

International Transfer of Environmental Management by Japanese Firms in Vietnam

Tatsuo Kimbara* and Kazuma Murakami **

This paper analyzes the transfer mechanism of environmental management by Japanese firms in Vietnam. To achieve sustainable development, all actors in developed and developing countries need to address a number of issues. The limited number of preceding studies can be classified into four approaches. Each approach has a particular key word such as environmental innovation, organizational capability, environmental management system and knowledge. Each approach sheds light on a specific aspect of environmental management transfer. Our analysis focuses on the causal mechanism of the transfer. We collected data in early 2011 from 96 subsidiaries in Vietnam. Structural equation modeling is used for analysis. Our analysis supports the hypothesis that a multinational parent firm that is proactive in environmental management is more likely to transfer practices of environmental management to an overseas subsidiary as compared with nonproactive multinational firms.

JEL Codes: M16 and Q56

Keywords: Environmental Management, Transfer, Mechanism, Vietnam, Japanese Firms

1. Introduction

In 2010 CO₂ emissions from China totaled 23.8% of the total amount and emissions from the US totaled 17.7%. The forecast for 2015 is that these two countries and India will account for about half of total global emissions. According to the World Wildlife Fund (WWF), the Ecological Footprint in 2007 in the world exceeds the productive capacity of the Earth by 50% (WWF 2008).

In these circumstances, the strong requirement is that developing countries as well as developed countries make great efforts to reduce environmental burden. To meet this requirement, advanced practices should be transferred within developed countries, and between developed and developing countries as well. Multinational enterprises (MNEs) especially need to transfer their advanced technologies and practices to rapidly growing developing countries through their overseas operations. The international transfer of environmental management practices is a new research topic. We intend to provide new evidence for theoretical development and policy in this field.

This paper examines how environmental management practices are transferred to and implemented in the overseas operations of MNEs, based on data obtained from a survey on Japanese firms in Vietnam. The second section reviews the literature about the transfer of environmental management and summarizes the issues and related approaches. The third section indicates the methodology and variables for analysis. The fourth section explains the data obtained. The fifth section shows findings and discussion

* Dr. Tatsuo Kimbara, Faculty of Commercial Science, Hiroshima Shudo University, Japan.
Email: kinbara@shudo-u.ac.jp

** Dr. Kazuma Murakami, School of Environmental Science, Shiga Prefectural University, Japan.
Email: murakami.k@ses.usp.ac.jp

about the results, and the sixth section concludes the study.

2. Literature Review

Corporate environmental management is carried out in the broader framework of corporate management as part of business activities in the market economy. When we examine the international transfer of environmental management, we can refer to studies on foreign direct investment (FDI) and transplant management that include a variety of resources such as funding, technology, human resources, system and organizational culture.

Before we go further, environmental management transfer is defined as the transfer of activities and systems related to the reduction of environmental burden, from one organization or unit to another organization or unit. This transfer implies inter-organizational transfer between different organizations as well as inter-departmental transfer within same organization and includes the transfer from MNEs to domestic subsidiaries, overseas subsidiaries and suppliers.

With regard to the international transfer of management, many research studies have investigated why FDI is made and what its competitive advantages are. Koontz (1969) argued the universal validity of the US management method and principle. On the other hand, there was, in the 1980s, increased practical and theoretical interest in Japanese management and practices in Japanese transplants (Florida & Kenny 1991).

Beginning from the works of Hymer (1976), Dunning (1977, 1988) and Buckley and Casson (1976) had significant impact on the studies that followed. For competitive advantage of FDI, Buckley and Casson (1976) argued internalization theory that MNEs develop overseas operations as part of their own organization and obtain cost competitiveness by lowering transaction cost. In contrast, Dunning (1988) argued that MNEs make FDI and obtain competitive advantages through lowering transaction cost by the combination of ownership advantage (O), location advantage (L), and internalization advantage (I).

As FDI includes capital, human resources, managerial knowhow, marketing skill, technology and systems, it transfers integrated managerial resources to foreign operations. In this sense, FDI is a most effective means to transfer technology as compared with other tools such as licensing. As a result, various aspects of FDI such as technology, systems, culture, and human resource management are analyzed in the researches followed.

