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Analysis of the process of adjusting organizational practices to meet international certification standards for leather production: a case study of a tannery in Vale do Rio dos Sinos, Brazil

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Abstract

Intensification of competition between different players in the leather production market has forced companies to adopt organizational practices that can contribute to establishment of sustainable competitive advantages. Reviewing the modus operandi is one of the strategies they have employed to meet market demands. The tannery investigated in this study, ALPHA, located in the South of Brazil, chose to standardize its processes to meet an international standard developed specifically for the leather tanning industry. The Leather Working Group guidelines were used to direct the process of reviewing and changing organizational processes with a focus on environmental management. The investigation was conducted by means of a qualitative method using in-depth interviews and a documentary survey. This article describes the results achieved by the company in the following dimensions: survey of legal documentation; control of Wet-Blue leather and leather supplier development; control of restricted substances; creation of an emergency plan; energy

efficiency; quality of atmospheric emissions; waste management; interaction with the community; creation of an environmental management system; and control of water consumption and effluent treatment.

Keywords: Sustainability. Environmental Management. Leather Industry.

Introduction

At the beginning of the last century, the majority of countries made economic development their top priority, as a means of achieving higher levels of social prosperity. The model that was adopted was based on incentives for production and consumption, which encouraged organizations to exploit natural and non-renewable resources with greater intensity, putting the entire ecosystem at risk. Realizing that this situation was unsustainable, public actors in many countries, the management of organizations and researchers began to debate alternative means of achieving economic and social development while reducing environmental risks.

One of the most controversial issues and one that demanded the greatest time for discussion and analysis is related to the need of conciliating questions of the environment and sustainability with the economic returns that are essential to ensuring the survival of organizations in the market. The issue is complex because of the multiple interests involved in the process and it remains relevant today, with no definitive model, but with certain possibilities that can be adapted to the specifics of the scenarios in which given organizations find themselves.

Although the debate is still ongoing, the process has already made important gains, since there was a time when questions of the environment and sustainability were seen as barriers to competitiveness and investing in items such as clean production, waste management and emissions reductions were seen purely as a cost or a necessary evil. With the prospect of exhaustion of natural resources, organizations were forced to reflect, paying special attention to the environment as never before, recognizing that it is still the predominant source of raw materials and the recipient of all of the waste created throughout the production process.

The subject of environmental management was therefore introduced to the context of business administration with the primary objective of achieving rational use of natural resources, whether renewable or otherwise, and of designing and implementing methods and processes that guarantee control and reduction of the impact of business activities on the environment (ANDRADE; TACHIZAWA; CARVALHO, 2002). Nowadays, environmental management has become a priority for many organizations that have already recognized the importance of aligning strategies for growth with elimination or reduction of environmental risks (NAIME, 2002; SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ALMEIDA; MELLO; CAVALCANTI, 2001; DIAS, 2011; TACHIZAWA, 2011; BARBIERI, 2011; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

As a result of this, the question of environmental preservation has become one of the most relevant issues in the contemporary market. More and more, organizations are developing and implementing a variety of solutions focused on sustainable development, but which are also designed to maintain the profitability of their core businesses (TACHIZAWA; ANDRADE, 2012). As a result, new business initiatives tend to

consider the trio of economy, environment and society, which have assumed a position of prominence in a business scenario that is ever more competitive and dynamic.

In this scenario, the value of adopting sustainable production processes and adequate management of waste and emissions is guaranteed (BANKUTI; BANKUTI, 2011). In the current situation, with ever more severe and punitive legislation imposing significant sums in fines, investor groups begin to consider sustainable practices as an issue that goes beyond the ecological sphere and one that can determine the rules for continued survival of any type of business (DIAS, 2011).

However, here in Brazil it can be observed that few organizations see the question of sustainability as a strategic subject that is of relevance to development of their plans for growth over the long term (TACHIZAWA, 2011). One of the reasons for this is linked to the difficulties inherent in its operationalization and this will only be overcome if organizations can see adoption of environmentally-friendly policies as a path to construction of competitive advantages such as: (i) adding value to the business; (ii) demonstrating commitment to environmental issues; (iii) mapping of environmental processes and impacts; (iv) construction of environmental knowledge.

