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MANUFACTURERS' AND CONSUMERS' PERSPECTIVES ON ECO-LABELLING IN VIETNAM: A SURVEY

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The essential goal of eco-labelling is to protect the environment, encourage manufacturers to produce environmentally sound goods, and help consumers choose such goods. Understanding their attitudes towards eco-labelling will provide valuable information for designing an effective scheme. This paper aims to assess the interest levels of domestic consumers and a range of producers' views on eco-labelling, as well as propose some specific aspects relating to the Vietnamese eco-labelling scheme. Consumer questionnaires were used at ten supermarkets in the inner of Ho Chi Minh City (HCMC) for public opinion, while manufacturer survey was conducted in three most highly developed, industrialized areas of Vietnam. Interviewed consumers said that how they believed in eco-labelled products and are willing to pay a price premium 10% but a few of them often experienced in purchases. Surveyed producers present that a majority of them perceived eco-labelling as important but not confronted with much in their trading activities. The export share and ISO usage influence significantly producers' interest levels in eco-labelling while producers' readiness to apply the eco-label is affected only by the export share. Based on the findings of questionnaire survey results, we propose an eco-logo, a price premium, an eco-label certification organisation, potential product categories and manufacturers for the scheme.

***Key words:** eco-labelling, manufacturer survey, consumer survey, Vietnamese labelling scheme*

1. INTRODUCTION

Eco-labelling refers specifically to the provision of information to consumers about the relative environmental quality of a product[1]. There are many different eco-labels but a voluntary, multi-criteria based, third-party type, which is guided by the ISO 14024 and called as eco-labelling Type I, is the most popular. One of the major orientations in the Vietnamese Strategy for Environmental Protection is that 100% of the export products and 50% of the domestic consumer goods would be environmentally labelled according to the ISO 14024 standard by 2020[2]. Ministry of Natural Resources and Environment (MONRE) has just approved the decision on the Vietnam Green Label to officially activate an eco-labelling program for domestic and export products[3]. The decision also plans to identify and carry out case studies for the program and their criteria in the period of 2011-2015. However, the program has not yet decided what kinds of product categories are to be included for trials while consumers' and producers' attitudes towards eco-labelling have never been dealt with.

The Vietnam government recently issued some policies representing a shift from a state "command and control" approach towards a stronger reliance on "self-regulatory" or "market-based" approach like eco-labelling, e.g. the Ordinance of Food Safety and Hygiene in 2003[4] and Law of Energy Savings and Energy Efficiency in 2009[5]. Such policies promote the usage of safe vegetable label and energy efficiency label in domestic market. These encouraging developments could be evidence that the Vietnamese business sector is not far behind in responding to challenges arising from consumer demand for environmentally friendly products.

Multiple stakeholder participation, e.g. government, producers, consumers, commercial associations, retailers, and interested parties, in any eco-labelling initiative is important to its overall impact and success[1]. However, understanding consumers' 'green' demand is one of the main challenges for those researching eco-labelling scheme while producers' responses to the increasing demand for environmentally sound products and eco-labelling schemes have played an important role in market competition[6]. Moreover, Global Eco-labelling Network (GEN) guides that an understanding of producer and consumer attitudes towards eco-labelling will provide valuable information for designing an effective program[7]. Accordingly, the main questions for this study are how and to what extent domestic consumers and producers indicate their attitudes to and interest in eco-labelling, and whether consumers are willing to pay for eco-labelled products and producers are ready to participate in the program. Thus, this study aims to (i) assess the interest levels of domestic consumers to eco-labels in terms of awareness, acceptance and attitudes (demand side); (ii) determine the range of producers' views on eco-labelling in key sectors due to global trading of their products (supply side); and (iii) initially propose some specific aspects relating to the labelling scheme based on the findings of survey results. In summary, this study set the boundary that focuses on local consumers and producers.

2. METHODOLOGY

According to a model proposed by the Japan Eco Mark (2005)[8], to create an ideal market for eco-labelled products, both green purchases by consumers and offering of green products by producers must be promoted. To do this in Vietnam, we scrutinize their current attitudes and preferences upon eco-labelled products. Because the Vietnamese eco-labelling scheme have not activated yet, it is necessary to understand the attitudes of experienced consumers, and address suitable manufacturers and their views. So, in our survey we first identified potential candidates, who could answer the questionnaires properly to reduce time, money and effort.

Questionnaires were piloted with small groups to improve the survey design and to ensure that the questions could be understood, and if not, then revised. The questionnaire's covering letter mentioned that these surveys were conducted purely for academic purposes and that the responses would be kept confidential. The obtained data were analysed using SPSS software.

(1) Consumer survey

a) Questionnaire design and locale of the study

Although eco-labelled products by the Vietnamese eco-labelling scheme do not exist, there are some imported eco-labelled products, self-declared products, and safe, fresh or green (hereafter called as eco-labelled) products in the domestic market. We assessed consumer interests in such products. Various research on consumers reports that a large majority of them pay attention to eco-labels at least sometimes (Teisl *et al.*, 2002[9]; Thogersen, 2002[10]) and environmental information provided by eco-labels does influence product preference, especially those with strong concern for the environment (Grankvist *et al.*, 2004[11]; Nik Ramli, 2009[12]). Such information was used to design the consumer questionnaire related to their attentions (Question 1) and preferences to eco-labelled goods (Question 7) (Table 1).

