Environmental Performance Indicators in the Hotel Industry: A Methodological Analysis.

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Abstract

This article presents an overall view of environmental performance indicators in the industry hotel, having as a main objective the presentation of the methodological analysis according to: Moreira; Sink & Tuttle; and Andrade, Tachizawa & Carvalho. This theme is a contribution to strengthening the importance of sustainability in the area of tourism, especially in a hotel chain. This work is founded in the ISO 14031 norms, in a thesis, in articles and in a specialized bibliography on environmental management, tourism, hotel management and evaluation of performance, placing the Environmental Performance Indicator - EPIs as a competitive differential for environmental hotel management. Its purpose is to monitor the main environmental aspects and align them to the objectives and strategies of the hotel businesses.

Keywords: Environmental Performance Indicator; Sustainability; Hotel.

1. Introduction

Environmental management is still relatively recent. Interest for the environment had developed slowly up to the arrival of certificates that set this process in motion and turned environmental management into a competitive process.
Following this innovative tendency, the International Standards Organization (ISO) improved and implemented the use of environmental performance indicators, the so-called EPIs that help businesses to test their environmental performance.

Tourist activities have also evolved and are no longer considered to be a destructive element, but rather an ally in environmental conservation. Eco-tourism arose from the necessity to improve the quality of life, making sustainable development possible.

According Hassan apud Campos (2001, p.46) to remain competitive the main world-class destinations and tourist enterprises are diversifying to attract segments of tourists that are environmentally oriented. These segments have grown at high rates, from 25% to 30% per annum in comparison to 4% to 5% per annum for tourism as a whole.

Data from the World Organization of Tourism – WOT state that the tourist industry can be considered among the most important economic activities in a world context, being responsible for 192.2 million jobs, a number that should increase to 251.9 million by 2010. Their benefits are not only economic, but are of great social importance, since they represent a great stimulus for the development of our service infrastructure, according to Embratur.

There is a need for increased awareness about the complex nature of tourism, and to be aware of its dangers so that new ways can be identified and tourism based on sustainable development concepts can be carried out.

Today the development of tourist activities and its impact are a challenge for diverse segments of this activity. We should all assume responsibility and act in a manner that is compatible with our ethical values and evaluate the set of costs and benefits that tourist activities generates.

To make themselves adequate to this tendency enterprises are compromising themselves more and more to the environment and to their original cultures. Hotel operation is one of the large segments of tourist activities that generate exchange value and jobs around the world.

A study by professor Oliver Hiller, reports that the means of lodging that meet Brazilian eco-tourism needs have the following characteristics: small and medium-sized businesses, managed by their owners and the owner’s families, with little or no entrepreneurial vision. That is why they become vulnerable to problems such as seasonal
operations and the high costs of fixed operations. Another characteristic is the lack of skilled labor to meet the demands of providing good services to the visitors (Magalhães, 2001).

With law number 8181/91 national tourism policies (Política Nacional do Turismo – PNT) were established to increase tourism as a source of income, and generate employment and the social-economic development of the country (Magalhães, 2001). Among the main objectives of these policies are:

- The preservation of the environment, with sustainable development, improvement in the quality of life and regional development;
- The generation of exchange values and employment;
- The formation of skilled labor and of a competitive tourist product, including international exemptions;
- The satisfaction of the client.

Within what has been set in the national policies, in partnership with the Ministério do Meio Ambiente (“Ministry of the Environment”) and other public agencies, private initiative and Non-governmental Organizations, guidelines have been established for National Eco-tourism Policies.

The Programa Nacional de Ecoturismo (“National Eco-tourism Program”) in conjunction with the Instituto de Ecoturismo do Brasil (IEB) (“Institute of Eco-tourism of Brazil”), regional work projects were produced, identifying 96 eco-tourism centers in 26 states, according to Embratur.

In addition, according to Embratur statistics (2001, CD-ROM), the generation of employment in world tourism is 92.3 million people, and in Brazil – 6.0 million people.

“- For each US$ 7,000 spent, one job in tourism is generated;
- For each R$ 700,000 spent, one job in the automobile industry is generated;
- For each R$ 40,000 spent, one job in a hotel is generated;
- For each R$ 10,000 spent, one job in a restaurant is generated;
- For each R$ 50 spent, a job in handicrafts is generated.”
The hotel entrepreneur should keep in mind the importance of cost reduction, with services of high quality, seeking sustainability of its business, mainly through the evaluation of its overall performance. Eco-tourism comes into this context as a tool for sustainable development.