Practices for the prevention of pollution are a partial result of this reflection, which in the area of environmental management, is contributing to development of new processes and products, thereby avoiding investment of additional capital in waste management. Considering the relevance of environmental practices to organizational competitiveness, the objective of this study is to analyze environmental practices adopted by a finishing tannery in the Vale do Sinos region of Rio Grande do Sul state, Brazil.

The methodological design chosen is qualitative, involving data collection by observation at the company, supplemented by the documentary survey and analysis, conducted in order to allow triangulation of data, as recommended by Yin (2010).

The central objective of the study that produced the results on which this paper is based was to analyze the organizational practices employed by one company, with a focus on its adoption of an environmental management system. The structure of the paper starts with the theoretical framework, founded on bibliographic research, employed to accomplish the study objective, which is then followed by a description of the methodological procedures involved and an analysis of the data collected. Finally, certain conclusions are drawn from the facts that were observed and discussed.

The context of the leather and footwear cluster in the Vale do Rio dos Sinos

The origins of the footwear manufacturing cluster in Rio Grande do Sul, Brazil, and more specifically in the area of the Vale do Rio dos Sinos, go back to 1824, when German immigrants began to arrive (COSTA; FROELICH, 2007). They applied their entrepreneurial spirit to the challenge of ensuring their own survival on the new continent, setting up many factories serving footwear manufacture, including leather tanneries and supporting industries, in particular producing parts, machines and equipment for manufacturing footwear. One hundred and forty years later, in the nineteen

sixties, the region's footwear factories were already responsible for an average of 33% of the production of Brazil's leather and footwear industry.

As a result of the consolidation of the leather and footwear cluster in the region, several North American retail chains also established relationships with the region, signing long-term contracts with local manufacturers for significant volumes. According to Bazan and Aleman (2003), the reasons that contributed to the north American buyers' decision were as follows: a) the well-organized and experienced leather and footwear production chain; b) the existence of good-quality local suppliers; c) the stable and specialized business environment; and d) tax incentives for exportation offered by the Brazilian government.

During the nineteen seventies, the footwear industry in the Vale do Rio dos Sinos increased its share of Brazilian footwear production to 43% and became responsible for 75% of the entire volume of Brazilian footwear produced for export (ACI, 2011). In the following decade, and predominantly due to the contribution made by the factories in the Vale do Rio dos Sinos, Brazil reached the point at which it was responsible for 7.6% of the world's footwear exports in 1985, while China, which was just entering the export market, was only responsible for 1.4% of world footwear exports (ACI, 2011; SCHMITZ, 1992).

Nevertheless, as a result of a series of factors, primarily related to politics and exchange rates, China's footwear factories became more competitive, primarily because of prices that were lower than the production costs in other footwear-producing countries, changing the ranking of countries in terms of their share of the world footwear market.

Notwithstanding, despite the highly unfavorable conditions caused by Chinese competition, the leather and footwear cluster managed to export 212 million pairs (ABICALÇADOS, 2008). Authors such as Schmitz (1992), Galvão (1999), Gandini (2003) and Costa and Froehlich (2007) agree that this is one of the most favorable and achievable ways of preserving a footwear manufacturing culture in the Vale do Rio dos Sinos.

Environmental Management System

Over the recent decades, environmental management has become a focus of attention for both researchers and the management of organizations. One of the reasons for this is the potential that socio-environmental responsibility has to contribute to the accumulation of sustainable competitive advantage, because of growing concern within society, manifest in the actions of the media and mediated by the regulatory and normative powers of governmental agents (SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ANDRADE; TACHIZAWA; CARVALHO, 2002; ALMEIDA; MELLO; CAVALCANTI, 2001; DIAS, 2011).

