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The Role of Environmental Management System in Sustainable Development Context: A Case of Vietnam

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Abstract: ***Sustainable development is a global trend and target. In the sustainable development tendency, the environmental management system has been developed and applied successfully in many developed and developing countries. However, in Vietnam, this system has still been foreign and Vietnamese companies still need to take advantage of the environmental management system for sustainability. Moreover, under the pressure of a sustainable supply chain and global competition, the environmental management system has been widening and developing. Therefore, environmental management system awareness is essential for Vietnamese companies to strive for sustainability. This paper presents a strengths, weaknesses, opportunities, and threats (SWOT) analysis of a case of a Vietnamese enterprise in the context of sustainable development. It indicates the benefits of environmental management systems for their sustainable strategy.***

Keywords: Sustainable development, environmental management system, SWOT, opportunities and risk, Vietnam entrepreneur

1. Introduction

The term "sustainable development" (SD) has attracted the attention of governments and organizations. This topic has been discussed frequently in recent years because “SD is a development process that meets current generations needs without compromising those of future generations” (Brundtland, 1987). By this definition, SD means limiting the consumption of natural resources in current generation development; therefore, these resources can be sufficiently reproduced. The implication is that countries or companies need to consider the environmental issues when conducting their activities, which can be achieved through developing appropriate environmental strategies or long-term environmental approaches and undertaking prompt actions to minimize their environmental impacts. However, while some companies are active and employ environmental systems to compete in the global market, others seem reluctant to obey SD standards. This may be caused by unawareness of SD's significance in the globalization market. Indeed, sustainable business is a long-term strategy that can achieve economic targets, environmental protection, and improve social community (Hassini, et al., 2012). Thus, business organizations setting sustainable goals may bring economic, environmental, and social performance advantages.

Companies eager to join and implement environmental management (EM) standards create their own competitive advantages and social values. Environmental management, considered a sustainable business methodology, has been applied for more than 20 years in developed countries (Johnson & Schaltegger, 2016). However, in Vietnam, sustainable business is regarded as a recent innovation. This may cause setbacks for Vietnamese entrepreneurs to expand their businesses. Therefore, this paper aims to consider their opportunities, threats, strengths, and weaknesses in the context of SD for global business by SWOT analysis.

SWOT analysis is one of the strategic management tools adopted for over 50 years (Chang & Huang, 2006) (Gürel & Tat, 2017). (Nikolaou & Konstantinos, 2010) proposed SWOT analysis as an effective tool for environmental management planning. This analysis potentially indicates chances and supports avoiding risks because it has been stated that "SWOT analysis is widely recognized and it constitutes an important basis for learning about the situation and for designing future procedures which can be seen necessary for thinking strategically"(Lozano & Vallés, 2007). Besides, the SWOT matrix provides information on strong points that an organization can take and weaknesses to overcome.

The paper includes four parts. After the introduction, a SWOT analysis will show the Vietnamese company's strengths, weaknesses, opportunities, and threats in the SD scenario. The third part indicates the potential benefit of environmental management to grow in sustainable trend. Finally, the conclusion will be drawn.

2. SWOT Analysis of a Vietnamese entrepreneur in sustainability development context.

2.1. Vietnam circumstance

SD is a worldwide trend, and environmental management is a requisite approach for nations and organizations. Although Vietnam attended the agreement of 17 SD goals of the United Nations, Vietnam has been growing in economics and worsening the environment (Ni, et al., 2019). According to WHO report[1], in 2018, there were nearly 60 thousand deaths per year due to air pollution-related, while the Western Pacific Region was, only about 2.2 million. However, the Vietnamese government still spent not enough on SD. The spending for Science, technology, and the

[1] https://www.who.int/vietnam/health-topics/air-pollution

environment accounted for only 0.74% of the government spending budget – the lowest amount among others(Lien, 2021). Therefore, residents and enterprises are unfamiliar with and knowledgeable about sustainability in production and management. Nevertheless, to achieve these goals, each Vietnamese company should take responsibility; the companies should be equipped with knowledge of environmental management and how to develop business sustainably.

Furthermore, governmental or official guidance can strongly support companies in achieving sustainable targets. Experience from EU nations showed that EMS guidelines introduced by European Commission for business organizations dramatically improved their environmental and competitive goals(Iraldo , et al., 2009). In Vietnam, companies have joined projects that cooperated between Vietnamese authorities and other nations' such as German or Japan (The German Federal Ministry of International Cooperation and Development, known as GIZ or Asian productivity project in 2014). However, not all companies participated and absorbed this innovation to adopt. Although the Vietnamese government has adopted some programs to improve and support innovation development among businesses, such as the "Supporting Industry" (SI) policy, the budget is still thin, and policies are limited, primarily focusing on tax exemption, subsidized loans, and less on training and building business policy. Furthermore, mainly exporting industries like textiles and apparel, footwear and leather, electronics, automobile, metal/machine tools, and high-tech industries are getting the attention of such governmental programs (OECD, 2021).

