

The European Federation Of Geologists

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THE EUROPEAN FEDERATION OF GEOLOGISTS



Founded in 1981 in the European capital of Brussels, the European Federation of Geologists (EFG) is a non-governmental organization that represents over 50,000 geoscientists from 25 countries. EFG's primary aims are to work toward the safe and sustainable use of the natural environment, to protect and inform the public and to promote the responsible exploitation of natural resources. These aims are achieved through promoting excellence in the application of geology and by creating public awareness of the importance of geoscience for society. Here we speak to the president, **Vítor Correia**, who gives us an introduction to EFG, and speaks about its involvement in geology research, environmental protection, public outreach and European policy.

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To start, please briefly introduce EFG, and tell us a bit about its objectives and vision.

EFG was established in 1981 as a not-for-profit professional organisation. It has evolved from an association focused mainly on professional issues, to an organisation committed to the EU development agenda, focused on promoting excellence in the application of geology and creating of public awareness on the importance of geosciences for the society.

We believe that public safety, sustainable development, responsible use of natural resources, wealth creation and effective prediction, prevention and mitigation of natural hazards are best served by educated and appropriately trained professional geologists working transparently with other professionals and communicating effectively with the public. To these ends, EFG encourages professional development by promoting training and professional development, and offering certification through its internationally recognised title 'European Geologist' (EurGeol).

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Mention some of the ways that EFG contributes to environmental protection in Europe.

We believe effective environmental protection is fostered if we enforce professionalism in interdependent communities of researchers and practitioners, and work towards breaking down the barriers that normally exist between them. This way, geoscientists working in research can design research that is truly relevant to societal needs, while geoscientists working in industry have access to excellent underpinning research and high quality graduates, enabling them to deliver their expertise effectively. In practical terms, we emphasise the importance of sharing experience and continuing professional development among Eurogeologists, and we share best practice among the geoscientist community with the assistance of our 'Panel of Experts'. We use the communication network of all our Members (the National Associations) and give increasing importance to specialised thematic conferences as a tool to connect experts, professionals and policy makers.

Many of the environmental challenges we face today in Europe (e.g. decreasing soil fertility, fresh water demands, land use planning and the demand for energy and raw materials) call for concerted contributions from scientists, professionals and politicians. We

try to bridge these groups, and convey to policy-makers the input received from geoscientists working all over Europe in many types of institutions, from governments to NGOs, to academia and industry.

How does EFG engage with European policy makers, and what are your greatest achievements in influencing environmental policy to date?

EFG provides high quality response to the European Commission and Parliament through its established nine Panels of Experts on natural hazards, soil protection, minerals, oil and gas, hydrogeology, geothermal energy, geological heritage, education and CO2 geological storage. EFG's Panels of Experts participate in congresses, working groups and consultation meetings of the European Commission and Parliament. They also emphasise the importance of geology to society and the benefits of incorporating geological advice, and promote the importance of the geo-scientific profession in all those activities. Alongside our engagement with EU policy makers, EFG's Panels of Experts also cooperate with international organisations, such as the United Nations and the International Union of Geological Sciences. This global activity facilitates the uptake of international best practices into EU policies.

Results of the engagement of EFG's Panels of Experts in policy making have been incorporated in Directives (e.g. the Water Framework Directive or the Directive for the Protection of Soils) and in Advisory Documents (e.g. advisory documents on risk reduction and protection against natural hazards). For a more detailed view of the past achievements and current activities of EFG's Panels of Experts I invite you to visit EFG's webpage (eurogeologists.eu).

Does EFG directly fund research? In what ways does EFG support earth and environmental science research in Europe?

The contribution of EFG to research is basically delivered throughout the participation in EU funded research projects. Currently EFG participates in seven H2020 funded projects, dealing with energy and raw materials supply, land use planning and groundwater. In all of these projects EFG is active in the dissemination of project outcomes, and in some cases we also provide data on user needs and geological data at country level, obtained with the active involvement of EFG Members. This approach is not new, and EFG has a good track record of participations in EU research projects, covering Education, Natural Hazards and Geothermal energy.

