

Report of Joint Research of IIIEE and NIES

International Survey on Stakeholders'  
Perception of the Concept of  
Extended Producer Responsibility  
and Product Stewardship

English version

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May 2015





## **Foreword**

This international questionnaire survey was conducted by Tomohiro Tasaki at the Center for Material Cycles and Waste Management Research (CMW), National Institute for Environmental Studies (NIES), Japan, and Naoko Tojo and Thomas Lindhqvist at the International Institute for Industrial Environmental Economics (IIIEE), Lund University, Sweden. The two research institutes agreed upon a “Memorandum of Understanding on Joint Research on Product and Resource/Waste Oriented Environmental Management and Policy” in 2011, and this report is a result of the joint research.

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## 1 Introduction

Extended Producer Responsibility (EPR) is, according to the OECD (2001), an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the postconsumer stage of a product's life cycle. Instead of EPR, several countries use the word "product stewardship" as a very similar concept. The concept of EPR and product stewardship (PS) has been one of the most important ideas for waste management/recycling policy in the world for the last two decades. However, different stakeholders perceive the concept and the role of producers in varying ways.

We therefore conducted an international survey on stakeholders' perception of EPR/PS. The aim of the survey was to identify how various stakeholders in different countries perceive the concept, rather than to conclude how it should be. The purpose is to deepen our understanding about EPR and PS and possibly facilitate relevant discussions.

In this report, after a brief introduction of how we developed and conducted the survey (Chapter 2), we summarize the results of the survey, the analysis and our reflections (Chapter 3). The report ends with some concise conclusions (Chapter 4).

## 2 Method of survey

An internet questionnaire survey was conducted using a web-based questionnaire service, Survey Monkey®. In addition to the questions related to the attributes of the respondents (e.g. their familiarity with the concept, product categories they have been working with, regional coverage, their general beliefs), the survey covered the following issues:

- aims of EPR/PS;
- range of products to which EPR/PS should be applied;
- rationale for using EPR/PS;
- type of responsibility included in EPR/PS;
- scope of "producers" in the context of EPR/PS; and
- opinions about various statements related to EPR/PS and waste management.

We sent request letters asking stakeholders to participate in the survey by e-mail. Participants were not able to access and answer from the same IP address more than once to avoid duplicate answers. We tried to include as many countries from all over the world as possible. Two languages, English and Japanese, were used. The survey in

English was for non-Japanese countries and the one in Japanese was for Japan. The questionnaire was firstly prepared in English by the three authors of the report, and was subsequently translated into Japanese by one of the authors. Another author checked the consistency of the translation and modified the questionnaire. The author who originally did the translation in turn examined the consistency of the revised questionnaires in English and Japanese and modified either or both of the questionnaires. This process was continued until no inconsistencies were found. To make statements and choices in the questionnaire short, we used the term “EPR” in the questionnaire and asked respondents to replace “EPR” with “product stewardship” if a respondent is more familiar with the concept of PS. In this report, we used the term “EPR/PS” in general. The full content of the questionnaire is found in Appendix 1.

#### **<Survey in English>**

*Period of the survey:* 10 June – 31 July 2013 (The original deadline was 3 July. Additional requests were subsequently sent, with the extension of the deadline up to 31 July.)

*Collection and selection of respondents:* We made a list of 670 stakeholders who have been engaged in EPR/PS programs in different capacities and/or had published an article or report on EPR/PS (they may or may not be acquainted with the authors), and requested them to participate in the survey. We also asked them to suggest additional appropriate people for the survey. Following this approach allowed us to add 62 names to our sample.

*Number. of requests sent:* Total of 732; 39 of which were undelivered due to unused e-mail address, etc.

*Effective responses:* 248 (Excluding two responses that were not at all familiar with EPR/PS. Response rate, which is the ratio of effective responses over the number of requests sent, was 34%.)

#### **<Survey in Japanese>**

*Period of the survey:* 10 April – 20 May 2013 (The original deadline was 26 April. Additional requests were subsequently sent, with the extension of the deadline up to 20 May.)

*Collection and selection of respondents:* We made a list of 1,211 stakeholders who were acquainted with the authors and had been engaged in EPR/PS programs, recycling,

and/or waste management in Japan for the last ten years or so. From these, we selected potential respondents whose contact address had been identified and who were regarded as knowledgeable on EPR/PS. This was done in a way to reduce bias by ensuring the coverage of a variety of different product categories and stakeholder affiliations. In cases when the number of responses in a product category or affiliation was remarkably small, we requested additional people in these groups to participate in the survey.

*Number of requests sent:* 371, 72 of which were undelivered due to unused e-mail address, etc.

*Effective responses:* 178 (Excluding five responses that were not at all familiar with EPR/PS. Response rate was 48%.)

**<In total>**

*Number of requests sent:* 1,103, 111 of which were undelivered.

*Effective responses:* 426 (Excluding seven responses that were not at all familiar with EPR/PS. Response rate was 39%.)

Note that the respondents surveyed were not sampled randomly and the findings of this survey are applicable to the respondents surveyed only. Nonetheless, we think that the sample is relevant as we aimed to address perceptions of experts and discussants about EPR/PS who are engaged in real policy dialogues. The results showed that different perceptions exist among these as will be further outlined below.

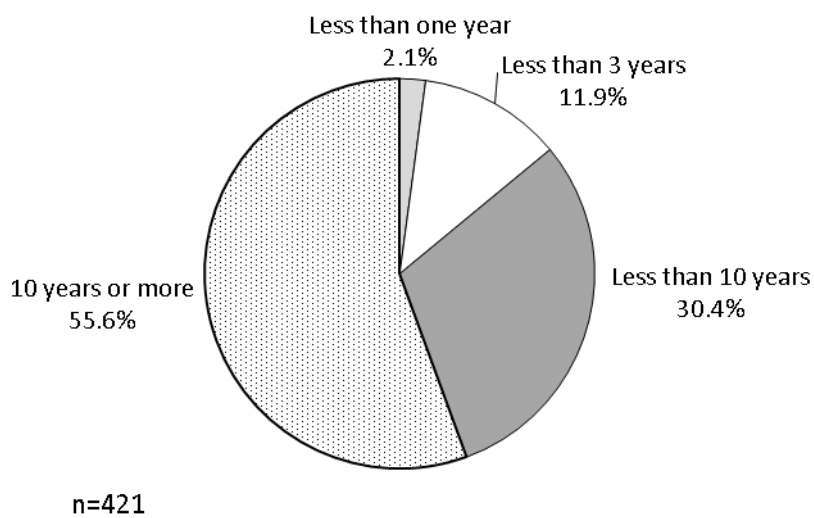
### 3 Results and analysis

In this chapter, the results of the survey are presented, together with the analysis and our reflection. In addition to presenting the summary of answers for individual question items of the survey, we sought to understand whether we can find some patterns in answers through various forms of analysis, as we saw relevant. Some of the analysis looked into the choice of respondents under a single question item. For instance, among the 16 aims of EPR/PS programs listed under a question in the survey, do we see any correlation between respondents' perceptions? We also analyzed the correlation between the attributes of respondents (e.g. their geographical base, experiences and knowledge on EPR/PS, stakeholder group) and the answers. We clustered and highlighted a few open answers in this chapter as well while all the open answers and comments provided by the respondents are found in Appendix 2.

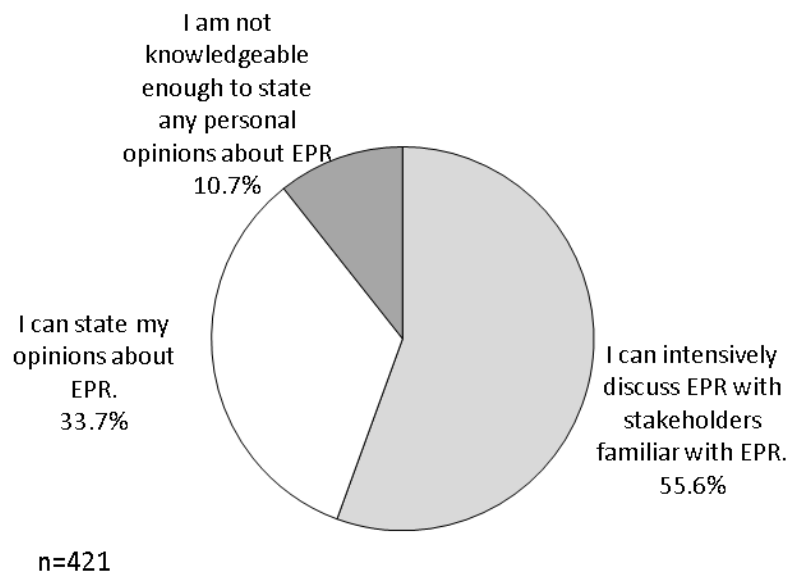
### 3.1 Attributes of respondents

#### 3.1.1 Experiences and knowledge about EPR/PS

We started by asking about the respondents' experiences and knowledge about EPR/PS. As Figure 1 shows, 86% of the 421 respondents have a long engagement with EPR/PS (longer than three years). 55.6% of 421 respondents evaluated themselves as "I can intensively discuss EPR with stakeholders familiar with EPR" as shown in Figure 2. This result indicates that majority of the stakeholders from whom we collected responses are knowledgeable about EPR/PS.



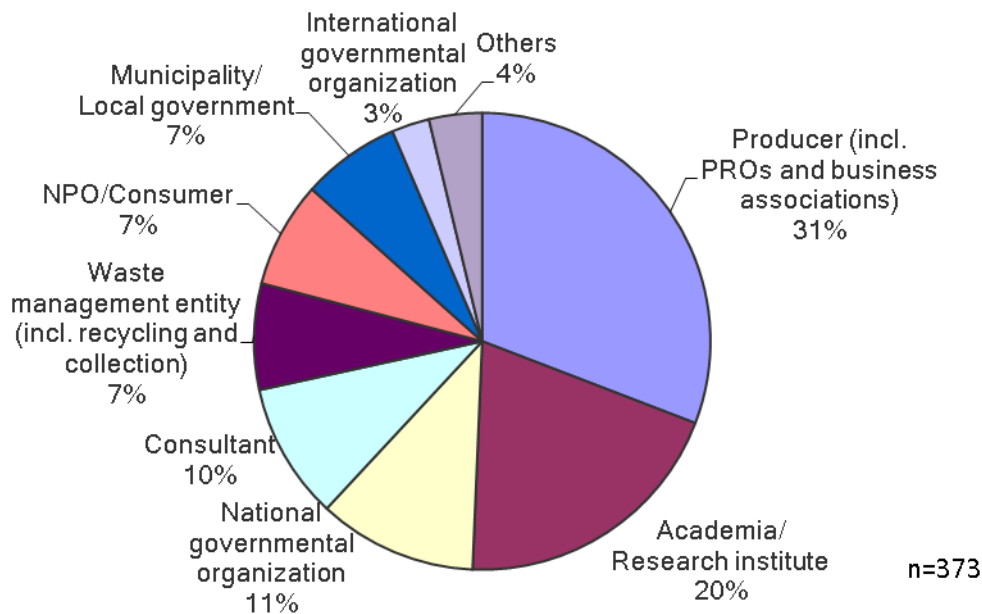
**Figure 1: Respondents' experiences of EPR/PS (Single answer to "How long have you known about EPR?")**



**Figure 2: Respondents' level of knowledge on EPR/PS. (Single answer to "Regarding your knowledge about EPR, which of the following sentences best applies to you?")**

### 3.1.2 Types of organizations

The types of organization which respondents work for/belong to are shown in Figure 3. Among 373 respondents, those who categorize themselves as producers (including Producer Responsibility Organization (PROs) and other business organizations) was the highest share (31%), followed by the academia/research institutes (20%). The rest belong to/have worked for national governmental organizations (11%), consultants (10%), waste management entities (including recyclers and collectors) (7%), Not-for-Profit Organizations (NPOs)/consumers (7%), and municipalities/local governments (including state and province) (7%) and international governmental organizations (3%).



**Figure 3: Types of organization of respondents (Single answer to “What type of organization have you been working for or is your position most close?”)**

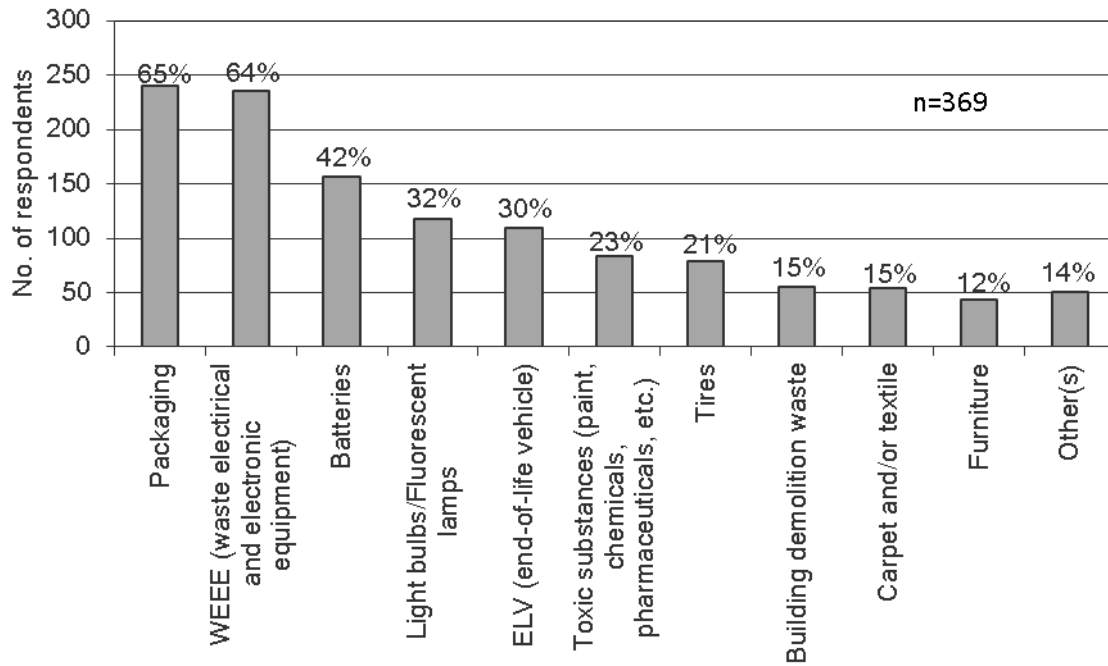
### 3.1.3 Product categories

Multiple answers to product categories that respondents were familiar with are shown in Figure 4. 369 responses were collected to the question “What types of products are your activities on EPR related to?” In response to this question, close to two-third of the respondents answered packaging (65%) and waste electrical and electronic equipment (WEEE) (64%). This is followed by those who are familiar with batteries (42%) light bulbs/fluorescent lamps (32%)”, and end-of-life vehicles (ELV) (30%). The number of responses for toxic substances (paint, chemicals, pharmaceuticals, etc.), tires, building demolition waste, carpets and/or textiles, and furniture were relatively small but accounted for more than 10%. Respondents also listed a number of other product categories.\*<sup>1</sup>

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\*<sup>1</sup> Product categories listed in “other(s)” by respondents included wind turbines, PV, mobile phones and accessories, medical equipment, ships, smoke detectors, fire extinguishers, warning flares, used oils, fuel filters, antifreeze materials, mercury-containing products, CFCs, mattresses, footwear, paper, cardboard, phone books, graphic paper, logistics materials (recycled pallets), iron scrap, branded organics, agricultural film, food products, waste discarded from households, marine litter, and self-produced products.