Regarding Vietnamese law, the circular No.96/2020/TT-BTC of the Ministry of Finance – "The guidelines for information disclosure on the stock market" required all public companies to publish an annual sustainable report (Vietnam Ministry of Finance, 2020). This Circular forces public companies to clarify how their business affects the environment and community. However, comparing the number of public companies on the Vietnamese stock market – nearly 1,900 companies with 1,487 companies obtaining ISO 14001 certificate in 2019, there was a big gap between disclosure and environmental concern (Table 1). Furthermore, among published companies, only 4% presented their environmental policies and programs in selecting sustainable suppliers, and only 10% of companies voluntarily disclosed information according to the guidelines of the Global Reporting Initiative (GRI) (Phuong, 2020).

According to the Vietnam Development Strategy Institute (DSI) report, educated labor in Vietnam was about 23% in 2019, just nearly half of Indonesia with 53% and 51% of the Philippines. According to statistics from World Bank, Vietnam's education does not match labor market skills, with more than 70% of graduates cannot achieve high-job payments(OECD, 2021). More than 40% of the youth working force does not match their job qualifications. It means that although owning a large young labor force, a large number of them need to improve their skills. Thus, productivity could not be higher and more effective. Vietnam's GDP per capita is still low, about one-fifth of the OECD average, with 750 USD in 2018. This figure was improved in 2020 to more than 2,000 USD. Indeed, Vietnam's productivity figure is seriously lower than other Asian countries like Singapore, Malaysia, and Thailand (OECD, 2020). This status is a significant barrier to Vietnamese businesses moving up and joining closely into global and sustainable supply chains.

Another figure that expresses firm productivity is managerial skills. This number of Vietnam shows better results than other above factors. For example, the data from World Management Survey indicated managerial skill of Vietnamese mid-sized companies is higher than in other countries like Brazil and India (OECD, 2021). Overall, enterprise productivity in Vietnam is mainly created by internal factors such as workforce and managerial skills, business networks, innovation, ICT, and digitalization. Hence, Vietnamese enterprises should focus on improving inner controllable resources to develop the business to a sustainable orientation. Notably, Vietnamese firms can take advantage of managerial skills as a driver to improve productivity.

According to OECD 2021 report, Vietnam is still in the early development stage of innovation. Indeed, compared to other ASEAN countries such as Malaysia and Thailand, the Vietnamese government's spending on business R&D budget from GDP is still too low, about 0.4%, even lower than the OECD average number of 1.6%(OECD, 2021).Besides, Vietnam is among the group of high CO_2 emission accounting for GDP per capita. This figure also indicates that the production system of Vietnamese companies needs to be equipped better as a green requirement. According to VCCI (Vietnam Chamber of Commerce and Industry) news[2], almost Vietnam's products' quality still needs improvement while spending for sustainable production and social responsibility is also low. Hence, Vietnam enterprises must invest about 20% of the total production cost to change from traditional production to green. These issues create significant obstacles to Vietnam enterprises in achieving Green certificate.

Table 1: Number of environmental certificate in Vietnam and the World

Year	2018		2019	
Number of companies	Vietnam	World	Vietnam	World
ISO14001 acquiring	1,449	307,059	1,487	312,580
ISO9001:2015	3,774	878,664	3,441	883,521

Source: ISO Statistics collection (https://khcncongthuong.vn/tin-tuc/t7279/khao-sat-so-luong-chung-chi-tieu-chuan-iso-da-cap-tai-viet-nam-theo-nganh.html)

2.2. Case study background

The case study company is located in An Don industrial zone, Danang City, Vietnam. It is a big-sized company. Its main product is canned tuna in brine, and all its products are exported. The number of employees is more than 300 people, including 280 direct workers and more than 20 people in the general administration department.

[2] https://vbcsd.vn/detail.asp?id=294

Characteristics of production

In seafood processing production, the material has to have remained in a specific condition – frozen the minus 28^{o}C or chilled at low temperature (usually between 0^{o} and 2^{o}C) to keep the material fresh and of good quality after finishing. Frozen fish will be thawed before using for the process.