The questionnaire was basically designed based on the United States Environmental Protection Agency (US-EPA) framework, measuring the effectiveness of environmental certification and labelling programs[13], and the suggestion of GEN[7]. Because a national scheme did not exist in Vietnam, our questionnaire differed from the EPA framework in two points: only assessing the awareness and acceptance of consumers, and focusing on potential consumers, not for all consumers. Based on these, ten questions were used as shown in Table 1.

Vietnamese market differs from those where exist eco-labelling schemes due to non-existing such a scheme. According to experiences from foreign programs, eco-labelled products are usually more expensive than those in similar categories, so they are appropriate for pro-environmental consumers who are willing to pay more for them. One research reported by ZUMA[14] shows that residences in very big and big towns prefer significantly to eco-labels than small towns and rural areas. So, we chose HCMC, the most developed market with respect to eco-products, as our study locale. Eco-labelled products are sold in supermarkets, hence we selected ten ones located in the inner area (20% of total supermarkets in HCMC) where 8/14 co-op marts making up 50% of total domestic markets share of retailers and 2/5 Citimarts.

b) The sample

The sample in this study met required features of potential consumers preferable to eco-products as suggested in the research of ZUMA[14] and Grankvist *et al.* (2004)[11], i.e. 18-27 years old and 46-70 years old, women (housewives), middle/high class and graduate. At each supermarket, the corresponding author interviewed 20 suitable consumers. Invalid answers were then replaced by others until 20 respondents per supermarket were reached. The survey was carried out for four weekend days in April, 2006. Survey results are shown in Appendix 1.

(2) Manufacturer survey

a) Questionnaire design and locale of the study

Manufacturing is a vital and promising economic activity for the development of Vietnam[15) 16]. To reduce pollution loads from industries, the government encourages and supports producers to implement cleaner production and environmental management system (EMS) ISO 14001, which provides pavement and potential for a firm to obtain an eco-label[17), 18), 19]. Up to 2006, 191 industrial firms elaborated cleaner production demonstrations and 189 ISO 14001 awarded companies existed. So, the application of these tools should be dealt with.

Some recent studies on the effect of eco-labelling to international trade show that eco-labelling may affect their trading, e.g. 84.6% of Korean interviewed producers[20], 75% of studied Lithuanian enterprises[21] while 62% of Japanese companies experienced increased sales of their Eco Mark certified products[22]. Henriques and Sadorsky

(1996)[23] present an empirical test to assess the importance of different factors in a firm's responsiveness to environmental issues. They conclude that the formulation of an environmental plan is positively influenced by customer, government regulatory, and neighbourhood pressures. It seems that these factors will also play a role in determining the responsiveness of firms towards eco-labelling. Accordingly, export shares and customer requirements related to environmental issues and eco-labels should be taken into account.

The research questions were designed based on above-mentioned reviews and the suggestion issued by GEN when establishing an eco-labelling scheme[7] but tailored to address the issues faced by Vietnamese enterprises. It also helped in the assessment of the interest of producers in participating, their current production activities, requirements of foreign partners, and their views on competitiveness, stages of potential improvement, readiness to apply, and willing to pay fees/costs. The survey questionnaire consisting of 25 items was divided into four parts: (1) general information of a company, (2) manufacturers' attitudes towards eco-labelling, (3) effects of eco-labelling and readiness to apply, and (4) environmental requirements of foreign partners. Questions with main results, their descriptive statistics and contributions are listed in Table 2 and Fig.1.a-c while survey results are shown in Appendix 2.

Two Cities and one Province in the top ten of gross output of the Vietnamese industry were selected, i.e. HCMC (1st rank), BinhDuong Province (4th), and CanTho City (7th). They are the most highly developed, industrialized areas of Vietnam. Moreover, a large majority of appropriate respondents were located there.

b) The sample

The eco-labelling scheme probably targets only about 5-30% of products in any given product category to keep its selectivity[7, 22]. Producers, importer, exporter, retailer can apply for using the eco-label. However, various Vietnamese producers, especially large companies hold importation, exportation, and contribution besides production, and since producer plays vital role to use the label we selected the producer as the eco-label holder for this study. To select respondents which are appropriate to becoming potential candidates, we carried out two steps: (1) identify potential manufacturing sub-sectors by three criteria (high environmental load, high turnover, and high export share value), (2) address potential producers by one of three or all following criteria: holding international standards (ISO 9001, ISO 14001), implementing cleaner production, and having "Vietnam High Quality" awarded products.

In the first step sectors that have strong finances and could reduce their pollution and ensure growth are selected; therefore, they are potential candidates for eco-labelling. In addition, key export goods could face up with rapidly changing environmental requirements. In this way, we selected six potential sub-sectors: textile/garment, footwear, fishery products, plastic products, home appliances and wooded goods (more details in Thai *et al.*[24]). There are justifications for using the criteria in the second step; first, due to the early stage of green marketing initiatives in Vietnam. Secondly, organisations voluntarily implementing international standards, especially ISO 14001, and having high quality products would be a potentially conducive place to initiate a systematic effort in promoting the eco-labelling scheme[12]. In this context, we found the numbers of manufactures in each sub-sectors, and selected randomly samples of 3-10% population. Textile industry, for example, we selected 38 manufacturers from 1,200 ones while 23 footwear producers were sampled from 236 ones.

