Enhancing geodiversity in the Matese Regional Park (Southern Italy) using DPSIR model

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The Matese Regional Park included the northern part of Campania and the southern part of Molise regions. The total area is about 33,000 ha. The institution of the Park was due to its extreme naturalistic and environmental richness, representative of the whole Southern Apennines chain. Unfortunately, the Park institution was not fully understood by local authorities and population as a development opportunity (touristic, agricultural, etc.).

Most of the area consists of an imposing calcareous massif, whose features are still completely natural. In some outcrops of Mesozoic limestone, exceptional fossils were found, among which the dinosaur cub Scipionyx samniticus, popularly known as “Ciro”, is mentioned for importance, as it is recognized and studied all over the world for its excellent state of conservation. In addition to this unique specimen, a myriad of remains of fishes, reptiles, amphibians and rudists were found. To the threat of vandalism perpetrated in early years, the authorities responded by guaranteeing the conservation of the sites and fossils, but also by creating a place to welcome scholars and researchers. Thus, the Paleolab was born, i.e. a multimedial museum of geology and palaeontology with an increasing number of visitors.

The widespread diffusion of karst phenomena, both epigean and hypogean, contributed to fuel an underground water circulation, which is important for both quantity and quality. This resource was exploited over time, not only at the basal springs, but also locally, for domestic, agricultural and livestock uses and even for energy production. Therefore, the pressures on this resource are important and need a care planning. Moreover, contaminations by anthropogenic activities are possible, even if limited to some marginal areas, and are not coherent with the rules of a protected area.

Earthquakes could upset both the beauty of the Matese landscapes and the local activities. In fact, this area is one of the most seismogenic ones in Southern Apennines. In historical epoch, several seismic events caused casualties and huge damages to the local settlements and even changed the physical features of the territory. However, the answers to these events became an opportunity, as they allowed both reconstructing less vulnerable buildings and the restitution of the typicality of some ancient settlements. A difficulty is nowadays represented by the alert systems, which are weak due to the articulated morphology and the accentuated dispersion of the
buildings (residence and working sites).

In this contribution, several indicators were considered to describe the environmental situation of the Matese Park in the framework of a model able to identify the cause-effect relationships and the response that were put in place to obtain a change in the desired direction.