

Geological higher education in Serbia

Between demand and capability

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Serbia is a relatively small country located at the crossroads between central and south-eastern Europe. The country experienced severe political and scientific isolation during the 1990s entering into a turbulent transition after October 2000. In 2005 Serbia adopted a new Law on Higher Education to enable the reforms in line with the Bologna Process but there is a line of evidence suggesting that the implementation is not progressing smoothly. Higher education in the earth sciences is also facing many difficulties and some of them are given here.

The only institution in Serbia in charge of higher education in geology is the Faculty of Mining and Geology. Although formally belonging to the University of Belgrade (the Faculty's official name is 'University of Belgrade, Faculty of Mining and Geology' - hereafter UB-FMG), it is a single legal entity as are most state faculties in Serbia. The UB-FMG consists of two Divisions: one for Mining and one for Geology, each enrolling around 120 students per year. At present, the whole Faculty has around 1000 active students and about 125 teaching staff. The Geology Division encompasses all geological disciplines, which are distributed throughout eight Departments: Regional Geology, Palaeontology, Mineralogy and Crystallography, Petrology and Geochemistry, Economic Geology, Hydrogeology, Geotechnics and Geophysics.

In spring 2007 the Faculty completed the first stage of the Bologna Process and was successfully accredited by the Serbian Ministry of Education. In some respect, the 'Bologna story' helped very much because it was more than a blind re-organization

La Serbie est un pays de taille relativement petite, au carrefour de l'Europe centrale et du Sud-Est. Le pays a traversé une période d'isolement sévère du point de vue politique et scientifique dans les années 1990, entrant dans une phase de transition tumultueuse après octobre 2000. En 2005, la Serbie a adopté une nouvelle loi concernant l'Enseignement Supérieur pour pouvoir mettre les réformes en phase avec le Processus de Bologne mais il est clair que cette mise en œuvre n'avance pas de façon régulière. L'enseignement supérieur en Sciences de la Terre rencontre beaucoup de difficultés dont certaines sont explicitées ici.

of curricula following simple rules. It was a milestone at which we had to observe ourselves through a prism of European standards and to think seriously about how to continue further. However, as Musselin (2005) pointed out, change in higher education is more about layering the new on top of the old than about substituting the old with the new. Therefore, it is not surprising that many goals of the Bologna Agreement still need to be achieved. Higher education in geology suffers some general problems that are common for other sciences and for other state higher education institutions in Serbia. Some difficulties, on the other hand, are typical for geological education in Serbia, because they are related to the history of geological schools in Serbia and to the internal structure of the Faculty of Mining and Geology.

The most important general problem is related to the fact that the decision to join the Bologna agreement was not followed by a change of the system of financing higher education in Serbia. This means that the system remained to be entirely controlled by the input criteria, which has important implications given that the state faculties are legal entities. Albeit the faculties have full financial independence, they are left on their own. For instance,

Serbia es un país relativamente pequeño situado entre la Europa central y la Europa sur-este. El país ha experimentado un aislamiento político y científico en los 90 y pasó por una transición turbulenta tras octubre 2000. En el año 2005 Serbia aprobó la nueva Ley de Educación Superior para permitir las reformas del proceso de Bolonia, pero hay una serie de evidencias que sugieren que la implementación no progresa adecuadamente. La educación superior en las ciencias de la Tierra también se enfrenta a muchas dificultades, algunas de las cuales se incluyen a continuación.

if the number of students substantially decreases, this inevitably causes a proportional decrease of financial contribution from the State. This is exactly the present situation with the UB-FMG: a continuous loss of annually enrolled students causing gradually poorer financing from the Ministry. Indeed, this is valid for most technical and natural science faculties of the University of Belgrade. They are all going to share the same destiny until something happens either with the system of financing higher education or with the structure of Belgrade University. Naturally, the UB-FMG may try to attract more students and that is what we desperately do. However, this is not by definition a perfect idea because the attempt to have more students usually leads to erosion of studying criteria. On the other hand, the number of c. 120 students that are presently being enrolled at the UB-FMG is roughly balanced by the recent needs in Serbia. Hence, do we need a common-sense number of better educated geologists and geological engineers or many more of them who will be more poorly educated? The first should belong to the priorities of higher education in Serbia but the second may easily be important for the UB-FMG employees who claim their salaries.