The interviews were intended to conduct in 254 potential manufacturers in HCMC (94), Binh Duong Province (120) and Can Tho City (40) from December 15, 2008 to January 10, 2009. Under the support of local Environmental Protection Agencies, we e-mailed for dates, and then conducted face-to-face interviews with the chief operating officers, e.g. company managers, ISO managers. Before interviewing, we had a 5-minute introductory lecture about concept, roles, advantages and disadvantages of eco-labels. We finally obtained 119 valid respondents (Table 4); a response rate of about 47% is acceptable.

Table 1 Sample consumer questions used in the study

Survey questions:	
Consumer awareness: addresses the recognition of consumer about eco-labelled products and their symbols	
Q. 1	Do you often buy fresh/safe/eco-labelled (hereafter called as eco-labelled) products? (1) Often (2) Sometimes (3) Never (4) Do not care
Q. 2	Based on your opinion, what is the factor for differentiating eco-labeled products with others? (1) Quality (2) Performance (3) Label (4) Advertisement (5) Others
Q. 3	Select four labels that you consider are eco-labels (see Fig. 2)
Consumer acceptance: covers issues related to credibility, knowledge of information systems and product's features	
Q. 4	Do you understand the meaning of eco-labels? (1)Yes (2) No
Q. 5	What do you think about the credibility of eco-labelled products? (1) Credible (2) Somewhat credible (3) Indifferent (4) Somewhat incredible (5) Incredible
Q. 6	According to you, what are the roles of eco-labelled products? (Please choose three choices) (1) Consumer health protection (2) Environmental protection (3) Raising consumer awareness (4) Promoting economic integration
Q. 7	There are two products of the same category. Product A is an eco-labelled product while product B is a conventional one. Which product do you choose in the two following cases? (a) They have the same price (1) A (2) B; (b) Product A is more expensive than product B 10% (1) A (2) B
Consumer attitudes: deal with certified organisations, and factors affecting on consumers' purchasing decisions	
Q. 8	Which are following factors affecting on your purchasing decision? (Factors shown in Fig.3) (Choose three choices.)
Q. 9	According to you, what aspects should producers concentrate on when applying an eco-label? (1) Quality (2) Marketing (3) Honesty (4) Price (5) Others
Q. 10	Which eco-labelled-product-approving organisation do you most believe in? (1) Government bodies (2) Consumer association (3) Retailers (4) Environmental organisations (5) Scientists

Table 2 Descriptive statistics of main results in the manufacturer survey

No	Questions	*N*	Min.	Max.	Mean	Note/Contribution
1	Company size [1 = Small & Medium (SMEs), 2 = Large]	119	1	2	1.65	64.7% SMEs
2	Number of employments	119	30	70,000	1,945	91.6% < 5,000; 6.7% [5,000-10,000]
3	Percentage of export volume (export shares)	119	0	100	69.97	26.1%[0-30]; 13.4% [31-70]; 60.5% [71-100]
4	Have you heard about eco-labelling concept in your trading? (1: Yes, 0: No)	119	0	1	0.38	37.8% (1); 62.2%(0)
5	Would you like to know more about eco-labelling? (1 : Yes, 0: No)	119	0	1	0.97	96.6% (1); 3.4% (2)
6	Given that you know, your attitude toward eco-labelling is: (1: interested, 2: rather interested, 3: indifferent, 4: not interested)	119	1	4	1.82	39.5%(1); 42%(2); 16%(3); 2.5% (4)
7	Environmental issues perceived as important in your sector? (1: disagree, 2: somewhat agree, 3: indifferent, 4: somewhat agree, 5: agree)	119	2	5	4.28	See contribution in Fig.1.a
8	If other companies in your sector used eco-labels, you would feel compelled to use. (1: disagree, 2: somewhat agree, 3: indifferent, 4: somewhat agree, 5: agree)	119	1	5	3.08	See contribution in Fig.1.b
9	Eco-label would promote your product competitiveness in international markets. (1: disagree, 2: somewhat agree, 3: indifferent, 4: somewhat agree, 5: agree)	119	1	5	4.02	See contribution in Fig.1.c
10	Will you apply ecolabel for your company's products? (1: ready, 2: 2-3 years later, 3: not decided yet)	119	1	3	2.55	9.3%(1); 35.6%(2); 64.4%(3)

SMEs: < 1,000 employees (cited from "The case of Corporate Social Responsibility (CSR) in Vietnam. How CSR affects developing countries")

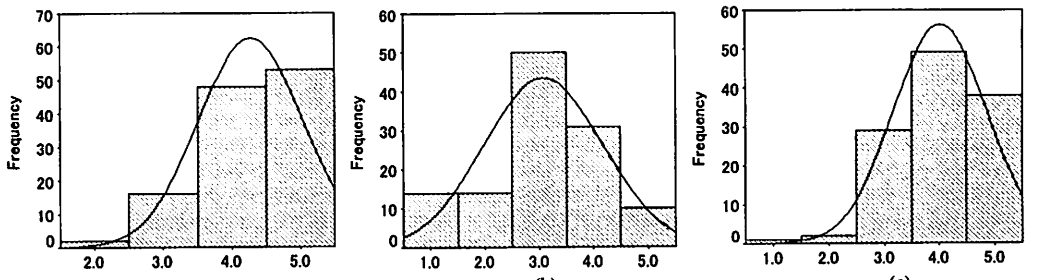

Fig.1 Contributions of respondents to question number 7, 8, and 9 as shown in Table 2

3. RESULTS AND DISCUSSION

(1) The demand for eco-labelled goods

Consumer awareness: although the survey was conducted in the most developed market (HCMC), the results shown that only 10% of the respondents were often experienced in buying eco-labelled products. This ratio is quite low in comparison with those in Korea (72.5%), Japan (60%)[22] and the US (40%)[13]. So, the Vietnamese eco-labelling scheme needs to improve environmental awareness of consumers regarding purchasing eco-products.