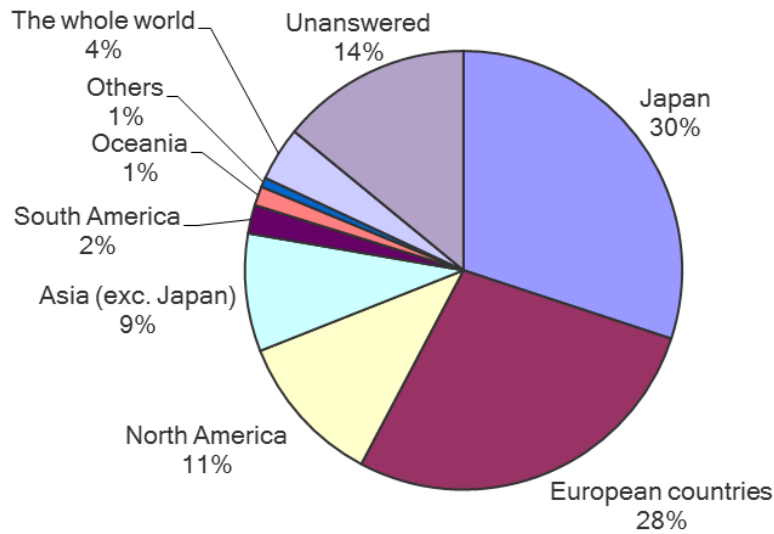




**Figure 4: Product categories that respondents were familiar with (Multiple answer to “What types of products are your activities on EPR related to?”)**

### 3.1.4 Geographical base

Countries/regions to which respondents’ activity on EPR/PS is based are shown in Figure 5. Japan represented 30%, European countries 28%, North America (Canada and US) 11%, and Asia (excluding Japan) 9%. These countries and region accounted for 78% of the respondents of the survey. The high proportion of those responding Japan as their activity base can be explained by the survey language (English and Japanese) and that roughly 40% of effective answers came from the Japanese survey.

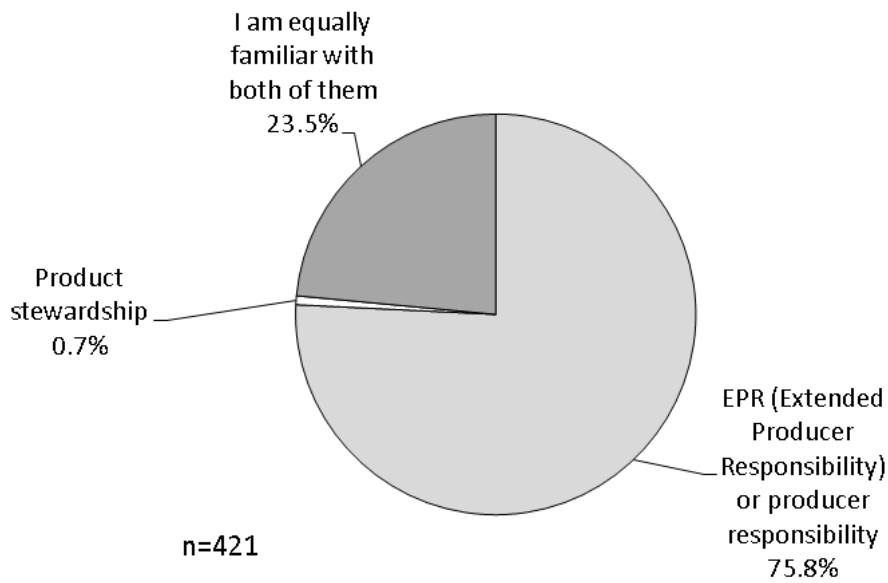


**Figure 5: Countries/regions to which respondents' activity on EPR/PS is based (Single open answer to "What country or region is the main area for your work on EPR?" The answers were categorized in the above-mentioned way.)**

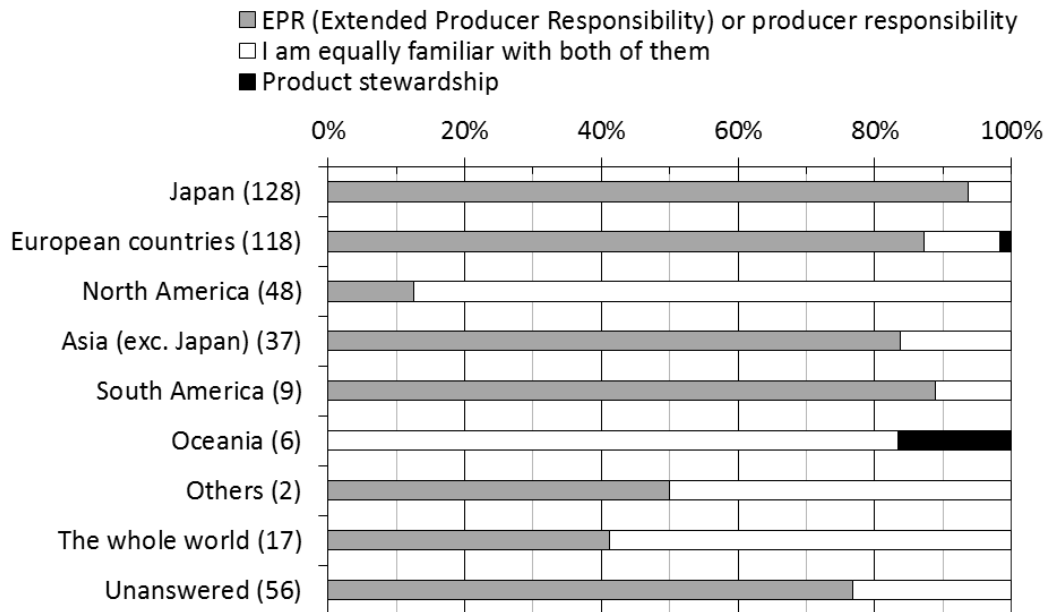
### 3.1.5 Extended Producer Responsibility and/or Product Stewardship

Figure 6 shows the answers to "Which of the following concepts, EPR or product stewardship, are you familiar with most?" More than three-fourth of the respondents replied that they were familiar with EPR while only a few (less than 1%) were mostly familiar with PS. The rest were familiar with both.

When we cross tabulated the results, the answers reflected the geographical base of the respondents and the terminologies used in the respective country/region. As Figure 7 shows, more than 80% of respondents who work in European countries, Asia (including Japan) and South America were familiar with EPR and only a few were familiar with PS. Among respondents who work in North America and Oceania, over 80% were familiar with both PS and EPR (Note that the number of respondents for Oceania was small (n=6) and so it should not be concluded that experts in Oceania are generally familiar with the both). Half of the respondents of "the whole world" and "others" were familiar with EPR and the rest half were familiar with both EPR and PS.



**Figure 6: Respondents' knowledge on EPR and PS (Answers to "Which of the following concepts, EPR or product stewardship, are you familiar with most?")**



**Figure 7: Knowledge on EPR/PS, by respondents' geographical base (Single answer to "Which of the following concepts, EPR or product stewardship, are you familiar with most?" The figures in the parentheses represent the number of responses.)**

Several respondents from Canada commented on the difference between EPR and PS. One of them suggests the border line between the two concepts, as follows: "... This is

where the distinction is between an EPR program and a product stewardship program – who is operating the program and who is managing the money. In a true EPR program, the producer operates the program and they manage the money. In a product stewardship program, a government body (either a department, a crown corporation, or something similar) operates the program and they manage the money”. Another criticizes the interchanging use of the two terms: “I think inter-changing the notion of ‘EPR’ with the word ‘stewardship’ is a problem in itself. Early ‘EPR’ initiatives in Canada often devolved towards ‘shared responsibility’ models here that often co-opted the phrase ‘stewardship’. ... we felt the need to create a continuum between what Canadians call ‘stewardship’ and what we mean by EPR.” The difference between respondents from North America, where the word “PS” is also used, and respondents from other regions will be discussed in Section 3.9.

## 3.2 Aims of EPR/PS

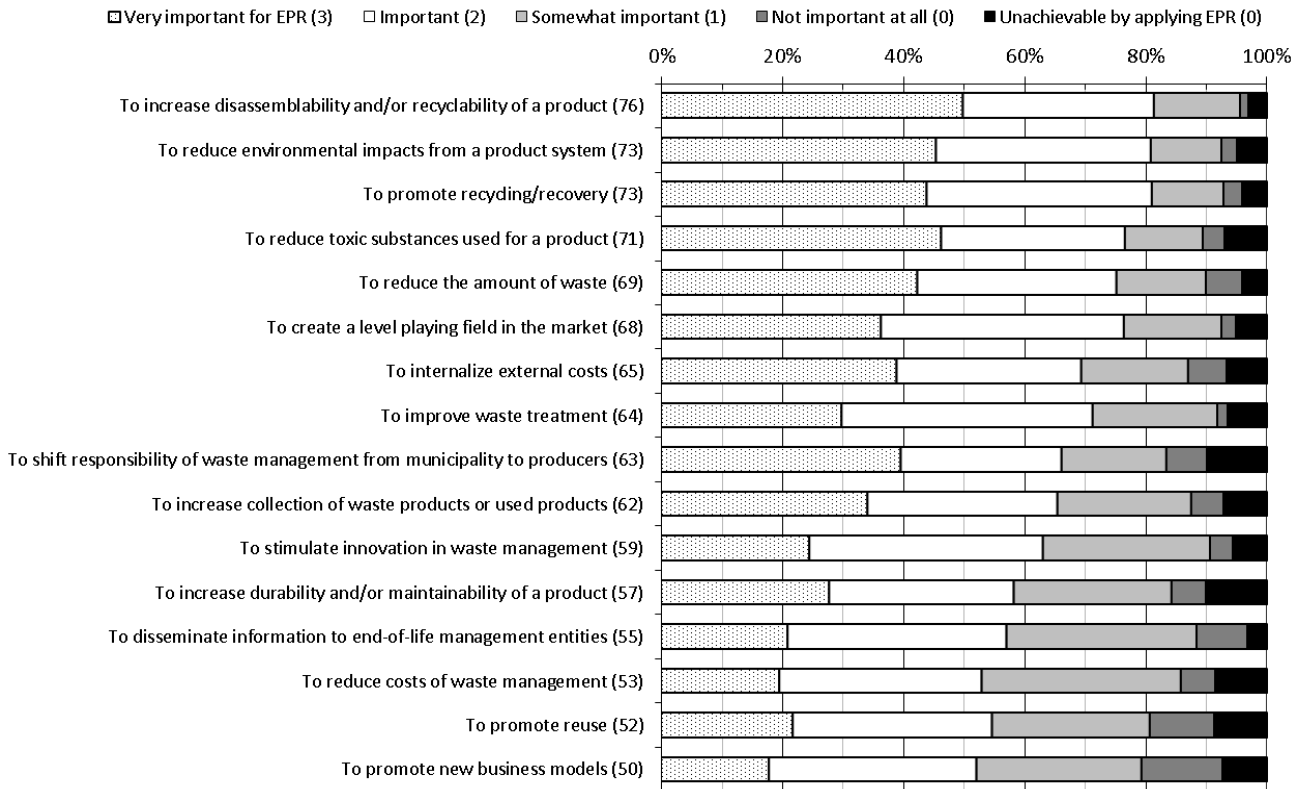
### 3.2.1 Responses surveyed

Responses related to the perceived aims of EPR/PS are shown in Figure 8. More than three-fourth of the respondents consider the following six aims as either “very important” or “important”: “To increase disassemblability and/or recyclability of a product”, “To reduce environmental impacts from a product system”, “To promote recycling/recovery”, “To reduce toxic substances used for a product”, “To reduce the amount of waste”, and “To create a level playing field in the market”. These top six alternatives include not only downstream measures (e.g. recycling/recovery) but also upstream measures and waste prevention. This suggests that most respondents perceived that the reduction of environmental loads by improving an entire product system was an important aim of EPR/PS.

Meanwhile, aims that have relatively many responses of “not important at all” and “unachievable by applying EPR” were “To promote new business” (21%), “To promote reuse” (19%), “To shift responsibility of waste management from municipality to producers” (18%) and “To increase durability and/or maintainability” (16%). This is followed by three other aims: “To reduce the cost of waste management” (14%), “To internalize external costs (13%), and “To increase collection” (13%).

Recognition of the difference in perception may help facilitate discussion on the concrete design of EPR/PS programs, as different aims would most likely lead to different construct of the programs. We further analyze how two parameters –

respondents' geographical base and their organizational affiliation – relates to the differences in perception in Sections 3.9 to 3.11.



**Figure 8: Perceived aims of EPR/PS (Single answer to “What, in general, should be achieved by applying EPR?” The figures in the parentheses at the end of each aim represent the standardized weighted-average value of the degree of importance on the aims from 0 to 100, n = 382–388 for each aim)**

### 3.2.2 Open answers by respondents

In addition to the aims listed in Figure 8, respondents commented on the following aims, clustered in accordance with the issues concerned.

Aims concerning actors:

- “To create clearer incentives for producers to improve end-of-life processes.”
- “To create positive image of producer.”
- “To support ‘green’ choices of consumers by providing to them information on the embedded environmental impacts of products.”
- “To communicate the advantages/need of EPR to the general public and also explain

to the average citizen how implementation of EPR affects the everyday life and prices/quality of consumer goods.”

- “Eliminating inequalities in tax burdens by having buyers also bear some of the costs of processing of packaging.”
- “It is more about sharing responsibility than shifting it.”

Aims concerning recycling/waste management:

- “An easy and quick way to finance better waste management.”
- “Breaking free from conditions in which waste processing cannot be conducted (avoiding ‘garbage wars’).”
- “Appropriate recycling needs to be promoted for products manufactured and sold globally.”
- “Effective use of resources.”

Aims concerning the market and production systems:

- “To improve marketability of product.”
- “Product design changes, development of systems for communicating information on supply chains, including consumers.”
- “To improve production processes, considering resource productivity and sustainable management of materials.”

Aims concerning broad environmental/social issues:

- “To help promote job creation and socio-economic inclusion.”
- “To form a sound material-cycle society, even more important than individual policy objectives is the development among parties related to all aspects of the product life cycle of an awareness of the need to lessen environmental load and reduce social costs, and the spirit of avoiding waste.”