As the subject of environmental management has become the subject of ever more recurrent concern among organizations over recent decades, and as a result, the subject of increasing interest among researchers, a number of different definitions have been proposed in attempts to delineate the characteristics of environmental management (NAIME, 2002; SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; DIAS, 2011; CALLADO; SOARES; MACHADO; CALLADO, 2009). By combining the central aspects

highlighted by the authors reviewed, it can be stated that environmental management comprises those organizational activities performed with the objective of diagnosing the organization's environmental situation and developing a management model to adjust internal processes in such a way that they meet the demands of applicable legal frameworks (TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Since changes in both the structure and functioning of the organization are involved, it is understood that top management's involvement in construction and promotion of new institutional rules is of fundamental importance since they will guide organizational development, permeating all corporate activities and even the way that workers think. In view of this, many different authors (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA, 2011; BARBIERI, 2011; MOURA, 2011) have come to the conclusion that the principles of organizational environmental management must be made part of organizational strategy and environmental management must be allocated its own budget, not subject to the financial planning of other organizational departments.

Research has shown that many different factors have an influence on the effectiveness of environmental management within organizations, with particular emphasis on the sector in which the company does business, the degree of management professionalization, company size, number of direct employees and geographical location (SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ALMEIDA, MELLO; CAVALCANTI, 2001; DIAS, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009). Greater polluting potential of a company's core business and a larger number of direct employees make a direct contribution to increasing an organization's visibility to society, represented by regulatory organs and nongovernmental organizations committed to environmental protection, thereby obliging the organization to adopt environmental management practices.

From the perspective of authors such as Naime (2002), Shigunov Neto, Campos and Shigunov (2009), Andrade, Tachizawa and Carvalho (2002), Almeida, Mello and Cavalcanti (2001), Barbieri (2011), Donaire (1999) and Moura (2011), both external and internal motives exist for designing and adopting an environmental management program. The most important motives of internal nature include the possibility of reducing costs, updating technology, optimizing production processes and developing an ecologically correct internal culture. The most important external reasons are the tendency for society to attempt to prevent ecological accidents, and demands from stakeholders, primarily sources of finance, local communities, civil society and government. Also of relevance are regulation of the environment, markets and sources of resources and the role played by organized civil society.

The literature dealing with environmental management that was reviewed for this study describes three different environmental management strategies, specifically: (i) prevention of pollution, (ii) product planning and (iii) sustainable development. The first of these strategies is related to control of pollution, when firms attempt to adapt to regulatory pressures and the demands of the market. The second refers to prevention of pollution, which demands changes to production processes and to the products made. The third strategy encompasses the conception of more proactive actions, permanently involving the entire production chain and the entire organization in the ac-

tions to correct, prevent and anticipate risks of environmental problems (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

With regard to the implementation of the strategies, the literature offers a five-stage classification of organizations' environmental management programs, ranging from an absence of or very limited degree of environmental management to programs that have been cascaded throughout the company (NAIME, 2002; SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009). The highest level of environmental management programs includes employee education, constant information management and rapid problem resolution. When environmental issues attain this highest level, they are incorporated into the company's targets, policies and strategies, which consider the environmental impact of its processes and products (ALMEIDA; MELLO; CAVALCANTI, 2001; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

