

Assessing and improving the sustainability performance of mining industries

*K. Angelakoglou*¹, *G. Gaidajis*² and *A. Garidi*³

1. Senior Researcher, Department of Production Engineering and Management, School of Engineering, Democritus University of Thrace, Vasilisis Sofias 12, Democritus Building 1, 67100, Xanthi, Greece. Email: kangelak@pme.duth.gr
2. Associate Professor, Department of Production Engineering and Management, School of Engineering, Democritus University of Thrace, Vasilisis Sofias 12, Democritus Building 1, 67100, Xanthi, Greece. Email: geogai@pme.duth.gr
3. PhD student, Department of Production Engineering and Management, School of Engineering, Democritus University of Thrace, Vasilisis Sofias 12, Democritus Building 1, 67100, Xanthi, Greece

ABSTRACT

Mining industries play an important and increasingly recognized role in global socio-economic development whereas, on the same time, they have strong impact on a diverse group of environmental entities and stakeholder groups. As a result there is ample opportunity for the industry to operate in a more sustainable way. This paper presents a methodological framework for strengthening the capacity of mining industries to assess and improve their sustainability performance. For the purposes of the research a detailed literature review and collection of information regarding best available practices from sustainability and corporate social responsibility reports of mining industries has been performed. The framework has been developed according to the needs and special characteristics of the mining industry, so as to evaluate sustainable performance in a scientifically sound way. An extensive indicator pool was developed, including environmental, social and economic indicators that were selected specifically for mining activities. From the specific pool, key indicators were chosen according to predefined criteria. The methodology developed includes 16 assessment categories and 45 indicators, concerning the environmental, social and economic dimensions of sustainability. Specific sustainability threshold values/sustainability targets were identified for each indicator to enable the comparison of the examined industry's performance with a sustainability reference point. A final methodology – tool was developed that can be used to assess current and/or future mining facilities. The application of the presented methodology provides the appropriate means for guiding, evaluating and monitoring the progress of mining industrial facilities towards sustainability with the application of predetermined and commonly accepted sustainable targets.