Notably, EFG participated as an associated partner in ERA-MIN, an ERA-NET program on the Industrial Handling of Raw Materials for European industries, supported by the European Commission under the 7th



Framework Programme. ERA-MIN produced an extensive roadmap for raw materials research and it has launched three joint calls for projects in 2013, 2014 and 2015. The calls, covering all aspects of the non-energy raw materials value chain, have been jointly generated by up to twelve countries. The funding for these projects came from national research agencies of the countries involved, topped by EU funds. ERA-MIN provided an extraordinary example of high quality value added by transnational research projects with a focus on common issues and needs. These results justify the preparation of new ERA-MIN, and EFG is available and interested in renew its participation in it.

Tell us about one or two interesting research projects that EFG is or has been involved with, and any major achievements made.

I would like to highlight two projects, named Geotrinet and INTRAW.

Geotrinet was funded by FP7, and it ran from 2008 to 2011. It was a project about low enthalpy geothermal energy, also known as shallow geothermal. Because the shallow geothermal market was (and still is) at the introduction stage, there is a lack of appropriately skilled personnel, and the quality of design and drilling is not always satisfactory. At this stage, the critical tasks are related to training and the setting of standards, because misinformation and a failure to meet standards can cause market failure. The basic aim of Geotrinet was to create training and certification programs recognised all over Europe for professionals involved in shallow geothermal installations, and to provide benchmark standards for further developments. The official activity of the funded project ended in February 2011, but the members of the consortium decided to capitalise on the results and knowledge harnessed by Geotrinet, which became an important step towards the certification of geothermal installations. In 2014, the GEOTRAINET Association was registered in Brussels as an international not-for-profit organisation, and eleven European countries have already confirmed their participation. The structure of the GEOTRAINET Association, jointly supported by EFG and EGEC (European Geothermal Energy Council), is based on a European Education Committee, ensuring the quality standards of the geothermal training programme on an international level and managing all documents. The GEOTRAINET Association is open to more participants, and it includes national coordinators, in charge of implementing the international quality standards on a national level with respect to specific national conditions, and certified training institutes, that will deliver the training courses in each country.

The second project, still being developed, also delivers an organisation that will remain active after the end of the funding period. The name of the project is INTRAW, and its main aim is the creation of the EU International Observatory for Raw Materials as a definitive raw materials knowledge management infrastructure. INTRAW is mapping best practices in education, research industry and trade in five reference countries (Australia, Canada, Japan, South Africa and the United States) and it seeks new cooperation opportunities related to raw materials between the EU and technologically advanced countries, in response to similar global challenges. INTRAW is coordinated by EFG, and it brings together an international consortium of 15 partners with extensive experience in research, innovation, education, industry, trade and international networking across the entire raw materials value chain. The project partners are actively supported by three Panels of Experts on 'Research & Innovation', 'Education & Outreach' and 'Industry & Trade'. Through EFG's members and international counterparts from the USA, Australia, South Africa and Canada, a broad network of more than 450,000 geoscientists will leverage the activity of the EU International Observatory for Raw Materials.

Please give our readers some information about the European Geologist (EurGeol) award. What does it take to be awarded this professional title?

The European Geologist professional title can be held by any professional geologist that has achieved suitable academic training and a level of professional experience, skill and competence to perform tasks within their professional practice. EurGeol title holders undertake continuing education and training and demonstrate a personal commitment to stay up to date and informed within the sphere of their professional work.

The title is awarded by EFG, and the process of vetting applications for the title is carried out for the Federation by its Licensed Bodies. National Licensed Bodies operating in Ireland, Spain, Switzerland and the United Kingdom receive applications from their own members. Applicants from other countries apply through a National Vetting Committee in their own country to the International Licensed Body, which is supported by the EFG Brussels office. The training and experience underlying the title is harmonised, and this means that the EurGeol title can be used as a passport to professional practice in Europe, thereby encouraging free movement of professionals.

All European Geologists are required to abide by EFG's Code of Ethics. The European Geologists who provide advice to others, whether it be to clients and employers in a professional capacity, through their membership in committees or to the general public either directly or via the media, are required, under the Code of Ethics, to restrict such advice to their own areas of expertise. This is a critical question because it sets the foundations for recognition agreements that support the use of the EurGeol professional title outside Europe.

