

Development of An Environmental Sustainability Ranking Tool (ESRT) for Industries

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Extended Abstract

According to the Global Footprint Network, we have consumed the entire year of natural resources on 29th July 2019. After this date, we are beginning to borrow heavily into our future resources. This day came two days earlier than 2017 and two months earlier compared with 20 years ago [1]. Therefore, we require 1.7 planets to offset the resources as we are consuming every year. Even two planets might not be sufficient by 2030. The old industrial model of “take, make, and disposal” is no longer sustainable as we experience a rapid depletion of finite resources, and massive degradation of land, water and air. For industries to survive in the long term, it is crucial to embrace sustainability principles in every aspect of their operations.

An Environmental Sustainability Framework was introduced by the author in a research paper “Sustainable Advantage: Accelerating from Regulatory Compliance to Environmental Sustainability” [2]. This unique framework proposes that organizations move beyond the compliance-based mindset (Stage 1) to a voluntary process of embracing a high-level environmental management system (EMS, Stage 2). Moving forward beyond an EMS is adopting Industrial Ecology principles (Stage 3), and then finally achieving the ultimate goal of zero-emissions (Stage 4). To enhance this framework into a useful tool for ranking the environmental performance of industries, an Environmental Sustainability Ranking Tool (ESRT) was developed. The ESRT utilizes scorecards based on extensive EHS industrial experience as well as using guidelines from the Global Reporting Initiatives (GRI) environmental indicators [3].

Based on GRI standards, seven environmental aspects were included across all 4 stages including: (a) material; (b) energy; (c) water; (d) biodiversity; (e) emissions, effluent and waste; (f) product and services; and (g) transport. A total perfect score of 400 is possible, scoring 100 points for each stage. Extracting the key information from Sustainability Reports of 8 large mining companies, we applied this ESRT scorecard to evaluate the environmental performance of these companies [4]. This ESRT tool can be a powerful tool for industries to: (i) assess internal performance across 7 GRI environmental aspects; (ii) assist to benchmark with their peers within the same industrial cluster; (iii) assist in meeting the UN Sustainable Development Goal 12 – “responsible consumption and production through reducing our ecological footprint by changing the way we produce and consume goods and resources”.

References

- [1] Past Earth Overshoot Days [Internet]. Earth Overshoot Day. [cited 2019 Apr 22]. Available from: <https://www.overshootday.org/newsroom/past-earth-overshoot-days/>
- [2] Lee CCC. Sustainable Advantage: Accelerating from Regulatory Compliance to Environmental Sustainability. *International Journal of Environmental Sustainability*. 2017 Apr;13(2):37–44.
- [3] Büyüközkan G, Karabulut Y. Sustainability performance evaluation: Literature review and future directions. *Journal of Environmental Management*. 2018 Jul;217:253–67.

[4] The world's biggest mining companies in 2018 [Internet]. Mining Technology | Mining News and Views Updated Daily. 2018 [cited 2019 Apr 29]. Available from: <https://www.mining-technology.com/features/worlds-biggest-mining-companies-2018/>