Executive Summary

Recommending Environmental Indicators and Identifying Common Barriers to Their Use for Companies in Costa Rica

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Introduction

Industrial practices are contributing to increased environmental health risks in developing countries (The World Bank, 2016). Industries with sustainable programs in place often use environmental accounting to quantify and reduce their negative impacts on the environment. Companies can utilize environmental accounting more efficiently by using environmental performance indicators. Although indicators can be useful, companies have faced challenges in defining and using them. According to Rosen et al. (2012) and Hák et al. (2012), the common challenges that companies face when adopting the use of environmental indicators are selecting which ones to use, a lack of resources to obtain data, and a fear of disclosing negative practices. Companies in developing countries, such as those in Costa Rica, may face additional barriers including a lack of educational, financial, and human resources (Jamil, Mohamed, Muhammad & Ali, 2015).

The Cámara de Industrias de Costa Rica (CICR), a private organization that represents the interests of 830 member companies, recognizes that its member companies struggle to make informed decisions with regard to their environmental impacts. The goal of this project was to assist CICR in promoting the use of environmental indicators by Costa Rican companies. The results of this project support this goal by providing information about the benefits, barriers and best practices of indicator use.

Background

Businesses use indicators to quantify information, provide meaning to information, and simplify complex systems (Nath et al., 2002). Companies specifically can use Environmental Performance Indicators (EPIs) to track how aspects of company operations impact the environment.

Environmental performance indicators improve internal and external communication about the status of, and changes to, a company's environmental impacts. Figure 1 summarizes the different roles EPIs play for various stakeholders.

Figure 1 - Roles of EPIs for Various Stakeholders, Adapted From Olsthoorn et al. (2001)

In order to be well informed on the range of applications of EPIs, we reviewed four frameworks that are global in scope from leading authorities in the field of environmental indicator reporting: The Global Reporting Initiative (GRI), The World Business Council for Sustainable Development (WBCSD), The National Round Table on the Environment and the Economy (NRTEE), United Nation Economic and Social Commission for Asia and the Pacific (UN ESCAP).

Methods

To accomplish our goal, we developed a research plan consisting of three objectives. Our data were gathered from two populations. The first population included experts in the field of corporate environmental responsibility. The second population included the 830 member companies of CICR, plus all companies that attend CICR training workshops.

Objective 1: Develop an understanding of environmental indicator use in Costa Rica from experts in the field

We conducted a series of interviews with five environmental consultants representing three private organizations: CICR, AED and ALIARSE. We asked environmental consultants targeted questions about the most commonly used environmental indicators, the barriers to their use, and the associated benefits.

Objective 2: Determine companies' current environmental data collection practices

We interviewed and surveyed company representatives from 30 Costa Rican companies. The survey inquired about whether or not companies collect the environmental data required for indicators proposed in the various frameworks identified in our literature review. In addition to the survey, we interviewed environmental managers of seven member companies of CICR. The interviews allowed us to gain more insight into what data each company collects, how the data are collected, and barriers associated with the process.

Objective 3: Determine how managers utilize and view the use of environmental indicators

We also interviewed management level executives of the same seven companies. We asked targeted questions about why they chose to use certain indicators, and the purposes that those indicators serve to the company. These interviews allowed us to gain insight into how companies use indicators to make decisions.

Completing these research objectives allowed us to gain an overall understanding of the current status of environmental indicator use among Costa Rican companies. Objective 1 allowed us to gain insights from environmental experts while Objectives 2 and 3 worked in conjunction to identify what type of environmental data companies collect and how that environmental data informs company decisions.

Findings

There are three main benefits for companies using environmental indicators: compliance with governmental regulations, improvement of company efficiency, and increased marketability

Certain indicators are required for compliance with governmental regulations. The importance of using indicators to demonstrate compliance was discussed by five of the seven companies and three of the five consultants that we interviewed. Different indicators are needed for compliance depending on economic sector and type of business operation, including food production, the use of boilers, and the treatment of wastewater.

Internal company efficiency can be improved through the use of indicators. Using indicators to monitor individual company processes allows companies to identify areas that use the largest quantities of resources and target these areas for improvement. For example, a food production company that we interviewed reported that they reduced water expenses by 40% once they started using indicators to monitor their processes.

The use of indicators can help in companies' marketability. Companies are able to use information regarding their environmental impacts to market themselves to green consumers and clients. In particular, companies are able to acquire nationally and internationally recognized environmental certifications. Indicators are important for companies that are considering applying for certifications because they provide information necessary to receive them.

Companies often lack motivation to use environmental indicators

Environmental consultants suggested that companies do not use environmental indicators because the investment required for data collection outweighs any perceived benefits. Additionally, they stated that regulatory bodies and consumers aren't strongly demanding the reporting of environmental data. Experts noted that companies tend to only get certifications when they are required to be competitive, and that there are currently no government incentive programs to encourage the use of indicators.

Companies often fail to educate employees regarding the use of environmental indicators

Operations are improved when multiple levels of employees throughout the company understand the role indicators can play in a company's success. From the production worker who is responsible for utilizing the resources being measured to the top-level manager making decisions based on the indicators, an understanding of the purpose of the data and indicators is key to the success of indicator-based decisions. An environmental consultant noted that because not all environmental data depends on one person's actions, all employees must be properly educated on the subject.

