

## THE CONTRIBUTION OF CEMENT INDUSTRY IN CIRCULAR ECONOMY, TITAN-GREECE CASE STUDY

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### ABSTRACT

The cement industry contributes to circular economy through waste utilization, reducing its fuel and raw material requirements and subsequent emissions, sustainable and resilient construction for the adaptation to climate change. Greece has one of the lowest ranking among EU member states in the utilization of alternative fuels for co-processing in the cement industry, combined with one of the highest rates of disposal-landfilling for its waste in EU. TITAN Greece promoted the potential for transformational change that a Circular Economy can bring to the status quo of the Greek economy, both upstream and downstream, including the solving of chronic, confrontational problems, such as waste management, and extending to the provision of investment opportunities, as a catalyst towards sustainable growth.

In 2017, TITAN cement plants used app. 530.000 tons of industrial by-products and waste to substitute natural raw materials. The use of construction and demolition waste in cement production is an innovative solution that TITAN has implemented over the past years proving 100% recyclability of cement. Furthermore, waste concrete is sent back from the Ready Mix plants to TITAN cement plants as an alternative source of raw material in cement kilns. In 2017, the Kamari plant reached a 25% ratio (thermal-based substitution) (32% in 2016) in replacing conventional with alternative fuels, and TITAN's performance for all cement operations in Greece reached 15,5%. The total volume of alternative fuels which were co-processed in 2017 reached 86.000 tons and the reduction in CO<sub>2</sub> emissions exceeded 42.500 tons, with the consumption of 60.000 tons of natural fossil fuels (coal equivalent) being avoided. The results mentioned above present the action of the company during the year 2017, which consist a part of the case study that will be discussed.