In order to satisfy exporting requirements and food production, this company must be certified by many high standards such as Hazard analysis and critical control points (HACCP) Certificate, Orthodox Union Certificate, Marine Stewardship Council, Food Safety Management System Certificate (ISO22000:2018), … Nonetheless, almost certificates were pushed from government's and customers' pressure in order to satisfy certain conditions for exporting products.

Production process

The canned fish process includes many phases and is controlled under a high-quality standard system (Fig.1). The first phase involves two parallel processes, including can sterilizing and raw material processing. All cans are sterilized at temperatures above 100oC with steam. Parallel, fresh fishes are washed and eviscerated, or frozen tuna is thawed and eviscerated. After that, flesh fish is rewashed and minced. Then, by-products are weighted to put the proper quantity into cans. The filled cans are exhausted to remove air and gases inside. This phase is achieved by steam and vacuum pumps. Then, the seamers seal the cans tightly to prevent gases and the atmosphere inside. Throughout this process, there are three kinds of quality control, namely, Good Manufacturing Practice (GMP), Critical Control Points (CCP), and Control Points (CP).

[Insert the figure 1 about here] (see appendix)

2.3. SWOT matrix

In this work, a SWOT analysis will indicate an actual situation of one Vietnamese enterprise's strengths, weaknesses, opportunities, and threats toward SD involvement. According to(Ni, et al., 2019)research, companies obtaining environmental certificates like ISO14001 or ISO9001 tend to care about environmental protection. Therefore, three elements are embedded in this matrix, namely (i) Environmental law and regulations, (ii) Sustainable supply chain management, and (iii) Business resources.

Table 2: SWOT Matrix

Element	Strength	Weakness	Opportunity	Threat
(i) Environmental law and regulations	S1. Being compliant with current national environmental laws and regulations.			T1. Stricter international environmental regulations and law.
(ii) Sustainable supply chain management		W1. Inactive engagement in sustainable supply chain management. W2. Loosen connection and one-sided impact in global sustainable supply chain. W3. Getting low value from global value chain.	O1. Entering the larger market in case of providing environmentally friendly products.	T2. More vigorous and bigger international competitors with practical experience in EM application. T3. More environmental friendly customers. T4. High-qualified products and eco-products are replaced with traditional ones. T5. Challenges of shortage of natural materials due to global warming and climate change. T6. Global warming and polluted environment due to carbonization and waste release. T7. The higher pressure on cleaner production due to the deeper concern of the community for environmental problems.
(iii) Business resources	S2. Large young labor force: nearly 290 people, and the number under 50 years old accounting for more than 90%.	W4. Poorly equipped production and treatment system		

Strengths: This firm owns a young work-force. Potentially, they are more flexible and easier to educate and update new knowledge. Besides, their current management system is complied with Vietnamese environmental laws and regulations. It means that the current background is acceptable and could be improved in case of requirement.

Weaknesses: Currently, the firm is trying to meet requirements from foreign partners rather than actively adopting higher sustainable standards in products and management. This can be seen clearly via reasonable production and waste treatment equipment systems. Hence, this company may receive lower benefits in this global supply chain than its possibility.

Opportunities: It seems that there are few opportunities for this case. If it could produce environmentally friendly products, it would continue to be a part of a global sustainable supply chain. Unless it could lose the opportunity.

Threats: There are many threats to this firm because of sustainable development. The world is facing global warming and climate change; humans should protect and

save natural resources, whereas firm material is a natural resource. Thus, the company takes the risk of material price increase and shortage. Meanwhile, community and customers are more interested in green products, so this firm has to continuously enhance its products' quality towards sustainability.

3. Potential benefit and cost of Environmental management system adoption in Vietnamese business case

This section will discuss the potential benefits of the Environmental Management System (EMS) as the problem-solving tool for SD of this Vietnamese enterprise. Indeed, environmental management practices indicate various advantages on business sustainability (Simpson, et al., 2007). This approach may potentially be a promising tool to improve weaknesses, overcome threats, grow strength, and grasp opportunities. Because EMS shows solutions to reduce waste costs and maximize resource efficiency (González-Benito & González-Benito, 2008). EMS also shows positive effects to supply chain participation.

3.1 EMS benefit

EMS offers various approaches for cleaner production, eco-efficiency and eco-design, and green supply chain management, and it is also suitable for various business sizes. EMS may be implemented via ISO 14001 and ISO 9001 certification. Researchers indicated that ISO 14001 certification may motivate corporate environmental practices (González-Benito & González-Benito, 2008). Indeed, ISO 14001 standard involves a series of requirements adopted by EMS and improve environmental and economic performance thanks to more efficient material usage, higher competitiveness, and more trust from customers and stakeholders (González-Benito & González-Benito, 2008). ISO 14001 system is suitable because these standards are regularly considered to catch the trend of economic and technological development. Besides, it is adaptable to many sizes of business and relevant to various marketplaces (Bravi, et al., 2020).