Studies about the international transfer of management can be classified into five approaches. The first approach focuses on the competitive advantage of FDI (Vernon 1966; Buckley & Casson 1976; Dunning 1988). The second approach is a study on the international transfer of management system (White & Trevor 1983). The third approach examines the production system and technology in the transplant (Florida & Kenny 1991). The fourth is the study of organizational capability and innovation (Barney 1991; Grant 2008), and the fifth focuses on the transfer of knowledge and organizational culture (Gupta & Govindarajan 2000). These studies provide an important basis for the analysis of environmental management transfer. Even though the number of studies on management transfer and transplant analyzed from the perspective of environmental preservation is limited, we can review studies of environmental management transfer, based on the studies in management transfer.

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Related studies of environmental management transfer can be classified into four groups. Each approach has a particular key concept. First is research on the transfer of environmental innovation. According to Popp (2006), the transfer of environmental technologies across borders will be slowed by the need for domestic R&D to adapt these technologies to the local market.

In relation to the transfer of innovation, Jaffe and Trajtenberg (1999) indicate that patents are quoted more often and more quickly within the same firms as compared with different firms. And the patents of an inventor living in the same country are quoted 30 to 80% more often than in other countries. Consequently, innovation diffusion is faster in the same country as compared with diffusion between different countries. This finding can be applied to environmental technology, as these patents include environmental technology. Cohen and Levinthal (1990) pointed the transfer is constrained by an economic system and culture, as technology transfer is constrained by absorptive capacity, which is a firm's ability to value, assimilate, and commercially utilize new external knowledge.

Second is organizational capability approach based on resource-based view (Barney 1991; Teece et al. 1997). Theoretical interest in the early 1990s investigated whether or not environment and economy are compatible. Many empirical research studies have analyzed the relationship between environmental and economic performance (Russo & Fouts 1996; Hart & Ahuja 1996; Konar & Cohen 2001). These studies, however, did not show why the compatibility exists. The question of compatibility remained a black box (Klassen & McLaughlin 1996). The resource-based view that regards resources and capability as a basis of growth provides important theoretical basis to explain the process and reasons for it (Hart 1995; Aragón-Correa & Sharma 2003).

The resource-based view points out that there are accumulations of organizational capabilities and path dependency in the development of management (Hart 1995). This view indicates that management transfer is implemented to strengthen competitive advantage through transferring advanced technology and practices. Overseas operations are supported by such transfer of capabilities. Also, the environmental strategy of MNEs is analyzed in relation to overseas markets (Rugman & Verbeke 1998). Through these studies, the importance of organizational capabilities and environmental strategy becomes clear. However, which organizational capabilities are important and how they are built remains an uninvestigated topic.

The third approach focuses on the transfer of environmental management system. Florida (1996) analyzes how environmental management is transferred in the context of Japanese transplants in the US. He explains how environmental management is implemented in the transplants.

As a recent move, it is obvious to analyze assembler-supplier relations in the production system (Dyer 1996; Dyer & Singh 1998). The upgrading of supplier capabilities and transfer and learning of organizational capabilities in customer-supplier relations have been intensively studied in the automobile industry (Sako 1992; Nishiguchi 1994; Dyer 1996; Dyer & Nobeoka 2000).

This relational view points out that investment to intensify asset specialization in specific assembler-supplier relations results in the upgrading of supplier capabilities, and then leads to enhancement of competitive advantage. It indicates that the supplier in a specific network is in a superior position for obtaining information about market needs

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and the latest technology than the supplier without a network. This means that the organizational capabilities of suppliers are enhanced by information sharing, face-to-face communication, and the guest engineer system. It explains the upgrading of supplier capabilities based on information sharing and learning by relatedness in the network (Dyer & Nobeoka 2000). When supply chain and relational view are applied to environmental problem solving, they become part of green supply chain management (GSCM), and the upgrading of capabilities about the environment can be explained.

