



## **The OSMATER project: promotion of stone materials from the Verbano-Cusio-Ossola region (Italy) and the Canton Ticino (Switzerland).**

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The OSMATER (sub-Alpine Observatory Materials Territory Restoration) project, funded by the Piedmont Region (Italy) and the European Community, involved four Italian scientific bodies (Polytechnic of Turin, University of Turin, University of Milan-Bicocca, University of Bologna) and Switzerland (SUPSI). The aim was to investigate the present and historical quarrying and processing activities in the cross-border area between the Ossola Valley (Italy) and the Canton Ticino (Switzerland), and the use of dimension stones in local and national architecture. These materials are in many ways a "unique case", for their abundance and lithological variety. In the past, their extraction, processing and application characterized in a decisive way the architectural and constructive culture, both in terms of prestigious architecture and civil buildings, establishing a relationship between "stones and culture", "territory and its resources". In recent years, many of these traditions are losing importance and interest: this results in a loss of knowledge and historical memory, due mainly to the drastic changes in the market. The loss of this knowledge is likely to become irreversible in the short term, with the disappearance of people and social groups depositary of tradition. We can deduce that the creation of an "observatory", like OSMATER, is desirable and essential indeed, if we want to preserve the historical memory of the stone industry of an entire production area. The OSMATER project aimed the knowledge, recovery and enhancement of the architectural and cultural heritage of the cross-border area, through the census and classification of rocks, quarries (both active and historical - since Roman age), monuments and construction techniques typical of the sub-Alpine region, in order to create a documentation centre through a dedicated website. The first phase of the project was devoted to the identification of architectural works built with stone materials, with particular artistic and cultural interest for the study area. The monuments were selected on the basis of both their historical and social importance, and on the basis of stone materials, in order to make coherent proposals for their protection and future restoration projects. A comprehensive list of the quarries was drawn up: each quarry was characterized in terms of lithology, geotechnical properties and exploitation techniques. Where possible, traces of ancient quarrying and processing techniques were investigated and recorded, looking for correlations between stones and architectural heritage. The study area was divided basing on the exploited materials: granites (Baveno, Montorfano, Mergozzo), marbles (Ornavasso and Crevoladossola), "Beola" gneisses (Vogogna, Beura-Villadossola Trontano-Domodossola, Crevoladossola-Montecrestese), "Serizzo" gneisses (Antigorio, Formazza, Simplon, Anzasca and Divedro valleys), carbonatic rocks (Angera-Arona) and greenstones (Bognanco, Vigezzo, Brevettola and Loana valleys). Subsequently each stone from each quarry was characterized: petrography (optical microscopy, XRD, SEM-EDS), geochemistry (whole-rock by ICP-MS), physical and mechanical properties (standard tests and Hg-porosimetry). A comparison between "fresh" stones from the quarries and from the monuments has been realized, searching for correlations to the degradation. The last step was the evaluation of the monumental buildings that could be included into geo-touristic routes (quarry – laboratory – monument), for the enhancement of the local cultural heritage and resources.