Sous Le Haut Patronage de Sa Majesté le Roi Mohammed VI



Académie Hassan II des Sciences et Techniques





Workshop International

Patrimoine géologique et Développement durable de la Région de Rabat Salé Zemmour Zaer



Documents de l'Institut Scientifique, Rabat, n° 24 2011

GEOCONSERVATION:

Promoting the sustainable use of geodiversity for science, education and geotourism

José BRILHA

Earth Sciences Department, University of Minho (Braga, Portugal | jbrilha@dct.uminho.pt); Geology Centre of the University of Porto; ProGEO (European Association for the Conservation of the Geological Heritage)

In 1991, the 1st International Symposium about the Protection of the Geological Heritage was held in Digne, France, representing the born of a new geoscience domain: the geoconservation. Geoconservation refers to the inventory, conservation and management of special occurrences of geodiversity with great importance for science, education and geotourism. These occurrences, globally known as geological heritage, are particular places (geosites) where rocks, minerals, fossils, soils and landforms have a paramount importance for geosciences.

The conservation of geological heritage is necessary because geosites are under risk due to several types of threats such as, illegal collecting, vandalism, misuse, mining, or inappropriate legislation. Well-protected geosites allows the progress of scientific research (without good geosites for sampling, data collecting and fieldwork no geoscience is possible), the education of students and general public and the visit and travel fostering geotourism and economic incomes for local populations.

Geoconservation should follow a strategic planning with several successive steps: i) geosites inventorying; ii) qualitative and quantitative assessment of geosites; iii) protection of the most important geosites based on the country legal setting; iv) management of geosites (implementation of conservation measures taking into account the type of use for each geosite); v) promotion and interpretation of geosites; and vi) geosites monitoring. This planning should be adapted to the geographical context because some methodologies are different according with the scale factor (it is different to implement a geoconservation strategy for a country or for a small protected area, for instance).

The inventorying of geosites is a very important stage of any geoconservation strategy. Its aims should be clearly defined taking into account four issues: the topic, the value, the scale, and the use. The topic is the subject or theme to be inventoried. For instance, the geological heritage (as a whole), the palaeontological heritage, the geomorphological heritage, a geological context or a geological framework. The value can be scientific, pedagogical, touristic, cultural, among others, and it is in close relation with the use. The scale refers to the geographical area where the inventorying will occur (a natural park, a municipality, a state, a country, a continent, etc.). Finally, the use is related with the purpose of the inventoried geosites, for instance, to be the support of a national geoconservation strategy, to develop a geotouristic project, to promote the local geodiversity, etc.

22

Patrimoine géologique et développement durable de la Région de Rabat Salé Zemmour Zaer Rabat, 14, 15 et 16 Décembre 2010

The geological heritage is a non-renewable natural resource. That is why all countries should know and manage this fragile resource. Unfortunately, nature conservation policies during the last decades are neglecting the initiatives towards the conservation of geosites, comparing with strong efforts made for the protection of biodiversity. Nevertheless, this trend is slowly changing. The IUCN (International Union for Conservation of Nature) has recognized, for the very first time, the importance of implement measures to protect the geological heritage. Countries are creating a legal setting to support geoconservation. Geoscientific events are happening all over the world promoting the discussion between experts. Geoparks are being created in all continents fostering geoconservation and local development. The 21st century is promising for geoconservation!

Further reading:

- BRILHA J. (2002) Geoconservation and protected areas. Environmental Conservation, 29 (3), 273-276 (http://hdl.handle.net/1822/1247).
- BRILHA J., ANDRADE C., AZERÊDO A., BARRIGA F.J.A.S., CACHÃO M., COUTO H., CUNHA P.P., CRISPIM J.A., DANTAS P., DUARTE L.V., FREITAS M.C., GRANJA M.H., HENRIQUES M.H., HENRIQUES P., LOPES L., MADEIRA J., MATOS J.M.X., NORONHA F., PAIS J., PIÇARRA J., RAMALHO M.M., RELVAS J.M.R.S., RIBEIRO A., SANTOS A., SANTOS V., TERRINHA P. (2005) Definition of the Portuguese frameworks with international relevance as an input for the European geological heritage characterisation. Episodes. Vol. 28, No 3, 177-186.
- BRILHA J. (2009) Geological Heritage and Geoconservation in Portugal. Proc. 8th European Geoparks Conference, New Challenges with Geotourism, C. Neto de Carvalho & J. Rodrigues (Eds.), Idanha-a-Nova Municipality/Naturtejo Geopark, Portugal, 31-35 (http://www.dct.uminho.pt/docentes/pdfs/jb naturtejo.pdf).
- BUREK C.V. & PROSSER C.D. (eds) (2008) The History of Geoconservation. The Geological Society, London, Special Publications, No. 300, 320p.
- GARCIA-CORTÉS A., RÁBANO I., LOCUTURA J., BELLIDO F., FERNÁNDEZ-GIANOTTI J., MARTÍN-SERRANO A., QUESADA C., BARNOLAS A., DURÁN J.J. (2001) First spanish contribution to the Geosites Project: list of the geological frameworks established by consensus. Episodes, Vol. 24, No 2, 79-92.
- MC KEEVER P. & ZOUROS N. (2005) Geoparks: Celebrating Earth heritage, sustaining local communities. Episodes, Vol.28, no.4, 274-278.
- PEREIRA D., BRILHA J., DIAS G. (2008) Master's course on Geological Heritage and Geoconservation. European Geologist, No. 26, 29-31

23