Supply chain management is being intensified for the purpose of reducing environmental burden as well as increasing efficiency. As it becomes clear that environmental management is a significant source of competitive advantage, supply chain management is intensively carried out. In fact, supply chain management is inevitably globally expanded to increase resource productivity, reduce environmental risk, and strengthen competitive advantage. The reduction of carbon footprint becomes a new common objective internationally in the SCOPE 3 Project, which emphasizes reducing carbon emission in the supply chain.

The fourth approach argues that knowledge and organizational culture play a role in upgrading the capabilities of subsidiaries and the importance of the transfer for MNEs as well. MNEs have a large number of employees with various values and cultures at the bottom of organizations. Innovation that can create competitive advantage is done by creating new knowledge. To achieve growth, firms have to understand how to enhance the capabilities of human resources to create new knowledge.

Among research, Zander and Kogut (1995) point out that the transfer and imitation of organizational capabilities are related to knowledge. Gupta and Govindarajan (2000) analyze knowledge transfer within MNEs. They show that the primary reasons MNEs exist are their effectiveness in technology transfer and in developing capabilities through other than market mechanisms.

In contrast, Pèrez-Nordtvedt et al. (2008) empirically analyzed the effectiveness and efficiency of international transfer of knowledge. They show that the international transfer of knowledge depends on three factors: (1) recipient's learning intent; (2) attractiveness of knowledge source of MNEs; (3) quality of relationship between multinational source and host organization. The study of knowledge transfer makes it possible to explain environmental management as transfer of knowledge. Organizational capabilities and knowledge transfer overlap with absorptive capacity and relational view.

Therefore, the analysis of inter-organizational transfer of environmental management can use these interdependent concepts. Competitive advantage depends on the supply chain network for assembler and supplier as well, and obtaining knowledge and organizational capabilities that enable the reduction of environmental cost and risk can be explained by the supplier relationship. Absorptive capacity can be related to all these views (Dyer & Singh 1998). Absorptive capacity is, as a result, argued in a variety of economic contexts (Lane, Koka & Pathek 2006). But, we find no research directly analyzing the international transfer of environmental management as a whole. In this paper, we examine the mechanism and determinants of transfer.

3. Methodology

3.1 Analytical Framework

In MNEs that operate globally, it is increasingly important to transfer organizational capabilities obtained from one organizational unit to other units so that firms learn and upgrade capabilities of the organization as a whole (Szulanski 1996). This holds for the transfer of environmental organizational capabilities since environmental management often leads to the reduction of cost and risk, and in turn, strengthens competitive advantage. Such transfer of capabilities is diffusing not only within an organization but also to the subsidiaries and supply chain (Nishiguchi 1994). This is because competitive advantage depends on organizational capabilities built in the whole supply chain.

In this paper, we develop an analytical framework of environmental management transfer based on the organizational capabilities of the resource-based view (Barney 1991; Hart 1995; Aragón-Correa & Sharma 2003). The reason is that it is inevitable for firms to obtain superior environmental capabilities to achieve better financial performance and environmental performance. The differences in firm performance are due to unique resources and capabilities that are valuable but not highly mobile across firms.

Improvement in environmental performance needs upgrading of organizational capabilities. Without the improvement of technology or resource productivity, firms cannot effectively reduce environmental burden, such as CO₂ or hazardous chemicals. We adopt the analytical framework shown in Figure 1 to examine the international transfer of environmental management. The framework consists of external factor, MNE, overseas subsidiary, supplier, and environmental and economic performance.

In this framework, we assume the following process of transfer. First, MNEs under external conditions of the market and regulations implement environmental management. They develop environmental strategy and organization with their internal conditions. Second, the various practices of environmental management by MNEs are transferred and diffused to subsidiaries. The competitive advantage of MNEs exists interdependently with the capability of upgrading subsidiaries. Third, the overseas subsidiary operates under the influence of customers, government in the host country, and community as well as the parent firm. Fourth, through the transfer of advanced practices, the expectation is that the performance of foreign subsidiaries will be enhanced.

In this paper, with the framework shown in Figure 1, we empirically examine the mechanism of transfer of environmental management using structural equation modelling. Our main hypothesis is shown below.

Hypothesis: Multinational parents that commit to environmental management are more likely to transfer their practices to overseas subsidiaries.