It can be stated that adoption of environmental management policies and programs will demand changes and modifications to a large number of the organizational practices that make up companies' operational and production systems. Practices related to products and practices related to processes are among the organizational practices most affected by adoption of environmental management programs (SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ANDRADE; TACHIZAWA; CARVALHO, 2002; ALMEIDA, MELLO; CAVALCANTI, 2001). In the first case, changes are focused on efforts to design products in such a way that elements with polluting potential are eliminated, the consumption of resources during production is reduced and disassembly or destruction is facilitated in order to increase reuse and recycling. Changes to practices related to processes are intended to increase environmental awareness in production, in methods and in operational processes and may affect internal processes and include practices for prevention and control of environmental impact, such as installation of emissions filters or recyclable waste separation systems (TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Studies that have investigated environmental practices in Brazilian organizations have observed a wide range of approaches, both conceptualized and operationalized, varying depending on type of process or product, size of organization and region of activity, and the types of technological innovations adopted (ROHRICH; CUNHA, 2004). Researchers observed continuous application of a combined economic, environmental and technological strategy integrated into processes and products in such a way as to increase organizational efficiency in areas such as use of raw materials, water and energy by means of not producing waste, minimizing waste or recycling waste (NAIME, 2002; SHIGUNOV NETO; ALMEIDA, MELLO; CAVALCANTI, 2001; DIAS, 2011; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Adoption of an environmental management system by an organization includes implementation of practices or mechanisms that are capable of effectively minimizing the environmental impact of its industrial processes. This is true of all sizes and types of organizations and the objective is to strike a balance between environmental interests and the socioeconomic needs of each business. One aspect of environmental man-

agement is that each organization must identify which environmental impacts it can control or influence through the lens of its operational processes (SOLEDADE et al., 2007).

An efficient environmental management system comprises administrative and operational practices for the control and minimization of a given activity's impact on the environment. Such a system aids organizations in defining the stages of assessment, planning and implementation of the processes that will manifest their sustainable orientation. Adoption of an environmental management system enables organizations to ensure compliance with environmental legislation, to reduce risks and to obtain economic advantages. Investment groups see the adoption of environmental practices as a sign that an organization has both productive capacity and the capacity to reduce the risks of accidents or of non-compliance with applicable legislation, thereby warding off events that could compromise its image and competitiveness (DIAS, 2011; CALLADO; SOARES; MACHADO; CALLADO, 2009; BARBIERI, 2011; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

This is the goal of the "Leather Working Group", which is made up of suppliers, brands, retailers and specialists in the leather industry, NGOs, academic institutions and other organizations, and is responsible for developing and maintaining a protocol that assesses environmental compliance and development of tanneries and promotes appropriate environmental and sustainable business practices in the leather industry (LWG 2012).

The LWG (2012) requires that audits be conducted to ensure that the requirements of its standards have been met, including an assessment of effluent treatment even if this is carried out at a different site, and of technical activities for maintenance and management, even when these are conducted in the name of other companies that are members of the same group. The audit does not cover residential elements (dormitories, canteens, etc.), even when located on site.

Methodology

The research method chosen was a case study, on the basis that it is the approach that best fits the study objectives and research questions. Tull and Hawkins (1976, p. 323) state that a case study is an intensive analysis of a specific situation. According to Yin (2005), case studies should be preferred when it is wished to investigate contemporary events in situations in which the relevant behavior cannot be manipulated, but in which it is possible to make direct observations and conduct systematic interviews. The study was conducted from the external perspective of the researchers with no involvement or manipulation of any information and the facts revealed by the study are contemporary. In line with the applications for case studies cited by Yin (2005), this study attempts to describe the context of real life and to conduct a descriptive assessment.

Bonoma (1985, p. 207) has stated that case studies are useful when a phenomenon is large and complex, when the body of existing knowledge is insufficient to allow questions of causality to be posed and when a phenomenon cannot be studied out of the context in which it naturally occurs. The objectives of the case study method are

not quantification or enumeration, but rather: (1) description; (2) classification (development of typologies); (3) development of theory; and (4) limited tests of theory. In short, the objective is understanding (BONOMA, 1985, p. 206). In the empirical component of this study, situations are described as occurred and the organizations investigated are considered, to a limited extent, in the light of theory.

The description is based on analysis of narratives, constructed from five in-depth interviews with people in management positions at the organization being investigated. Transcription of the interview normally results in a non-linear and sometimes confusing text, because of the format. This is then interpreted and rewritten in the form of a cohesive, fluid text in the first person, in the form of a narrative. This text is then given to the interviewee for checking, modification and/or contributions. Although the method is not considered recent, it is still treated as innovative.

