

of Neotethys, originally located to the north of Vardar branch, or alternatively, by the Paleotethys. In other words, the Rhodopes may have been formerly separated from Moesia by oceanic lithosphere located north of the Vardar branch of Neotethys.

Natural stone, an environmentally highly competitive building product

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Civil engineering construction is the largest industry in the world and represents approximately 10% of world GDP. Somewhere around 40 % of the life cycle energy use in residential buildings emanates from embodied energy, i.e. the energy used in the manufacture of building materials and products. The energy consumption of this industry is thus of the utmost importance for a sustainable environment.

The low energy usage during extraction and processing of natural stone building products is a strong marketing potential factor but is very seldom used by stone suppliers. The presentation will focus on why and how to overcome this problem.

The stone industry is a very fragmented industry with little international collaboration. Most stone producing companies are SMEs (Small and Medium scale Enterprises) and have therefore not the financial means to influence international regulations or develop relevant methods for proper calculation of the energy consumption in all steps from the quarry to the final kerb, façade cladding or floor tile.

ECO-labelling could have been an important driver for this process to start. The main problem with the present ECO-labelling system is that it pays too much attention to waste production and the visibility of the quarry and very little to the energy consumption. In addition, it is not a flexible system that takes into the account different needs in different countries or local regions. The present system has been done without the presence of the stone producer and is therefore not supported by the same.

Recent, impartial, comparative investigations show that the production of concrete may use four times more energy than stone (depending on the actual product type) and timber almost forty times, just to mention two examples. In addition, properly chosen stone types will outlast these materials several times over.

In order to effectively make use of this strength, stone producers need to collaborate throughout Europe and agree on common methods that are accepted also by other construction industries. There are several acceptable methods available but also far too common with non serious ones, used to show the advantage of a specific product by merely taking a few of all relevant factors into account.

EUROROCK, the European & International Federation of Natural Stone Industries, has recently initiated a project focusing on collecting the energy use for a large number of specified stone products. In each member country, producers are encouraged to provide information about the energy use for extraction, processing (sawing, grinding, polishing or flaming etc), packaging and transportation for a selection of stone products. Waste production is also taken into account. This is the first major collaboration attempt of European stone producers in this field and has the potential of leading to a change of the ECO-labelling system and will provide stone producers with the very much needed marketing advantage compared to competing products.

Compilation of energy consumption is the first important step towards the demonstration of low environmental impact and enhancement of public acceptance. However, the mapping of all actions and associated energy use is only the starting point for structured improvements of a sustainable stone industry.