Unlike previous researches and US-EPA's studies on existing national eco-labels, we suggested eight labels, most popular in HCMC market, and asked the consumers to recognise four eco-labels out of other four quality labels (Fig.2).

Out of four eco-labels, two labels (b, c) are self-declarations, indicating environmental attribute symbols while two others are famous national labels of the EU and Germany; four quality labels in which two labels (f, g) contain symbol (√, pass stick) which is similar to Vietnam High Quality Product (VHQP) symbol preferable to local consumers (see Fig.2). Labels (b) and (c) whose symbols had close relationship with environmental protection were chosen as eco-labels with highest percentage, i.e. 46% and 40%, respectively. The chasing–arrows recycling symbol (label b) was also recognised in highest percent (92.5%) in Thogersen's report[10]. The EU Flower (a) and the Angel mark (d) were supposed as the same ratio of the two quality labels (f) and (g), 21% and 11% in sequence. In contrast, the Angel mark was recognised by at least 80% of German consumers (EPA, 1994)[13]. Accordingly, a Vietnamese Eco-logo had better be recognizable and acceptable by local consumers. The findings based on the images of labels above suggest us that the logo needs a symbol with high environmental visualization (close relationship with environmental protection) and containing symbol (√).

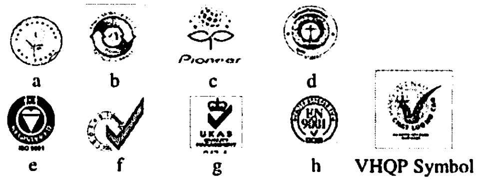

Fig.2 Eco-labels (a-d) and quality labels (e-h)

Table 3 Roles of an eco-label according to consumers

Roles of an eco-label	Percentage (%)
Protection of consumer's health	67
Environmental protection	50
Raising consumer awareness	23
Promoting economic integration	17

Each consumer chose three choices

Consumer acceptance: The most important factor of an eco-label which causes one eco-label scheme to be successful is the credibility of consumers. Seventy-seven percent of surveyed respondents supposed that an eco-label is believable (both credible and somewhat credible), and only 23 % of them do not believe in. Nevertheless, if the number of self-declared eco-labels proliferates and some of them make fraudulent claims, consumers will lose their confidences[10, 13]. So, it is necessary to have a national eco-labelling scheme to manage such self-declared labels.

As for local consumers, eco-label means consumers' health protection (67% of respondents) while its main roles, i.e. environmental protection, raising consumer awareness, and improvement of global economic integration[1,25], are quite low (Table 3). Leire (2005)[26] reports that health is the main reason for consumers to choose eco-labelled goods. So, the Vietnamese scheme shall choose health-related product categories first.

Because there are no products eco-labelled by the Vietnamese scheme, we can not ask consumers for willingness to pay (WTP) of particular products. As Gallastegui (2002)[6] indicates, many previous researches show WTP for eco-labelled goods varies significantly, from 1% to 25% often 10%. Moreover, Shen (2008)[27] determined Chinese consumers' WTP degrees for eco-labelled products by an empirical analysis, and reported that the degrees are 8.71–9.51% for seven examined products. As a result, we assumed two products in the same category in two cases: (1) the same price and (2) the eco-labeled product with a premium 10%. In the first case, 95% of the respondents chose the eco-labeled product while in the second case, 75% of the respondents still chose the eco-labelled one (Fig.3). The ratio reported by the US-EPA in this aspect is that 80% of consumers would choose the US eco-labelled products if quality and price being equal[13]. The difference may come from the sample in our survey that comprises potential respondents. In fact, various research has demonstrated that consumers' attitudes from survey are far from what they act[28]. However, this result provides a positive perspective for eco-labelled products in Vietnam.

Consumer attitude: Fig.4 presents that quality and price are the first and second most important factors influencing a consumer's purchasing decision. In these aspects, American consumers were similar[13]. Subsequent factors are health and environment-related factors but they do not affect consumer purchasing decisions significantly. However, this result demonstrated that recently epidemic diseases of cattle and poultry, toxics in clothes, and polluted vegetables and meat issues have impacted the consumer's purchasing decision.

In regard to approving organisations, consumers strongly believe in government bodies (56%) and consumer associations (27%); environmental organisations, scientists and retailers that are highly trusted in European nations[29] are rarely accepted (12%, 7%, and 3%, respectively). This reflects the institutional policy in Vietnam where consumers much believe in the approval of government bodies.

