



Facing environmental problems in karst areas of developing countries: the case study of Dajti - Mali me Gropa (Albania)

S. Sala (1) and M. Parise (2, 3)

(1) Geography Study Center, Tirana, Albania (skendersala@yahoo.com); (2) CNR-IRPI, Bari, Italy (m.parise@ba.irpi.cnr.it); (3) Gruppo Puglia Grotte, Castellana-Grotte (BA), Italy

Management of karst is generally difficult due to the special features that characterize karst territories, and to its extremely high vulnerability. These problems are still stronger in developing countries, where it is very common that the land management was not properly addressed for a long time. Albania, where about one quarter of the territory is occupied by soluble rocks subject to karst processes, presents several areas severely threatened by pollution problems, not yet solved notwithstanding the opening to the free market after the fall of the communist government in 1991. Awareness of environmental problems, especially in karst areas, is still far to be reached in the country, as the case study here presented illustrates. The Dajti Mountains and the chain of Mali me Gropa are situated in central Albania, and can be described as typical examples of carbonate ridges of the classical Mediterranean karst of Albania. They show wide presence of karst landforms, with particular abundance of enclosed depressions and dolines, which are the main geomorphological features recognizable at the surface. The name itself Mali me Gropa (which means Mount of the Holes) indicates the high frequency of dolines. Importance of this area is well highlighted by the fact that groundwater from Mali me Gropa feed the main aqueduct of potable water to Tirana, the capital and most populated town of Albania. Notwithstanding the need to protect this water supply, many episodes of pollution occurred in the past, and still today the main springs in the area (Selita, Shënmëeja, Guri I Bardhë, and Pëllumbas, located at the boundaries of the massif), and their feeding catchments, are not adequately protected and at high risk of pollution. This being the main hazard at Dajti and Mali me Gropa, many other anthropogenic hazards are also present, due to proximity of the area to Tirana: heavy land-use changes, for instance, had to be registered during the

recent history of Albania, for a combination of physical factors and socio-economic reasons. Land mismanagement was very frequent, and the negative impacts deriving from human activities are extremely common still nowadays: these include efforts to extent cultivated lands at the expenses of forest, which implies high ecological alterations due to deforestation and the break-up of the original equilibrium between cultivation, grazing and forestry. The valley of the Tirana River, and the Dajti National Park, are also intensively affected by quarrying activities that have been carried out without any concern for the karst heritage of the area, thus resulting in destruction of many natural caves and loss of the karst landscape. Furthermore, it has to be noted that the common practice to abandon the site of extraction without performing any reclamation work strongly favours the possibility of mass movements, due to the many unstable blocks left on the steep rocky slopes. Dolines filled with terre rosse and bauxites are often object of excavations, and solid wastes of various types are then dumped into the resulting deep depressions. During the communist period, this area was intensely occupied by military settlements and deposits; abandoned weapons and military equipments, batteries and further high-polluting materials are therefore easily found at several sites.