MANAGEMENT OF GEODIVERSITY AND GEOSYSTEM SERVICES IN GEOPARKS: A CASE STUDY OF THE CHABLAIS UNESCO GLOBAL GEOPARK, FRANCE

Rasool Bux Khoso1,2*, Sophie Justice3, & Marco Giardino1,2

1. *Sesia Val Grande Geopark UNESCO Global Geopark, Piemonte region, Italy;*
2. *Department of Earth Sciences, University of Turin, Italy;*
3. *Syndicat Intercommunal d'Aménagement du Chablais (S.I.A.C): Chablais UNESCO Global Geopark, France*

This study assesses the effects of human activities and natural processes on geodiversity and geosystem services in Geoparks through the use of the Drivers-Pressures-State-Impact-Response (DPSIR) framework. Geoparks are places that have been set aside with the intention of preserving, managing, and promoting geological heritage and the accompanying natural and cultural aspects. This study concentrates on evaluating the abiotic ecosystem services that geodiversity offers, such as the quantity and quality of water, terrestrial processes, etc.

We applied the DPSIR framework in two geosites, Lake Montriond and Lake Vallon, located in Chablais UNESCO Global Geopark in France. In the past, due to slope instability these two alpine lakes were formed within Pleistocene glaciated valleys. They are categorized as dynamic oligotrophic lakes that have been landslide-dammed. While the region's geodiversity is still not fully understood, the biodiversity of the area has been extensively investigated and carefully managed. Our aim is to increase knowledge in order to make a better assessment of the natural and human factors that are putting pressure on the state of the environment and could have an impact on geodiversity and geosystem services. According to our investigation, these geosites offer crucial geosystem services. Moreover, these geodiversity and geosystem services are significantly impacted by human activities like tourism, leisure, and resource extraction as well as by natural phenomena like climate change and dynamic processes.

The results of this study include the geosystem services maps and DPSIR assessment tables that can help the appropriate administrative authorities to build the right management strategies and solutions to meet these challenges. These can include geosystem services monitoring and assessment, water management, sustainable tourism development, restoring and rehabilitating degraded landscapes, and so on. We argue that a thorough understanding of the intricate relationships between human actions, natural processes, and the geodiversity and geosystems themselves is necessary for the effective management of geodiversity and geosystem services in Geoparks.

This study emphasizes the value of the DPSIR framework as a tool for raising awareness of geodiversity, providing policymakers, managers, and stakeholders with useful advice, and advancing sustainable development and conservation in Geoparks.

Key words: Geodiversity, Geosystem services, Geoparks, DPSIR, Chablais UNESCO Global Geopark

Corresponding author: *Rasool Bux Khoso*

Email: rasoolbux.khoso@unito.it