

## **Euro-Ages**

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# **European Accredited Geological Study Programs Project**

## **SUMMARY REPORT**

A SUMMARY OF THE SURVEY ON  
HIGHER EDUCATION INSTITUTIONS,  
QUALITY INSURANCE AND ACCREDITATION AGENCIES,  
AND PROFESSIONAL BODIES

## **EXECUTIVE SUMMARY**

In most European countries the establishment of education in accordance with the Bologna process is well advanced. Most geology degree courses have switched to the three cycle style of courses and the first students are now undergoing this training. The first graduates under this system will be graduating in 2010.

The cycles of education being delivered are in accord with Bologna with three levels, namely Bachelor (normally 3 years), Master (1-2 years) and PhD doctorate (3 years). All degrees have a fixed number of credits with a full year of study comprising 60 ECTS. The required number of ECTS for a Bachelor degree is normally 180 and the number of ECTS for at Master level varies between 120 and 240.

The number of universities offering geology degree courses varies widely from country to country. The number of places available is usually higher than the intake of students each year. The number of graduates per year is markedly lower than the number of freshmen, and a partial explanation of the fall out rate is provided by students switching between courses.

There is generally no national definition of learning outcomes, but the information provided in this survey indicates that the teaching provides a similar range and coverage of outcomes from one country to another.

Accreditation of course materials is carried out by a variety of agencies including internally in the university, external quality agencies, the relevant government ministry and the national professional body.

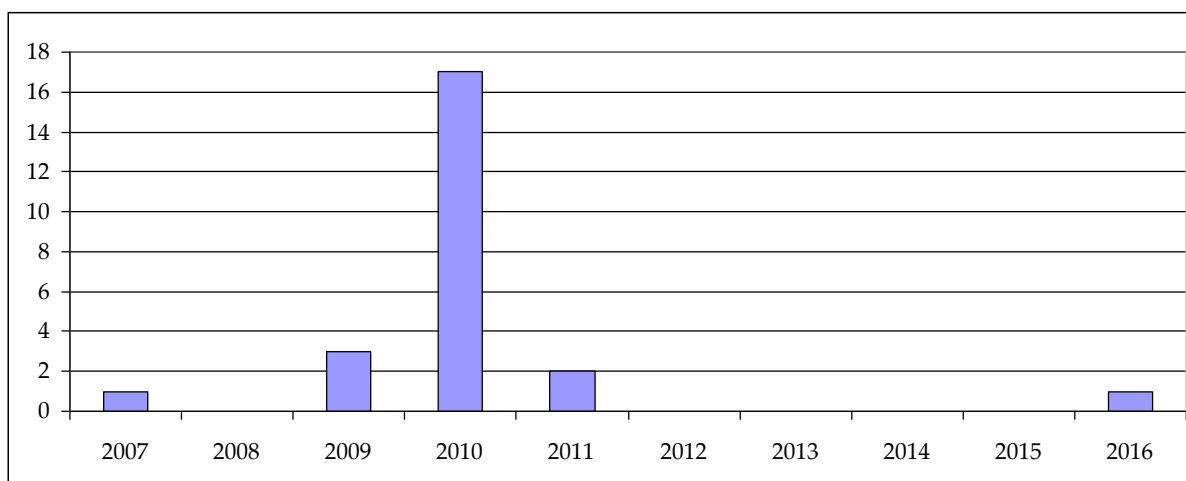
Incomplete information has been provided on employment of graduates, but it appears that the countries with the larger number of students achieve lower employment in geology than the smaller countries.

## 1 IMPLEMENTATION OF THE BOLOGNA PROCESS

The implementation of the Bologna agreement in tertiary education is now being achieved. At national level this has resulted in the consolidation of the number of Higher Education Institutes (HEI) and in the number of courses taught. The amount of change to the existing education framework has varied from minimal in countries such as UK, to very substantial in countries such as Germany and Italy.

A large majority of courses currently being taught to students are in accord with the 3 year BSc and 2 year MSc structure but the first graduates from this revised structure do not complete their studies until 2010 as shown in Figure 1.

