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Value assessment of ornamental stone resources

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Throughout Europe, there are large industrial and cultural landscapes originating from the exploitation of ornamental stone through history. Such landscapes may contain a range of potential values; economic, such as future resources and reserves, and non-economic, such as cultural and industrial heritage, areas for recreation and tourism, and geological heritage. Based on case studies in two areas, we will explore different paths and methods for assessing values of ornamental stone resources.

The Iddefjord granite, SE Norway, has been exploited since the middle ages, but the main phase came with the industrial revolution. During the last half of the 19th Century, the granite industry here grew to a considerable size, culminating around the turn of the century when more than 5000 people worked in the quarries, producing paving and building stone. At present time, only one active natural stone quarry remains, but the quality of the granite should encourage further future developments. The study summarizes the geology and evolution of quarrying and quarry technology and provides a characterization of the quarry landscape: its resources that can provide economic values for the future and the anthropogenic morphology of the landscape created by exploitation through history. From the characterization, we propose a scheme for value assessment of the Iddefjord natural stone resource. In particular, we focus the non-economic values. For instance, the importance of the Iddefjord granite as a historic marker in world architecture may provide significant arguments for future designation of exploitation areas.

The Larvik monzonite (larvikite) in SE Norway is composed of varieties of monzonite with a distinct play of colour (chatoyancy), making the stone highly attractive in the global markets. Although use of larvikite goes back to the medieval period, industrial production started in the Late 19th Century and is still large scaled and increasing. This case study investigates the future resources, applying 3D modelling and UNFC. In addition, secondary value chains from the primary ornamental stone production are evaluated.

These case studies are parts of the Eurolithos and Mintel4EU Projects within the GeoEra umbrella, aimed at harmonizing and visualizing information about natural stone resources in Europe.