



## Negative grouting consequences on karst environment

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Grouting is a procedure by means of which grout is injected into different kinds of karst spaces (cracks, fissures, conduits and caves). It has a wide application in modern civil engineering, especially in karst terrains. It started nearly 200 years ago. In most cases the ingredients for the preparation of mortars and grouting suspensions are: cement, bentonite, clay and fillers, additives for stability and water. In practice the composition of grouting suspension is not standardized. A suspension injected under pressure will circulate in the karst spaces like a more or less viscous fluid until some of the larger suspended particles are blocked where the karst voids get narrower than the size of injected grains. The injection of materials into karst groundwater, i.e. the construction of grouting curtains, definitely could be the cause of unpredictable negative consequences on karst groundwater environments. The building of dams in karst areas always go along the construction of grouting curtains. During the construction of most dams in karst all over the world millions tons of injection mass have been injected in karst underground. It may impact water quantity in vadose zone and in karstic aquifer causing water table lowering and spring desiccation. In such cases the negative impact on local karst environment could be very dangerous. Physically as well as chemically this mass voraciously and quickly destroyed underground habitats and killed an enormous number of endangered and endemic species. Very often this is extremely expensive procedure and in many cases not very successful from the engineering point of view. From the ecological point of view it could causes catastrophic consequences. The greatest problem is that until now neither engineers nor ecologists took care of these great and massive negative influences on underground karst environments. In this paper few examples of different consequences of grouting on the hydrogeological as well as ecological regime on karst environment in the Dinaric karst are given. The goal of this paper is to warn scientific community that is time to start with interdisciplinary research of this problem.