Figure 1 Dates of graduation under Bologna courses by number of countries

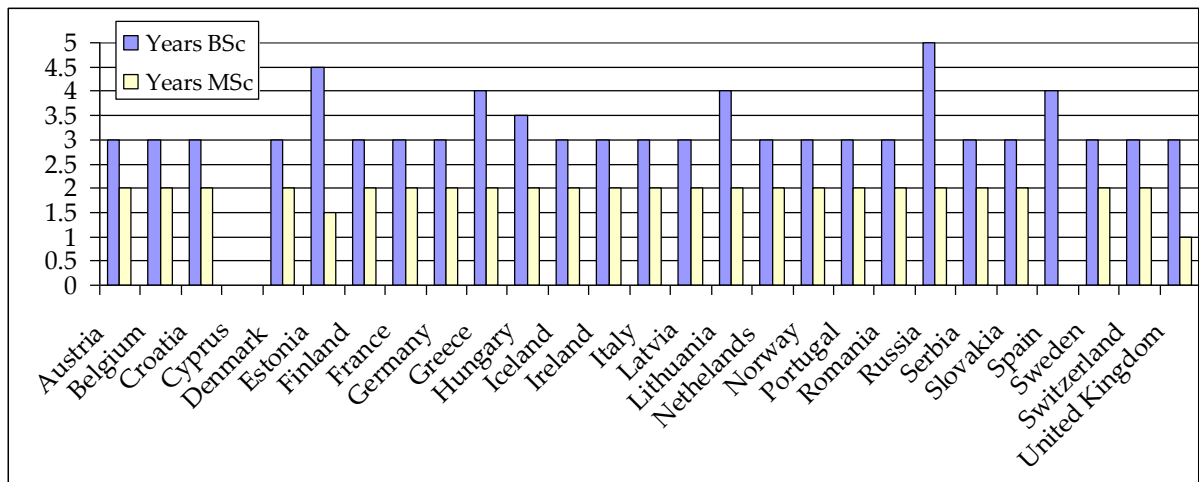


## 2 EDUCATION IN GEOLOGY

### 2.1. The structure of education in Geology

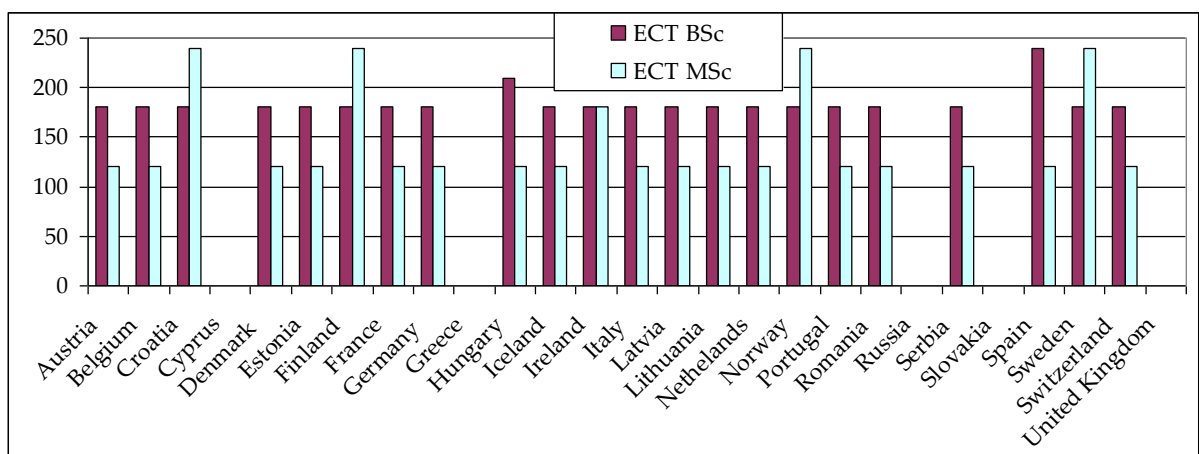
The implementation of the Bologna agreement has resulted in most countries now offering three cycles of tertiary education. The first cycle of BSc education is generally now of three years duration, although in some countries longer courses still operate. The length of second cycle MSc courses is mostly two years, but remains at one year in some countries. There is also then the third cycle of PhD education which is also generally of three years duration, but this is not covered further in this report. These course durations are shown by country in Figure 2.