In addition, there were opinions that made distinction between the aims to achieve and preconditions for the aims.\*<sup>2</sup> Other comments suggested that the aims of EPR were

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\*<sup>2</sup> These comments include “Level playing field is not an objective, but a pre-requisite.” and “An assumption of the above (aims selected by the respondents) is that producers are thoroughly aware of matters related to the waste stage of their products.” (content of the parenthesis supplemented by the authors).

not universal but would be different according to targeted products and context.\*<sup>3</sup> Moreover, several comments also questioned the content of the survey question.\*<sup>4</sup>

Other opinions included "Without distinguishing if the EPR in question is IPR (individual producer responsibility) or just a collective waste management financing obligation, the answers will be unprecise.", "In Japan, it is often misunderstood to be a concept that says the producer (i.e., business) should bear all responsibility. This includes arguments made from an ideological approach. There is a need to build a groundwork for objective, fair, and transparent discussion." and "Also unless the consciousness of consumers is changed, EPR will not be the same as waste prevention. In light of this, how should we think about the purchasing and waste responsibilities of the public, for example by raising consumer (public) awareness through EPR?" All the open answers on the aim of EPR are presented in Table A1 in the Appendix.

### 3.2.3 Correlation between the aims of EPR/PS

Next, the correlations between the aims of EPR/PS were analyzed. Spearman's ranking correlation coefficients were calculated with unit scores for "very important", "important", and "somewhat important" as from three to one, respectively, and "not important at all" and "unachievable" as zero, as shown in Table 1. The ranking correlation coefficients that became more than 0.5 were the combinations of the following.

- "To promote recycling/recovery" and "To increase collection of waste products or used products",

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\*<sup>3</sup> Examples of comments include "Everything depends on the way in which EPR is applied. EPR should be designed with clear purposes/objectives in a way that design of the implementation really contributes to the accomplishment of the objectives.", "Depends on the product", "As long as how to apply EPR (extended producer responsibility) remains unclear, no clear objectives to achieve can be identified.", and "The nuance is that all of the above should be used in accordance with necessity and objectives, rather than using at all times."

\*<sup>4</sup> These comments are: "Wording of the question should be changed to not ask what should be achieved by EPR – you should ask if EPR is the best policy instrument to achieve these objectives.", "There is a gap between theory and reality", "There is no proof of a well functioning upfront end-of-life to design feedback loop.", "Most of these factors are very important and given in legislation. However, they may be difficult to achieve because of the lack of incentives.", and "I believe that in reality when attempting to incorporate it into social systems it would be very difficult to achieve results unless it is designed appropriately, taking into consideration matters such as the capabilities, relations and business practices of each player. In this sense, I believe that much of the above question is inappropriate."

- “To reduce toxic substances used for a product” and “To increase disassemblability and/or recyclability of a product”,
- “To reduce toxic substances used for a product” and “To increase durability and/or maintainability of a product”,
- “To increase disassemblability and/or recyclability of a product” and “To increase durability and/or maintainability of a product”
- “To promote new business models” and “To stimulate innovation in waste management” and
- “To reduce toxic substances used for a product” and “To reduce environmental impacts from a product system”.

Cluster analysis was subsequently conducted with the same data set. We used “1 minus the correlation coefficient” as dissimilarity and dendrograms were made with the nearest neighbor method. The result is shown in Figure 9. The clusters were formulated so that an aim on which respondents put a certain degree of importance and another aim on which the same respondents put a similar degree of importance were bound. Aims belonging to the same cluster thus are regarded as sharing similarities. In an explanation below, we will refer mainly to a case in which seven clusters were formulated at the bond distance of 0.57. First, “To improve waste treatment”, “To promote recycling/recovery”, and “To increase collection of waste products or used products” were bound at 0.462 and 0.567 of the bond distance and grouped in the same cluster. This shows that respondents tend to put a similar degree of importance on these aims of downstream waste management. “To reduce costs of waste management”, “To stimulate innovation in waste management”, and “To promote new business models” were bound at 0.460 and 0.534 and grouped in another cluster. This indicates that cost reduction in waste management was considered to have strong relation with stimulation of innovation and new business models more than the other aims. The third cluster consisted of “To promote reuse”, “To reduce the amount of waste”, “To reduce toxic substances used for a product”, “To increase disassemblability and/or recyclability of a product”, “To increase durability and/or maintainability of a product” and “To reduce environmental impacts from a product system”, bounded at 0.540 and below the bond distance. Except for the promotion of reuse and reduction of waste amounts, this cluster concerns upstream measures in a product system. The remaining four aims, “To shift responsibility of waste management from municipality to producer”, “To internalize external costs”, “To create a level playing field in the



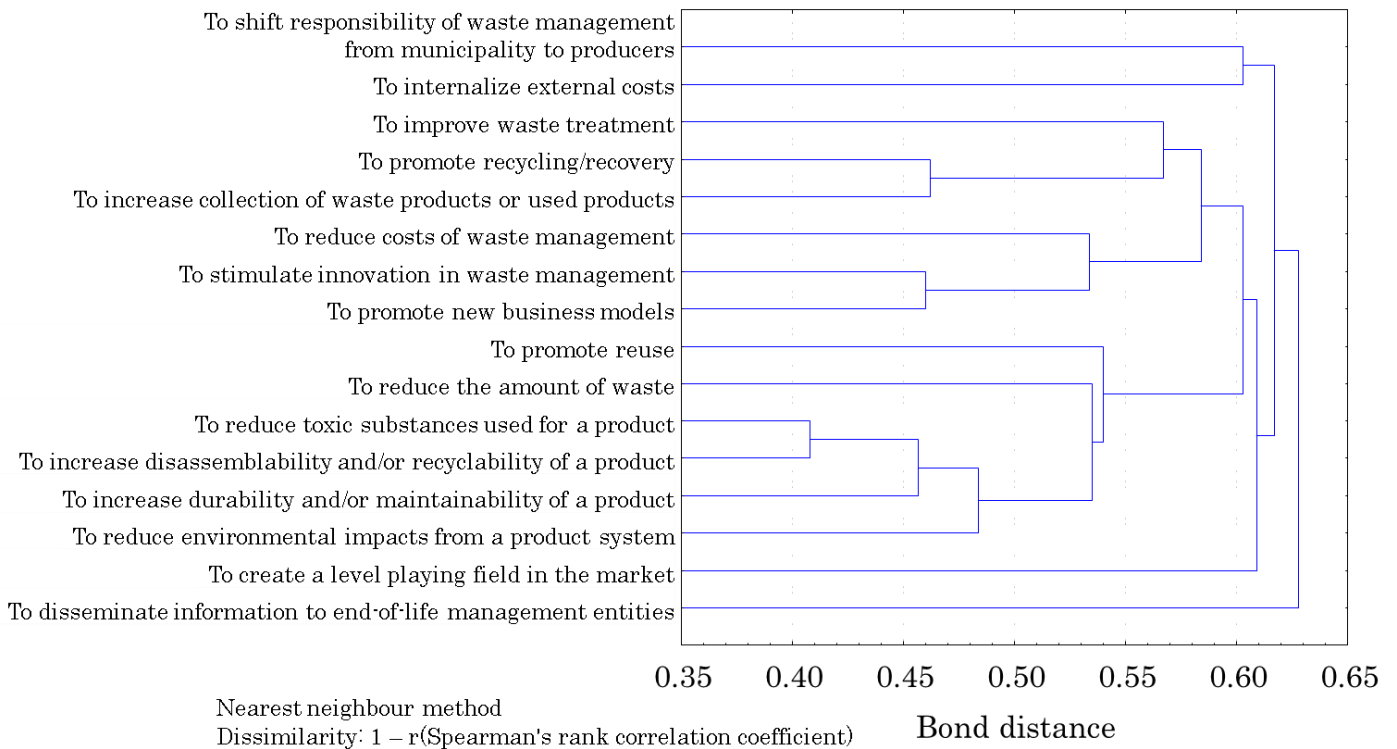
market”, and “To disseminate information to end-of-life management entities”, were single-item clusters. Among them, “To disseminate information to end-of-life management entities” was bound with the other aims last.

Respondents tended to show similar level of importance between the following set of aims: 1) promotion of recycling/recovery and increase collection, 2) stimulation of innovation in waste management and promotion of new business models, and 3) reduction of toxic substances, increase disassemblability and/or recyclability of a product, increase durability and/or maintainability of a product, and reduction of environmental impacts from a product system.

**Table 1: Spearman's ranking correlation coefficient matrix of perceived aims of EPR/PS**

	To shift responsibility of waste management from municipality to producers	To improve waste treatment	To promote recycling/recovery	To promote reuse	To increase collection of waste products or used products	To reduce the amount of waste	To reduce toxic substances used for a product	To increase disassemblability and/or recyclability of a product	To increase durability and/or maintainability of a product	To reduce costs of waste management	To stimulate innovation in waste management	To promote new business models	To internalize external costs	To disseminate information to end-of-life management entities	To reduce environmental impacts from a product system	To create a level playing field in the market
To shift responsibility of waste management from municipality	1.000	0.202**	0.265**	0.226**	0.383**	0.164**	0.052	0.065	0.068	0.252**	0.252**	0.267**	0.397**	0.055	0.217**	0.130*
To improve waste treatment	0.202**	1.000	0.433**	0.283**	0.341**	0.225**	0.266**	0.251**	0.125*	0.338**	0.414**	0.278**	0.212**	0.223**	0.243**	0.269**
To promote recycling/recovery	0.265**	0.433**	1.000	0.365**	0.538**	0.228**	0.197**	0.254**	0.120*	0.294**	0.416**	0.303**	0.222**	0.156**	0.397**	0.237**
To promote reuse	0.226**	0.283**	0.365**	1.000	0.292**	0.408**	0.364**	0.351**	0.460**	0.153**	0.347**	0.308**	0.316**	0.208**	0.366**	0.199**
To increase collection of waste products or used products	0.383**	0.341**	0.538**	0.292**	1.000	0.215**	0.076	0.095	0.124*	0.311**	0.337**	0.333**	0.311**	0.156**	0.356**	0.287**
To reduce the amount of waste	0.164**	0.225**	0.228**	0.408**	0.215**	1.000	0.459**	0.379**	0.394**	0.189**	0.248**	0.156**	0.271**	0.187**	0.465**	0.257**
To reduce toxic substances used for a product	0.052	0.266**	0.197**	0.364**	0.076	0.459**	1.000	0.592**	0.543**	0.121*	0.221**	0.135*	0.270**	0.334**	0.516**	0.340**
To increase disassemblability and/or recyclability of a	0.065	0.251**	0.254**	0.351**	0.095	0.379**	0.592**	1.000	0.542**	0.185**	0.297**	0.248**	0.288**	0.372**	0.394**	0.275**
To increase durability and/or maintainability of a product	0.068	0.125*	0.120*	0.460**	0.124*	0.394**	0.543**	0.542**	1.000	0.155**	0.243**	0.194**	0.240**	0.224**	0.434**	0.223**
To reduce costs of waste management	0.252**	0.338**	0.294**	0.153**	0.311**	0.189**	0.121*	0.185**	0.155**	1.000	0.466**	0.243**	0.201**	0.210**	0.238**	0.202**
To stimulate innovation in waste management	0.252**	0.414**	0.416**	0.347**	0.337**	0.248**	0.221**	0.297**	0.243**	0.466**	1.000	0.540**	0.232**	0.304**	0.394**	0.297**
To promote new business models	0.267**	0.278**	0.303**	0.308**	0.333**	0.156**	0.135*	0.248**	0.194**	0.243**	0.540**	1.000	0.224**	0.262**	0.334**	0.353**
To internalize external costs	0.397**	0.212**	0.222**	0.316**	0.311**	0.271**	0.270**	0.288**	0.240**	0.201**	0.232**	0.224**	1.000	0.100	0.364**	0.204**
To disseminate information to end-of-life management	0.055	0.223**	0.156**	0.208**	0.156**	0.187**	0.334**	0.372**	0.224**	0.210**	0.304**	0.262**	0.100	1.000	0.257**	0.251**
To reduce environmental impacts from a product system	0.217**	0.243**	0.397**	0.366**	0.356**	0.465**	0.516**	0.394**	0.434**	0.238**	0.394**	0.334**	0.364**	0.257**	1.000	0.391**
To create a level playing field in the market	0.130*	0.269**	0.237**	0.199**	0.287**	0.257**	0.340**	0.275**	0.223**	0.202**	0.297**	0.353**	0.204**	0.251**	0.391**	1.000

n = 356. Responses of "Very important", "Important", and "Somewhat important" were respectively ranked as 3, 2, and 1, and "Not important at all" and "Unachievable by applying EPR" were ranked as 0. p value: \*\* <0.01, \* <0.05



**Figure 9: Result of cluster analysis for the perceived aims of EPR/PS**

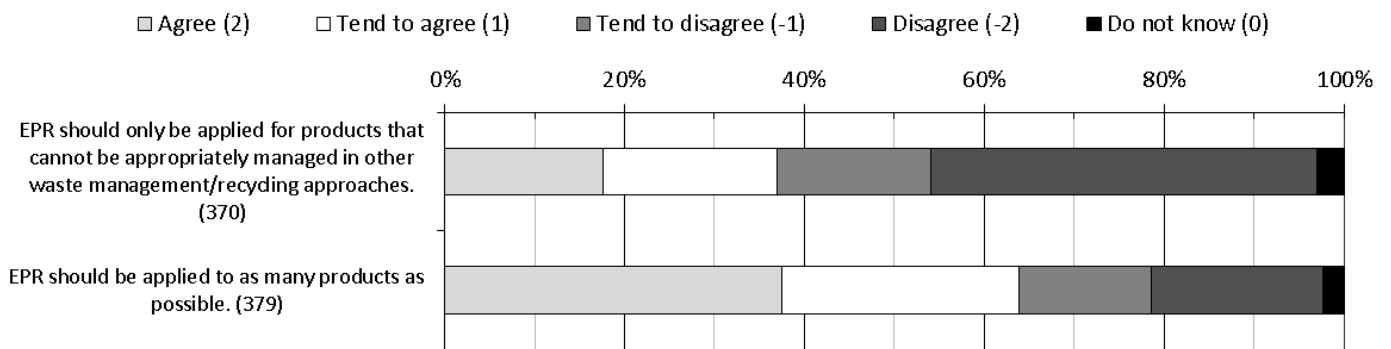
### 3.3 Application of EPR/PS

#### 3.3.1 Responses surveyed

Figure 10 shows the results of opinions on the application of EPR/PS. We asked respondents' opinions for two ideas on the application of EPR/PS: (1) "EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches." (referred to as "limited application" in this section) and (2) "EPR should be applied to as many products as possible." (referred to as "open application" in this section). Regarding limited application, 37% of respondents were proponents (those who answered either "agree" or "tend to agree") and 60% were opponents (those who answered "disagree" or "tend to disagree"). Regarding open application, 64% were proponents and 34% were opponents. Even if weak opinions (i.e. "tend to") are excluded, the percentages of proponents and opponents for both alternatives were more than 15%. The results indicate that opinions regarding the application of EPR/PS were divided significantly, which warrants further analysis.

### 3.3.2 Cross tabulation of the application of EPR/PS

We subsequently made a cross tabulation of 350 responses for the two ideas, removing the responses “do not know”. As found in Table 2, 52% were proponents of open application, 25% were proponents of limited application, 12% were proponents of both, and 11% were opponents of both. The difference in the opinions could influence the further application of EPR/PS in countries where EPR/PS has already been applied to only some products, and the overall direction of its application in countries where EPR/PS has not yet been used. Meanwhile, opposition to both alternatives might indicate the respondents’ criticisms towards the core concepts of EPR– that producers are responsible.