All kinds of EMS adoption bring many aspects of advantages in productivity, competitiveness, environmental and economic performance. (Bravi, et al., 2020) and (Iraldo , et al., 2009)illustrated that EMS results in a wide range of benefits, such as higher productivity, better compliance with environmental law, and sustainable regulations (Table 3). EMS improves competitive performance at the firm level because of higher customer satisfaction, more internal efficiency of resources, and owning technical ability towards sustainable innovation patterns. Global sustainable supply chain management requires suppliers to undertake measures to ensure their products' sustainability and production process. Therefore, a synergetic way of green supply chain and EMS may improve product quality environmentally and economically. With a sizeable exporting market to the EU, the area is in high requirement of green supply chain management to their customers; Vietnamese enterprises should be more active in their green management.

Table 3: Motivation of EMS adoption

Protecting environment
Energy and material savings
Higher productivity
Brand improvement
Legal advanced compliance
Satisfy requests by customers from sustainable supply chain
Taking advantages of competitiveness
Reducing risk of environmental law violation
Better management and performance
Improving relationship with stakeholders and local communities
Actively joining sustainable supply chain management
compliance with current and future statutory and regulatory requirements
More active in global supply chain

Source: (Iraldo, et al., 2010) and (Bravi, et al., 2020)

Traditionally, environmental management means treatment and end-of-pipe waste management. Therefore, traditional environmental treatment system causes additional production costs. By contrast, EMS instead proposes beginning and on-the-spot waste management, so by adopting this system, companies not only save expenses but also improve environmental performance. Hence, EMS may support firms actively complying with regulations, reducing cost and time consumption for environmental management. Indeed, the motivations as mentioned above for adopting EMS (Table 3) could become achievements for companies or organizations.

3.2 Potential expense of EMS adoption

Based on service price and exploring the practical situation of this case, the paper proposes potential expenses that the company may pay when adopting EMS to clarify which potential cost this firm may charge for its EMS application.

Table 4: Estimated cost of EMS adoption

Activity	Estimated cost (in million VND)
EMS support and certifying service	300
Training proper human resource for frequent monitoring	50
New waste treatment system	500

According to the service of EMS support, the company may first pay around 300 million VND for certifying service and about 50 million VND for training employees for frequent monitoring. Besides, this firm also estimates that to meet the EMS requirement, it must invest in additional parts for the current waste treatment system, and its charge is nearly 500 million VND (Table 4). All of these expenses are significant barriers to its EMS application. In addition, this firm may suffer some internal barriers to implementing EMS. According to top managers' opinion, they may face some challenges as follows (Table 5):

Table 5: Internal barriers of EMS implementation

Internal resources	Knowledge and perception	Company culture
Lack of management time and human for EMS	Lack of skill in EMS	Inconsistent support from top managers
Low technique and skill on EMS	Difficult to learn and adopt	
Not enough training	Unfamiliar with ISO standard and EMS knowledge	Unwilling and inactive
Antiquated technology in manufacturing and administration	Inappropriate knowledge and perception of EMS	
No specialist of EMS	Difficult to train	Negative experience in EMS implementation
Having some transient and part-time blue-collar workforce	Difficult to train EMS knowledge because of work interruption	Not grasp culture and internal communication

Currently, the firm is not familiar with EMS, so their resources and knowledge do not meet the environmental management standards requirement. Another obstacle is that part-time blue-collar workforce training is more complicated than full-time forces. In the meantime, it also lacks EMS specialists to guide and as a pioneer in this adoption.

4. Discussion and Conclusion

Voluntary self-regulatory initiatives have been found in EU companies since the 2000s (Hillary, 2004)while these are still new and unfamiliar to Vietnamese companies. Therefore, there is a long gap in sustainable awareness and application between Vietnam and other developed countries. Although Vietnam has joined the global chain for more than 20 years, Vietnam is still in a backward position due to assembling intermediated products, which results in not fully gaining merit from exporting(OECD, 2021). This also causes a weak growth model of Vietnam's economy, depending on FDI attraction and export promotion too much. Besides, this shows loose linkages between Vietnam companies and other parts of the world. Furthermore, Vietnam is under high pressure from climate change. Among the three recognized challenges of Vietnam SD by the OECD, the degradation of environmental quality is one severe issue. The predictive scenario of emissions by 2100 will worsen with less rainfall in the dry season, higher average temperature, and rising sea levels (OECD, 2021).

