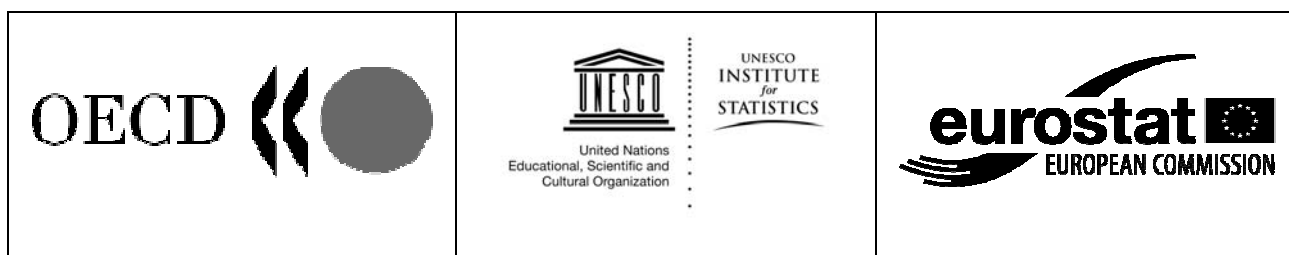
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.

3. Includes refugees, end of residence permit or visa.

Notes:

Source(s) of data:

Variables of the model questionnaire used (if relevant):



INDICATORS ON CAREERS OF DOCTORATE HOLDERS

VARIABLES IN PROPOSED OUTPUT TABULATIONS – DEFINITIONS AND SOURCES

Variable	Table No.	Definition	International definition Sources
Advanced research qualification	<p>All tables</p> <p>(Please note that for convenience, the term "doctoral" or "doctorate" is used in the output tables and is understood as pertaining to an advanced research qualification/ISCED 6 degree)</p>	<p>LEVEL 6 - SECOND STAGE OF TERTIARY EDUCATION (LEADING TO AN ADVANCED RESEARCH QUALIFICATION)</p> <p>Principal characteristics</p> <p>This level is reserved for tertiary programmes which lead to the award of an advanced research qualification. The programmes are therefore devoted to advanced study and original research and are not based on course-work only.</p> <p>Classification criteria</p> <p>For the definition of this level, the following criteria are relevant:</p> <p>Main criterion</p> <p>It typically requires the submission of a thesis or dissertation of publishable quality which is the product of original research and represents a significant contribution to knowledge.</p> <p>Subsidiary criterion</p> <p>It prepares graduates for faculty posts in institutions offering ISCED 5A programmes, as well as research posts in government, industry, etc.</p> <p>Includes also:</p> <p>The part concentrating on advanced research in those countries where students beginning tertiary education enrol directly for an advanced research programme.</p>	UNESCO International Standard Classification of Education 1997

Variable	Table No.	Definition	International definition Sources
Recent doctorate recipient	ED4, EMP3, EMP7	A recent doctorate recipient is a person who received his/her advanced research qualification at any time between January 200X-1 and December 200X, where 1 December 200X is the reference date for the survey.	(NSF Survey of Doctorate Recipients)
Age	P1, P4, P7, EMP2.2	<p>The target population does not include doctorate holders above 70 years old. Age classes are defined as follow:</p> <ul style="list-style-type: none"> • Less than 35 years old • 35-44 years old • 45-54 years old • 55-64 years old • 65 -69 years old 	Adapted from United Nations Provisional Guidelines on Standard International Age Classifications (UN, 1982) and <i>Frascati Manual</i> (OECD).
Citizenship status	P2.1, P2.2, P3, P4, P5, ED1, EMP2.3, IMOB1, IMOB2, IMOB3, IMOB4, OMOB1, OMOB2	<p>Citizenship is defined as the particular legal bond between an individual and his/her State, acquired by birth or naturalisation, whether by declaration, option, marriage or other means according to the national legislation.</p> <p>A citizen is therefore a person with the legal nationality of a country.</p> <p>In case of dual or multiple citizenships, the person should be counted only once and reported as citizen if he holds the nationality of the reporting country and as non-citizen in any other case.</p>	Recommendations for the 2000 censuses of population and housing in the ECE region and United Nation Recommendations on International Migration