Even though the flow of knowledge from multinational parent to overseas subsidiaries is overwhelming, there are opposite flows of knowledge and capabilities from subsidiaries to the parent company (Birkinshaw 1997; Hobday & Rush 2007; Phene & Almeida 2008).

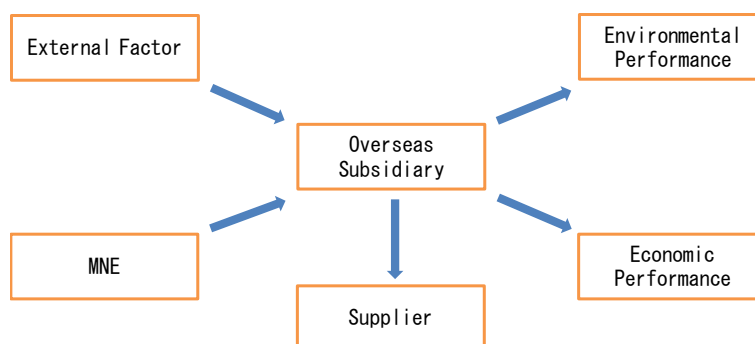
To enhance the competitive advantage of multinational business, it is quite significant for subsidiaries to strengthen their capabilities and to be innovative. In fact, there are cases that subsidiaries can support and teach other developing country factories how to manage a new factory or production. In this sense, each factor in Figure 1 has more

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complex interaction. For example, external factors influence MNE and supplier, and a subsidiary can affect MNE.

However, as far as environmental management is concerned, a flow in the opposite direction is rare between multinational enterprises in a developed country and its subsidiaries in developing countries. Organizational capabilities and competitive advantage with relation to environmental management depend dominantly on parent firms. Therefore, Figure 1 is the basic framework for our analysis. Factors in the framework are based on previous studies and our focus of analysis.

Figure 1: Analytical framework for environmental management transfer



3.2 Variables

Next, we explain each variable in the framework. First, there are external factors that are perceived to influence corporate behavior. Many external factors create opportunities and threats for firms. The government especially has the power to implement environmental regulations. Customers sometimes directly demand certain actions or products for environmental preservation. In addition, without satisfying the requirements from the community where firms are located, continuing operation is difficult.

Thus, government, community, and customer are the main stakeholders of the firm and the main sources of external pressures on management. These stakeholders put stress on firms to take proper action for social responsibility and to contribute to environmental preservation. Environmental regulation and social responsibility are key external factors for the environmental strategy of firms (Florida 1996). From these facts, external factors in this paper consist of three indicators: government decides environmental policy and enact regulations (GOV), demand from community where firms are located (COM), and demand from customers including the market as a set of consumers (CUS). Investors do not heavily influence a subsidiary that is not listed in the stock exchange.

Second, there are MNEs that operate internationally. We imply MNEs as the parent firm of an overseas subsidiary. MNEs control the management of subsidiaries, and define the strategy and investment behavior. The multinational parent firms supply important resources, and those resources and capabilities from parent firms form the basis for the abilities of foreign subsidiaries. In this sense, the practices of environmental management by parent firms are sources of transfer of experience and capability to subsidiaries. MNEs pursue the efficiency of overseas operations to strengthen competitive advantage and then transfer technology and management skills to subsidiaries, as internalization theory explains (Buckley & Casson 1976).

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There are strategic and organizational dimensions in corporate environmental management. Environmental strategy plays a central role in environmental management since environmental strategy decides investment for innovation. The organizational capabilities of subsidiaries are influenced by the environmental strategy of MNEs. However, the environmental strategy of subsidiaries is not necessarily as same as that of multinational parent firms, even though subsidiaries are treated as an internalized organization. The internal and external conditions of a subsidiary are different from those of the parent firms. In addition, as a methodological difficulty, it is not easy for a subsidiary to recognize the environmental strategy of parent firms. Then, we alternatively adopt practices of the environmental management system and green purchasing that reflect the environmental strategy of MNEs.

Third, there is a subsidiary and joint venture firm. In general, subsidiary means a firm in which the parent firm owns more than 50% of the shares, and a joint venture implies a firm that has less than 50% of ownership interest in a legal entity. We use the term subsidiary for both cases for simplicity.

