

# Dissertation Abstract

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Dissertation Title	APPLICABILITY OF JAPANESE ENVIRONMENTAL MANAGEMENT ACCOUNTING APPROACH TO VIETNAMESE COMPANIES: CASE STUDIES IN SEAFOOD PROCESSING INDUSTRY

Recently, sustainable development becomes an emerging discussed title to many countries and companies. Due to this requirement, environmental protection is highlighted in business management policies. Although traditional management accounting mainly based on the information of material flows and production volume; this accounting method has not enough attention on analysis of material flows from the perspective of eco-efficiency. By contrast, EMA concerns this aspect. Particularly, MFCA, one of the major tools of EMA, could satisfy the information inquiry of eco-efficiency management because it may integrate the existing environmental management and management accounting practices. Additionally, conventional accounting becomes unsuitable for accounting for the environment because it hides environmental costs under overheads while the environment is one among three elements of green bottom line.

Recognition of SD of Vietnamese government also has increased clearly and sharply. There were agreements and decisions to clarify the sustainable strategies of Vietnam for the near future. For example, attending RIO+10 and RIO+20, Vietnam signed the agreement on the green economy in SD context and implemented Agenda 21 – SD strategy of Vietnam for the period of 2011-2020. As a result, Vietnamese government imposed the new environmental laws on exploring and manufacturing the natural resources.

Therefore, to deal with these stricter environmental regulations, laws as well as trade pressures, Vietnamese companies should apply the higher advanced environmental management system. Nevertheless, EMA in Vietnam has not popular as it should be; compared with many years ago, from 2013, Vietnamese companies have been more interested in disclosure of social responsibility. The evidence is that “Annual Report” competition between Vietnamese firms attracts numerous attendance; for instance, the figure in 2013 was about 600; 2014 was around 700. This trend illustrated an increasing interest in accounting disclosure of Vietnamese companies. Besides the growth of environmental attention in Vietnamese companies is shown by development of Sustainable Report in some big companies such as Vinamilk Group, Bao Viet Corporation, etc; even, they also prepared the English version of this report.

However, the environmental management system of Vietnamese government and Vietnamese companies has been still weak and ineffective. Indeed, the number of cases violating environmental laws has increased in recent years in Vietnam. In 2010 there were more than 3,600 cases of Vietnamese companies that were fined for disposing of waste water into the environment without any treatment. In the first half of fiscal year 2013, there were more than 6,000 cases of violating environmental regulations and, according to the information from the Vietnamese environmental police, as high as 17,000 companies were fined for breaking the environmental laws in 2016. Furthermore, the number of Vietnamese companies obtaining ISO 14001 certificate has been increased slowly. Two first Vietnamese companies received ISO 14001 certificate in 1998 but after ten years, this figure was still low with 270 companies in 2007.

Essentially, Vietnamese company should more focus on environmental management system and

environmental management accounting to develop sustainably. Additionally, due to the globalization, Vietnamese companies that plan to expand business overseas must satisfy the requirement of abroad suppliers' and customers' requirement of the Environmental Management System standard of the International Standardization Organization. The system may be supported and eased by EMA system.

By contrast, in sustainable development, Japan is a leader in environmental and climate-related technologies as well as developing green markets and employment. Meanwhile, EMA has developed and expanded sharply in Japan. From the experience of Japan, MOE guidelines significantly contributed to the improvement and expansion of environmental accounting and environment reporting of Japanese companies. Therefore, now Japanese companies take advantages of EMA and get achievements in SD. Furthermore, Environmental Accounting Guidelines of Japanese Ministry of Environment is one among two of the most widely applied framework for defining and categorizing environment-related costs for EMA purposes in organization level. Moreover, in MFCA application, Japanese companies achieved distinct advantages over German companies. Besides, Japanese practical MFCA approach indicated that MFCA can be applied without advanced information technology and in all sizes of enterprises as well as for various industries. Additionally, in greener development, Japan emphasizes the international cooperation and support to developing countries. This may support countries like Vietnam in promoting EMA application as well.