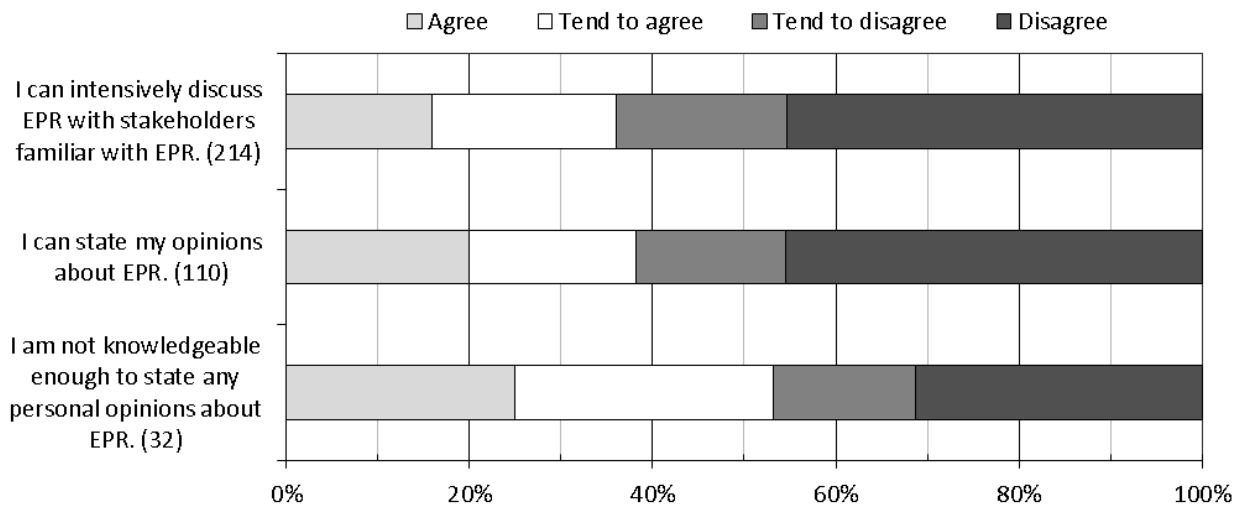
**Figure 10: Opinions on the application of EPR/PS (Single answer to “To what extent do you agree or disagree with each of the following statements about cases when EPR should be introduced?” The figures in the parentheses represent the numbers of the responses.)**

**Table 2: Result of cross tabulation of proponents and opponents of the two ideas on the application of EPR/PS (excluding respondents who answered “do not know”)**

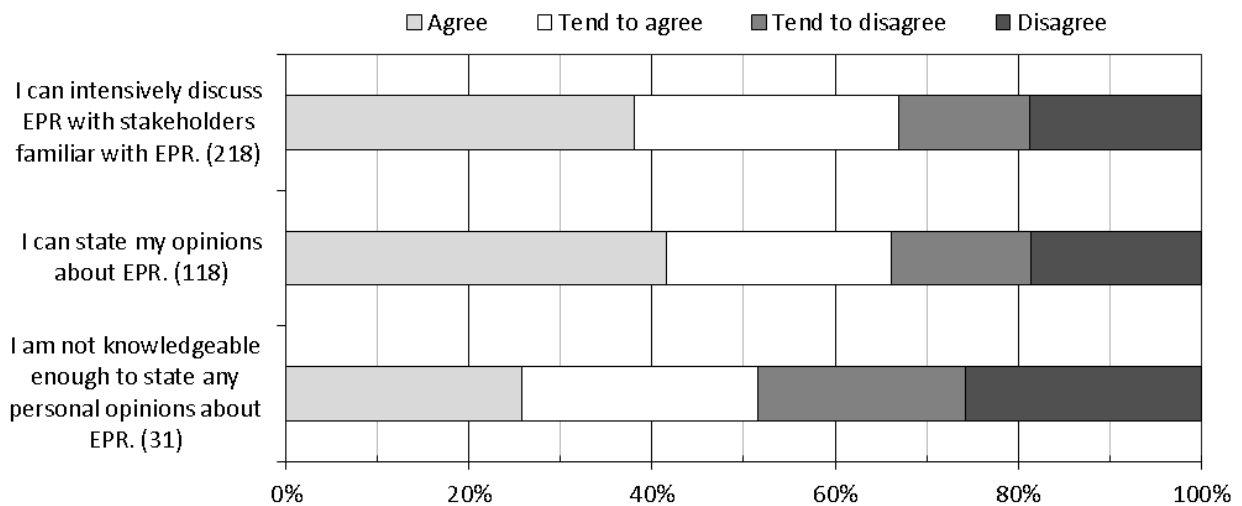
		EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches.		Total
		Proponents	Opponents	
EPR should be applied to as many products as possible.	Proponents	42 (12%)	183 (52%)	225 (64%)
	Opponents	87 (25%)	38 (11%)	125 (36%)
Total		129 (37%)	221 (63%)	350 (100%)

### 3.3.3 Respondents' knowledge on EPR and their view on the concept's applicability

Next, we analyzed the responses for the application of EPR by the level of respondents' knowledge on EPR/PS. As Figure 11 shows, the responses of respondents who "can intensively discuss" and "can state my opinions" were almost the same: they agreed more on open application than limited application. Meanwhile, respondents who were "not knowledgeable" tended to agree more with limited application than the others. The results show that "knowledgeable" stakeholders on EPR/PS tend to envision wider application of EPR/PS.



(i) Opinions as to "EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches."



(ii) Opinions as to "EPR should be applied to as many products as possible."

Figure 11: Opinions about the application of EPR/PS, by the level of knowledge on EPR/PS (The figures in the parentheses represents the numbers of the responses.)

### 3.3.4 Open answers by respondents

Open answers to the questions about the application of EPR/PS were diverse. Some answers specify the types of products/conditions to/in which EPR/PS should be applied, as listed below:

- "...products that have a significant environmental impact (e.g. WEEE), and/or products that are registered for other reasons (e.g. ELV) to decrease the administrative burden."
- "...when there is a pollution risk and/or when critical raw materials are involved."
- "products whose a) residual material value is lower than collection and treatment costs (and as such require subsidies to create functioning waste management markets) and b) whose residual value maybe high but they contain hazardous substances in which case they are prone to sub-standard recycling."
- "EPR can encompass all products with or without value but will make the biggest impact for those items without value."
- "EPR should be applied where it can have a positive impact on the EoL treatment, i.e. minimizing negative environmental impact and improving material recovery."
- "EPR should only be implemented when its objectives can be fulfilled i.e. incentives creation of better products."
- "There are both cases in which it would be better and less expensive to hold producers responsible and opposite cases as well. It probably should be employed in the former cases but not in the latter."
- "The longer the life cycle of a product the more important to implement EPR."

Others put forward a negative list – i.e. products to which the application of EPR is considered difficult. Examples include:

- "Difficult to apply EPR to organics and to C&D (construction and demolition waste)" (content of the parenthesis added by the authors)
- "There is probably no need for EPR for such products which still have a value at end-of-life as other actors on the market will take care of it."

There was also an opinion eluding the difficulties of handling various waste fractions, as follows: "Not manageable for household and industry/trade to handle too many fractions of waste".

There were opinions looking at surrounding conditions rather than characteristics of products that EPR/PS was applied to and some pointed out that

application of EPR would depend on the collection rate of the products in the existing system.\*<sup>5</sup> Other argued that the application of EPR/PS requires the maturity of waste management systems, market and regulatory framework of a country.\*<sup>6</sup>

Several respondents commented, regarding the application of EPR to all products/producers, their opinion about some reasoning, conditions or potential shortcomings as follows:

- “EPR should incorporate the premise that all companies have to take responsibility for the end life of all products. ... if the above statement is exclusive, there could exist a tendency of producers trying to avoid their responsibility. ..., EPR should gradually be a general recycling approach to all products.”
- “The fact that a wasted material is still valuable (in terms of economic) should not mean EPR should be stopped.”
- “EPR should apply for all products as a concept but not necessarily as a legal set up.”
- “If there is no environmental load when a normally licensed business collects and processes waste, then there is no need to force adoption of EPR for all products. However, thinking about the matter in detail, it seems that it would be better to adopt EPR if a feasible system is available, since holding producers responsible could lessen the costs of collection and processing, and reduce the likelihood of wastes flowing to improper routes and outflow of resource to overseas.”
- “The answer above (limited application) assumes a system of obligations to the level of bearing costs, as under the Packaging Recycling Law of Japan, which requires collection and recycling. Based on the idea of including matters such as provision of information as well, it should apply to as many products as possible.”  
(content of the parenthesis added by the authors)

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\*<sup>5</sup> Examples of these comments are: “If the collection is operating well (people are using it and the quality is good) and the municipalities are satisfied with the cost management, no EPR is needed.” and “Where collection rates are high without market intervention, legislated EPR is not required.”

\*<sup>6</sup> Examples of such comments include: “EPR ... should be introduced when the environmental and health policies and regulatory framework of a country are mature enough to assimilate it. Further, markets should be mature enough to address and respond to any economic instrument associated with EPR’s introduction.” and “The product and the market and waste management systems for the product have to be mature enough for EPR to be applicable in the local society.”

Another opinion, which was in an open answer to a different question, stated, “It must be noted that shifting consumer responsibility under the principles of PPP would force inefficient processing and force consumers to bear greater economic burdens.”

All the open answers about the application of EPR are found in Table A2 in the Appendix.

### 3.4 Rationales of EPR/PS

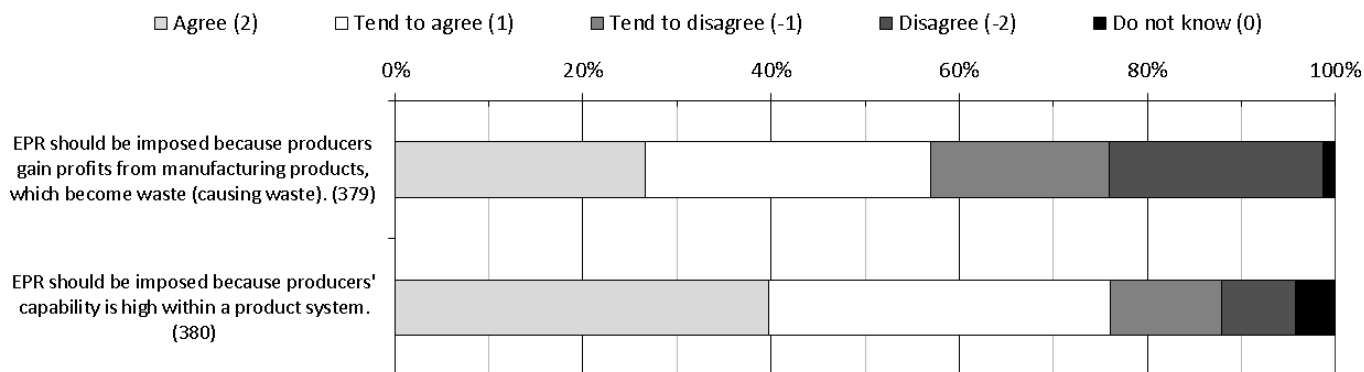
#### 3.4.1 Responses surveyed

Figure 12 shows the results of opinions about the rationale of EPR/PS. We asked respondents’ opinions on the following two rationales: (1) “EPR should be imposed because producers gain profits from manufacturing products, which become waste (causing waste).” (referred to as “beneficiary bears” in this section); and (2) “EPR should be imposed because producers’ capability is high within a product system.” (referred to as “capability to bear” in this section). The idea of “beneficiary bears” was supported by 57% of respondents and opposed by 42%, indicating a distinctive division in opinions. Meanwhile, the idea of “capability to bear” was supported by 76% and opposed by 20%.

We subsequently examined the results by the level of respondents’ knowledge on EPR/PS. As Figure 13 shows, with the increase of the level of respondents’ knowledge on EPR/PS, proportion of respondents who replied “agree” for “capability to bear” gradually increased, from 26% and 38% to 46%. Among respondents who “can intensively discuss EPR”, 82% (including those who answered “tend to agree” were proponents of “capability to bear”. Meanwhile, the percentage of respondents who replied “agree” for “beneficiary bears” was 10% among respondents who cannot state their opinions about EPR, 27% among those who can, and 30% among those who can discuss EPR intensively. There was a gap in the opinion between respondents of “not knowledgeable” and the other two types of respondents.

Further analyses of respondents’ view on the rationales of EPR/PS based on selected attributes of the respondents (geographical base, products they have worked with and stakeholder group) are found in Sections 3.9 to 3.11.





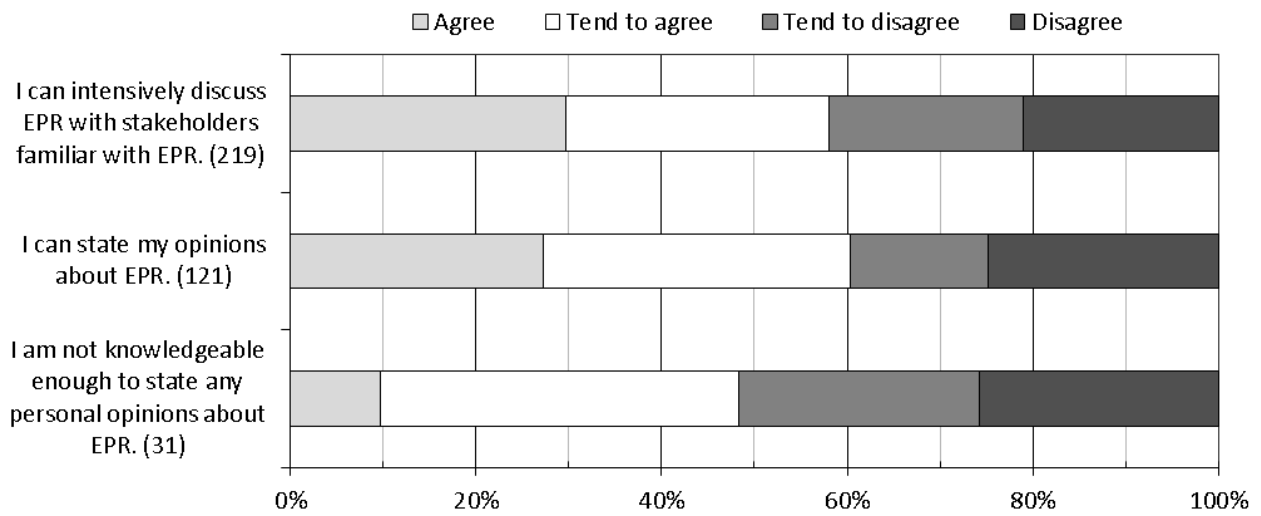
**Figure 12: Opinions about the rationales of EPR/PS (Answers to “To what extent do you agree or disagree with each of the following statements about the rationale of EPR being imposed to producers?” The figures in the parentheses represent the numbers of the responses).**

### 3.4.2 Open answers by respondents

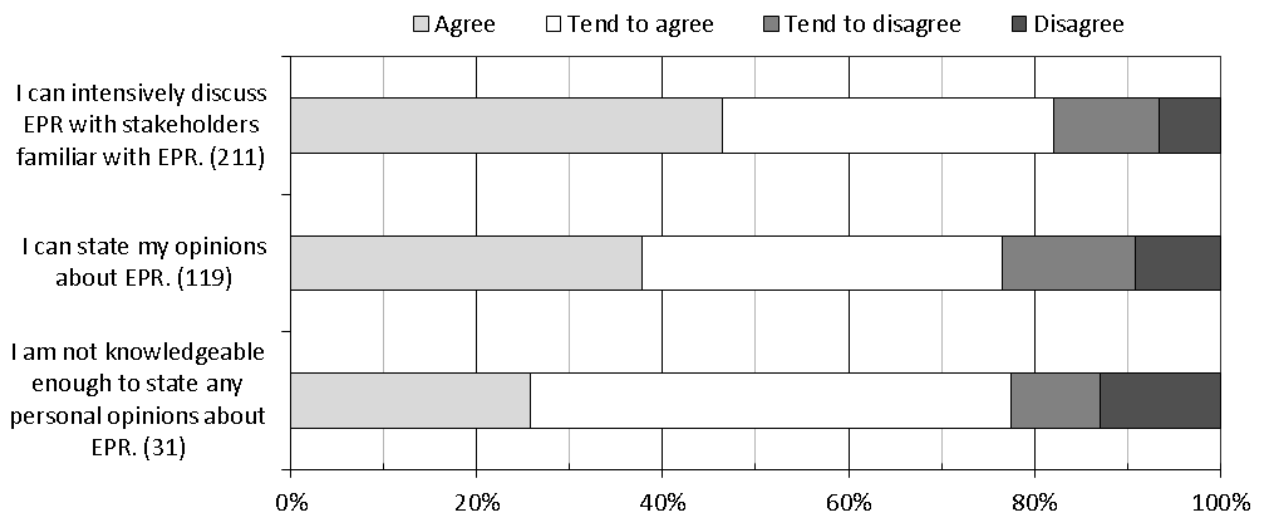
Several open answers suggested that EPR/PS was a means to achieving certain goals, stressing that it is not a moral issue.\*7 Another opinion suggested that EPR/PS was a means among many other policy options, as follows: “The form that an optimal social system should take should be discussed thoroughly based on comparison with the other options.”