Variable	Table No.	Definition	International definition Sources
Resident status	P2.1, P2.2, P4, P5, P7, ED1, ED2, EMP2.3	<p>Country of permanent or usual residence is the country where the person usually resides; this may be the same as, or different from, the place where he/she actually is at the time of the survey; or it may be his/her legal residence.</p> <p>Permanent or usual residence in the reporting country or in other countries should be counted according to the national legislations and no attempt is made to harmonise. Legislation concerning residence can vary widely between countries and countries are asked to complete the tables in the way they can apply the concept of "permanent or usual residence". In practice, distinguishing between "permanent resident" and "non-permanent resident" can be done in a number of ways, for example according to whether the person holds a visa or permit.</p>	<p>Recommendations for the 2000 censuses of population and housing in the ECE region and</p> <p>UOE data collection on education systems 2005 manual</p>
Country of citizenship / birth / residence / doctorate award / prior education / ...	P3, P6, IMOB2, OMOB1	<p>Individual countries (please see list).</p> <p>If this poses confidentiality problems, please assign problem observations or cells to one of the requested aggregate groupings.</p> <p>For regional groupings, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm</p>	United Nations Statistics Division Standard Country or Area Codes for Statistical Use
Time to completion of doctorate	ED4	<p>Gross time to completion = number of months elapsed between the start of the advanced research qualification and the award of the degree.</p> <p>Net time to completion = number of months elapsed between the start of the doctorate and the award of the degree, minus periods longer than one week taken off for any purpose other than preparing the advanced research qualification during this period of time. Note: This applies only to those research students registered as full-time students.</p>	CDH project Expert Group

Variable	Table No.	Definition	International definition Sources
Researcher	EMP5, EMP6.1, EMP6.2, EMP7, EMP8, PERC2.2	Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.	<i>Frascati Manual</i> (OECD)
Employed	EMP1 to EMP8, PERC1.1 to PERC2.2	<p>The employed comprise all persons above a specified age who during a specified brief period, either one week or one day, were in the following categories:</p> <ul style="list-style-type: none"> - at work: persons who during the reference period performed some work for a wage or salary, or persons who during the reference period performed some work for profit or family gain, in cash or in kind; - with a job but not at work: persons who, having already worked in their present job, were temporarily not at work during the reference period and had a formal attachment to their job. This formal attachment should be determined in the light of national circumstances, according to one or more of the following criteria: the continued receipt of wage or salary; an assurance of return to work following the end of the contingency, or an agreement as to the date of return; the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs; - with an enterprise but not at work: persons with an enterprise, which may be a business enterprise, a farm or a service undertaking, who were temporarily not at work during the reference period for any specific reason. <p>For operational purposes the notion of "some work" may be interpreted as work for at least one hour.</p>	Adapted from the International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 9.

Variable	Table No.	Definition	International definition Sources
Unemployed	EMP1 to EMP3	<p>The unemployed comprise all persons above a specified age who during the reference period were:</p> <ul style="list-style-type: none"> - without work, that is, were not in paid employment or self employment during the reference period; - currently available for work, that is, were available for paid employment or self-employment during the reference period; and - seeking work, that is, had taken specific steps to seek paid employment or self-employment. <p>The specific steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc.</p>	International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 10.
Inactive	EMP1 to EMP3	<p>The "population not currently active", or, equivalently, persons not in the labour force, comprises all persons who were not employed or were unemployed and hence not currently active because of (a) attendance at educational institutions, (b) engagement in household duties, (c) retirement or old age, or (d) other reasons such as infirmity or disablement, which may be specified.</p>	International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 12.
Employee	EMP1 to EMP3	<p>An employee is a person who enters an agreement, which may be formal or informal, with an enterprise to work for the enterprise in return for remuneration in cash or in kind.</p>	System of National Accounts, 1993 Glossary, OECD.