2. Methodological Aspects:

2.1 The Moreira Approach.

Market pressures are more and more agitated, demanding agile and rapid changes of institutions in the way they work. Therefore, the necessity arose for a system to measure performance that is applicable to all levels of the organization; as much for attending to the internal functioning of the company as with allowing it to be compared with other institutions.

With international competition, markets have become more dynamic and to confront this dispute, it is inevitable to think of the client in a way to meet their expectations, outperforming competitors, and to think of the manner in which they work, which should reflect on 6 main sets of indicators: use of resources; quality; time; flexibility; productivity; and the capacity for innovation.

The system of measures should come from a futuristic vision, that is, the position that the company wants to reach and maintain. The biggest challenge for any manager is to be able to transform this vision into reality, and the performance indicators in a quantitative way help devise this process.

“Vision is the link between the dream and the action. In the organization of the future, the numbers come after the vision. This serves “to pull” the organization in the desired direction and the numbers furnish a system of orientation to help the management direct the process” (Moreira, 1996, p. 107).

Following a sequence, to obtain the measurements, we should, first, have a vision of the company followed by its objectives or strategies. Then, with these objectives defined they
should be transformed into tangible actions, that are the critical factors to success and, finally, a system of performance measures is formed for this development.

![Diagram of company vision, strategic objectives, critical success factors, and system of performance measures.](image)

**Figure 2.1:** Bases for the Moreira approach system of measures.

### 2.2 The Sink & Tuttle Approach.

The measurement of performance can help the competitive capacity of a business through the improvement of its performance. According to Sink & Tuttle (1993) the model of evaluation of the performance establishes that the performance of an organizational system is made up of a complex of various interrelated criteria. The performance criteria are: effectiveness, efficiency, quality, productivity, quality of life on the job, innovation and profitability.

“The essence of management is: we cannot manage that which we cannot measure” (Sink & Tuttle 1993, p. 20).

The mainstream is the improvement of performance, which occurs from these 7 criteria. The activities that occur in a company should be clearly directed toward two objectives: to accomplish the work and constantly improve the performance. For this to occur,
it is necessary that the individuals and the organizational systems have a clear understanding of what accomplishment of the work represent and how this is related to the performance of the organizational system.

The answers to the competitive challenges of companies begin with the planning process. According to Sink & Tuttle the planning process for the improvement of performance takes eight steps:

2.3 The Andrade, Tachizawa & Carvalho Approach.

The model of environmental management, according to Andrade et al, is based in corporate strategies, indicators and benchmarking, processes, organizational configurations and information technology, human resources, quality and evaluation criteria.
The strategy of an institution should be formulated and approved so it can be implemented, and after the fact, be made to control. In the control phase it is necessary to review the strategy, and the indicators facilitate this evaluation when they reflect what was expected in terms of performance in a concrete manner, and for the implementation of these changes that are to be made necessary, it is essential that there be a program of constant evaluation.

The impact of any undertaking on the environment, will always be present; therefore, it is fundamental that as much should be known about the impact of the action as the means to make that action take place; that is, it is necessary to obtain data, elaborate them, proceed with the analyses and interpret the results in the correct manner. The performance can always be improved, through the utilization of benchmarking where the indicators of a company are compared to other companies, taken as a reference, to obtain a model of how the company should be.

In order to measure the effects of intervention on the environment, qualitative and quantitative measures can be adopted. In the qualitative form the environment should be examined and the characteristics of the project relative to the task should be reviewed, in an attempt to identify the sensitive and critical areas in relation to the foreseen action. In the quantitative form, values and indexes of the elements that make up the environment should be measured, according to Andrade et al.
According to Andrade (2002, p. 143), in the determination of consistent measures for the organization the following should be done:

“a) identify the most important outcomes of the organization and each key process;  
b) identify the critical dimensions of performance for each one of these outcomes;  
c) determine the measurements for each critical dimension;  
d) develop goals or standards for each measurement.”

With the measurements established in the form of indicators of performance, it is possible to (Andrade, 2002, p. 144):

“a) assure that the performance in the institution is being managed;  
b) adequately identify the problems and set priorities;  
c) establish a clear understanding for the employees of what the company expects of them;  
d) assure an objective and equitable basis for compensation and incentive programs.”

Andrade et al., suggest that the following should be defined for each indicator; a goal (value to be reached and deadline for its completion); a graphic visualization from the data in a historical series; the value of the benchmark (reference point of excellence) for means of comparison with the market. The performance indicators can be amplified, reduced or adjusted.

3. Environmental Performance Indicators (EPIs)

The use of a standard offers significant competitive advantages, generating increased profits in the medium and long term. The ISO standards use environmental performance evaluation, but the ISO 14031 innovated with the addition of the indicators that measure this performance, allowing for greater competitiveness between companies.