Figure 2 Duration of first and second cycle courses



The content of courses is more accurately and transparently measured by the credit scheme (ECT). It is generally accepted that a year of study equates to 60 ECTS and thus to graduate at BSc level, the student needs to have collected 180 ECTS. The number of ECTS required for award of an MSc varies between 180 and 240, numbers which are not consistent with the above indication of 60 per year. The requirement for award of a degree is shown by country in Figure 3. It also notable that there is not universal agreement on the number of hours work that make up a single credit: in 94% of countries this figure is 30 hours, but in the remaining 16% the requirement is 25 hours.

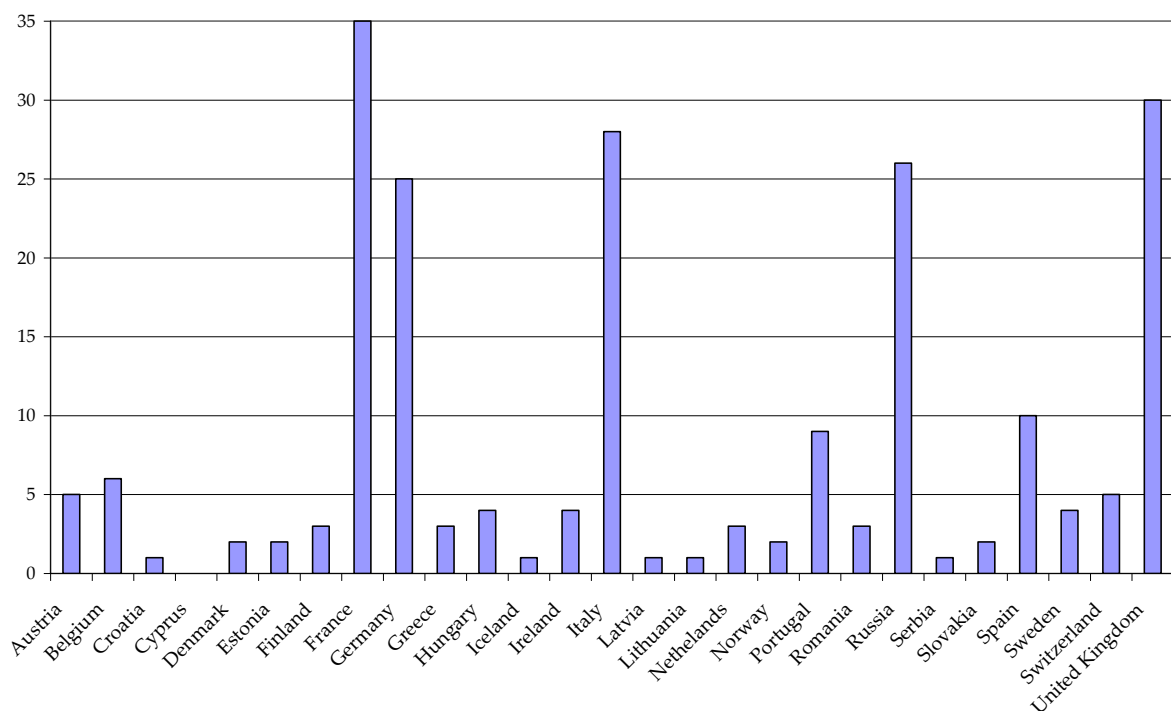
Figure 3 Credits required for first and second cycle degrees



## 2.2. Universities offering geological Programs in the Country

The number of education institutions has generally reduced as a result of implementation of the Bologna agreement, although this may have been a reason for review due to other reasons in any case. For instance, in Denmark, the number of HEI has reduced from 12 to 8, but there is a view that this has contributed to a strengthening of teaching and research activities. The number of universities offering geology courses is shown in Figure 4.

Figure 4 Number of universities teaching geology



## 2.3. Number of freshman students and graduates in the country

The number of freshmen taken onto BSc geology courses varies widely as might be expected. The number of freshmen is generally lower than the number of places to study geology that are theoretically available nationally. The rate of fall out from geology courses varies widely, with proportions up to 50%, although generally lower. The number of places on MSc course is lower and the fall out rate is also lower. The numbers of freshmen and graduates on BSc and MSc courses is shown in Figure 5.