(2) The supply side of eco-labelled goods

Products of surveyed enterprises were mainly exported except plastic products (Table 4). The ISO 9001 standard (Quality Management System for products to meet consumer requirements) is required as the most important, then environmental management system ISO 14001 (for managing the environmental performance of company activities), and social responsibility SA 8000 (providing a standard based on international human rights norms and national labour laws), respectively.

Producers' attitude: eco-labelling schemes have been globally used for 20 years; however, various enterprises answered that its concept was really new in their trading activities. Manufacturers of textile/garment sector and footwear sector who have heard of this concept are in the lowest ratio because they mainly process for their partners with a low added-value, especially with small & medium enterprises (SMEs). However, various large companies in these sectors have heard about this concept. This is the fact that these large companies themselves produce textiles and footwear, so they need to know the eco-logos as one of competitive factors. On the other hand, respondents in fishery processing and home appliances are more familiar with eco-labels (Fig.5) as enterprises in the former have their own brands which need promoting their images, and those in the latter have been invested or co-operated with Japanese or Korean corporations that have applied eco-labels for their products in home countries. They are mainly SMEs. After a 5-minute lecture on eco-labeling, 97% interviewees wanted to know more about eco-labelling.

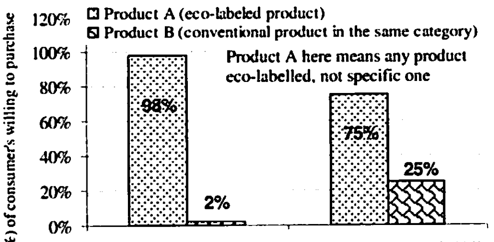

Fig.3 Consumer's willingness to pay for eco-labelled products

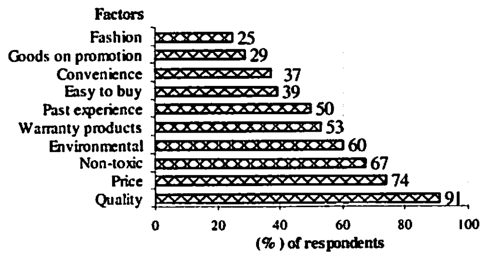

Fig.4 Factors influencing a consumer's purchase decision (each consumer chose three choices)

Table 4 General information of the surveyed manufacturers

Sub-sectors	No of Firms	Export share (%)[1]	Size[2] (Small & Medium)	Key int'l standard (%)[3] ISO 9001	ISO 14001	SA 8000
Textile-garment	38	68.8	57.9%	53.6	15.8	18.4
Footwear	23	83.5	39.1%	30.4	4.3	4.3
Fishery products	16	87.1	62.5%	62.5	12.5	0
Plastic products	15	20.7	86.7%	93.3	13.3	6.7
Home appliances	12	48.7	75%	75	41.7	0
Wooded goods	15	96	93.3%	6.7	0	0
Total (all sectors)	**119**	**64.7**	**69.9**	**53.6**	**14.6**	**4.9**

[1]These values are calculated based on the shares of shipments
[2](%) of small and medium enterprises (<1,000 employees)
[3](%) of enterprises implementing standards per total surveyed ones

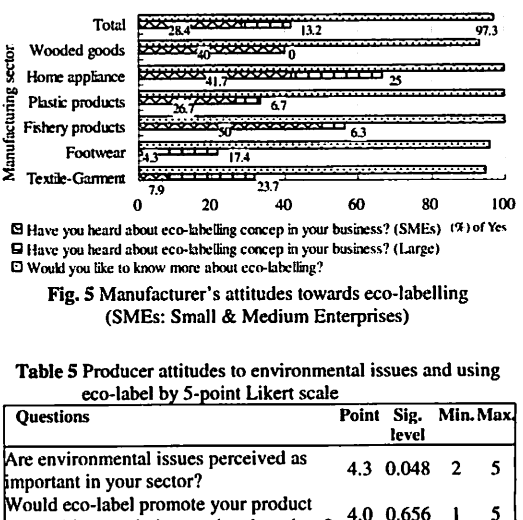

Fig. 5 Manufacturer's attitudes towards eco-labelling (SMEs: Small & Medium Enterprises)

Table 5 Producer attitudes to environmental issues and using eco-label by 5-point Likert scale

Questions	Point	Sig. level	Min.	Max.
Are environmental issues perceived as important in your sector?	4.3	0.048	2	5
Would eco-label promote your product competitiveness in international markets?	4.0	0.656	1	5
If other companies in your sector use eco-labels, would you feel compelled?	3.1	0.601	1	5

Likert scale: 1 = disagree, 2 = somewhat disagree, 3 = indifferent, 4 = somewhat agree, 5 = agree.

Although respondents perceived that eco-labels would promote their product's competitiveness in international markets and environmental issues considered important in their sectors (average point = 4.3, significant difference between plastic products and others), most manufacturers felt neutral or did not feel compelled to use them even if other companies in their sectors use (average point = 3.1, no significant difference at $p < 0.05$)

(Fig.1a-1.c, Table 5). The reason is that Vietnamese firms have long-time partners who accept their products due to lower prices and they are the processors of foreign corporations. This induces Vietnamese enterprises more vulnerable and unsustainable-developed in international markets as they are mainly dependent on the partners.