As the unit of analysis is a subsidiary of MNEs in this paper, we used variables of strategy and organization of a subsidiary to analyze in detail. As an environmental strategy of the subsidiary, we use three indicators: goal of environmental management that indicates priority as a strategic decision (GOAL), top leadership (LDS) and employee commitment (PAR).

Then, we use three indicators as administrative aspects for subsidiary: certificate of ISO14001 (ISO), environmental report (REP) and green procurement (GREN). ISO and REP are then combined into management system (MANA). For the administrative level of the subsidiary, one very important practice is establishing an environmental management system such as ISO14001. The other is reducing environmental burden through the reduction of hazardous chemicals, which is reflected in green procurement. Thus, the environmental management system and green procurement have effects on the supply chain as a whole.

Fourth, there is performance factor that includes economic and environmental performance. Environmental performance appears as a result of practices in the improvement of the environmental impact. For environmental performance, we choose water (WPER) and air (APER) in this analysis. In contrast, economic performance can be measured by the indicator of cost and profit. We use cost effect (EFFECT) and profit (RETURN).

Fifth, there is the supplier. Upgrading the capabilities of a supplier is especially important in the assembly industry and also inevitable to promote environmental management in developing countries. The practice of the overseas supplier is one key factor for greening the developing economy. In addition, there are independent suppliers without capital ownership. According to the research on Japanese suppliers, independent suppliers occupy two thirds of first tier suppliers (Nishiguchi 1994), and these independent suppliers sometimes become suppliers for the overseas subsidiary of specific MNEs (Sako 1992).

Since the pressure for environmental preservation by government, international organizations, and NGOs increase, automobile manufacturers are addressing the greening of the whole supply chain. When the competition among auto assemblers intensifies in low carbon and low cost production, it in turn forces suppliers to reduce CO₂

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emission or vehicle weight. As mentioned in section 2, the SCOPE 3 standard, which aims to reduce carbon in the supply chain, were published in October 2011.

Assemblers depend on a large number of suppliers and understand their own competitiveness in terms of cost and product quality depends on all activities in the supply chain. They began to support suppliers domestically and internationally. Assemblers in the automobile industry in Japan began to encourage suppliers to adopt the Quality Control (QC) method and Kanban system in the early 1970s. Even in transplant subsidiaries, assemblers make effort to support suppliers by building stable relationships between them. With regard to the supplier relationship, we use technological support (TESUP) and the environmental management system support (EMSUP) as an indicator for the support by the subsidiary firm to the supplier.

4. Data

To investigate environmental management transfer, we conducted a questionnaire survey with Japanese related firms that operate in Vietnam. Vietnam has attracted many foreign investments since it adopted Doi Moi policy in 1986, which substantially shifted the country to market economy. But, Vietnam is a relative latecomer in ASAEN countries as compared to Singapore, Malaysia and Thailand. Consequently, the case of Vietnam indicates a typical example of a latecomer developing country coping with environmental issues.

We did our survey during January to March 2011. We listed 400 Japanese related firms in Vietnam from the directory of Toyo Keizai (2010) and other supplementary lists. Vietnamese assistant researchers went to firms and interviewed managers or persons responsible for environment and safety. The respondents were mostly Vietnamese. There were 96 effective responses.

Following the framework in Figure 1, we prepared questions for each variable. The responses to the questions on environmental practices are measured by Likert type 5 point scale, except for ISO14001 (ISO) and environmental report (REP) that are measured by 3 points scale. ISO and REP are then combined into MANA. Samples are classified into 3 groups by number of employees: small firms (less than 299 employees), medium firms (300 to 999), and large firms (more than 1000). As shown in Table 1, the small firm group is 43.7%, the medium firm group is 36.5%, and the large firm group is 20.8%.