Figure 5a Numbers of freshmen and graduates (full scale)

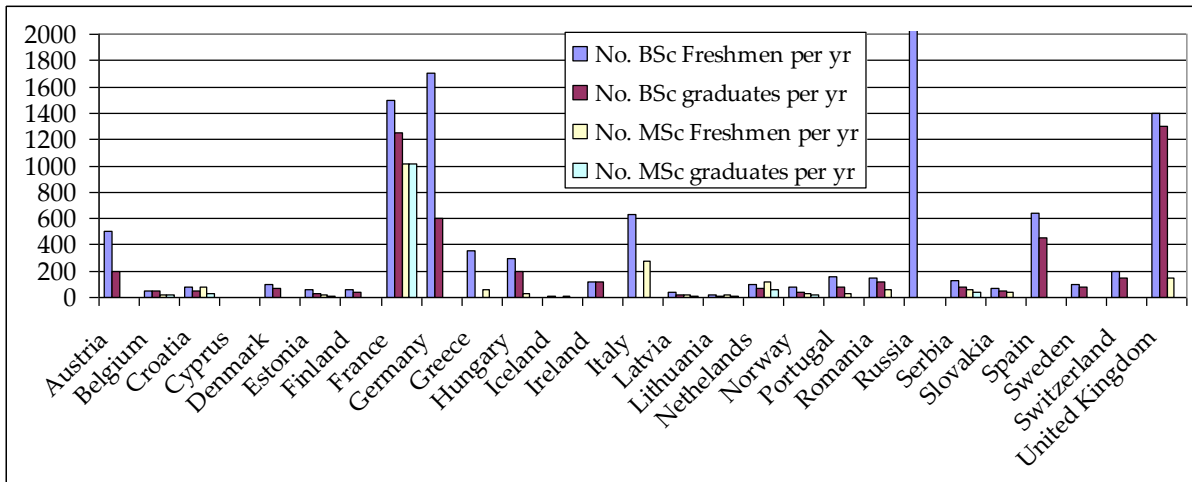
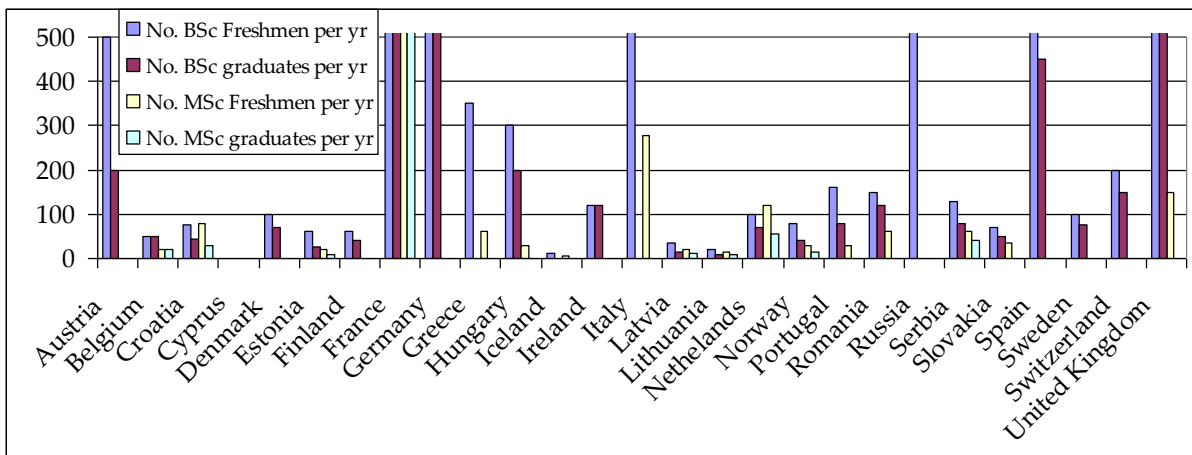


Figure 5b Numbers of freshmen and graduates (expanded scale)



### **3 LEARNING OUTCOMES**

The learning outcomes that are the usual requirement for geology teaching have been identified as part of the EuroAges project. The principles and skills that a graduate of geology from a European university should be able to demonstrate are given in the developed set of learning outcomes.