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\*7 Examples of such answers include: “EPR is not a punishment, it is a solution.”, “I’m not sure I would use the term ‘imposed’, rather I would see EPR as a key principle on which policy frameworks should be based and therefore on which policy instruments should be based.”, and “I’m only interested in EPR where it results in a more resource-efficient or more cost-efficient waste management system. I don’t see it as much of a moral issue.”



(i) Opinions as to “EPR should be imposed because producers gain profits from manufacturing products, which become waste (causing waste).” (“beneficiary bears”)



(ii) Opinions as to “EPR should be imposed because producers’ capability is high within a product system.” (“capability to bear”)

Figure 13: Opinions about rationales of EPR/PS, by the level of knowledge on EPR/PS (The figures in the parentheses represents the numbers of the responses.)

A proponent of “beneficiary bears” stated, “EPR should be imposed because producers have a responsibility for what they produce in terms of damage to the environment and human health, i.e. they are responsible for carrying out sustainable practices.”.

Several open answers specifically commenting on producers' capability for product design were recognized.\*<sup>8</sup> However, there was also an opinion that points out the limited capacity of producers on recycling issues, as follows: "Manufacturing and recycling the very same product is often not connected at all. So the capability of the producer to recycle its own product should not be overestimated".

Other opinions included "There is a cost to waste now, and in the future, and that cost should be reflected in the manufacturers' accounting.", "Depends on how the producer is defined.", and "Careful EPR is not IPR, with IPR equation is different! (especially #1 here)."

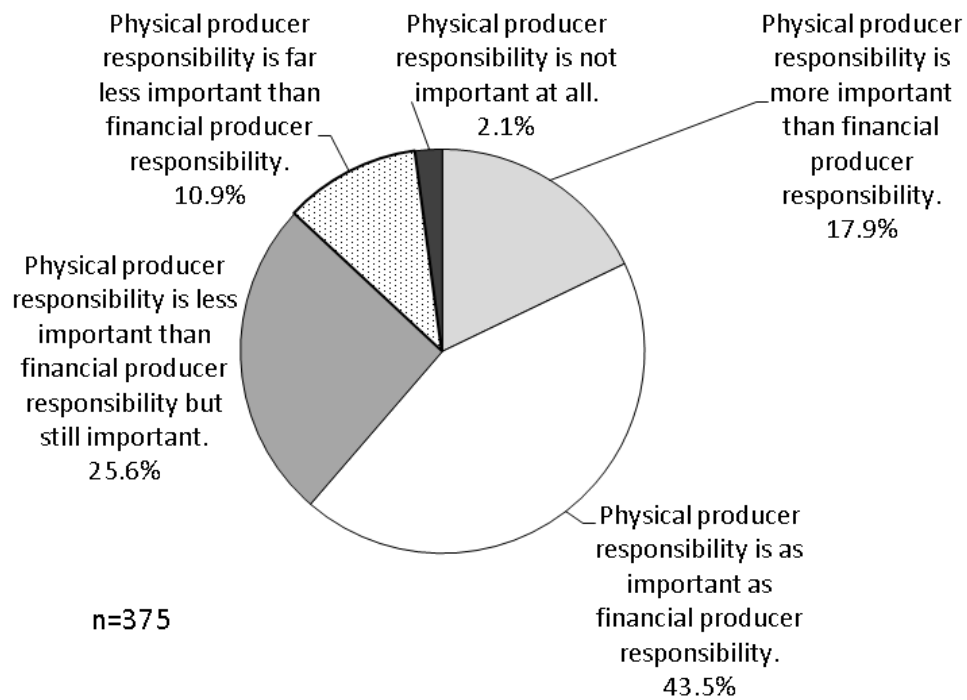
All the open answers relating to the rationales of EPR are in Table A3 in the Appendix.

### 3.5 Type of responsibility of EPR/PS

The respondents' perception on the relative importance of physical and financial producer responsibilities is shown in Figure 14. In our survey, we provided the following definition found in OECD (2001): physical (producer) responsibility is "direct or indirect responsibility of the physical management of the products at the end of their useful life (post-consumer stage)" and financial (producer) responsibility is "the responsibility of the producer for paying all or part of the cost for managing the waste at the end of the product's useful life". As found in Figure 14, 43.5% of the respondents found equal importance in physical and financial producer responsibility. 38.6% (=25.6%+10.9%+2.1%) of the respondents consider physical responsibility less important than financial responsibility, while 17.9% put higher importance in physical responsibility than financial responsibility.

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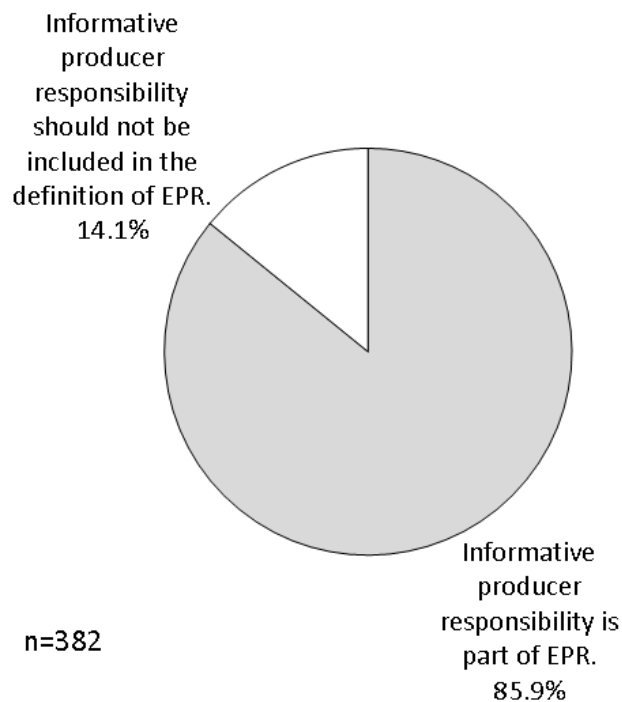
\*<sup>8</sup> Examples of such open answers include: "EPR (extended producer responsibility) should be applied to producers because they should take responsibility for product design, which has a major effect on a product's environmental load.", "Should be imposed because only the producers have the power to modify the designs of their products." and "The reason is producers are in a position to change their products."



**Figure 14: Opinions about the relative importance of physical and financial producer responsibility (Single answer to “Generally speaking, how important is physical producer responsibility?”)**

The term “informative responsibility” is used in some cases. According to Lindhqvist (2000), it “signifies several different possibilities to extend responsibility for the products by requiring the producers to supply information on the environmental properties of the products they are manufacturing.” The result of stakeholders’ opinions about informative responsibility is shown in Figure 15. 86% of 382 respondents considered it as part of EPR/PS.

Further analyses of respondents’ view on the types of responsibilities based on selected attributes of the respondents (geographical base, products they have worked with and stakeholder group) are found in Sections 3.9 to 3.11.



**Figure 15: Opinions about informative responsibility in EPR/PS (Single answer to “Which of the following best coincides with your opinion?”)**

### 3.6 Scope of “producer” in EPR/PS

#### 3.6.1 Responses surveyed

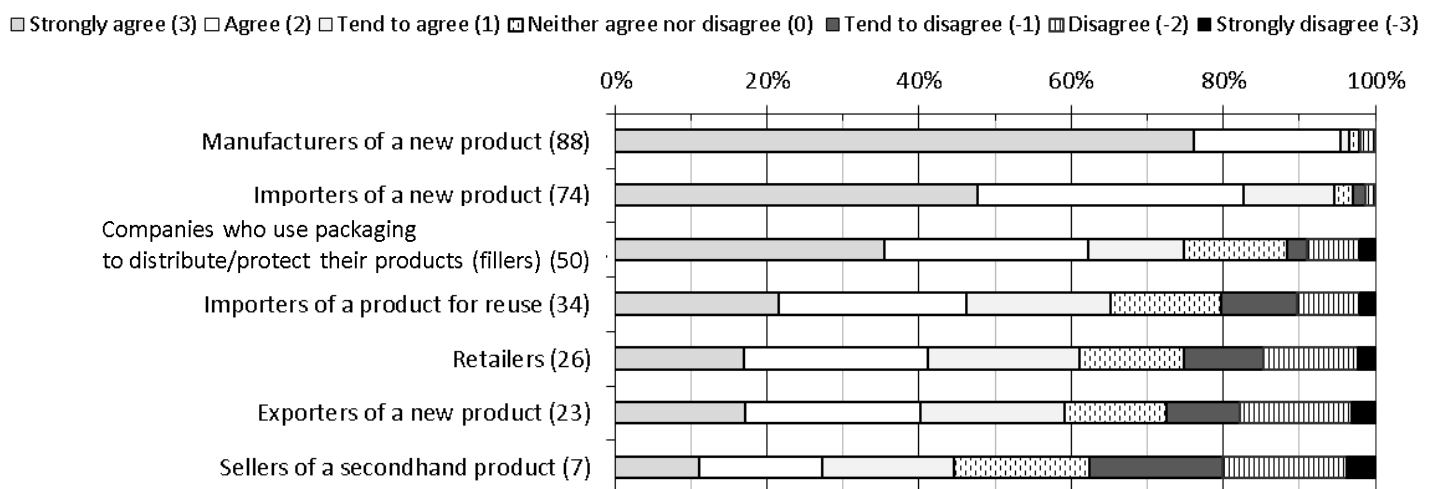
Figure 16 shows respondents’ perception on the scope of “producer” in the context of EPR/PS. More than 95% of the respondents agreed (the sum of “strongly agree” and “agree” and “tend to agree”) that “Manufacturers of a new product” and “Importers of a new product” were the producers of EPR/PS. 75% think that “Companies who use packaging to distribute/protect their products (fillers)” were the producers but the percentage of “strongly agree” was only 36% and smaller than the percentage in manufacturers. 11% disagree (the sum of “strongly disagree”, “disagree” and “tend to disagree”), and 14% replied “neither agree nor disagree”. In discussion of EPR, it has been pointed out that because fillers have an influential power to product design, they can be included in “producers”. However, the results show that there are stakeholders who did not think so. As regards “retailers”, 61% regarded them as “producers” in an EPR/PS system, 25% did not, and 14% replied “neither agree nor disagree”.

Application of EPR to secondhand products is an emerging topic in developing countries as there are no manufacturers in some countries and there are some

countries where a substantial number of secondhand products are imported and sold in the market. Of these secondhand products, 65% and 45% of respondents respectively thought that “importers” or “sellers” were included as “producers” in an EPR/PS system. The percentage of respondents who did not consider “importers” of secondhand products as “producers” was 20% and for “sellers” it was 38%. In both cases, the percentage of those who agree was higher than those who disagree. This indicates that a considerable number of respondents think that EPR/PS could be applied to dealers of secondhand products.

As to “exporters of a new product”, 59% agreed that they were “producers” in EPR/PS, 28% did not, and 13% replied “neither agree nor disagree”. In reality, it is difficult to apply EPR/PS beyond the jurisdiction of a country, but at least on a concept level, more than half of the respondents thought that EPR/PS could be applied not only to importers but also to exporters.

Further analyses of respondents’ view on the scope of “producers” based on selected attributes of the respondents (geographical base, products they have worked with and stakeholder group) are found in Sections 3.9 to 3.11.



**Figure 16: Perceived scope of “producer” in EPR/PS (Single answer to “Who, in general, should be considered as a producer in the context of EPR?” The figures in the parentheses at the end of each stakeholder represent the standardized weighted-average scores of the degree of agree/disagree ranging from -100 (disapproval) to 100 (approval). n = 360–377)**

### 3.6.2 Open answers by respondents

Open answer to the question about the scope of “producer” included many opinions that producers were those who can influence product design, such as “I believe that it is producers who influence product design (i.e., are able to decide on and change specifications) and product pricing.” A similar but different opinion was “Everyone involved in the manufacture, sale and use of a product has some responsibility to reduce the environmental and human health impacts of the product. The organizations that put the product into market (either OEM, importer, exporter second hand dealer) have the majority of responsibility”, and put importance on those who put products on the market while pointing out responsibilities of other stakeholders in a supply chain as well. Some consider that “putting on the market” was an important criterion to identify “producers”, as found in the following answer: “The clearest definition of Producer is who put on the market (POM) as stated in the original WEEE directive in the EU.”

Some highlights the diversity of context in which EPR has been applied. Examples include: “...may differ from product to product or country to country depending on the structure of the market.”, “it depends very much on the product type, ...”, and “Again you should specify maybe the context.” These suggested that it is difficult to determine who were producers due to diverse conditions and contexts. Another comment was “The question is not so much whether a party should also be considered a producer, but whether the party should be allocated some part of the EPR related responsibilities.” This would suggest that “producer” should be determined with concrete responsibilities that producers fulfil. Contrastingly, an opinion “Administrative burden will be lower, and the system easier to understand with only one defined ‘producer’.” pointed out the advantage of the universal definition of “producer” regardless of the concrete context in which EPR is used.

