

Efficient use of natural stone in the Leningrad Region and South-East Finland

Results

Application of Best Practices are the economical viable practices to evaluate the profitability of a deposit, support in decision on the most suitable extraction technique, provide information on the final product characteristics. As a final result, application of best practices promote efficient use of the natural resources.

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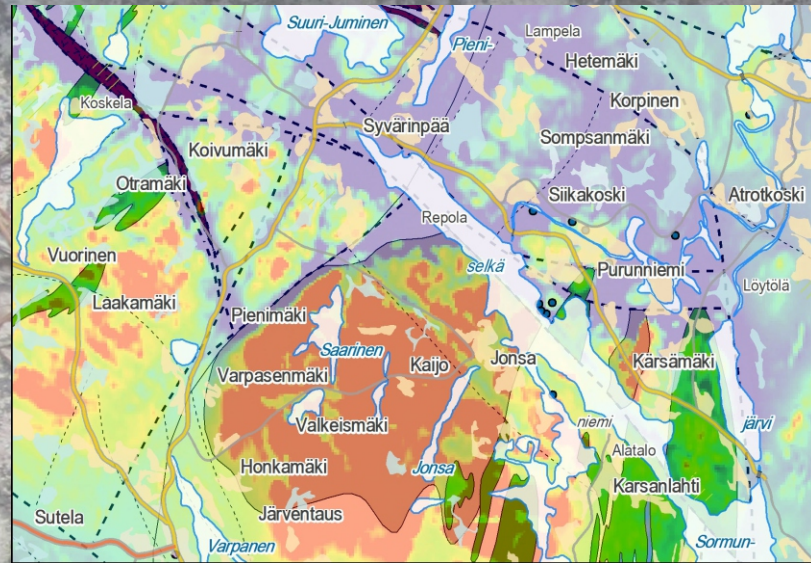
Document of best practices
on natural stone evaluation and research

Southeast Finland and Leningrad region

AIM

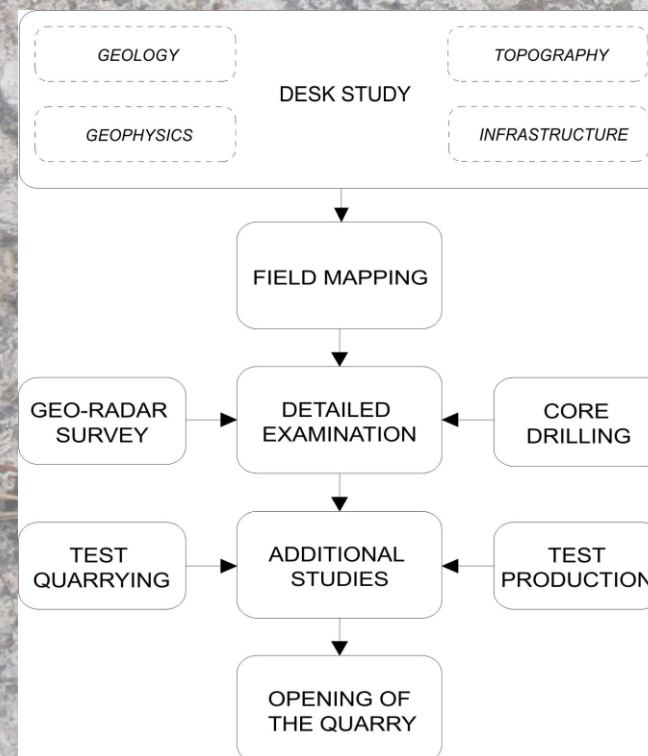
The best practices to evaluate deposits from Russia and Finland are applied on two sites in the area of the project. Best practices allow to evaluate the deposit in a better way, affecting decisions on future exploitations and on extraction activities/methodologies.

The final result is an increase in efficient use of the natural resources



Best practices

Modern approaches do not differ much. Best practices for deposit evaluation consider several aspects.



Bedrock mapping for prospecting is the following step producing a total picture of the geological environment to point out the most homogeneous and un-fractured areas. It is done the observation of the color, homogeneity and texture of the rapakivi pointing out possible defects and inconsistencies through visual observation of rock surface. Deposit scale evaluation with ground penetrating radar (GPR) measurements is done to assess especially the horizontal and sub-horizontal fracture patterns and frequency.



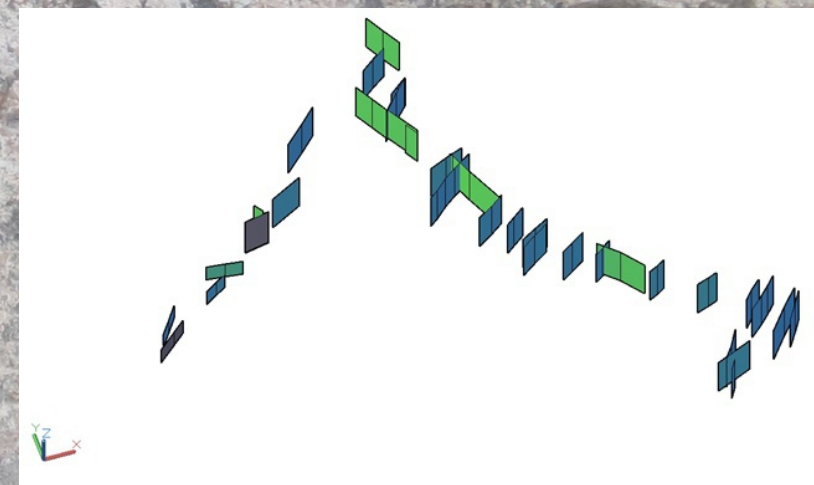
Detailed geophysical measurements-electrical resistivity tomography (ERT), induced polarization (IP), ground magnetic measurements, petrophysical measurements in the laboratory - are carried out by manual measurements in the field recording the data and processing to produce interpretation maps to detect features on different depth scales. The geophysical interpretations are combined with the available geological knowledge to make a comprehensive model of the deposit.

DRILL CORES

If there are diamond core drill holes in the area, they can be utilized for making drill hole in situ measurements and to investigate the petrophysical properties of the rock.

The drill cores from diamond core drilling give a continuous rock sample that can be used in reliable evaluation of the colour and texture of the rock as well as the weathering of the rock surface and the fracture patterns.

Test quarrying and test production are the last steps in which it is evaluated the profitability during extraction, the market feedbacks, the estetical and mechanical properties of the material.



Evaluation of the area through available maps, studying also the general geophysical data, used in evaluating the bedrock and interesting units within them. Different geophysical data can reflect different properties of the bedrock and help to detect geological units in covered areas.

Magnetic, eletromagnetic and gravimetric maps can be combined with geological maps to see which rock types and geophysical phenomena are related to each other.

Topographic information can be used for geological interpretation and in environmental evaluations.

Infrastructure and nature protection areas are also important information.