Table 1: Classification of samples by size

No. of employees	No. of firms	(%)
1-299	41	43.7
300-999	35	36.5
More than 1000	20	20.8
Total	96	100

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Table 2: Descriptive statistics

Variable	Mean	SD
External factor	GOV	3.777 (0.819)
	COM	3.095 (1.203)
	CUS	3.978 (0.926)
Parent firm	PMANA	5.438 (1.105)
	PGREN	3.793 (0.857)
Environmental strategy	LDS	4.033 (0.702)
	GOAL	4.083 (0.790)
	PAR	3.937 (0.712)
Organization	MANA	5.200 (1.136)
	GREN	3.185 (1.074)
Environmental performance	WPER	4.064 (0.653)
	APER	4.130 (0.633)
Economic performance	EFFECT	3.543 (0.907)
	RETURN	2.989 (1.006)
Supplier support	EMSUP	2.947 (1.114)
	TESUP	2.624 (1.010)

Note: Variables except for MANA are measured by 5 points scale (1= strongly disagree, 5=strongly agree).

5. Findings and Discussion

In this section, we examine the data obtained by structural equation modelling from the questionnaire about environmental management transfer in subsidiaries in Vietnam. Two points are analyzed.

First, we analyze the transfer as causal relationship among MNEs, subsidiary, and supplier in Figure 2. Second, we examine the performance result of the subsidiary when there is transfer of environmental practices in Figure 3. Through these two kinds of analysis, we examine the causal relationship among variables and consequences of transfer.

Figure 2 shows the results of the relationship including supplier. First, we find that external factor has a significantly positive relationship with the environmental strategy of the subsidiary, but it does not have significant relationship with the organization. It implies that we do not recognize the direct causal relationship in overseas subsidiaries between external factor and organization practices as far as environmental management is concerned. This suggests that organizational conduct is not directly affected by the external factor. Rather, external influence on a subsidiary is perceived through the environmental strategy of a subsidiary. Moreover, environmental strategy of the subsidiary is understood reacting to external factors under the influence of parent firms. The process of transfer in our study suggests a different causal relation from the Porter Hypothesis that implies the direct influence from regulation to technological innovation (Porter and v.d.Linde 1995).

Second, the results showed that organizational practices of subsidiary are significantly related with support to the supplier. This indicates that when environmental action is strengthened in the subsidiary, it has positive effects on suppliers. Organizational practices are important and have positive effect on the supplier rather than the subsidiary environmental strategy, which does not have direct impact on the supplier.

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This result can be partly explained by the fact that we measured support to the supplier using the two indicators of environmental management system and technology support. When a subsidiary supports a supplier, such practical commitment is more clearly recognized by suppliers.

These results can therefore be understood as the parent firm's environmental strategy that is reflected in practices is the driving force of transfer, not the subsidiary environmental strategy. The policy and strategy of parent firms promote the transfer of practices and influence the organizational behavior of the subsidiary. Our data shows a significant positive relationship between the environmental strategy and organizational practices of the subsidiary and the parent firms.

Next, Figure 3 shows the results of analysis about the performance of the subsidiary. Figure 3 added performance factor of the subsidiary in Figure 2 model. Figure 3 shows that external factors, multinational enterprise, strategy and organization have a similar relationship as in Figure 2. It indicates that the organization has significant relation to both performances, but not significant relation from strategy to performance. This indicates that the subsidiary environmental management practices are directed to economic performance.

In the previous analysis of domestic activities of US and Japanese firms (Fujii & Kimbara 2012), environmental strategy was important as a driving force of environmental practices, and organization is influenced by environmental strategy. On the contrary, in this paper, performance of the subsidiary is not significantly influenced by strategy but is influenced by the substantial practices of organization. This suggests that the strategy of a subsidiary under the control of a multinational parent is not driving force. Rather, organizational practices under the influence of MNEs have substantial impact on performance.

At the same time, the organizational activity of the subsidiary is influenced by the practices of parent firms. The parent firm has influence over the subsidiary in the sense that it controls the management of the subsidiary and determines the strategy of the subsidiary. The relation from parent firm to environmental strategy and organization of subsidiary is significantly positive, and the parent firm is the important driving force for the organizational practices of the subsidiary.

Third, with the results shown in Figure 3, we conclude that environmental practices in Vietnamese subsidiaries lead to cost saving performance. Most technological innovations for Vietnam subsidiaries produce cost saving improvement of process. Performance is gained from incremental process improvement by subsidiary and new process technology transferred from the parent firm.