Readiness to apply eco-label: As to application of eco-label, 9.2% of respondents are ready, 26.1% would apply after 2–3 years (Fig.6). The program will probably target only about 5–30% of products in any given product category to keep criteria stringent enough. Among manufacturers who were ready to take part in the scheme, 73% accepted to pay for both costs and fees. This indicates that some strong-finance enterprises will use eco-label in their business activities to improve their competitiveness. Nonetheless, no significant differences among examined sectors and between SMEs and large enterprises are observed.

Requirements of importers: Vietnamese exports are of weak competitiveness, merely focusing on low-price segments and processing for partners. So, Vietnamese producers have not confronted much with barriers in terms of environmental issues (ISO 14001) and eco-labels (Table 6). This explains why a majority of producers do not feel compelled if the others in their sectors use eco-labels. However, various foreign manufacturers state that eco-labelling could affect their international trades, e.g. 84.6% in Korea[20)], 75% in Lithuania[21)], and 91% of European companies preferred purchasing eco-labelled products from developing nations[30)]. This may influence the exportation of Vietnamese products in the future.

Factors affecting the interests and readiness to use eco-labels: our proceeding paper (2009)[31)] did not discuss these points. A question arises here is that whether there are any indicators that could influence producers' interest levels in eco-labelling and readiness to take part in the scheme, such as company size, export share, kinds of sectors and usage of international standards? Accordingly, we tested the relationships among the interest level, the readiness and these indicators. Chi-square (χ^2), and Kendall's tau-c (τ_c) and gamma (γ) were used for the relationship of nominal–ordinal variables and that of ordinal–ordinal variables, respectively. Tables 7 and Table 8 show their significant levels.

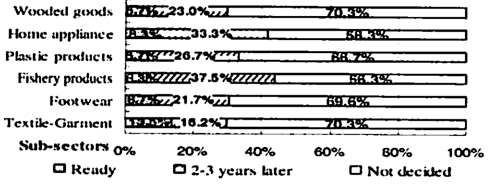

Fig.6 Readiness to participate in the Vietnam scheme

Table 6 International importer requirements in each sector examined (% of firms applying each standard)

Sectors	Management systems (%)						Eco-labels (%)		
	Packaging	ISO 14001	SA 8000	EU code	HACCP	Others (*)	Eco-label	MSC	MSC
T/G	31.6	2.6	29.0	7.9	-	-	5.2	-	-
F	4.3	-	8.7	4.3	-	-	-	-	-
FPs	50	-	-	18.8	56.2	-	-	6.2	-
PPs	13.3	20	20	6.7	6.7	-	-	-	-
HAs	-	-	-	8.3	-	16.7	-	-	-
WGs	-	-	-	-	-	-	-	-	6.2

T/G: textile/garment, F: footwear, FPs: fishery products, PPs: plastic products, HAs: home appliances, WGs: wooded goods; MSC: Marine Stewardship Council (eco-label for fishery); FSC: eco-label for forest and woods; HACCP: Hazardous Analysis Critical Control Point; (*): E.Efficiency, IEC, WEEE

From Table 7, it is known that company size, kinds of sectors, and ISO 9001 usage do not affect the interest level significantly whereas the volume of export share and ISO 14001 application significantly influence the interests of manufacturers in eco-labelling at the 5% level. In other words, the increasing of export shares and the application of ISO 14001 will cause a producer's higher interest in eco-labelling. Regarding ISO 14001 application, some previous research conclude that it could provide foundation and potential for a firm to obtain an eco-label[17)]. Grolleau *et al.* (2008)[18)] investigated the determinants of adoption of eco-labelling schemes among 116 countries and concludes that ISO 14001 application affect the probability of adopting an eco-labelling program significantly. For export shares, research on this aspect is absent but some surveyed results show that 84.6% of Korean producers[20)] and 75% of studied Lithuanian enterprises[21)] replied that eco-labelling may affect their international trade.

Results in Table 8 are similar to those in Table 7, i.e. company size, sectors, and ISO 9001 usage do not influence the possibility of eco-label application. However, export shares show a positive influence at the 10% level, whereas ISO 14001 usage does not affect it significantly. So, the export share is one determinant that influences the possibility of applying the Vietnamese eco-label.

Table 7 Significant levels of interest in eco-labelling and some indicators by three testing methods

Indicators	Pearson χ^2	Kendall's τ_c	Gamma (γ)
Company size (1=large, 2=small & medium)	0.271	-	-
Export share (1=0-30%, 2=31-70%, 3=71-100%)	-	0.034**	0.034**
Sectors (six selected sub-sectors)	0.769	-	-
ISO 9001 usage (1=Yes, 0=No)	0.853	-	-
ISO 14001 usage (1=Yes, 0=No)	0.013**	-	-

***: Significant difference at 5%; Interest level: 1=interested, 2=rather interested, 3=indifferent, 4=not interested*

Table 8 Significant levels of readiness to apply eco-label and some indicators by three testing methods

Indicators	Pearson χ^2	Kendall's τ_c	Gamma (γ)
Company size (1=large, 2=small & medium)	0.325	-	-
Export share (1=0-30%, 2=31-70%, 3=71-100%)	-	0.093*	0.093*
Sectors (six selected sub-sectors)	0.847	-	-
ISO 9001 usage (1=Yes, 0=No)	0.980	-	-
ISO 14001 usage (1=Yes, 0=No)	0.431	-	-

**: Significant difference at 10%; 1: Ready to apply, 2: 2-3 years later, 3: not decided yet*

(3) Validity, reliability and generality of the results

The relations between the interest level, and ISO 14001 usage and the export share of producers indicate significant levels at $p < 0.05$. The similarity of these findings to some previous studies as discussed above shows the validity of the results.

