



Developing a sustainability index for Mauritian manufacturing companies

Dickcha Beekaroo, Devkumar S. Callychurn*, Dinesh Kumar Hurreeram

Mechanical & Production Engineering Department, Faculty of Engineering, University of Mauritius, Mauritius



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ABSTRACT

It has been long recognized that environmental matters are important to the survival of manufacturing companies. Yet manufacturing companies continue to degrade the environment, over exploit natural resources and generate unmanageable amount of wastes. Manufacturing is not just about financial returns, but it should also be conscious of the long-term impacts on living standards of both present and future generations. The purpose of this paper is to develop a sustainability index to quantify the impact of Mauritian manufacturing activities on the environment. This research is an attempt to stimulate manufacturing companies in Mauritius to report their organization's sustainability via an index that shall aid in driving both profits and growth. It reviews the main social, economic and environmental issues affecting manufacturing companies and provides a Sustainability Index Model (SIM) that can be used as a sustainability performance measurement indicator, helping in the mitigation of perennial business challenges. The derived sustainability index, that combines the principal sustainable indicators quoted in the literature, has been used as a single decision-making tool for assisting manufacturing companies realize sustainable development goals. A sample of 30 large manufacturing companies in Mauritius were used to validate the sustainability index model. The study reveals an index with 9 environmental, 4 economic and 2 social indicators which were pertinent in sustainability measurement, with varying degree of importance, within the Mauritian manufacturing context.

1. Introduction

Though more than three decades have elapsed since the publication of the Brundtland Commission' report *'Our Common Future'*, most sustainability practitioners still remain concerned about the slow or even lack of progress the community has made on sustainable development (Globescan, 2017). In this context the GlobeScan/Sustainability Survey (GSS) conducted a study on the advancement of the Sustainability Goals as agreed by the United Nations member states addressing both the civil society and businesses over the period 2015–2030. The findings highlighted the intricacies of sustainable development problems faced by many countries and the pressing commitment by world leaders to embark on new forms of leadership and business models. The report has confirmed that progression has been quite slow since 1987 and that it was now time to step up the gear to achieve the SDGs before the targeted date of 2030. Like many other countries forming part of the COP21 agreement, Mauritius also needs to commit itself more towards achieving the sustainable development goals, even though the country started the sustainability journey more than two decades ago. Since Mauritius adopted the integrated management approach to sustainable environmental management under the Environment Protection Act of

1991, the country has embarked on a journey of sustainable development to promote national development. With environmental protection at its heart, this approach has cross-cutting bearings across a range of sectorial concerns, development patterns and in decision making. A series of broad-based administrative and consultative mechanisms were put in place to ensure that all important stakeholders of the economy were party to decision-making in a structured manner. The "Vision 2020: The National Long-Term Perspective Study" (Empeigne and Silvio, 1997) was adopted as the core development strategy to promote sustainable development in the country. The study sets out the scenario for promoting development based on gains in agricultural efficiency, tourism, industrial production, and development of financial and value-added services. As a result, the Government of Mauritius embarked on the development of a sustainable vision to guide national development. This venture can be considered as the ground breaking, unique, innovative milestone project leading to a reinforced integrated, participatory approach to sustainable development and which seeks to include each and every citizen of Mauritius. The developed policy, referred to as "Maurice Ile Durable" (MID), contained strategy and action plans in a broad-based participatory approach and focuses on 5 elements, commonly referred to as the 5 E's: Energy; Environment; Employment and

* Corresponding author.

E-mail address: d.callychurn@uom.ac.mu (D.S. Callychurn).

Economy; Education; and Equity (UNDP, 2015). The policy framework of Mauritius is anchored in the concept of sustainable development and incorporates the relevant recommendations of the major international conferences/workshops, since the 1992 Rio Earth Summit. Various sectorial policies and strategies have been developed and are being implemented across thematic areas such as energy, coastal zone management, land, biodiversity, forests, wastewater, wastes and tourism among others.

In the above context, Mauritian manufacturing companies are required to operate within the framework of 'Agenda 21' for which a commitment was taken for sustainable development, by Governments forming part of the United Nations (United Nations, 1992). The government has reiterated its commitment towards sustainable development by signing and ratifying the Paris Agreement adopted at the 21st Meeting of the Conference of Parties (COP 21) to the United Nations Framework Convention on Climate Change. The Paris Agreement is considered as a bridge between today's policies and climate neutrality before the end of the century. The Government of Mauritius were among the 196 governments to agree on the mitigation and reduction of emissions (United Nations, 2015). Those at the head of the country conceded to strengthen the society's ability to deal with the impacts of climate change as well as providing continued and enhanced support for adaptation.

