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The use of local natural stone in construction of St. Petersburg region and south-east Finland

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A three-year project, started in 2012, "Efficient use of natural stone in the Leningrad region and South-East Finland", studies the use and durability of natural stone in the city environments in the Nordic climate and especially along the Eastern Baltic Sea coastline between Helsinki and St. Petersburg. The project is lead by the Geological Survey of Finland (GTK) and the partners in the project are Saimaa University of Applied Sciences from Finland and Federal State Unitary Enterprise "Petersburg Complex Geological Expedition" Russian together with Saint-Petersburg State University from the Russian Federation. As associates in this project are also natural stone companies from Finland, Ylämaa Group Oy and Palin Granit Oy. The project is co-funded by the European Union, the Russian Federation and the Republic of Finland through the European Neighbourhood and Partnership Instrument (ENPI).

A great potential of natural stone that can be used in construction is located in the border zone between South-East Finland and the Leningrad region. Rapakivi granite from that area has been utilized for several important buildings worldwide since 18th century and the area holds still potential for future economic growth. The use of the stone particularly from this area is based on its visual expression and good properties with high durability and long life cycle that can be used as arguments in the future development. Strengthening of the knowledge of the material reserves in the area gives a long term basement for economic development. Special aim of the project is to promote the use of natural stone in the city construction, especially the use of left-over stone generated in the production.

In the project the use of natural stone in larger cities from the 18th century until today including the towns St. Petersburg, Vyborg, Helsinki, Kuopio and Kotka will be reported. Also an analysis of the near future needs of natural stone (qualities and quantities) in reconstruction and construction in the southern Finland and St. Petersburg regions will be documented. That is to generate ideas for definition of new environmental building products using left-over natural stone from quarrying.

The project will provide detailed data about long term durability of stone structures in the cities that are along the Baltic Sea shoreline (St. Petersburg, Helsinki) and subject to both mechanical and biological weathering. Mechanical weathering by several annual freeze-thaw cycles is especially typical in these coastal climate conditions. The data will be used in characterization of the durability and weathering mechanisms of different stone types and is used in preparation of guidelines of stone selection for construction and renovation.

The data on natural stone resources in the project area will be evaluated and collected in a database. Also the best natural stone evaluation methods from Finland and Russia will be assessed to produce a guidance of best practices for prospecting and evaluation of natural stone occurrences. The project will also generate suggestions for making the natural stone trade between the EU and Russia easier.