Figure 2: Environmental management transfer and supplier support

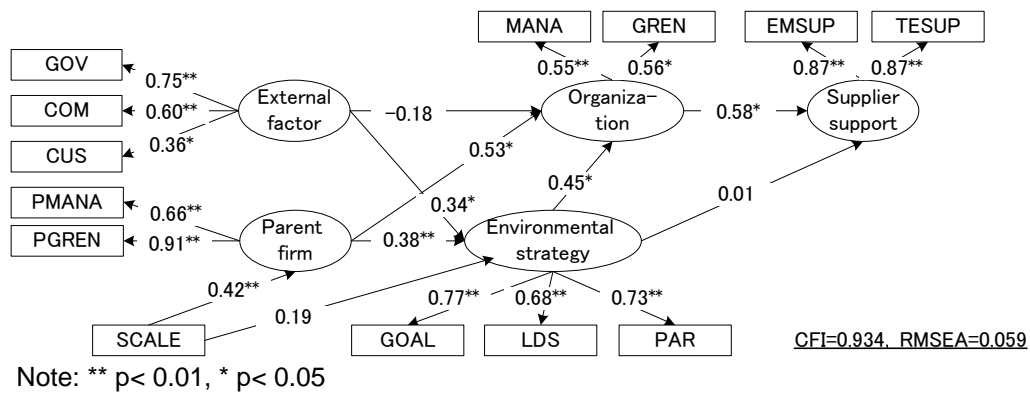
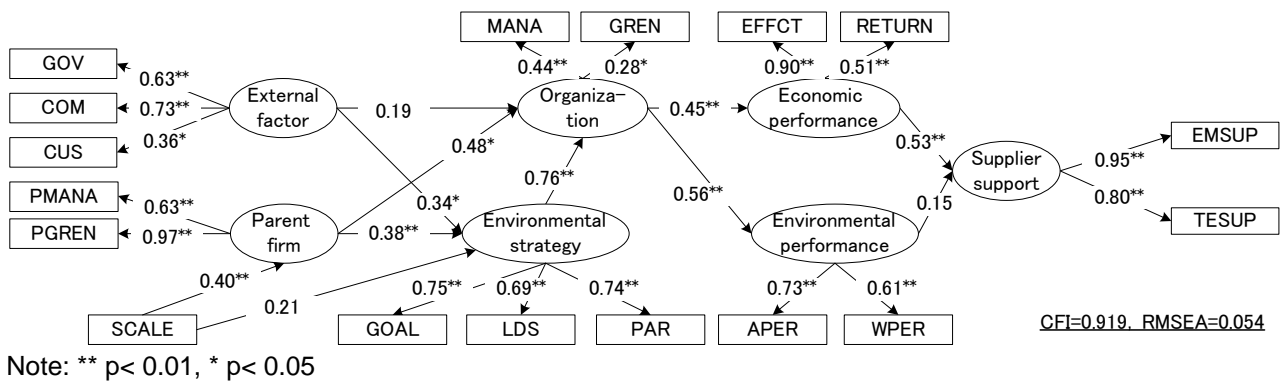


Figure 3: Environmental management transfer and performance



To summarize, our analysis illuminates the following points. First, MNEs that established environmental management system and green procurement procedures are more likely to transfer environmental practices to overseas subsidiaries. In Figure 2 and Figure 3, the multinational parent is significantly related with environmental strategy and organization of subsidiary. MNEs encourage subsidiaries to cope with issues as the parent firms do.

This result holds theoretically and empirically. As stage model of environmental management proposed by many researchers shows (Hart 1995; Kolk & Mauser 2002), the organization gradually upgrades its capabilities. The present capacity exists on the premises of previous knowledge and capabilities. Following these models and especially the resource-based view, capabilities of the subsidiary are seen as cumulative. The practices of the subsidiary strongly depend on the practices and capabilities of parent firms. New knowledge of the subsidiary depends on experience and capabilities of parent firms.