Many specific comments were made for brand owners.\*<sup>9</sup>

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\*<sup>9</sup> Examples include “Brand owners should also be included here.”, “I assume the term ‘manufacturer’ refers to the brand owner, not the company that manufactures a product to the specifications of a brand owner.”, “Need to focus responsibility to as high degree as possible on the party that can make the desired design innovations a reality. Many large international brands do not manufacture what is sold under their name - they contract this function out to a manufacturer (sometimes in distant countries/regions) that works to design specs.” and “Retailers are producers as long as they’ve got own brand products they are selling.”

Several respondents deemed importers as second-best “producers” for cases when manufacturers do not exist in a country, while manufacturers remain the most important “producers”, as found in the following examples: “Importers should be held responsible if the producer has no presence in the importing country. It’s not really the same as EPR, but this mechanism is more about fairness and equity.” “To enforce legislated EPR, the responsible entity must have a presence in the jurisdiction. Manufacturers should carry primary EPR responsibility, with importers responsible when manufacturer do not have a presence in the jurisdiction responsible for enforcing EPR requirements.” Other opinions read: “I feel that the responsible party greatly depends on the specific product, as well as the economy where the policy will be enacted. The greater scale the economy, then perhaps the closer to the producer you can mandate EPR. If it is not global/national legislation then it may make more sense for it to be tailored to retailers/importers. It gets incredibly confusing when there are a number of actors that could be responsible....” “Definition must make made so competition is equal between imported and domestically produced items.”

A few respondents commented about exporters, which have not been discussed much in the context of EPR/PS, referring to the extraterritorial application of a domestic legislation.\*<sup>10</sup>

There were three comments on reused (secondhand) products: “EPR for reused goods has not yet been fully developed, so it is not easy to give an informed opinion.” “It is thought that producers of remanufactured goods using used parts should be treated in the same way as producers of new products.”, “... I’m not sure about these (importers and sellers of reused products). These are sometimes charitable organizations, and I’m not sure that they would be able to financially afford such responsibility, ....” (content of the parenthesis added by the authors).”

Additional comments regarding specific products and types of producers are listed below:

- “In the case of packaging, the relation to the product contained is important, and packaging is just one part of the product. In this sense, it is unclear from this question how packaging should be positioned in the case of a new product.”

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\*<sup>10</sup> Examples are: “If the exporters only export to countries where there is no EPR legislation they should not be included as a ‘producer’.” “They (exporters) cannot be held responsible for laws in other countries, only to international standards. Still, they should somehow have the duty to cooperate with parties in the product chain to reduce environmental impact” (content of the parenthesis added by the authors).



- “In case of photovoltaic modules and similar products, the technical firm installing and uninstalling the PV modules might be in a position, which is similar to a ‘producer’.”
- “The term ‘producers’ does not refer only to producers of industrial products. While the OECD concept might have included only industrial production, it should include primary industries as well.”
- “Small businesses also should be subject in a fair way. Consideration for the vulnerable should be conducted separately, and the EPR system should not be made too complicated. ....”

### 3.7 Opinions about statements related to EPR

#### 3.7.1 Responses surveyed

Figure 17 shows stakeholders’ opinions as to 14 statements relating to EPR/PS. The statements were placed in Figure 17 in a descending order of the standardized weighted-average scores from -100 to 100, We interpreted that the scores from 34 to 100 were regarded as “majority is proponents”, the scores from -33 to 33 were regarded as “proponents and opponents are fifty-fifty” and the scores from -100 to -34 were regarded as “majority is opponents”.

First, in the group of “majority is proponents”, the scores of “Producers can supply recyclers/waste management entities with product information that improves the end-of-life treatment.” (65 point), “Feedback from recyclers/dismantlers to producers will improve product design in terms of recyclability and disassemblability.” (65 point), and “Producers should include the cost of recycling and waste management or part of it into the price of products.” (59 point) were high, and more than 80% of the respondents agreed with these statements\*<sup>11</sup>. The importance of conveying product information was perceived widely. Figure 15 showed that 86% of the respondents considered informative producer responsibility as part of EPR/PS. These results suggest that most respondents think information/feedback mechanism provided through EPR programs were important.

Next, we look at statements that still fell into the category of “majority is

\*<sup>11</sup> When we excluded the responses of “tend to agree”, the percentages were approximately 50%

proponents” but less agreed.\*<sup>12</sup> These statements include “In cases where individual producers collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of their products such as recyclability and disassemblability, each producer will improve the product design.” (49 point), “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.” (40 point), and “If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage.” (37 point)., These scores were relatively low due to the result that the percentage of those answered “neither agree nor disagree” and “tend to disagree” was relatively large (15-30%), despite that the percentage of those who answered “disagree” was rather limited (less than 10%)..

The remaining 9 statements fell into the group “proponents and opponents are fifty-fifty”. Except for the statement of “Public awareness about an EPR program should be built by producers mainly.”, proponents of these statements were more than the opponents.

There were no statements that fell into the third category “majority is opponents”.

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\*<sup>12</sup> The percentages of the sum of those who answered “agree” and “tend to agree” were 40%–78%. When we exclude those who answered “tend to agree”, the percentages were 28%–40%)

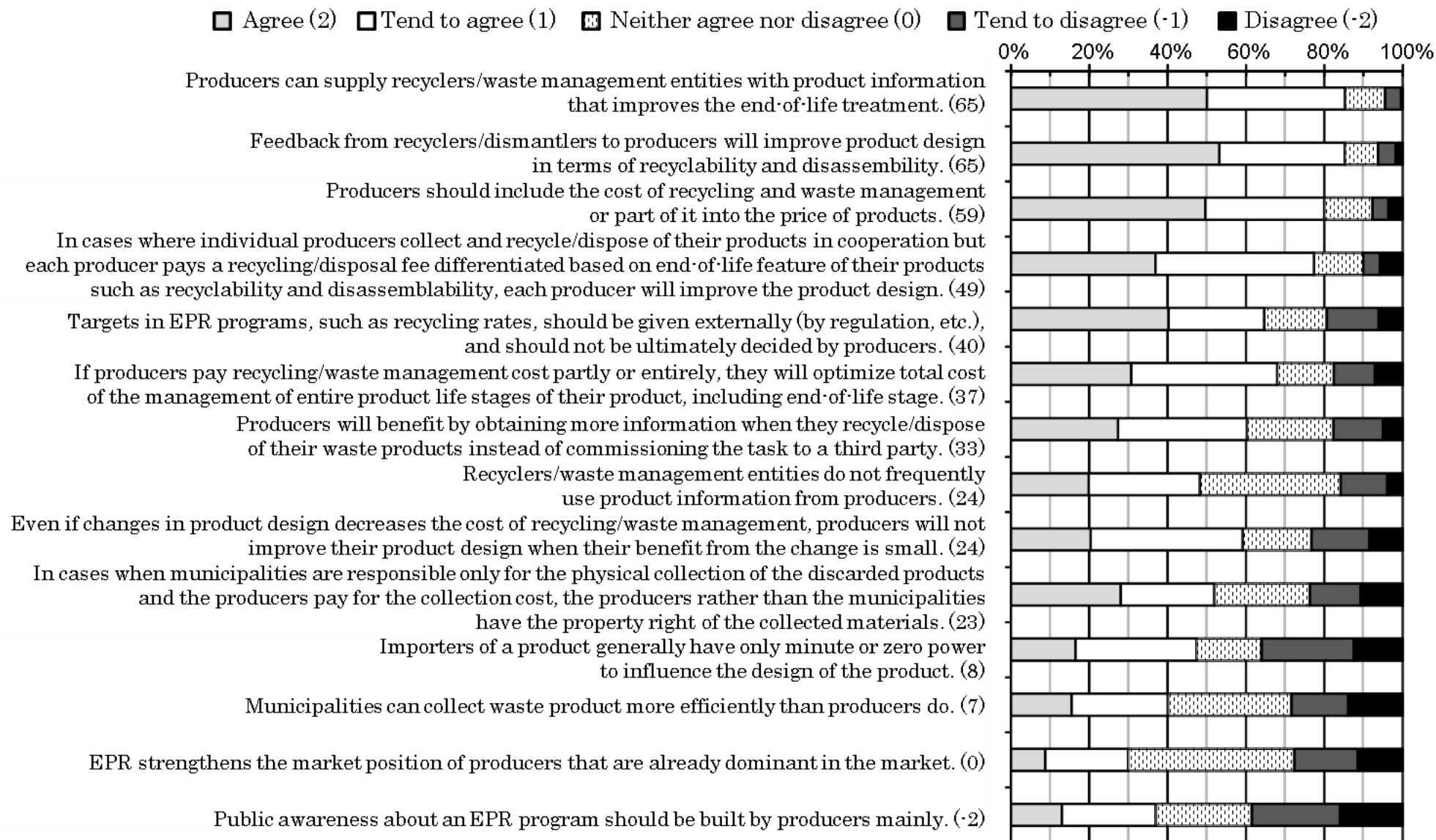


Figure 17: Opinions as to statements relating to EPR/PS (Single answer to “To what extent do you agree or disagree with each of the following general statements about EPR?” The figures in the parentheses at the end of each statement represent the standardized weighted-average scores of the degree of agree/disagree ranging from -100 (disagree) to 100 (agree). n = 369–375)

### 3.7.2 Correlation between statements relating to EPR/PS

Subsequently, cluster analysis was conducted for the responses in the same way as the analysis for the aims on EPR/PS in Section 3.2. We calculated Spearman's ranking correlation coefficients, and then used them for cluster analysis. The results are shown in Table 3 and Figure 18. There was no strong correlation with the ranking correlation coefficient of over 0.5, but the cluster analysis revealed several statements that respondents, to a similar extent, agreed to and these statements were grouped.

The five statements from the above in Figure 18 were bound at the bond distance of 0.682 and became the same cluster. They were about the involvement of producers in end-of-life management of their products and the positive effects of this on product design changes and treatment operations, as well as, about producers' capability and the affirmative view on sharing information between producers and downstream actors.

Another statement which was very close to this cluster (The bond distance was 0.684) was "Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers." This indicates that respondents who find importance in the producers' involvement in end-of-life management of their products and the feedback mechanisms between upstream and downstream tend to think that targets of EPR/PS programs should not be determined by producers.

The next four statements placed in the middle of Figure 18 were connected with the above-mentioned cluster one by one with a relatively long bond distance (from 0.753 to 0.810). The statements in this cluster were related to the producer's power resulting from the implementation of an EPR program and expected roles and behaviors of producers in the EPR program.

The four remaining statements were bound at the bond distance from 0.754 to 0.832 into another cluster. This cluster was bound at the bond distance of 0.890 with the other clusters, which suggest that statements in this cluster were most different from the rest. The statements in this cluster relate to specific aspects of EPR programs in practice that may divert from expected mechanisms of EPR programs in theory, whereas statements in the first cluster refer to affirmative mechanisms an EPR/PS program envisages.

Various opinions and comments were submitted in conjunction with the 14 statements relating to EPR/PS. They are presented in Table A5 in the Appendix.

**Table 3: Spearman's ranking correlation coefficient matrix of the degree of approval/disapproval as to the statements relating to EPR/PS**

	If producers pay ....	Producers will benefit ....	Feedback from recyclers....	In cases where individual producers ...	Targets in EPR programs ...	Importers of a product ...	Producers should include the cost ...	Recyclers/waste management entities ...	Producers can supply recyclers ...	Public awareness about ....	Even if changes in product ....	Municipalities can collect ...	EPR strengthens ....	In cases when municipalities ...
If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage.	1.000	0.273**	0.238**	0.392**	0.316**	0.020	0.211**	-0.008	0.193**	0.144**	-0.050	-0.166**	0.118*	0.172**
Producers will benefit by obtaining more information when they recycle/dispose of their waste products instead of commissioning the task to a third party.	0.273**	1.000	0.319**	0.303**	0.190**	-0.006	0.166**	0.046	0.261**	0.049	0.001	-0.113*	0.247**	0.067
Feedback from recyclers/dismantlers to producers will improve product design in terms of recyclability and disassemblability.	0.238**	0.319**	1.000	0.321**	0.083	-0.081	0.188**	-0.149**	0.412**	0.085	-0.068	-0.125*	0.089	-0.001
In cases where individual producers collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of their products such as recyclability and disassemblability, each producer will improve the product design.	0.392**	0.303**	0.321**	1.000	0.223**	-0.050	0.183**	0.031	0.281**	0.004	0.072	-0.128*	0.148**	0.059
Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.	0.316**	0.190**	0.083	0.223**	1.000	0.036	0.204**	0.062	0.064	0.135*	0.045	-0.119*	0.032	0.205**
Importers of a product generally have only minute or zero power to influence the design of the product.	0.020	-0.006	-0.081	-0.050	0.036	1.000	-0.113*	0.190**	-0.133*	0.085	0.126*	0.099	0.052	0.064
Producers should include the cost of recycling and waste management or part of it into the price of products.	0.211**	0.166**	0.188**	0.183**	0.204**	-0.113*	1.000	-0.030	0.178**	0.087	0.043	-0.103	0.125*	0.117*
Recyclers/waste management entities do not frequently use product information from producers.	-0.008	0.046	-0.149**	0.031	0.062	0.190**	-0.030	1.000	-0.098	0.023	0.246**	0.168**	0.017	0.092
Producers can supply recyclers/waste management entities with product information that improves the end-of-life treatment.	0.193**	0.261**	0.412**	0.281**	0.064	-0.133*	0.178**	-0.098	1.000	0.077	0.017	-0.043	0.127*	0.048
Public awareness about an EPR program should be built by producers mainly.	0.144**	0.049	0.085	0.004	0.135*	0.085	0.087	0.023	0.077	1.000	-0.003	-0.082	0.190**	0.096
Even if changes in product design decreases the cost of recycling/waste management, producers will not improve their product design when their benefit from the change is small.	-0.050	0.001	-0.068	0.072	0.045	0.126*	0.043	0.246**	0.017	-0.003	1.000	0.110*	0.110*	-0.001
Municipalities can collect waste product more efficiently than producers do.	-0.166**	-0.113*	-0.125*	-0.128*	-0.119*	0.099	-0.103	0.168**	-0.043	-0.082	0.110*	1.000	0.011	-0.160**
EPR strengthens the market position of producers that are already dominant in the market.	0.118*	0.247**	0.089	0.148**	0.032	0.052	0.125*	0.017	0.127*	0.190**	0.110*	0.011	1.000	0.031
In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.	0.172**	0.067	-0.001	0.059	0.205**	0.064	0.117*	0.092	0.048	0.096	-0.001	-0.160**	0.031	1.000

n = 358. Responses of "Agree", "Tend to agree", "Neither agree nor disagree", "Tend to disagree", and "Disagree" were respectively ranked as 5, 4, 3, 2, and 1.  
p value: \*\* <0.01, \* <0.05