A narrative can be interpreted as a speech act that is organized around a given event, situation, subject or theme. In greater detail, it is the way in which people relate their experiences, what they emphasize or omit, whether they position themselves as protagonists or as victims. To a certain extent, it can be stated that written narrative-based research consists of studying stories which originate in people's statements about their own histories and about other people, becoming part of everyday conversations (RIESSMAN, 1993). In addition to these spontaneous statements, researchers taking a narrative-based approach must stimulate oral stories about specific subjects in order that they can be transcribed and analyzed. Narrative-based research is seen as one of the approaches used in social research (POLKINGHORNE, 2007).

Czarniawska (2000) states that the narrative analysis method is appropriate when the investigator wishes to reveal the processes the narrator has adopted to interpret things, and is particularly suited to evaluation of individual's interpretations of subjective topics, such as organizational culture. It is left to the researcher to interpret the narrator's interpretations. Nevertheless, it must not be forgotten that the researcher does not have direct access to the experiences of the people being observed and for this reason the researcher must deal with, and always will deal with, different and ambiguous forms of representation of experience which the narrator will relate through speech, text, interaction and, of course, interpretation. This is why it is impossible for the researcher to remain neutral or objective when representing reality.

With the objective of reducing bias originating in respondents and researchers, and also to reduce the influence of idiosyncratic characteristics that are typical of the evidence thrown up by single case studies, the authors of this study acquired access to internal organizational documentation, facilitating triangulation of data. Yin (2005) has recommended this practice on the basis that triangulating data allows researchers to confirm subjective data and information.

This paper describes a case study conducted using observations and data made available to the researcher during consultancy conducted over a period of 27 months. The case report is based on data from February 2011 to May 2013.

The company under investigation, hereafter referred to as ALPHA, is a finishing tannery. In other words it buys leather in the Wet Blue state and performs retanning and finishing processes, selling the end products on both domestic and export markets. The firm has been in existence for more than 25 years and is located in one of the municipal districts of the Vale do Sinos, in Rio Grande do Sul state, Brazil.

Analysis of results

During the last 10 years, the leather tanning industry has undergone a series of structural changes that have had a negative impact on the performance of the companies that do business in the sector. The majority of their customers are footwear, apparel and furniture manufacturers and during the 1980s and 1990s these customers used to purchase large batches of leather, with little variation in finish. This situation changed dramatically over the following decade, as the market began to demand smaller lots and variations in color and finish, which had a direct impact on tanners' productivity and financial results.

This change in the business climate in the leather production industry stimulated ALPHA to reflect on options for preserving its capacity to compete, forcing it to review its internal processes and prevailing organizational practices. This analysis together with structural changes introduced in the organization's internal environment made it possible for the company to standardize its processes in line with ISO 9001 and, at the end of 2005, ALPHA obtained certification. In parallel with the review and standardization of processes in compliance with ISO 9001, one of ALPHA's most important customers demanded that it participate in a Supplier Quality Management program. One element of this program was sustainability, which led ALPHA to adopt metrics and indicators to monitor those internal processes that involved non-negligible environmental risk and to control the quantity of chemicals used for retanning and finishing.

The results of adoption of indicators made it possible for the organization to achieve considerable reductions in costs and to optimize utilization of many different operational resources, contributing to improved performance and financial results. In view of this, the company decided not only to maintain the changes, but to extend the initiative to other areas, including environmental issues. As part of this initiative, over the years Alpha adopted a series of environmental practices, focusing on water quality of effluents, water consumption and waste management. Notwithstanding, the majority of these actions were reactive. In other words, they were in response to legal requirements, the exception being water consumption, since the company had attempted to save and reuse this resource since its foundation.

At the end of 2010, one of ALPHA's foreign clients made it a condition of continuing to purchase from the company that it implemented the Leather Working Group's environmental audit protocol for tanneries. In common with ISO 9001 and Management through Quality, implementation of this certification represented a source of sustainable competitive advantage for ALPHA, as is claimed in the literature reviewed (SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ANDRADE; TACHIZAWA; CARVALHO, 2002; ALMEIDA; MELLO; CAVALCANTI, 2001; DIAS, 2011).

