FÉDÉRATION EUROPÉENNE DES GÉOLOGUES
EUROPEAN FEDERATION OF GEOLOGISTS
FEDERACIÓN EUROPEA DE GEÓLOGOS

Mr José Ignacio Wert Ortega
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Please reply to:
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Our ref: School education in Spain.docx

Dear Sir

Template for EFG letters from the President

I write with a representation from the European Federation of Geologists in support of the position of our member association *Ilustre Colegio Oficial de Geólogos*, which is articulated in the attached briefing paper which we have received.

The European Federation of Geologists (www.eurogeologists.eu) is a non-governmental organization that was established in 1981 and today comprises 21 national association members, including ICOG which was one of the founding members. EFG is a professional organisation whose main aims are to contribute to a safer and more sustainable use of the natural environment, to protect and inform the public and to promote a more responsible exploitation of natural resources. The guidelines to achieve these aims are the promotion of excellence in the application of geology and the creation of public awareness of the importance of geoscience for society.

Most professional geoscientists are inspired to take this path at school, where they receive the basic scientific building blocks that introduce the earth and the resources it provides as well as appreciation of natural and man-induced hazards (e.g. landslides, volcanic eruptions, earthquakes, subsidence etc) and the ways in which they are avoided and mitigated; we are alarmed to hear that the effect of the bill that the Government of Spain has recently approved (11/10/2012) and is now being processed in the Parliament of Spain[1] will be to completely remove the subjects that provide this essential early foundation, either at the introductory level or as a route of scientific study for more advanced students.

Early education in earth sciences, even for children who will not follow this career path is an essential good for society at large – creating informed citizens who have grown up understanding how we depend on earth materials, with strong notions of sustainable interaction with the natural environment and an understanding of natural hazards and their avoidance. As ICOG's briefing paper points out, a citizen who is informed about the Earth will be a safer and healthier citizen.

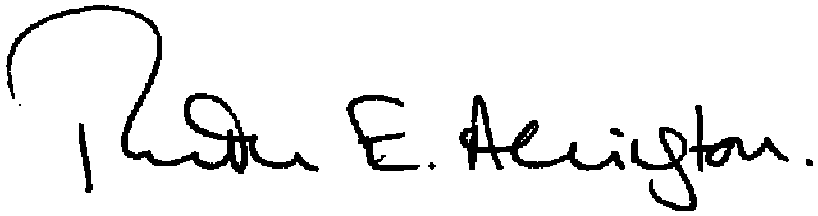
We hereby express our support for ICOG's suggestions in relation to the new law:

1. In the High School sciences route there should be a specific period of study on geology.
2. All High School students should study biology and geology in the first course, regardless of the route selected.

[1] titled "*Organic Bill to Improve the Quality of the Education* (LOMCE)"

3. Among the common subjects to all High school studies there should be at least one with scientific content.

Yours sincerely



Ruth Allington
President, European Federation of Geologists

BRIEFING PAPER ATTACHED TO LETTER DATED 17TH OCTOBER 2012 TO MR JOSÉ IGNACIO WERT ORTEGA

This briefing paper provides information on the content of the bill that the Government of Spain has recently approved (11/10/2012) and is now being processed in the Parliament of Spain titled "*Organic Bill to Improve the Quality of the Education* (LOMCE)".

Such piece of legislation is, in our view, extremely dangerous for the future education of the subject of geology in Spain, and thus for the general Earth Sciences knowledge of Spanish citizens and eventually for the future of geology and related subjects as professions in Spain.

In the **Compulsory Secondary Education** (ESO) courses, the proposal suppresses Biology and Geology in the 2nd course and students would only study Physics and Chemistry.

What is even worse, is that in the High School Plan (*Bachillerato*), among all the common subjects (8 or 10 in the Autonomic Communities with a different official language other than Spanish), **there is not a single subject with scientific content** .

Today Spanish High School students have **one subject** (*Sciences for a Contemporary World*) with 2-3 hours per week, **but such single subject has been suppressed in the new law**. Such changes send Spain back one decade on the advances that represented accepting a **basic scientific cultural content** in all high school students in Spain. It is a direction that is out of step with other nations, which have appreciated the need to replace geological professionals who are close to retirement for the sake of competitiveness in a global economy, public safety, and stewardship of the natural environment.

The new High School sciences path in the new law has only two routes: *Science and Engineering* and *Heath Sciences*. Such structure is extremely inadequate and will lead to serious problems, as it assumes that such a specific line as Health Sciences will drive all students interested in other scientific themes (Earth Sciences, Geology, Environmental sciences, biology in non health related matters, physics and chemistry among others) to the other route. But that route has a design of subjects exclusively aimed at engineering (although not even all engineering sciences are represented). Thus the subjects specified for the Science and Engineering route are: 1st Course: Mathematics, Physics, Chemistry and technical drawing and 2nd course: Mathematics II, Physics and technical Drawing II, whilst those for Health Sciences are: 1st Course: Mathematics, Physics, Chemistry and Biology & Geology, and 2nd course: Mathematics II, Chemistry and Biology. No geology or earth sciences subject has been included.

Such a distribution of subjects will bring severe consequences and dysfunction:

1st. A Spanish student will be able to end High School using the Sciences route without having studied any single subject of Geology and Biology

2nd. No Spanish High School student will be able to study a specific geological subject simply because it will not exist. Although this is also the case in the current plan, it remains clear that the new legislation will repeat mistakes from previous norms and enhances such errors.

3rd. A student desiring to study geological engineering, mining engineering or civil engineering in the University, will join the University with the scarce geological knowledge left from those acquired in the Compulsory Secondary Education (ESO).

Other dysfunctions are that a student interested in studying Geology or Environmental Sciences will inevitably choose the Health Sciences route.

It will be much more logical that, alongside a Health Sciences route, the new system could include a **Life and Earth Sciences route**.

It is recognized worldwide that nearly everything people do in their everyday lives is connected in some way to the Earth. The water we need, the food we eat, the making of our homes and offices, the energy we use, and the air we breathe are all grown in, taken from, surround, or move through the planet. Geology is the basic science that guides the knowledge about the Earth, and all citizens should know about the place where they live. This is even more clear in Spain where we have recently seen the multiple geological hazards (floods, landslides, earthquakes, volcanic eruptions, etc) to which many Spanish citizens are exposed, or the mineral resources extracted and used in Spain or the effects of the climatic change now observed in Spain. A well informed citizen is a safer and healthier citizen, and the education received in Secondary and High School levels is crucial for the development of a knowledge base in earth sciences that will then be used by our citizens throughout their lives. By 2025, more than 50 million people will live in Spain. If Spain will continue extracting resources to maintain a high quality of life, then Spanish citizens need to know more about the

planet — its processes, its resources, and its environment. **And only through Earth science education can students understand and appreciate our complex planet**.

In order **to defend the studies of geology** and enhance Earth sciences literacy in High Schools in Spain, and following the recommendations already made by in the USA by the American Geological Institute endorsed by several American science institutions[2] it is suggested that in the new Law in Spain :

1. **In the High School sciences route there should be a specific subject on geology.**
2. **All High School students should have a subject on biology and geology in the first course, regardless of the route selected.**
3. **Among the common subjects to all High school studies there should be at least one with scientific content.**

[2] , stating that "*… the future lies in the hands of students, parents, grandparents, teachers, school administrators, school board officials, and politicians at all levels of government. The future of Earth science literacy — indeed, the future itself — lies in your hands*"