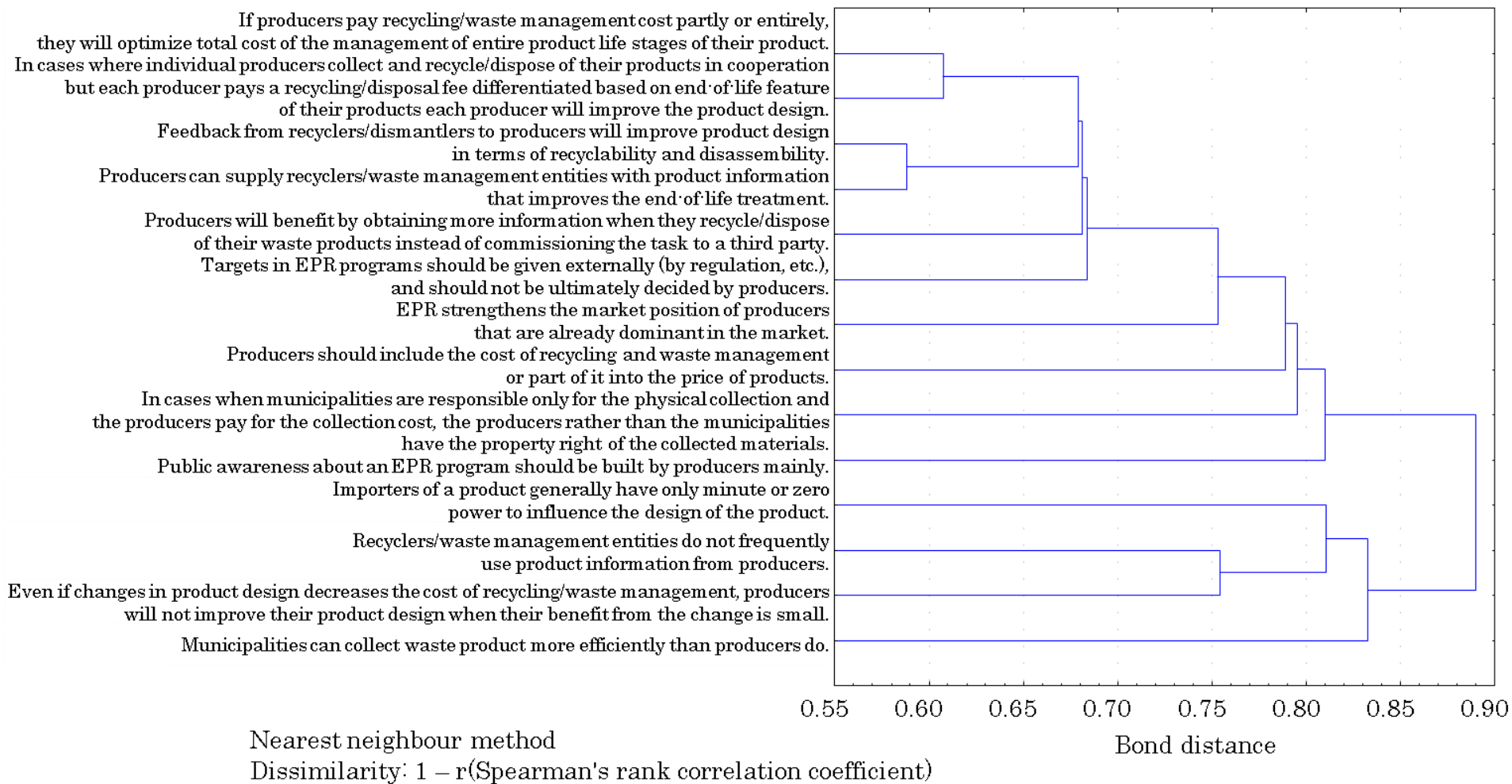
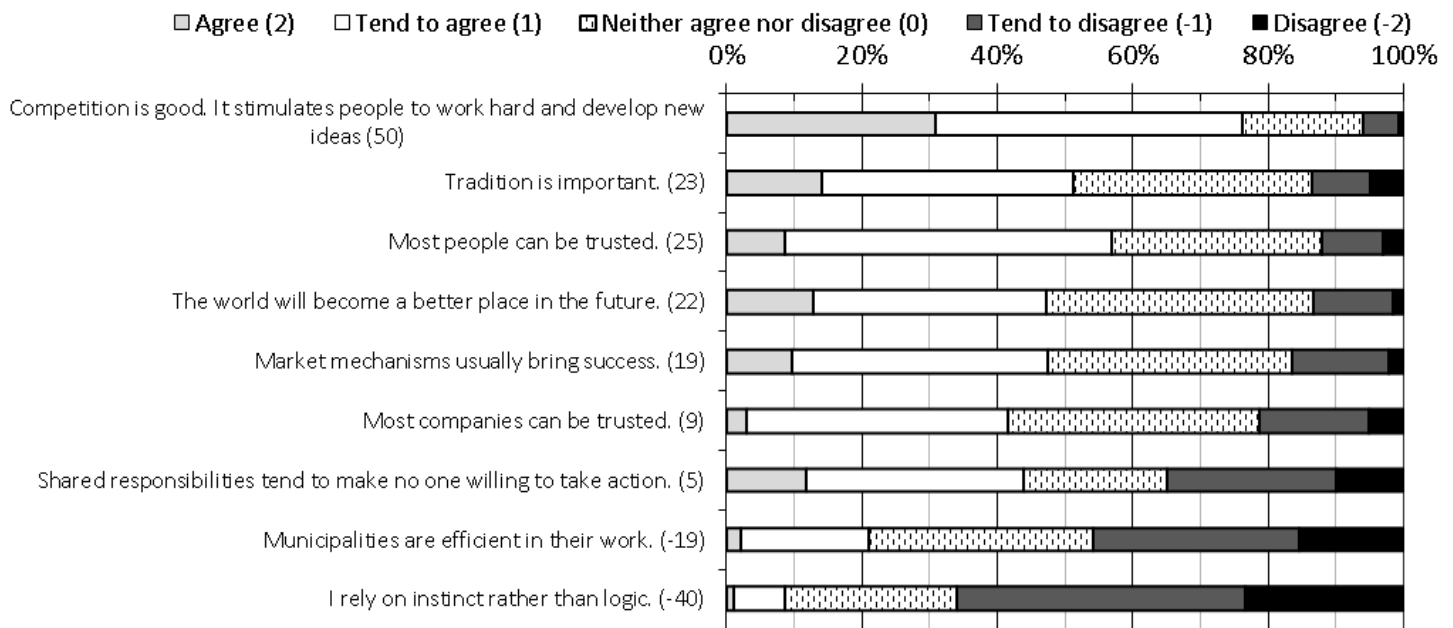


Figure 18: Result of cluster analysis for the opinions on the statements relating to EPR/PS

### 3.8 General beliefs

Figure 19 summarizes the responses on general beliefs. The statement “Competition is good. It stimulates people to work hard and develop new ideas” was agreed by 76% of respondents (including those who “tend to agree”). 42%–57% agreed on the following statements: “Tradition is important.”, “Most people can be trusted.”, “The world will become a better place in the future.”, “Market mechanisms usually bring success.”, “Most companies can be trusted.”, and “Shared responsibilities tend to make no one willing to take action.” However, the last statement on shared responsibility was disagreed by 35% of the respondents. The statements “Municipalities are efficient in their work.” and “I rely on instinct rather than logic.” were disagreed (including those who “tend to disagree”) by 46% and 66%, respectively, and these percentages were larger than for those who agreed.



**Figure 19: General beliefs of respondents (Single answer to “To what extent do you agree or disagree with each of the following statements?” The figures in the parentheses represent the standardized weighted-average scores of the degree of agree/disagree ranging from -100 (disagree) to 100 (agree). n = 367–371)**

We subsequently sought to analyze the relation between respondents’ general beliefs and their perception on EPR/PS. We had speculated that respondents’ general beliefs would affect their perception on EPR/PS to some extent. However, Spearman’s ranking correlation coefficients between the beliefs and perceptions of EPR were less than 0.3 and the correlation of the two was not considered statistically significant. Therefore,

we understood that respondents' perceptions on EPR were formulated by their specific experiences and the information they have, rather than by their general beliefs.

Further analyses of respondents' general beliefs based on their attributes (geographical base, products they have worked with and stakeholder group) are found in Sections 3.9 to 3.11.

### 3.9 Similarities and differences in perception and opinions by region

In addition to the analysis conducted in Section 3.1.5 regarding the usage of the term "Extended Producer Responsibility (EPR)" and "Product Stewardship (PS)", we sought to find out if there are characteristics in perceptions and opinions based on the geographical base. We conducted analysis for four regions of countries and regions, of which a relatively large number of responses were collected: European countries, North America (Canada and US), Asia (except for Japan), and Japan (see Section 3.1.4).

#### 3.9.1 Aims of EPR/PS

First, we analyze which aims of EPR/PS respondents from the respective regions tend to value, as shown in Figure 20. The standard errors of the means of each respondent group were calculated and presented as the bars in the figure for reflection of the uncertainty of the responses of the group. The items were placed in the ascending order of deviation of the responses from left to right. The main findings are summarized below.

- North American respondents, put relatively higher importance on the following aims of EPR/PS in comparison to rest of the three regions: "To shift responsibility of waste management from municipality to producers", "To increase collection of waste products or used products", "To reduce the amount of waste", "To create a level playing field in the market", "To internalize external costs", and "To promote reuse".
- Asian (except for Japan) respondents put higher importance on the following two aims: "To improve waste treatment" and "To reduce toxic substances used for a product". The tendency seems to reflect the challenge the countries have faced over the last decade: treatment of e-waste as well as rapidly increasing waste. Meanwhile, non-Japanese Asian respondents considered the following aim related to longer use of products to be less important: "To increase durability and/or maintainability of a product". Compared with respondents from North America and



Europe, Asian respondents (except for Japanese respondents) put lower importance on “To promote recycling/recovery”, “To increase collection of waste products or used products”, “To stimulate innovation in waste management”, and “To promote reuse”.

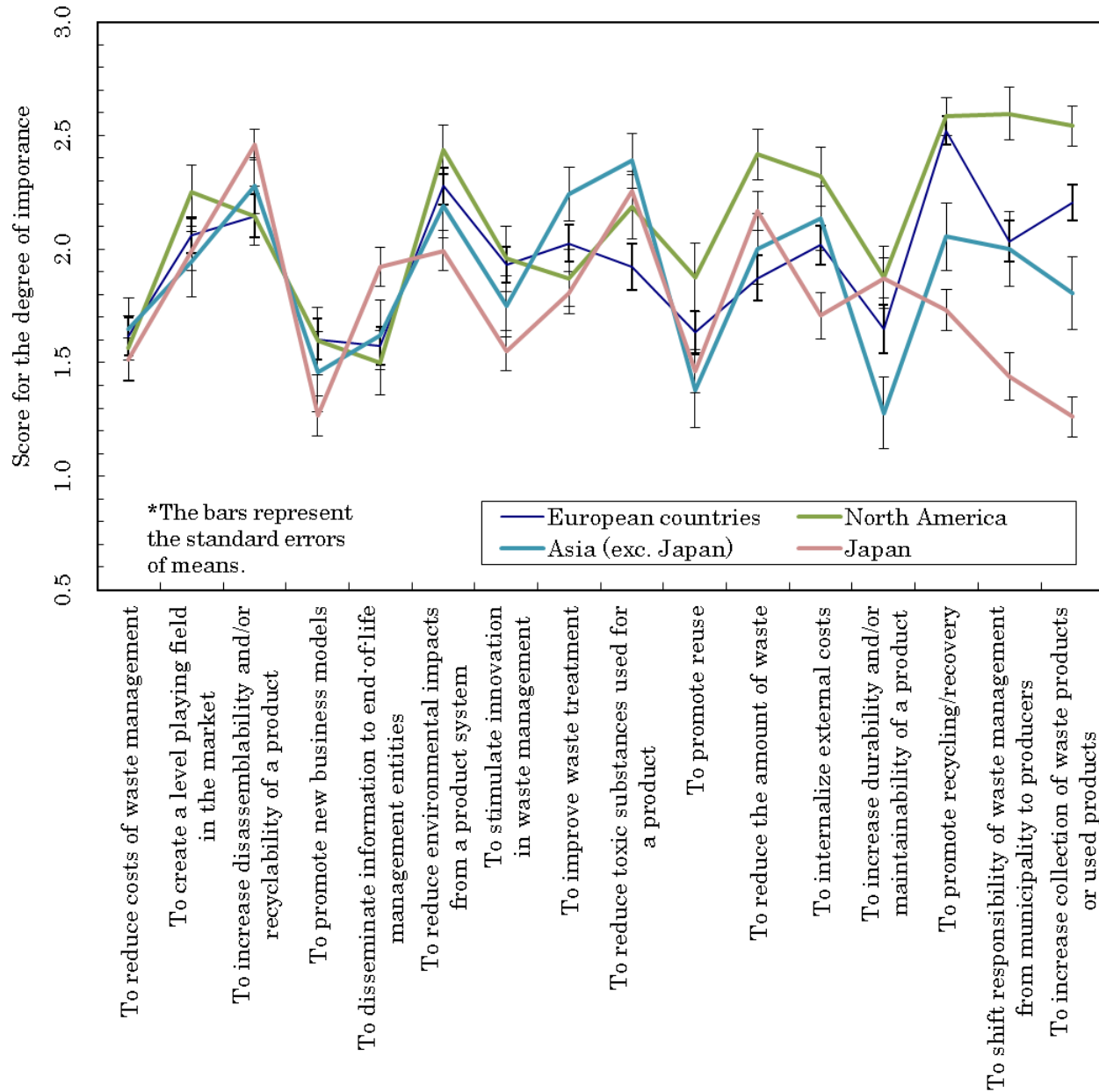
- Compared to the respondents from the other three regions, European respondents put lesser importance on “To reduce toxic substances used for a product” and “To reduce the amount of waste”. Both of these two aims are on waste prevention. It is interesting that the European respondents valued them to be less important as aims of EPR/PS, considering the revived focus on waste prevention and potential roles of EPR in the European policy arena.\*<sup>13</sup>
- Japanese respondents overall tended to put lesser importance on the aims. Compared to the respondents from the other three regions, they perceived the importance of the following three aims rather low: “To shift responsibility of waste management to producers” and “To increase collection of waste products or used products”. Other aims which Japanese respondents considered less important were: “To reduce environmental impacts from a product system”, “To promote recycling/recovery”, “To internalize external costs”, “To stimulate innovation in waste management”, and “To promote new business models”. In contrast, they put greater importance on “To increase disassemblability and/or recyclability” and “To disseminate information to end-of-life management entities”. It may be influenced by the development and implementation of EPR programs for WEEE and cars in Japan, where producers have been either directly involved in end-of-life management of their products or have had close communication with end-of-life management entities.\*<sup>14</sup>
- Analysis based on attributes of the respondents showed that the respondents from four regions, Europe, North America, Asia (excluding Japan) and Japan, had different views on the aims of EPR/PS, in particular, “To shift responsibility of waste management from municipality to producers” (overall a medium score), “To increase collection of waste products and used products” (overall a medium score),

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\*<sup>13</sup> The revised EU Waste Framework Directive (2008/98/EC) requires EU member states to establish their waste prevention programs by 12 December 2013. The requirement, among others, revived discussions on concrete policy measures to promote waste prevention. European Commission (2014) has an interest in developing guidance on functioning EPR programs for the EU member states.