On a practical level, European Geologists with sufficient experience and relevant expertise are recognised (via the applicable code or standard) by the regulators of stock exchanges in Australia, Canada, South Africa, London and elsewhere in Europe as professionals accredited to sign reports on mineral exploration results, resources and reserves within their area of expertise. They may also contribute to the valuation of mining companies quoted on the stock exchanges where these contributions fall within their expertise and experience.

Please tell us a bit about EFG's position on public outreach and knowledge dissemination.

Much of today's geological practice affects the health, safety and welfare of the public, the environment, and the economy and feasibility of engineered works. Geologists are the experts in discovering the raw materials that underpin and sustain modern life, such as oil and gas, base and precious metal ores and construction materials. Bedrock geologists educated in structural geology and tectonics work on locating sites for the disposal of radioactive waste, both regionally and locally. Engineering geologists evaluate the natural conditions necessary for the safe construction and operation of roads, railways, high-rise buildings, industrial complexes and dams. Hydrogeologists and environmental geologists are responsible for finding and advising on the protection of water supplies, for locating sites for the safe containment of hazardous wastes, and for mitigating the impact of floods that affect much of Europe every year. Geophysicists work at understanding and developing models to predict volcanic eruptions and earthquakes.

But, despite the unique contribution of geology for society (that is present since the Stone Age) the perception the public

and policy makers have on geosciences is often biased by images from movies or memories of minerals and fossils collections. And because geological phenomena either take a long time to develop or are almost instantaneous, communication and outreach with the public and policy makers is not an easy task. Phenomena that take a long time to evolve, such as soil erosion, give the impression that there's no urgency in preventing their effects. Therefore, policies and actions to face these events are normally delayed or postponed. And phenomena that are almost instantaneous, like earthquakes, give the impression that there's nothing we can do, and mitigation or risk prevention measures are also postponed.

We understand that changing perceptions is difficult, and that's why we are giving great importance to communication with the public and policy makers. We also realise we need to communicate in an effective way, using a simplified language and providing clear, factual information. But the effectiveness of communication also depends on the level of knowledge of the audience, and that's why EFG is championing for early education on earth sciences at the basic school level in all EU countries.

In conclusion, enhanced public outreach and knowledge dissemination demands from geoscientists the use of simple, clear and effective messages, and is facilitated by investments in science and geoscience education. Combined, these aspects ensure more enlightened public participation in decision making and better informed political decisions.

Climate change and dwindling natural resources are two of the biggest challenges facing our generation, tell us about EFG's plans to address these challenges, in working towards a sustainable future.

There's no single solution or approach to the climate challenge problem. This is an issue that calls for collaborative work among different sciences and disciplines. The role of EFG, in this context, is to vouch those geoscientists working on this topic are working at a professional level, incorporating sound geoscience knowledge and application of theory, exceptional ethics, and good judgment, providing services and opinions only in the areas of geoscience in which they are competent.

Meeting the resource needs of our society and future generations is one of the greatest challenges facing global society – one in which geoscientists have a vital role to play. In the EU, the increasing emphasis on the need to secure the supply of raw materials for the EU industries has three main reasons: 1) the industrial supply chains created with globalisation began to spin with economic vulnerability and national volatility; 2) fast developing countries, like China or India, are competing with the western countries for raw materials to feed their economies; and 3) an increasing number of high-tech devices (electrical cars or smartphones) are a strong demand driver for specific elements (such as niobium, indium, tungsten or rare earths) that are obtained from mineral deposits only known in specific countries. In these circumstances the EU has defined the raw materials that have a significant economic importance for European industrial key sectors as 'critical', facing high supply risks and that can't be substituted. Within this framework, geoscientists have a crucial role in (re)evaluating the geological potential and availability of mineral deposits in European countries, and including in this evaluation secondary sources for raw materials such as old or abandoned mining sites and their remnants as well as urban mines and landfills. This evaluation is naturally framed by the requirement of creating sustainable exploitations, balancing social and environmental impacts and reinforcing public safety. But (re)evaluating Europe's geological potential and availability of mineral deposits requires best practice in exploring and in reporting, to ensure that the adequate mineral policies are based on consistent data. This subject and the related research rely fundamentally on geoscientists.



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