Seen from this perspective, one of the most important elements is the adoption of practices subjacent to socio-environmental management to create competitive advantages, because they facilitate alignment with contemporary market tendencies, which in turn are included in investors' decision-making criteria, both domestically and internationally. According to Naime (2002), Shigunov Neto, Campos and Shigunov (2009), Andrade, Tachizawa and Carvalho (2002), Almeida, Mello and Cavalcanti (2001), Barbieri (2011), Donaire (1999) and Moura (2011), the motive for designing

and implementing an environmental management program is more and more often the demands of society, governments and other stakeholders, which influence management and their decisions.

In February of 2011, ALPHA made a decision to begin the process of achieving compliance with the Leather Working Group (LWG) protocol and set up a multidisciplinary team to take charge of the task, including one of the researchers involved in this study, who had been providing quality management consultancy services since 2003. The other members of the team were as follows: the production manager; the industrial director; finishing and retanning technicians; an administrative manager; the head of human resources; an export assistant; and some operational-level workers.

The first step in the process of implementing the LWG protocol consisted of conducting a diagnosis of the points in the protocol to determine the level of compliance with each item. The initial diagnosis showed that the firm would not achieve the minimum score needed for the bronze medal on the LWG certification system. The company did meet the requirements for effluent treatment, waste management, water consumption, production management and document control, but the remaining items required improvement.

After this diagnosis had been completed, all of the members of the committee worked together cooperatively to construct an action plan with each expressing and contributing his own perceptions and experiences with regard to each subject discussed. In this manner, pari passu, the group worked to define critical points, allocating tasks and responsibilities, monitoring implementation of each of the actions, and pursuing results, until, after 26 months of working together, a second external audit conducted in June 2013 confirmed compliance with the demands of the LWG protocol.

There was evidence at certain points in the process of convergence with the literature reviewed (TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011), according to which environmental management comprises the organizational activity performed with the objective of diagnosing the organization's environmental situation and developing a management model that is better aligned with its objectives and is compliant with the legal strictures that regulate the organization's business.

Measures Implemented

Survey of legal documentation

The company organized all of the documents required for environmental management in a single location. These included operating permits, fire safety certificates, building floor plans, certificates of vegetative cover compliance and well usage permits, which had been dispersed across several different departments. In addition to facilitating organization, this made it possible to construct a master spreadsheet to control expiry dates of all documents and reports, making it possible to monitor all of the validities demanded by environmental organs. This action is part of the strategy for prevention of pollution through which companies attempt to adapt to normative pressures and market demands (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA,

2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Control of Wet-Blue Leather and development of leather suppliers

In order to meet this requirement, ALPHA developed a method to control traceability of leather. The system uses a code to identify each animal from origin to destination and even allows the company to check with suppliers that no leather has been sourced from animals raised within the Amazon Biome. Additionally, suppliers were obliged to provide declarations of conformity with environmental principles.

Suppliers who met the requirements for LWG certification guaranteed their status as supplier to ALPHA by so doing. Indeed, currently more than 90% of ALPHA's wet-blue leather is bought from suppliers who have also been awarded medals after LWG environmental tannery audits, thereby contributing to establishment of an environmentally correct supply chain. Thus, in developing its chain of suppliers, it is clear that that the firm is adopting the third strategy of environmental management, which aims to take more proactive actions, permanently involving the entire production chain, and indeed the entire organization, in corrective, preventative and anticipatory actions, thereby reducing the risk of environmental problems (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Control of restricted substances

As has been expounded in the literature on the subject of environmental management (SOLEDADE et al., 2007), successful adoption of environmental practices is dependent on their adherence to and alignment with the organization's financial objectives. Only then will it be possible to combine environmental practices with operational processes, making adjustments and changes that will make it possible to reduce the environmental impact of the organization's activities. In this respect, the study was able to trace the way that ALPHA managed to gradually substitute or adjust usage of a series of raw materials that are traditionally employed in the tanning process with acceptable financial results, but which contain elevated levels of restricted substances. As part of the process of adoption of a policy for the control of restricted substance use, as mandated by the LWG standards set, ALPHA conducted testing of finished products and part of the supplier qualification process was a system to control these substances, by which supplier certification was conditional on emission of inspection certificates proving reduced levels or complete absence of restricted substances. As a result of this policy, 75% of the firm's products are covered by tests that are capable of showing that its leather meets the standards demanded.