Regarding the reliability of the surveys, we used some criteria to select potential respondents, both of consumers and producers familiar to eco-labelling concept in Vietnam situation. So, their answers are more concrete and properly for our purposes. The surveys utilized a face-to-face approach by meeting each consumer at supermarkets and visiting each enterprise. As Arrow *et al.* (1993)[32] recommend, eliciting the values of face-to-face is usually preferable and more reliable than e-mail surveys. In addition, the enumerator bias affects the level of inconsistent results in developing countries if the enumerators are poorly trained and have different suggestions in the surveys[33]. These surveys had one enumerator, i.e. the corresponding author of this study. Thus, bias caused by untrained enumerators is unlikely in this survey.

The survey results could be generalized regarding the influences of the export share and the usage of the ISO 14001 standard on producers' interest levels in eco-labelling at the 5% level, and the effect of the export share on producer's readiness of eco-label application at the 10% level.

4. PROPOSAL OF SPECIFIC ASPECTS FOR THE VIETNAMESE SCHEME

(1) Requisites to demand side found from survey

From the demand side, interviewed consumers show that the Vietnamese eco-labelling scheme should first focus on health-related products. Consumers surveyed could recognize eco-labels that are close relationship with environmental protection symbols, and familiar with the symbol of Vietnam High Quality awarded products, i.e. (√, pass stick). So, the Eco-logo should be designed with simple and high environmental visualization and contain the symbol of pass stick. In the study, we showed the comparison between an eco-labelled product and a conventional similar one, and obtained that 75% of respondents agree to pay a premium of 10% for the eco-labelled product. This result helps us to suggest that 10% percent of the premium of eco-labeled product is suitable for local consumers. However, regarding particular product categories (when they are decided for the scheme) their suitable WTPs should be identified based on conjoint analysis as studies on markets where eco-labelling schemes exist[27),34)]. The third party who certifies eco-labelled products should be the government whom consumers highly believe in (56%). Although the sample selected comprises potential consumers preferable to eco-products, only 10% of them were often experienced in purchasing eco-labelled products. So, environmental awareness of local consumers should be improved by education and information dissemination.

(2) Requisites from the supply side of the survey

From the supply side, the survey indicates that majority of producers wanted to know more about eco-labelling (97%) and agreed that environmental issues being perceived as important in their sectors. However, manufacturers have not much confronted with barriers in terms of eco-labels (4/119 required). Although the potential candidates were selected, 35.7% of the respondents (both ready and after 2-3 years) are planning to apply the eco-label for their products. This percentage is lower than Lithuanian enterprises, 39%[21]. As aforementioned, the interest level and readiness of producers to the eco-label application are significantly influenced by the export share while the interest level is also affected by ISO14001 utilization that is increasing in Vietnamese companies[35]. The investigation of potential producers should be based on candidates who are ready to take part in, having high export ratio and implementing the ISO 14001 standard.

(3) Limitation of the study

This study first aims to understand the attitudes of local consumers and producers regarding eco-labels and their usage. However, interested parties such as exporters, importers, retailers, and foreign enterprises can apply the Vietnamese eco-label for their products. A research on these stakeholders is also necessary to understand the views and demands of all potential label-holders. Furthermore, more details about environmental requirements of key foreign importers should be determined by a direct importer survey to know what they need in terms of environmental aspects. Another limitation should be pointed out for further research is specific WTP values of local consumers for particular eco-labelled product categories should be identified. The value of 10% above is considered a benchmark.

5. CONCLUSIONS

This paper aimed to assess the interest levels of domestic consumers (HCMC was chosen as the most developed market) and a range of producer's views on eco-labelling, as well as propose some specific aspects relating to the labelling scheme based on the findings. The consumer questionnaires were sent to ten supermarkets in the inner area of HCMC. A total sample of 200 appropriate consumers answered the survey. The manufacturer questionnaires were conducted in HCMC, BinhDuong Province, and CanTho City. A sample of 119 suitable candidates was received. The results obtained provide a first baseline for the two most important stakeholders in the Vietnamese labelling program and could be used for future as benchmarks. Followings are concluding remarks.

(1) Interest level of domestic consumers

The result of analysing consumer interest levels shows that domestic consumers are concerned about health-related products. This result is similar with those of various studies in other countries[22),26)]. Although 75% of consumers were willing to pay a premium 10% for eco-labelled products, only 10% were often experienced in purchasing these. As a result, it is important to improve environmental awareness of consumers by education and information dissemination.

(2) Domestic producer's view

The manufacturer survey presents that the majority of respondents perceived environmental issues and eco-labelling as important in their trading sectors, especially with foreign partners. However, they have not felt compelled or been confronted with using eco-labels in their trading. These views need to be changed when local producers orient to medium or high added-value products as mentioned in the National Strategy of Socioeconomic Development towards 2020. Promisingly, 35.3% of respondents are planning to use the eco-label for their products (both ready and after 2-3 years later). The interest levels in eco-labelling are significantly affected by export shares and the usage of the EMS ISO 14001, whereas producers' readiness to apply the eco-label is influenced by the export share at a lower level (10%). So, the characteristics of potential candidates should be producers who are ready to participate in the scheme, having high import share and applying the EMS ISO 14001. Of course, it is better to deal with more selection factors to select suitable product categories and appropriate manufacturers.