The questionnaire circulated to countries within this project provided a varying response in terms of the level of detail provided on the learning outcomes in their country. A review of the responses provided indicates that there is commonality as to the learning outcomes that first and second cycle courses are aiming to achieve in each country.

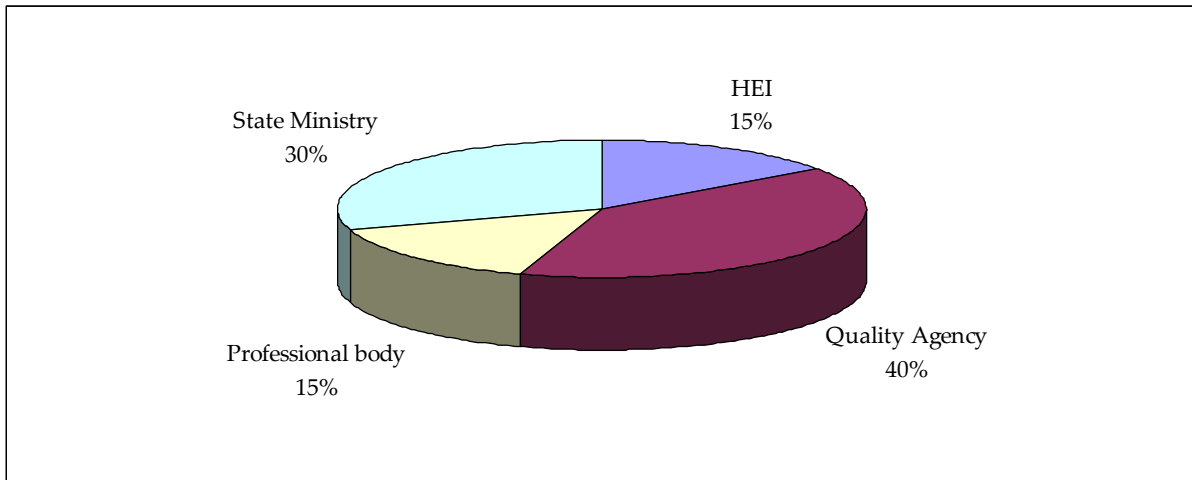
### **4 PROFESSIONAL PRE-REQUISITES**

It is generally the situation across Europe that the requisite knowledge and skills are set by the course developers within the universities rather than by the institutions that represent the profession in post graduate practice. There is however likely to be an implicit linkage in that the course designers and providers are themselves practising professionals and will be aware of the requirements of professional practice and incorporate these matters into their teaching programmes. This linkage is most apparent in Finland in connection with the strong mining influence, in Italy and Spain where the profession is regulated by law, and in UK where degree courses are accredited by the professional body (Geological Society).

### **5 ACCREDITATION SYSTEMS**

Most countries offer some form of accreditation of their degree programmes. The level of accreditation varies from internal within the university, to review by the government education ministry to national quality agencies. In addition, the accreditation is provided by the relevant professional institution in Italy and UK. The distribution of use of the various routes to accreditation is shown in Figure 6.

Figure 6 Routes to course accreditation



## 6 CONCLUSIONS

The learning outcomes provided from the experience and the education programmes given by respondent countries are mirrored by those within the December 2009 document which represents a large majority of the member organizations of the European Federation of Geologists. The learning requirements contained within this survey and responses fall within the criteria established for the European Geologist title. It is too early to be able to make any comment on the skills absorbed by the students as in the majority of member states the first Bologna students will graduate in 2010. At this stage it is encouraging that the teaching programmes and the learning outcomes are becoming more consistent across the EFG members and meet the requirements of the EurGeol title administered by EFG. The proposed European outcome descriptors for the EQF's levels 7 ("Bachelor/1st cycle") and 8 ("Master/2nd cycle") will in the future serve as a reference framework for a refinement of the professional register of Euro Geologists entertained by the European Federation of Geologists.