Due to the advantages of EMA application and MFCA approach of Japanese companies, the research will study on the experience of EMA application in Japanese companies and the applicability of this tool to Vietnamese enterprises with the expectation of solving environmental problems and increasing productivity. Therefore, there will be two objectives, including, (1) understanding Japanese EMA

application with the aim of clarifying EMA concepts and characteristics that are generally accepted in Japanese companies and experience of EMA application in some Japanese companies; and (2) applicability of Japanese EMA approach to Vietnamese companies with the target of practical application of Japanese EMA approach to Vietnamese companies. Particularly, the research focuses on the application of MFCA tool in cases in seafood processing industry and evaluating whether this approach could enhance environmental management and material productivity management in Vietnamese seafood processing companies. Thus, there are two research questions, (1) how did Japanese companies use EMA tools and (2) is Japanese EMA approach applicable to Vietnamese seafood processing companies to improve their environmental management efficiency and economic performance.

To implement the research, two research methodologies will be used. First, the study will utilize the analyzing method to the information of EMA application of Japanese companies; the data source is secondary data from references and Corporate Social Responsibility (CSR) reports of Japanese companies. Based on this, the research is expected to indicate the characteristics and advantages of EMA application in Japanese companies. Second, to achieve the research objective of applying EMA experience of Japanese companies to Vietnamese ones, case study methodology will be used. Particularly, the most advanced tool of EMA, MFCA is adopted to two Vietnamese seafood processing companies. Seafood processing industry is chosen to do case study because it plays an important role in the national economy; however, it is causing the serious environmental problems in Vietnam. This industry contributed to 4-5% GDP; 9 -10% of total national export turn-over and ranked the fifth for export value (follow: electronics, garment, crude oil, shoes). Conversely, the pollutants from the

production of seafood processing industry caused the serious problems such as high level of BOD and COD, and odor smell for surrounding area; for example, in Surimi production, the indices of BOD and COD in wastewater were up to 3,120mg/l and 4,890mg/l respectively. Especially, the solid waste from seafood processing accounts for a large proportion of total material quantity; for example, 40-50% to Surimi production and 35-45% to Shrimp production; and this kind of waste spoils rapidly and is a rich source of protein, carotenoid, and enzymes, thus causing the severe environmental problems. In addition, according to a news about problems in seafood processing industry, the average of wastewater disposal of one seafood processing firm is around 50,000m<sup>3</sup>/day. Moreover, waste water is a source of severe pollution due to the high indicators of Suspended Solids around 300-600mg/l, total Nitrogen: 100-150mg/l, total Phosphorus: 20-50mg/l, micro Coliforms more than 1,105 MPN/100ml. With this trend, in the near future, the polluted water may cause the serious impacts on the human life and well-being in Vietnam. Hence, the application of MFCA in Vietnamese seafood processing companies is expected to improve the financial performance and reduce the environmental impacts due to their production.

To present the information of the study, the dissertation is constructed by six chapters with Chapter 1 introduced the background information of EMA and research promotion, Chapter 2 mentioned the environmental and economic performance of Vietnam and Japan, Chapter 3 presented the reference on EMA theory and application, Chapter 4 focused on EMA application in Japanese companies and identified the approach of MFCA technique in Japanese companies, Chapter 5 described MFCA application in some Vietnamese companies in seafood processing industry and Chapter 6 for conclusion and discussion to give conclusions for all thesis and discussion about the drawbacks and implications of the research.

Regarding the theory aspect, the research could contribute to some cases of MFCA application as EMA tool in EMA research. The dissertation presents the evidence to support the findings of earlier studies on EMA application for cleaner production in developing countries. In the practical aspect, it may also promote EMA application in Vietnamese companies. Consequently, the practical adoption could improve Vietnam's environmental performance and Vietnamese companies' economic return. Potentially, MFCA application in Vietnamese companies may expand to the supply chain and Vietnamese companies could take part in the green supply chain in the global market.

## List of Academic Works

Title	Author(s) (All)	Sources	Date of Publication