Creation of an emergency plan

The firm developed and implemented an emergency plan covering items such as evacuation in the event of fire and control of chemical spillages. Some of the most important results of this action include: (i) better signage throughout the firm; (ii) availability of chemical spillage containment kits in the production area; (iii) and construction of a specialized warehouse for dangerous products, in accordance with technical standards. Fire drills are now scheduled every six months and the fire officers meet monthly to analyze the need to revise the emergency plan and to conduct training. Fire officers' meetings had previously been recorded haphazardly in a notebook, in the form of minutes. After the changes, meetings now have a specific script and method, leading to significant improvements in this requirement, which has been identified by many authors as of fundamental importance to reducing environmental risk in organizations (SOLEDADE et al., 2007).

Energy efficiency

The literature reviewed indicates that practices related to products and practices related to processes are among the organizational practices most affected by adoption of environmental management programs (SHIGUNOV NETO; CAMPOS; SHIGUNOV, 2009; ANDRADE; TACHIZAWA; CARVALHO, 2002; ALMEIDA, MELLO; CAVALCANTI, 2001). The data collected at ALPHA provides evidence that the company introduced controls of energy consumption and implemented measures to reduce consumption, such as employee awareness-raising programs, and preventative maintenance focused on reduction of energy consumption. Over the last 24 months, since these programs were adopted, energy consumption at ALPHA has varied around 60 MJ/m^2, which is an appropriate level of consumption for leather tanning activities, according to LWG.

Quality of atmospheric emissions

Previously, the management at Alpha had never concerned itself with controlling the quality of atmospheric emissions. As a result, the committee had to pay special attention to design and implementation of this type of control in alignment with the applicable standards required for LWG certification. This initiative led to adoption of the following organizational practices: (i) monthly testing of the boiler chimney and the company's trucks using the Rigelmann scale; (ii) outsourcing of VOC and NOX to a service provider certified by the state environmental protection agency FEPAM (Fundação Estadual de Proteção Ambiental); (iii) installation of gas scrubbing filters; (iv) installation of HPLV (high pressure low volume) spray guns, improving productivity and reducing VOC emissions into the environment by 40%.

The practices adopted and operationalized by ALPHA are evidence of the incorporation of environmental targets to the organization's strategies focused on operational processes, which bears out the literature that was reviewed, since it states that practices related to processes are altered to achieve more environmentally aware pro-

duction, methods and operational processes, which can include internal processes and practices for prevention and control of environmental impact, such as installation of emission filters or waste separation systems (TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011).

Waste management

In order to meet their waste management commitments ALPHA developed a specific plan following NBR 10004 guidelines, in addition to developing and cascading instructions for introducing selective recyclable waste collections in all departments, with a program to train all employees. In order to strengthen the maintenance stage of the waste management program, which is considered the most critical, the recyclable waste separation item was added to the 5S audit process, as was employee understanding of the issues involved, particularly environmental risks and impacts. A central waste management unit was set up and today waste is controlled and sent for processing or disposal as established in the applicable legislation. As a result of this program, 54% of dangerous waste is sent for recycling and 46% to licensed landfills. Furthermore, one hundred percent of non-harmful waste is sent for recycling.

Adoption of these controls by the firm strengthens its use of the second strategy of environmental management described in the literature reviewed (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011), according to which prevention of pollution demands changes to production processes and to the products made.

Interaction with the community

The company created a space on its website for the community to make complaints and comments and it also makes regular contact with the municipal authority to check for complaints related to the environment and maintains a dossier specifically for this purpose. At the time of writing, no contacts of this type had been made, whether by public organs or members of the community.