Variable	Table No.	Definition	International definition Sources
Self-employed workers	EMP1 to EMP3	<p>Self-employed workers are persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations.</p> <p>[An unincorporated enterprise is a producer unit which is not incorporated as a legal entity separate from the owner (household, government or foreign resident); the fixed and other assets used in unincorporated enterprises do not belong to the enterprises but to their owners, the enterprises as such cannot engage in transactions with other economic units nor can they enter into contractual relationships with other units nor incur liabilities on their own behalf; in addition, their owners are personally liable, without limit, for any debts or obligations incurred in the course of production.]</p>	System of National Accounts, 1993 Glossary, OECD.
Temporary/permanent employment	EMP1 to EMP3	Temporary employment comprises work under a fixed-term contract, in contrast to permanent work where there is no end-date. Employment under temporary contracts often entails a different set of legal obligations on behalf of employers; in particular, certain aspects of employment protection legislation do not apply to temporary contracts.	OECD Economic Outlook: Sources and Methods
Full-time/part-time employment	EMP1 to EMP3	Persons usually working less than 30 hours a week are considered as part-timers.	Definition of Part-time Work for the Purpose of International Comparisons, A. Bastelaer, G. Lemaitre, P. Marianna, Labour Market and Social Policy Occasional Papers - No. 22, OECD, 1997, page 12

Variable	Table No.	Definition	International definition Sources
Gross annual earnings	EMP6 to EMP7	Gross annual earnings cover remuneration in cash and in kind paid during <200X> before any tax deductions and social-security contributions payable by wage earners and retained by the employer.	Eurostat definition (Commission Regulation (EC) No 1738/2005) derived from the UN's definition (International Recommendations for Industrial Statistics, United Nations, New York, 1983, Statistical Papers, Series M, No. 48, Rev. 1, para. 121.)
Field of doctoral degree	P5, P8, ED4, ED5, EMP2.1, EMP4 EMP5, EMP6.1, EMP6.1, PERC1.2	See tables.	New Fields Of Science classification of the <i>Frascati Manual</i> (adopted by OECD NESTI in June 2005)
Sector of employment	EMP5, EMP6.1, EMP6.2, EMP8	<p>Business enterprise sector includes:</p> <p>All firms, organisations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price.</p> <p>The private non-profit institutions mainly serving them.</p> <p>The government sector includes:</p> <p>All departments, offices and other bodies which furnish, but normally do not sell to the community, those common services, other than higher education, which cannot otherwise be conveniently and economically provided, as well as those that administer the state and the economic and social policy of the community. (Public enterprises mainly engaged in market production and sale of goods and services are included in the business enterprise sector.)</p> <p>Non-profit institutions controlled and mainly financed by government, not administered by the higher education sector.</p> <p>The higher education sector is composed of:</p> <p>All universities, colleges of technology and other institutions providing tertiary education, whatever their source of finance or legal status.</p> <p>It also includes all research institutes, experimental stations</p>	Adapted from the <i>Frascati Manual</i> (OECD)

Variable	Table No.	Definition	International definition Sources
		<p>and clinics under the direct control of or administered by or associated with higher education institutions.</p> <p>The other education sector is composed of all institutions providing pre-primary, primary or secondary education, whatever their source of finance or legal status.</p> <p>The private non-profit sector includes</p> <p>Non-market, private non-profit institutions serving households (<i>i.e.</i> the general public)</p> <p>Private individuals or households.</p> <p>The market activities of unincorporated enterprises owned by households, <i>i.e.</i> consultants undertaking projects for another unit at an economically significant price, should be included in the business enterprise sector in line with National Accounts conventions (unless the project is undertaken using staff and facilities in another sector, <i>see below</i>). Hence, the PNP sector should only include activities undertaken by non-market, unincorporated enterprises owned by households, <i>i.e.</i> individuals financed by their own resources or by "uneconomic" grants.</p> <p>Furthermore, where grants and contracts are formally awarded to individuals who are primarily employed in another sector, such as grants made directly to a university professor, unless such persons undertake the activity concerned entirely on their own time and make no use of their employing unit's staff and facilities, they should be included in the statistics of the employing unit. It therefore follows that this sector only includes activities performed by individuals exclusively on their own time and with their own facilities and at their own expense or supported by an uneconomic grant.</p>	
Occupations	EMP4	See table.	ISCO-08 (UN)

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Variable	Table No.	Definition	International definition Sources
Internationally mobile doctorate holder	IMOB1 to IMOB4	A doctorate holder who, since the award of his/her advanced research qualification, has moved to a country other than that of his or her usual residence for a period of at least 3 months, except in cases where the movement to that country was for purposes of recreation, holiday, visits to friends and relatives, medical treatment or religious pilgrimage.	Adapted from the Recommendations on Statistics of International Migration, Revision 1 (UN, 1998)