

A study relative to sustainable development and energy efficiency showed that use of natural stone makes constructions ecologically more acceptable from the point of view of long term use. Painted and thin-coated concrete sandwich elements seem short-sighted considering the Finnish weather conditions and experiences gained as early as the 1970s while natural stone would provide an alternative for concrete mix structures and buildings would get a more durable and impressive facade.



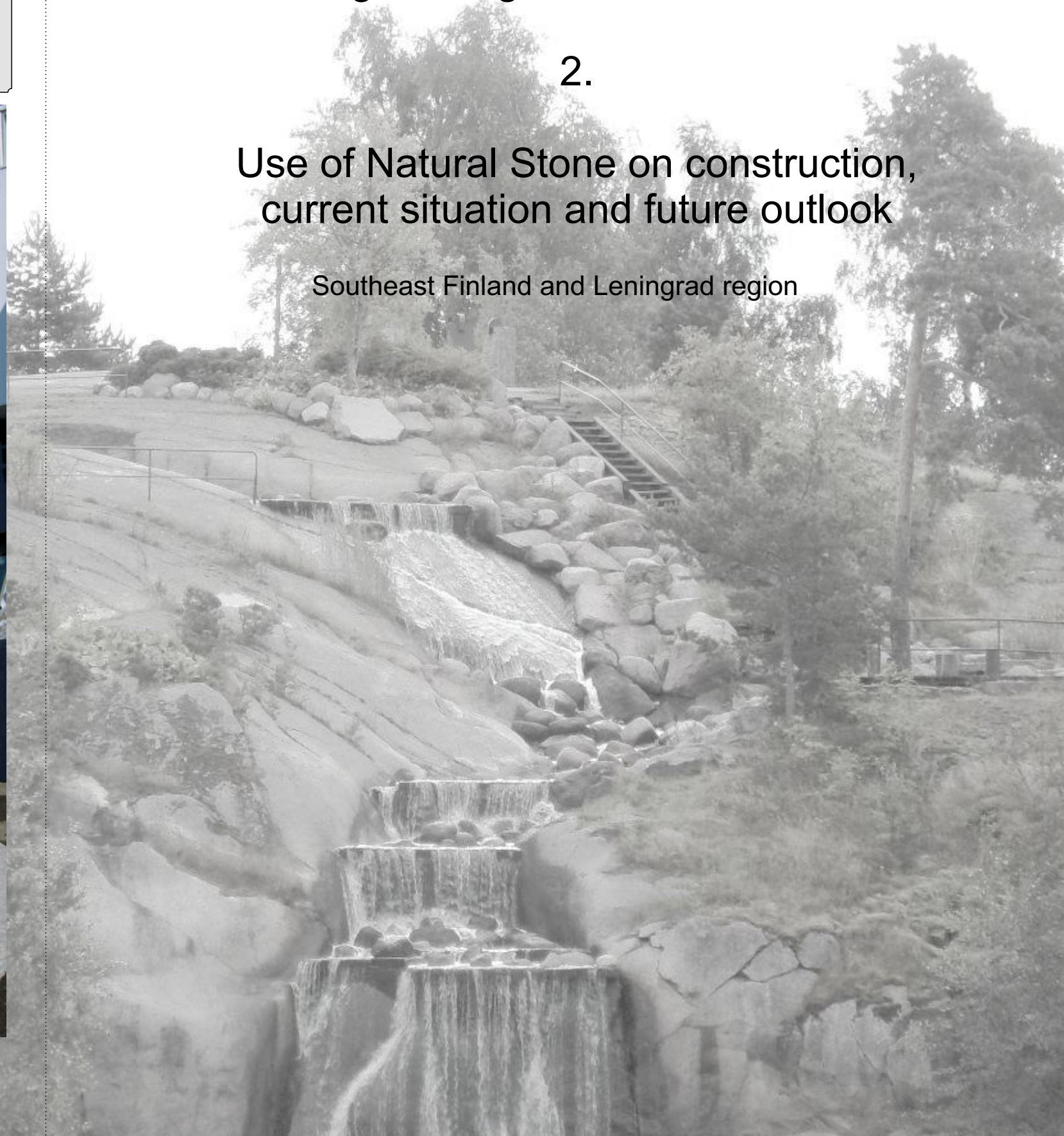
Picture: Oopperatalo /opera house, Helsinki, Esko Brown - Palin Granit Oy. www.finstone.fi

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

2.

Use of Natural Stone on construction, current situation and future outlook

Southeast Finland and Leningrad region





Use of stone on construction

Stone structures and uses of stone in construction can be roughly divided in two main groups: solid stone structures and curtain or layered structures. The stone is showing different weathering effects and in renovation and restoration, the causes of the damages must be determined in order to be able to select right repairing methods. Stone average physical mechanical properties are important for the determination of durability according to the construction methodology adopted.



Historical use



Modern use



This means that in the future structures will face great climate stress deviating from the current situation. Already now renovation construction has accounted for half of the work done and it is forecasted to grow. It is estimated that house construction will increase even though a rapid change in the construction volume is not expected.

Relatively to layered structures, wood and concrete are the most commonly used facade materials, stone facade are nowadays mainly used for industrial and public buildings, but new material is needed for private housing restoration activity. Infrastructure construction is significant but has been decreasing while the use of stone is most common in landscape and park construction, for which it is forecasted growth.



Future trends

According to the scenarios on the climate change the average temperature in Finland will be 2–6 °C warmer in the last decades of the current century compared to 1971–2000. At the same time, rain volume will increase in autumn and winter season affecting the operation of the dampproofing of the outer envelope of the building in a season that is already the most problematic one. Based on the greenhouse scenarios, the future climate type of Finland will resemble the current conditions in Central Europe.