Creation of an environmental management system

The literature reviewed mentions that the highest level environmental management systems include employee education, constant monitoring of information and rapid solution of problems, which must be incorporated into the targets and strategies for processes and products (ALMEIDA; MELLO; CAVALCANTI, 2001; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011). From this perspective, it was observed that the company created an environmental policy and programs and indicators to monitor compliance with it. This policy is communicated to employees during training, induction trainings and in an

integrated environmental management booklet. A survey of issues and impacts was also conducted and the operational controls needed to minimize or eliminate these impacts were defined and analyzed for compliance with applicable legislative requirements.

The company formalized all of the practices described above in the form of manuals, procedures, work instructions and registers. Environmental audits are held every three months by an external auditor, to avoid conflict of interest. Critical analysis meetings are conducted every six months with the involvement of directors and management. This organizational practice echoes the position found in the literature reviewed which states that changes in structure and functioning of the organization need top management buy-in and must permeate all activities and even the way employees think, including integration into the company's strategies (CALLADO; SOARES; MACHADO; CALLADO, 2009; TACHIZAWA, 2011; BARBIERI, 2011; MOURA, 2011).

Control of water consumption and effluent treatment

The literature emphasizes the relevance of actions designed to control water consumption and also for effluent treatment, in a continuous application of an economic, environmental and financial strategy, integrated into processes and products, in such a way as to increase organizational efficiency and covering use of raw materials, water and energy, managed by means of non-creation, minimization or recycling of waste (NAIME, 2002; SHIGUNOV NETO; ALMEIDA, MELLO; CAVALCANTI, 2001; DIAS, 2011; TACHIZAWA, 2011; BARBIERI, 2011; DONAIRE, 1999; ALIGRERI; ALIGRERI; KRUGLIANSKAS, 2009; MOURA, 2011). Today, ALPHA has a closed water utilization circuit, reutilizing 30% of the water in effluents after treatment and maintaining effluent parameters within the limits defined in legal standards and by the company's Operating Permit. Documentation is duly organized and centralized in just one of the company's departments and a process was introduced to adhere to a schedule specifying deadlines for collecting samples and sending analysis reports to FEPAM, which has eliminated the late submissions that were identified in the initial diagnosis.

Final comments

Stimulated by factors of macroeconomic nature which have had a considerable impact on trade relations between countries that do business in this specific industry, competition in the global leather production market has forced organizations to adopt strategies to ensure their survival in the market. One of the most important strategies they have adopted has been to review internal processes to make cost reductions possible and improve operations and projects in order to achieve sustainable competitive advantages.

The study that produced the results on which this article is based analyzed the case of a tannery located in the south of Brazil that invested in improving its internal processes, both operational and management, up to the industry's international standard of excellence, which is defined in the set of standards developed by the Leather

Working Group. Since this was a single case study, its results contribute to greater understanding of all of the procedures adopted and their impact in terms of improving the organization's financial results.

The dimensions investigated and analyzed in this article encompass: survey of legal documentation; control of Wet-Blue leather and leather supplier development; control of restricted substances; creation of an emergency plan; energy efficiency; quality of atmospheric emissions; waste management; interaction with the community; creation of an environmental management system; and control of water consumption and effluent treatment.

One of the most relevant results that emerged over the course of the study is the observation of the organizational initiatives that modeled the environmental perceptions of employees and suppliers, thereby contributing to important changes in behavior, both on the individual and on the collective levels, in relation to the environment. It was also observed that the organization investigated has implemented precise controls of consumption of supplies and raw materials, energy and water that contribute to managing these resources, with the objective of adopting practices compatible with reducing costs related to consumption of these items, and with a significant impact on the environmental dimension.

Despite the methodological limitations of a single case study investigating just one organization, which prevents generalization of the study results, the authors believe that this study makes important contributions to understanding of real-life business, providing a foundation to support development and adoption of organizational practices with an environmental focus.

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