Whereas Vietnamese businesses show some strengths and opportunities, a large number of constraints are limiting their sustainable development of them. Nonetheless, with awareness of this situation, and learning experiences from SD nations and organizations, Vietnamese firms could find their proper path toward sustainability via EMS adoption. By SWOT analysis, the paper indicated a Vietnamese firm's strengths, weaknesses, opportunities, and threats in the context of SD. This work discovers the potential role of EMS in sustainable development for a case of Vietnamese firm. Obviously, this company may achieve more benefit than cost payment. Furthermore, EMS is a sustainable trend and essential rule for sustainable business.

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APPENDIX

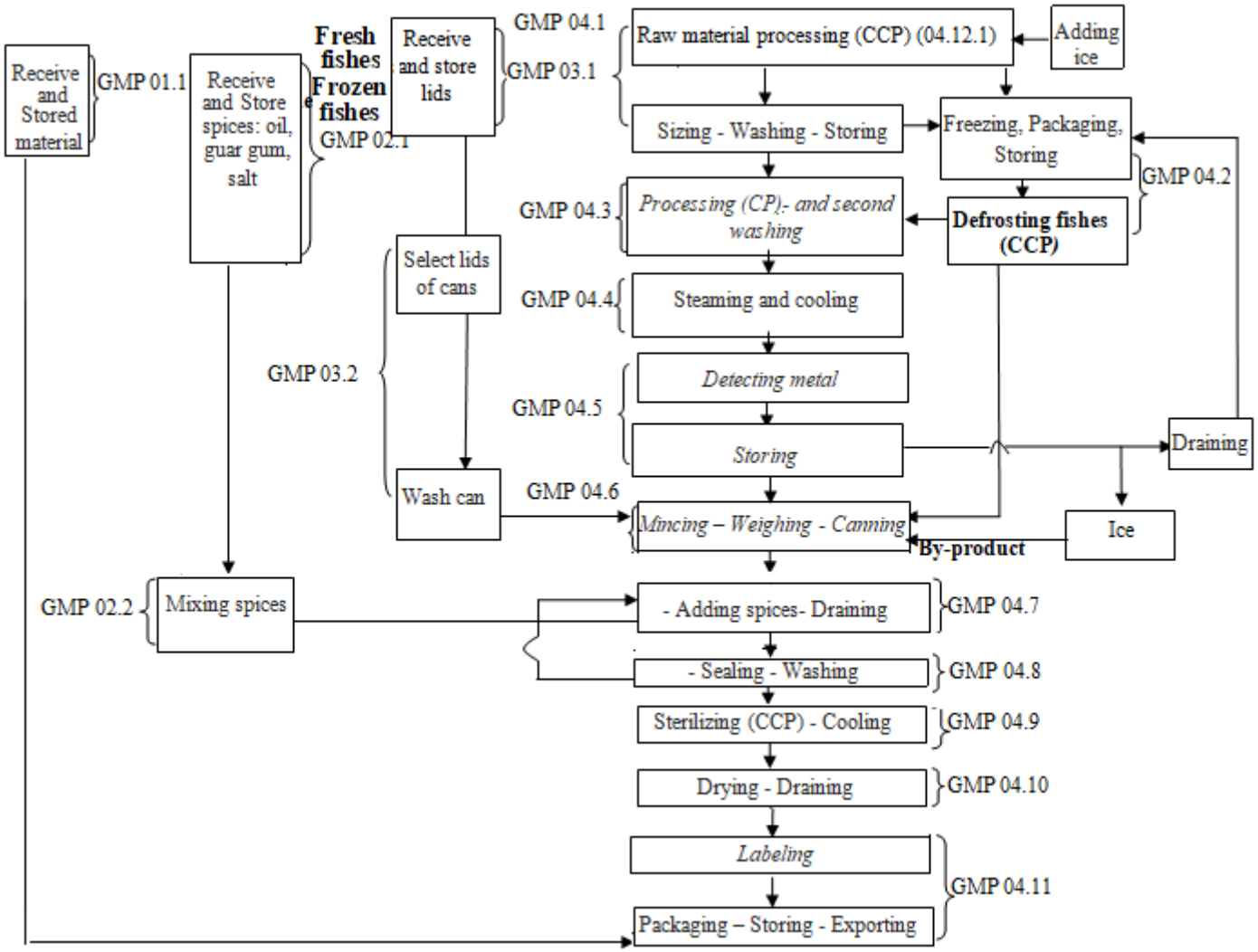

Figure 1: Production process