The ISO 14031 is a norm that furnishes guidelines for the Environmental Performance Evaluation (EPE), and is a way to calculate the environmental performance of companies in the service and production sectors of the economy, through a set of environmental indexes that encompass elements of its activities, services and products that can have an impact on
nature. It is a process that uses indicators that are already established by the company to compare the current performance with the past performance of these organizations.

The ISO 14031(1999, p. 4) is divided into two categories of indicators:

“- environmental performance indicators (EPIs); and
- environmental condition indicators (ECIs).”

According to ISO 14031(1999, p.4), the EPIs are subdivided into two types:

“- management performance indicators (MIPs), are a type of EPI that provide information about management efforts to influence the environmental performance of the organization’s operations.

- Operational performance indicators (OPIs), are type of EPI that provide information about the environmental performance of the organization’s operations.”

Depending on the nature of the business in different types of organization the impacts will be differentiated. It is up to the companies to establish a planning process to identify the environmental aspects of their activities that will have a significant impact on the environment, evaluating the inputs and outputs of their productive process.

The measurement of performance is not a simple easy task. It is necessary to integrate it in a set of environmental indicators based on the activity for which it is destined. In conformity to each activity, the companies can find an unlimited flexibility in the selection of indicators that could be adequate for use in the whole organization. And, it is also important to restate that these measures should be easily understood; complicated yardsticks are usually disassociated from reality.

According Webb (2002, p.49), the EPIs are yet another element in the set of tools that environmental managers could find use for in the following cases:

“- To establish objectives and targets within environmental management systems such as ISO 14031 and EMAS;
- To define criteria and performance levels for product eco-labels and report cards;
- To describe performance on a consistent basis within environmental reports and other communications;
- To assess the likely environmental impact of industrial sites at the design/planning stage;
- In benchmarking exercises within and between industrial sectors.”
The ISO 14031 has developed a procedure that identifies the environmental aspects and associate indicators. These indicators furnish an effective tool for producing policies and making environmental decisions, aligning the activities with the goals of the organization.

4. Hotel Chain Indicators

Hotels have come face to face with the importance of accompanying environmental tendencies that have become a key factor for competition in this new century. Tourism is an industry that moves 4.5 trillion dollars per annum and employs 200 million people around the world (Embratur, 2001) and makes a profound contribution to the economic development of an entire nation. For this and innumerable other motives tourism can be made a great instrument for sustainable development, reducing regional, social and economic inequities.

Sustainable development in hotels is fundamental because their productive units depend essentially on the environment in which they are located and the preservation of that environment becomes a crucial factor in their business. Is the hotel capable of defining, in detail, the process in which their company manages environmental performance? Are the environmental strategies being effective? And, we can even ask, who wants to be a guest in an environment in which levels of pollution are health hazards? Beginning with these presuppositions, these companies should be concerned with the greatest issue: to have arguments to convince the public to use the installations and services of their hotels and for this, above all, they should know their position in the market.

The hotel chain, as a model of environmental management, should be focused on the commercialization of their products, following ecological tendencies, keeping an eye on costs by using less water, energy, generating less waste, recycling, reusing, recovering environments and placing themselves in a more competitive position. Environmental Performance Indicators in a hotel chain can test this performance, checking whether what is expected, is really being achieved, and even permitting a comparison with the performance of other hotels. Therefore, the use of environmental indexes is useful for the identification of the pressures generated by the hotel on the environment in a measurable form.
Generically speaking and only for the effect of illustration, the environmental performance indicators in hotels could be standardized for the measurement of:

- Consumption of water per guest;
- Amount of water reused in the hotel;
- Consumption of energy per annum;
- Consumption of energy per habitational unit - UH;
- Consumption of energy per guest;
- Consumption of energy per type of energy consumed;
- Consumption of cleaning products per square meter;
- Amount of residues produced monthly per guest;
- Number of initiatives implemented by the hotel to prevent pollution;
- Number of employees that participate in environmental programs;
- Degree of conformity with urban legislation and the environment;
- Costs associated with environmental aspects of the process.

5. Conclusion

The growing interest of tourist in the environmental area has been promoting ecotourism, and with it the search to develop environmental and economically feasible policies based on sustainability. Faced with these new challenges, the Environmental Performance Indicators are presented as an ancillary measurement factor in the environmental decision making of organizations. Thus, hotels have been confronted with the importance of accompanying these tendencies, which are a key factor for competition in this new century.
6 – Bibliography


WEBB, L. How Green is my Company? *PPI This Week. Chicago*, USA. P. 49-51, octomber, 199.