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ENVIRONMENTAL SUSTAINABILITY AND ITS ASSESSMENT

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Environmental Sustainability Literature

According to Angelakoglou & Gaidajis. (2015) the best definition of environmental sustainability is the necessary environmental functions in a situation that leads to protect future generation. Environmental sustainability focuses on a wide scale of time such as on long-term perspectives and it covers many environmental aspects in wide scale of area such as national or worldwide (Angelakoglou and Gaidajis., 2015). Natural resources depletion, climate change impact and renewable energy utilization are appropriate example of environmental aspects (Angelakoglou and Gaidajis., 2015). In the past, most manufacturing processes traditionally considered the manufacturing cost, life cycle, labor and productivity but not environmental and social impacts (Kremer et al., 2016). Therefore, Kremer et al. (2016) performed a study shows the other factors such as economic and social aspects and environment sustainability to reach to an integrated approach. In addition, a term demonstrated by Lozano (2013) that corporate sustainability is focused on sustainability equilibria within the economic, environmental, time and social aspects. Lozano (2013) divided the corporate sustainability drivers to internal drives which is a proactive action such as ethical leadership and external drivers which deals with reactive measures such as national policies. So, how we can assess our approach to have a successful environmental sustainability?

Environmental Sustainability Assessment

Environmental sustainability assessment is a particular method that can present quantitative information for the purpose of supporting industries to assess their own environmental sustainability. Many industrial practices selected specific classification of environmental sustainability assessment to be fall in six categories (Angelakoglou & Gaidajis., 2015). The six categories are explained, and examples of methods are provided as follow:

01 - Individual Indicator or Set of Indicators

It considers a single indicator as well set of indicators for the purpose of individual assessment to several environmental sustainability aspects. It could be used internally within the company or externally by including stakeholders through communication phase which deals with environmental sustainability performance. An example of method in this category is Indicators of Sustainable Development for Industry (ISDI) method.

02 - Composite Indices

Several indicators to be combined by using well-defined methodology in the form of sub-indices or single index. To achieve composite indices, it requires to implement specific procedures such as aggregation, normalization, weighting procedures. In order to assess the sustainability of several systems, stakeholders are responsible to apply indices. Composite indices help to minimize the system complexity to summarized information and communicate specific results to stakeholders. An example of method in this category is AIChE Sustainability Index (AIChE SI) method.

03 - Social Investment Indices

External stakeholders use indices-based methods to assess the performance of sustainability. Its main concerns deal with social, environmental and economic aspects of sustainability. Checking the regional and national frameworks by every industry is an advantage in this category. An example of method in this category is Dow Jones Sustainability Index (DJSI) method

04 - Material and Energy Flow Analysis

It deals with quantifying material and energy flows for industrial systems which are under examination. Indicators in this category provide indications about which processes have considerable environmental risk. An example of method in this is category Cumulative Energy Demand (CED)

05 - Lifecycle Analysis

It provides an integrated approach for life cycle thinking which includes all stages of life cycle. Case in point, production stage as well disposal stage. This category help to assess environmental sustainability

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by evaluating single or multiple environmental impact such as global warming and depletion of natural resources. Four steps are crucial to implement life cycle analysis. They are defined goals and scope, analyze life cycle inventory, assess impacts and perform life cycle interpretation. An example of method in this category is Bridges to Sustainability Framework (BRIDGES) method.

06 - Environmental Accounting

It quantifies environmental costs and benefits to monetary units in order to perform environmental sustainability assessment. The objective of this category is to support the decision makings tools for projects or plans that are affected by industries. An example of method in this category is Environmental Management Accounting (EMA) method.

Conclusion

Environmental sustainability assessment will provide the guidelines, feedback, and integrated results to help the organization reach effectively the intended purpose of the assessment.

References:

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