In light of the above, it has become imperative to assess the degree of commitment of the stakeholders of various industrial sectors. There exists many ways to measure sustainable development; each of which provides potential useful different insights for policy makers, academia and the public at large. As a multifaceted concept, sustainability requires aggregated measures (Hanley et al., 1999). Hamrin (1983) posits that future economic progress will be increasingly dependent on the sustained integrity of the resource and environmental base. One way to measure the economy is to assess the value of non-monetary goods and services, and measure the rate of infant mortality, life expectancy of people, educational opportunities offered by the government, family stability, environmental data and health care for all people. Another approach is to quantify human benefits such as education, health care, and elder care among others. By measuring the disparity between the least fortunate in the society, for example, gives an indication of how well or poor concrete actions are being undertaken to create an economy that benefits some at the expense of others. In fact, sustainable performance incorporates economic, ecological and social attributes as indicators (Hermann, 2008). It is inferred that sustainability can be apportioned in three categories: economic, social and environmental. Each component having its own diverse instruments to address sustainability performance of industries. Hiznyik and Toth (2010) stated that Composite Sustainable Development Indexes allow the integration of environmental, economic and social concerns for sustainability evaluation. These indexes lead to the development and monitoring of national strategies for sustainable development.

To avoid wrong computation of the indexes, it is important to determine the relevant complexity level of the indexes to be included in the model. So far, standard financial indicators have often been used to determine the performance of business activities. But, recently a growing number of organizations have begun to use environmental and social indicators as well. The absence of standardized measures however represents a major barrier to future efforts for businesses to implement sustainable business strategies.

Ecological Living In Action (ELIA) in collaboration with other stakeholders such as the Global Reporting Initiative (GRI) have made significant contributions in getting private sector companies on board for corporate sustainability reporting and in initiating educational transformation for sustainable performance. Some of the biggest companies in Mauritius have already started sustainability reporting. However, those reports are mainly based on the combination of the annual traditional financial report and the GRI framework, whereby all aspects of corporate, social and environmental activities are covered, as

prescribed by ELIA. As there is no single framework for sustainability assessment, there is hardly any architecture which exists having the capability to deal effectively with different issues of sustainability and the flexibility to be used in various disciplines with a unified interpretation. Also, given the complexity, it is often argued that sustainability is better described in qualitative terms rather than quantitative (Alan and Thompson, 2013). Consequently, the main focus of this research is the development of a sustainability index applicable to the Mauritian manufacturing companies, which focuses on identifying, incorporating and quantifying social, environmental and economic indicators of manufacturing companies into a single multi-dimensional model. As such, the sustainability index model can further be exploited in determining the benchmark scorecard of the Mauritian manufacturing companies whereby, this scorecard shall cover all appropriate indicators assessed and show the company's sustainability performance compared to the industry average and the industry's best-in-class company on a national basis. Many companies will hence, be able to use it as a valuable internal management tool, determining improvement areas in their sustainability initiatives.

2. Review of literature

Sustainability has become the prime subject for discussion in the business and trade press, at conferences and in everyday conversations. It is an initiative increasingly essential to the core business model of companies. Resource depletion, pollution and population growth are seen as the main causes of biological and ecological destructive phenomena. The increasing amount of human activities is responsible for the amount of pollutants dumped onto land, into water and the atmosphere, causing various pollution problems to the environment, hazardous wastes generated from economic activities and stratospheric ozone depletion from chlorofluorocarbons. The planet is in environmental crisis and these environmental problems are obviously inter-related.

2.1. The concept of sustainability

The concept of sustainable development has emerged to describe a new framework for development aimed at achieving economic and social balance whilst maintaining the long-term integrity of ecological systems (Asif and Searcy, 2014). The concept is firmly embedded in government policy, legislation and in the environmental policies of private organizations (Babawale, 2013). Sustainable means capable of being maintained indefinitely within limits whilst development implies the pursuit of continuous growth (Bocken and Short, 2013). This appears contradictory, as development tends to destroy the ability to sustain. However, it is suggested that as long as development is sustained, economic growth will continue and environmental issues will be dealt with through technology (Dizdaroglu and Yigitcanlar, 2012). Similarly, it is argued that sustainability indicates economic activities which could continue without long-term damage to the natural environment or general human well-being (Gray, 2006). This viewpoint indicates that economic growth will continue to thrive whilst the environment will never be deprived, or even used, at all. However, it is highly unlikely that this will happen, as economic growth requires the consumption of natural resources to sustain its activities. The various definitions of sustainability give rise to numerous perceptions on what is to be sustained, what is to be developed, and how to link environment and development (Tanguay et al., 2010). As it is, the concept of sustainability is fraught with complexities as it embroils and balances several different goals, concepts, approaches, aspirations and desires. As a matter of fact, if it is to be analyzed and carried out on the basis of a decision-making process, sustainability must be measured in terms of multiple dimensions, as brought up in this research.

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