Companies often fail to communicate internally about environmental issues

The environmental consultants we interviewed indicated that large companies struggle to effectively distribute environmental data internally. Communication barriers were reflected in the survey responses. Four of the 28 companies had two employees respond to the survey, and no two pairs of employees from the same company had the same responses.

Companies often lack the human and financial resources necessary to use environmental indicators

Lack of resources refers to limitations in both human and financial resources, and applies more to smaller companies than it does to large enterprises. Larger companies are more likely to have the financial resources and employees to dedicate to environmental projects. Collecting data takes time, and investing in the equipment to measure data at the process level requires an investment that SMEs may not be able to make. Our survey responses showed only a marginal difference between the types of data that SMEs and large companies collect. However, the survey only asked companies whether they collect a certain type of data, not how often or how specific the data are, which is where we would expect to see differences based on company size.

Companies often lack the necessary infrastructure for acquiring environmental data

Measuring equipment associated with collecting environmental data is often considered expensive. Additionally, retrofitting this equipment into an existing facility is also costly, and at times is simply not feasible given physical restraints of facilities. As a result, many companies rely on low frequency (monthly, semi-annually or even yearly) manual measurements or data from company invoices, making the data less valuable for continuous process improvement.

There are four indicator categories that companies and experts identified as the most important: electricity, water, fuel, and waste

Consumption of electricity, water, and fuel, and the disposal of waste represent costs that affect all companies in Costa Rica. These four indicator categories can provide baseline information about a company's environmental impacts. However, the relative importance of the four categories can vary in significance among companies. These four categories are also emphasized in the indicator frameworks reviewed in our background research, representing 30 of the 70 indicators from the four frameworks.

There is a disconnect between companies and environmental consultants on the importance of measuring carbon footprint

Measuring carbon footprint was mentioned by all five environmental experts that we interviewed, but only by three of the seven companies. Two of those companies are certified as carbon neutral, and the third is working toward achieving this certification. This disagreement suggests a disconnect between the country's goal and the practices of companies.

Recommendations

CICR should identify and classify their member companies by level of environmental performance

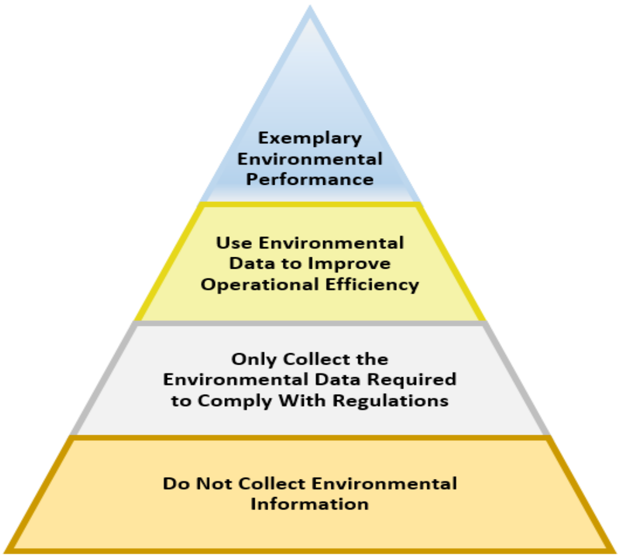

Figure 2 - Proposed Four Environmental Tiers of CICR's Member Companies

We recommend that CICR implement a four level system to categorize their member companies with respect to environmental performance, as shown in Figure 2. By organizing companies with this structure, CICR will be able to target appropriate resources, such as training sessions and informational bulletins, at each level and support companies to initiate and improve environmental programs.

CICR should provide training to its member companies that facilitate the process of using environmental indicators

Training sessions should be targeted at instructing companies on how to acquire environmental data, defining useful environmental indicators, how to calculate them, and how to better utilize environmental indicators in decision making. Training sessions can be geared towards the four levels of environmental performance. For example, trainings for middle-tier companies would highlight using indicators to increase operational efficiency and how to acquire data at a more specific process level.

CICR should develop and disseminate user-friendly resources to its member companies that encourage the adoption of environmental indicators

While CICR has collaborated with multiple partners to produce detailed environmental guides for their member companies, we believe that additional user-friendly resources would be beneficial. For example, a basic indicator workbook for SMEs can help them organize, record, and normalize their environmental indicators, and compare their performance over time Another useful resource could be a carbon footprint calculator that helps companies more easily estimate their carbon footprint based on environmental data that they already have.

CICR should support the development of government programs that encourage the use of environmental indicators

We recommend that CICR lobby the Costa Rican government to create incentive programs that reward companies for positive environmental performance. There has already been some development in these areas, including a new water law intended to reduce a company's water tariff if the company shows progress in reducing water consumption.

Conclusion

This work has identified barriers Costa Rican companies encounter when trying to use environmental indicators, and has detailed actions CICR can take to help its member companies. We intend for these results to help companies mitigate their negative environmental impacts, and to help increase the overall environmental sustainability of the Costa Rican industrial sector. Costa Rica is viewed by many as an example for sustainability. With improvements to their use of environmental indicators, Costa Rican industries can continue to set a standard for sustainable development on a global stage.