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Integrating Geoheritage into Environmental Impact Assessment in Spain

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As part of natural heritage, geoheritage is a natural resource that must be protected and preserved for future generations. The methodologies and policies so far developed for Environmental Impact Assessment (EIA) in Spain had traditionally not satisfactorily addressed the incorporation of geoheritage and geosites. An important advance in this sense was the publication in 2012 of the “Handbook for the integration of Geological Heritage into EIA processes”. The book was undertaken within the framework of a formal cooperation agreement between the Department (Dirección General) of Environmental Quality and Assessment (DGCEA) and the geological survey of Spain (Instituto Geológico y Minero de España, IGME) [1]. The methodology attempts to improve the sustainable use and protection of geoheritage in the planning phase of any project affected by the EIA legislation of Spain (Law 21/2013 on Environmental Assessment) and of Europe (Directive 2011/92/EU on the Assessment of the Effects of Certain Projects on the Environment, as amended by Directive 2014/52/EU). Neither the European nor the Spanish legislation explicitly mention geoheritage or geodiversity, but they both do consider impact to Special Protected Areas of the Natura 2000 network and other national protected areas.

Environmental impact includes evident anthropic connotations. Whether positive or negative, human activities, projects and development plans induce changes on geoheritage. The impact of a project on the environment is the difference between the conditions resulting from the development of the project, and the conditions of the environment if it had evolved without the project’s development. EIA allows to quantify the changes that a certain project originates on the environment, and thus helps decision-making towards proper management. These decisions include accepting, modifying or rejecting the project, as well as designing remediation and corrective actions, as well as analysing their efficiency on reducing the impact.

We have proposed a three-phase methodology to integrate geoheritage into the general EIA procedure [1]. The methodology is systematic, reproducible and based on scientific criteria. Thus, it facilitates the integration of geoheritage into EIA studies and general protocols, which are considered fundamental instruments towards the protection of the environment and its resources.

Geoheritage, similarly to any type of natural heritage, may lose value due to impact, and thus it is crucial to incorporate it into EIA studies and protocols. EIA contributes to improve the management and protection of GSI during the planning of any project subjected by law to EIA. The methodology herein proposed facilitates the integration of geoheritage into EIA studies and general protocols, which are

considered fundamental instruments towards the protection of the environment and its resources. Explicitly considering geodiversity and GSI in the revised new Natura 2000 directive would facilitate integration of geoheritage into EIA and proper nature conservation in Europe.

References:

[1] Vegas et al. 2012 *Guía metodológica para la integración del patrimonio geológico en los procesos de evaluación de impacto ambiental*. IGME & MAGRAMA, Madrid, 77 pp