Apart from this labyrinth that can be

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solved only by a 'New Deal' in higher education in Serbia, there are some problems which are typical for geological education. Geology has a long tradition in higher education in Serbia dating back to 1880. Ever since that time the structure of geological education underwent many changes. The last one occurred in the mid-60s when the decision makers decided to attach natural science-oriented geological departments to the Faculty of Mining and Geology. From that moment onwards, these departments never felt at home at the UB-FMG which became a single institution in Serbia for teaching and research in all branches of geology. What is strange in having natural science and applied geological disciplines (along with mining) together? Nothing, except that they are together in the single geological school in the country! So that, if the predominating engineers of the UB-FMG decide to close some apparently unattractive departments

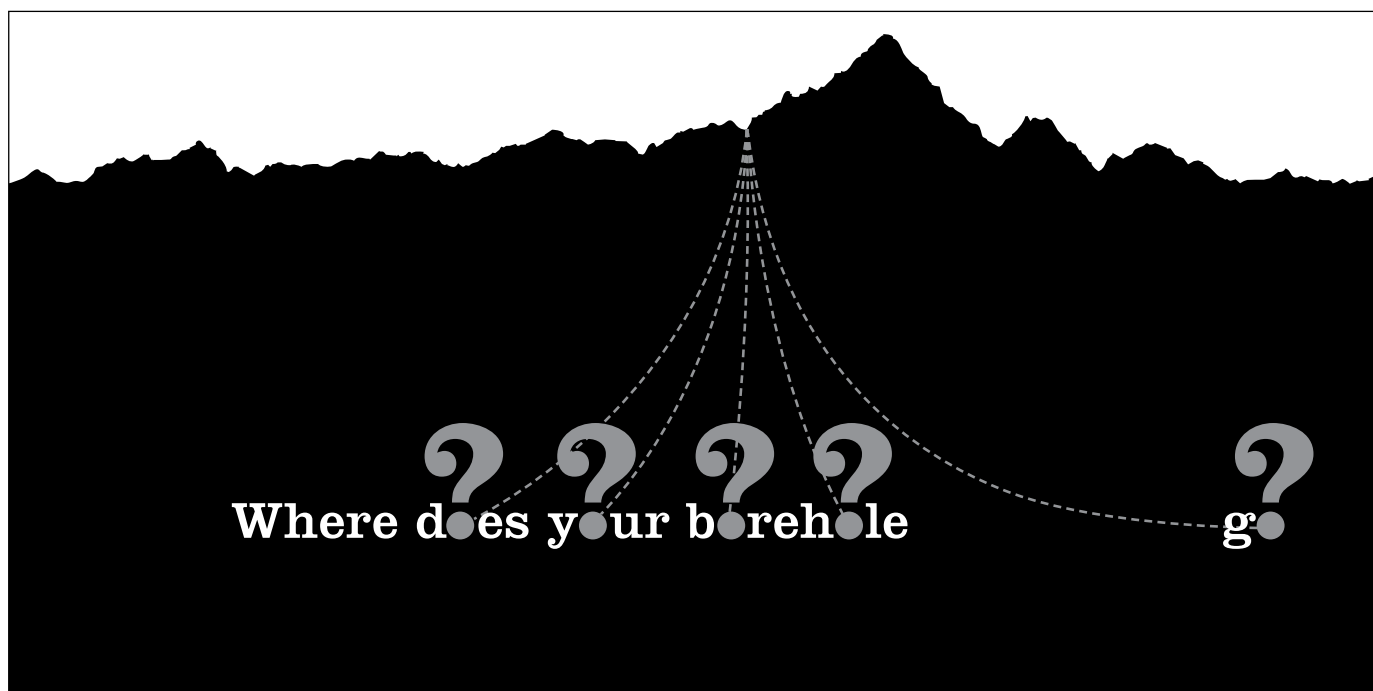
which continuously lack students and have low potential of attracting extra funds - and that, indeed, from a pure (and blind) management point of view might be a rational idea - this would practically signify the end of the given geological discipline in Serbia. One can decide to shut down the chair in petrology or palaeontology at the University of Salzburg (in order to prioritize something else) because there are other Austrian Universities with good petrologists or palaeontologists. However, if it is done in Belgrade then these disciplines will die out in Serbia completely. The fact that geological departments are not only providing the study programmes but they are also a sort of oasis of particular scientific disciplines is almost unique. This situation induces many difficulties in the UB-FMG organization including those in successfully applying the Bologna Agreement.

These are circumstances under which Earth scientists are being taught in Serbia.

In spite of the mentioned difficulties, we are continuously improving our education process and trying to bring Earth science to everyone. Our best students have long been recognized as of good quality and to have no problems obtaining Ph.D. or post-Doc positions worldwide - from UBC in Vancouver to Macquarie University in Sydney. Now we want our average students to be better because they will be among the very significant players in building a sustainable society in Serbia.

Reference

Musselin, C. 2005. Change or Continuity in Higher Education Governance? Lessons Drawn from Twenty Years of National Reforms in European Countries. In: Bleiklie, I., Henkel, M. (eds). *Governing Knowledge*, 65-79. Springer.



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