Second, environmental practices of foreign subsidiaries largely depend on the transfer of organizational capabilities from parent firms on the one hand and the absorptive capacity of the subsidiary on the other. In this sense, improvement of organizational capabilities and competitive advantage of the subsidiary enables MNEs to grow. According to Szulanski (1996), there are barriers of knowledge transfer within an organization. The main barriers are absorptive capacity of the recipient, causal ambiguity, and arduous relationships between the source and the recipient of knowledge. Thus, absorptive capacity as knowledge and transfer of practices depend on the interaction between the

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parent and the subsidiary firms. For the absorptive capacity, there are still arguments about the definition of the concept and operationality (Lane, Koka & Pathek 2006). In this paper, we do not use the concept of absorptive capacity as a variable, but we think it is reflected in the activities of ISO14001 and the technology to reduce environmental burden.

Third, environmental management is transferred to the supplier through various activities when the relationship between customers and supplier are close and intimate. Close relationship promotes communication and information sharing. Information sharing positively influences cost efficiency and product quality improvement or quality of relationship between source unit and recipient. It is a key for efficient and effective transfer across border (Pèrez-Nordtvedt et al. 2008).

In the same vein, the research on knowledge transfer indicates that when a supplier receives more support about product quality from specific customer firms, the supplier's product quality increases as compared to the products of other customers (Dyer & Hatch 2006). Improvement in quality and cost performance increases for those suppliers providing goods and services for customers with a strong initiative in knowledge sharing. Specialization in the specific assets of inter-organizational relations produces unique capabilities and becomes a source of competitive advantage (Dyer 1996). Our data support this fact in the transfer of environmental management to the subsidiary and the supplier.

6. Conclusion

In this paper, we analyzed the international transfer of environmental management based on the survey of Japanese subsidiary firms in Vietnam. When MNEs can strengthen the competitive advantage of overseas operations, they achieve the growth for the subsidiary and for themselves. In this mechanism, they transfer the administrative, organizational, and technological practices to the subsidiary. Practices are typically transferred to the subsidiary as ISO14001 and green procurement.

Our analysis supports the hypothesis that the multinational parent firms that are proactive in environmental management are more likely to transfer practices of environmental management to an overseas subsidiary. As knowledge transfer theory indicates, transfer of multinational firm's organizational capability partly depends on learning and absorptive capacity of subsidiary. Organizational capabilities that are enhanced cumulatively become important sources of growth of multinational firms. Environmental capabilities as knowledge and international transfer of practices exist in the interaction of multinational parent firm and overseas subsidiary.

However, there are limitations in our study. Our study was implemented in one country, and the number of samples was limited. It is necessary to verify in another area or country with a large sample. In spite of these limitations, our research suggests useful findings and contributes to the development of new research issues. For MNEs, it is important to promote the transfer of environmental management practices for sustainability.

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Appendix

Table A: Details of the questionnaire survey

1= strongly disagree, 3= neither agree nor disagree, 5= strongly agree, 2,4 are intervals

GOV	Government environmental regulations and mandates require significant efforts to meet.
COM	The community's demand for environmental performance is strong.
CUS	Customers demand a product /service that is environmentally friendly.
PISO	Your parent company has obtained ISO14001 certification (Yes=3, Preparing=2, No=1).
PREP	Your parent company has an environmental report or a sustainability report (Yes=3, Preparing=2, No=1).
PGREN	Your parent company is implementing green procurement.
LDS	Leadership on environmental issues by top management is strong.
GOAL	Your company has specific goals for reducing environmental burdens.
PAR	Employees commitment to environmental issues is strong.
ISO	Your company has obtained ISO14001 certification (Yes=3, Preparing=2, No=1).
REP	Your company has an environmental report or sustainability report (Yes=3, Preparing=2, No=1).
GREN	The green procurement level of your company is equal to the level of parent company.
WPER	The level of waste water treatment in your company is good.
APER	The level of air emissions reduction in your company is good.
EFFECT	The company's effort to improve environmental practices have had a positive effect on financial performance.
RETURN	Financial returns from environmental efforts outweigh cost of such efforts.
EMSUP	Your company supports your suppliers in implementing environmental management.
TESUP	Your company supports your suppliers in their improvement if environmental technologies.