(3) Specific aspects for the labelling scheme

Based on the questionnaire survey findings we propose some specific aspects for the Vietnamese program regarding an eco-logo, a price premium, the third party approving eco-labelled products, potential product categories and manufacturers, e.g. using ISO 14001 and high export shares, that are necessary for establishing an eco-labelling scheme.

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APPENDIX

Appendix 1 Tabulation of the results of consumer survey

Consumer awareness	
Q.1	Often: 10%; Sometimes: 34%; Never: 54%; Do not care: 2%
Q.2	Quality: 35%; Performance: 6%; Label: 50%; Others: 9%
Q.3	Eco-label - (a): 21%; (b): 46%; (c): 40%; (d): 11% Quality label - (e): 16%; (f): 21%; (g): 4%; (h): 6%
Consumer acceptance	
Q.4	Yes: 33% No: 67%
Q.5	Credible: 36%; Somewhat credible: 41%; Indifferent: 10%; Somewhat incredible: 9%; Incredible: %4
Q.6	Consumer protection: 67% Economic integration: 17% Awareness raising: 23% Environmental protection: 50%
Q.7	(a) They are same price (A): 98% (B): 2% (a) (A) more expensive than B 10% (A): 75% (B): 25
Consumer attitudes	
Q.8	Quality: 91%; Price: 74%; Non-toxic: 60%; Environment: 53%; Past experience: 50%; Easy to buy: 39% Convenience: 37% Goods on promotion: 29; Fashion: 25%
Q.9	Quality: 44%; Marketing: 6%; Honesty: 41%; Price: 10%; Others:2%
Q.10	Government bodies: 56%; Consumer association: 27%; Retailers: 3%; Environmental organisation: 12%; Scientist: 7%

Q.1 – Q.10 are shown in Table 1

Appendix 2 Tabulation of the results of producer survey

General information	
(1)	Company size - SMEs: 64.7% (77); Large: 35.3% (42)
(2)	Number of employees Small (≤ 300): 41 Medium (< 1,000): 36 Large: 42
(3)	Percentage of export (share of shipments) [0-30]: 26.1% (31); [31-70]: 13.4% (16); [71-100]: 60.5% (72)
Producer' attitudes: 4 – 10 (see tables below)	

Manufacturing sector	(4) Have you heard about ···		(5) Would you like to know more ···	
	Yes	No	Yes	No
Textile-garment (T/G)	31.6	68.4	94.7	5.3
Footwear (F)	21.7	78.3	95.7	4.3
Fishery product (FPs)	56.3	43.7	100	0
Plastic products (PPs)	66.7	33.3	100	0
Home appliances (HAs)	40	60	93.3	6.7
Wooded goods (WGs)	41.6	58.4	97.3	2.7

Unit: %; See more about questions in Table 2

Sector	(6) Given that you know, your attitudes... (Unit: %)			
	Interested	Rather interested	Indifferent	Not interested
T/G	31.6 (12)	42.1 (16)	23.7 (9)	2.6 (1)
F	43.5 (10)	34.8 (8)	17.4 (4)	4.3 (1)
FPs	37.5 (6)	62.5 (10)	0 (0)	0 (0)
PPs	33.3 (5)	46.7 (7)	20 (3)	0 (0)
HAs	58.3 (7)	25.0 (3)	16.2 (2)	0 (0)
WGs	46.7 (7)	40.0 (6)	6.7 (1)	6.7 (1)
Total	39.5 (47)	42.0 (50)	16.0 (19)	2.5 (3)

Numbers in brackets are respondents selected for that choice

Sect.	(7) Environmental issues perceived …					(8) If other company …					(9) Eco-label would promote …				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
T/G	×	×	6	15	17	5	3	15	13	2	1	×	10	15	12
F	×	1	3	8	11	3	2	9	5	4	×	×	6	8	9
FPs	×	×	2	7	7	1	3	4	6	2	×	1	3	9	3
PPs	×	1	5	6	3	2	3	7	2	1	×	1	5	6	3
HAs	×	×	×	7	5	1	×	6	5	×	×	×	3	4	5
WGs	×	×	×	5	10	2	3	9	×	1	×	×	2	7	6
Tot	×	2	16	48	53	14	14	50	31	10	1	2	29	49	38

Unit: numbers of respondents selected one choice; (×): No selection

Sector	(10) Will you apply eco-label for your products (%)		
	Ready	After 2-3 years	Not decided yet
T/G	13.5 (5)	16.2 (6)	70.3 (26)
F	8.7 (2)	21.7 (5)	69.6 (16)
FPs	6.3 (1)	37.5 (4)	56.3 (10)
PPs	6.7 (1)	26.7 (4)	66.7 (10)
HAs	8.3 (1)	33.3 (4)	58.3 (7)
WGs	6.7 (1)	40.0 (6)	53.3 (8)
Total	9.2 (11)	26.1 (31)	64.7 (77)

Numbers in brackets are respondents selected for that choice

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