\*<sup>14</sup> For a comprehensive comparison of the involvement of producers in EPR programs for WEEE and cars in Japan and a few European countries, see Tojo (2004).

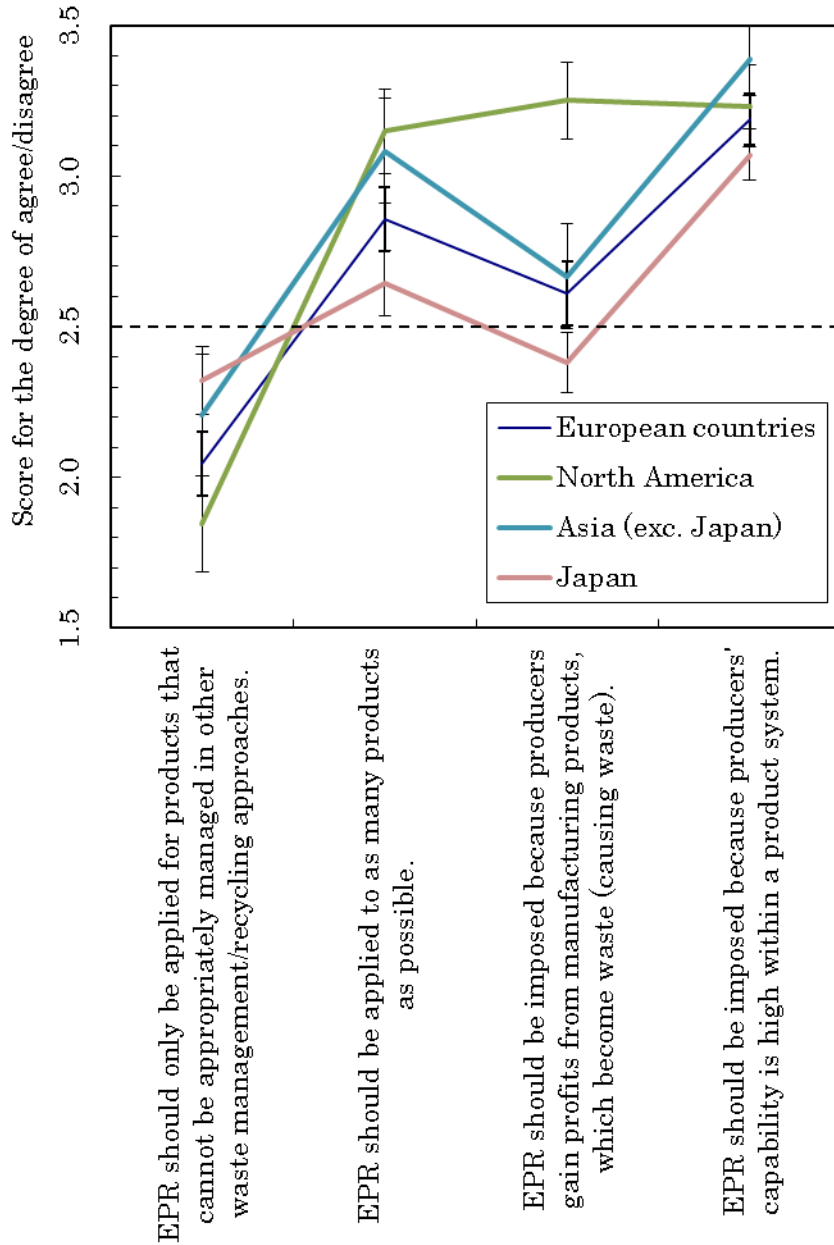
and "To promote recycling/recovery" (overall a high score). The aim which the respondents from four regions consider most similarly in terms of its importance was "To reduce costs of waste management", with an overall low score.



**Figure 20: Differences between four regions regarding respondents' perception on aims of EPR/PS (The score ranges from 0 (not important at all) to 3 (very important))**

### 3.9.2 Application, rationales, types of responsibility, and scope of “producers”

We subsequently analyzed the geographical variation in answers regarding the application and rationales of EPR/PS and the types of responsibility (See Figure 21 to Figure 24).

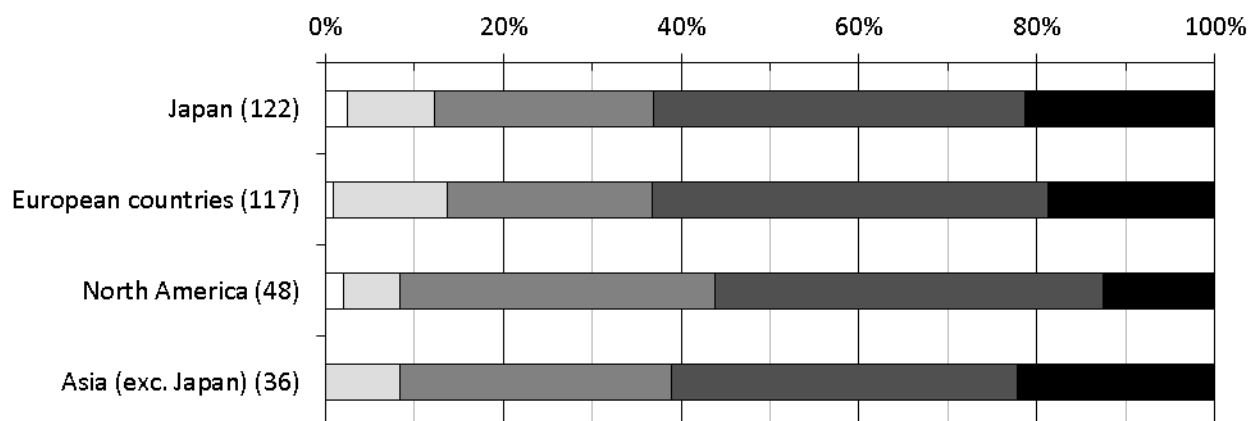


**Figure 21: Differences between four regions regarding respondents' perception of the application and rationales of EPR/PS (The score ranges from 1 (disagree) to 4 (agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of means)**

Regarding the application of EPR/PS, respondents from all four regions tended to favor the open application (as many products as possible) compared to the limited application (i.e. application should be limited to products that cannot be appropriately managed without EPR). Respondents from North America and Asia (except for Japan) were especially oriented towards applying EPR/PS to as many products as possible.

Concerning rationales, there was a general agreement among respondents from all four regions that producers should bear responsibility due to their capability (“capability to bear”). Compared to other three regions, there was a higher degree of agreement among respondents from North America regarding the idea that producers as beneficiary should bear responsibility (“beneficiary bears”), and the scores in Figure 21 for “capability to bear” and “beneficiary bears” were the same. Respondents other than those from North America agreed more on the rationale “capability to bear” than “beneficiary bears”.

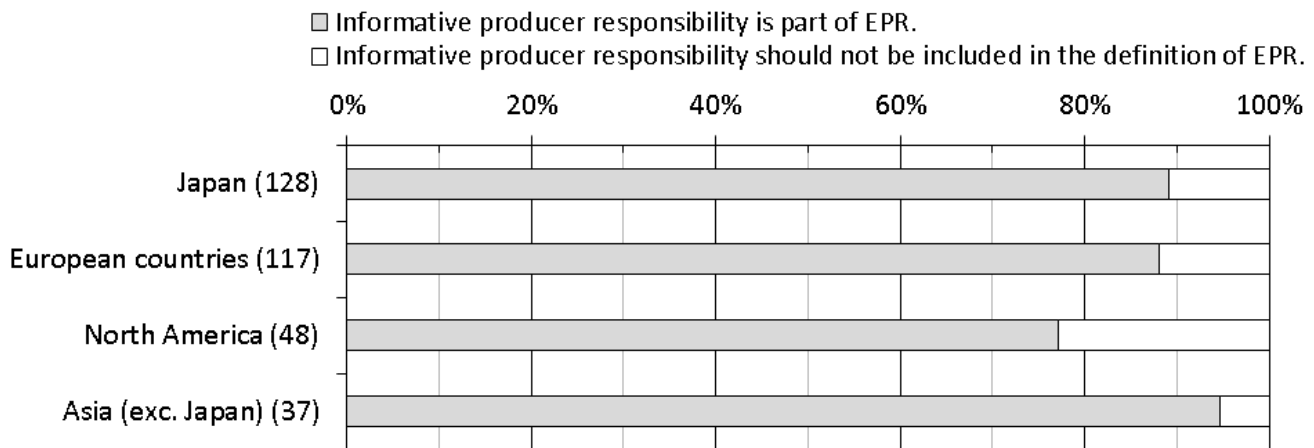
- Physical producer responsibility is not important at all.
- Physical producer responsibility is far less important than financial producer responsibility.
- Physical producer responsibility is less important than financial producer responsibility but still important.
- Physical producer responsibility is as important as financial producer responsibility.
- Physical producer responsibility is more important than financial producer responsibility.



**Figure 22: Different perceptions across four regions on relative importance of physical and financial producer responsibility (The figures in parentheses show the number of respondents.)**

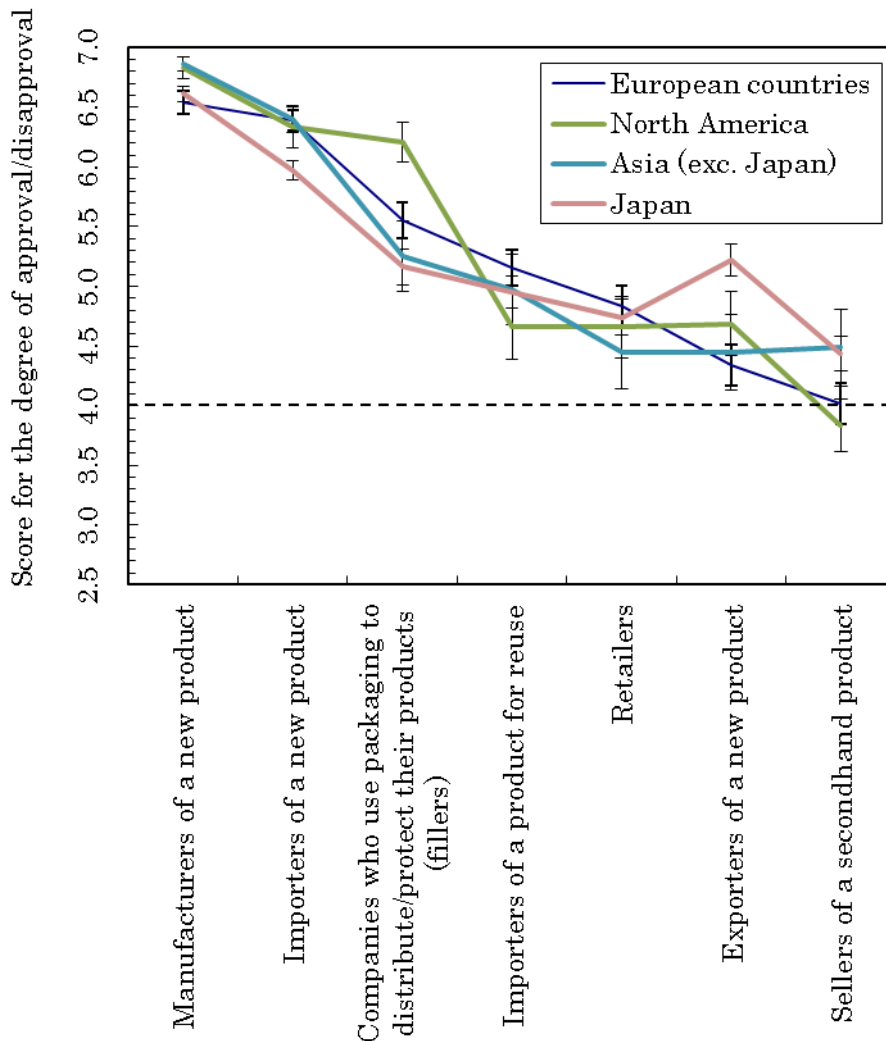
Concerning relative importance of physical and financial responsibility (Figure 22), approximately 40% of respondents from all four regions – largest segment in all four regions – considered that physical and financial responsibilities were equally important. However, respondents from North America overall placed more importance

on financial responsibility than physical responsibility. Regarding informative responsibility, the vast majority of respondents from all the four regions considered it to be part of EPR. The percentage of respondents who did not think so was largest in North America (23%) and smallest in Asia except for Japan (5%) (Figure 23).



**Figure 23: Different perceptions across four regions on informative producer responsibility (The figures in parentheses show the number of respondents.)**

Figure 24 summarizes the regional variation regarding respondents’ perception on the scope of “producer” in EPR/PS. Not surprisingly, there was a general agreement among respondents in all regions to consider manufacturers and importers of a new product as producers. The perception of importers of product for reuse, retailers, and sellers of secondhand products was also relatively similar across the regions. Japanese respondents were oriented towards thinking that exporters of a new product could be included in “producer” in EPR/PS. North American respondents considered fillers of packaging to be “producer” in EPR/PS more than respondents in other regions.



**Figure 24: Differences between four regions on respondents’ perception of the scope of “producer” in EPR/PS (The score ranges from 1 (strongly disagree) to 7 (strongly agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of means**

### 3.9.3 Statements related to EPR

An analysis was also made regarding the correlation between geographical base of respondents and their opinions on the 14 statements related to EPR/PS (See Figure 25; The items were placed in the ascending order of deviation of the responses from left to right). Below we highlight the main findings from the analysis.

- Respondents’ views were very similar across the four regions on the statement “Producers can supply recyclers/waste management entities with product information that improves the end-of-life treatment.” Other statements where respondents across the four regions shared similar views include “Feedback from

recyclers/dismantlers to producers will improve product design in terms of recyclability and disassemblability.”, “Even if changes in product design decreases the cost of waste management, producers will not improve their product design when their benefit from the change is small.”, and “Importers of a product generally have only minute or zero power to influence the design of the product.” The first two, both of which scores rather high (above 4), are on positive effects of interaction between producers and downstream actors. The latter two are on limited effects of EPR/PS program on design change under specific conditions.

- In contrast, among respondents from the four regions, large differences were observed on the following two statements: “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.” and “In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.”
- Compared to respondents from the other three regions, Japanese respondents agreed less with most of the statements. Their level of agreement is particularly lower on the following three statements: “In cases where individual producers collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of their products such as recyclability and disassemblability, each producer will improve the product design.”, “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.”, and “If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage.” Two of the statements concern producer’s financial responsibility and its effect on design change. “Recyclers/waste management entities do not frequently use product information from producers.” was put lesser importance by Japanese respondents. It would be interesting to further analyze the tendency between different stakeholder groups within Japanese respondents.
- Non-Japanese Asian respondents agreed more on the following two statements compared to the respondents from the other three regions: “Producers will benefit by obtaining more information when they recycle/dispose of their waste products instead of commissioning the task to a third party”, “EPR strengthens the market position of producers that are already dominant in the market.”



- The statement “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.” was largely agreed by respondents from European countries and North America but substantially less agreed by respondents from Asia and Japan. Similar tendency was found in the following two statements, although the difference between Europe/North America and Asia was not as remarkable: “In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.” and “Public awareness about an EPR program should be built by producers mainly.”

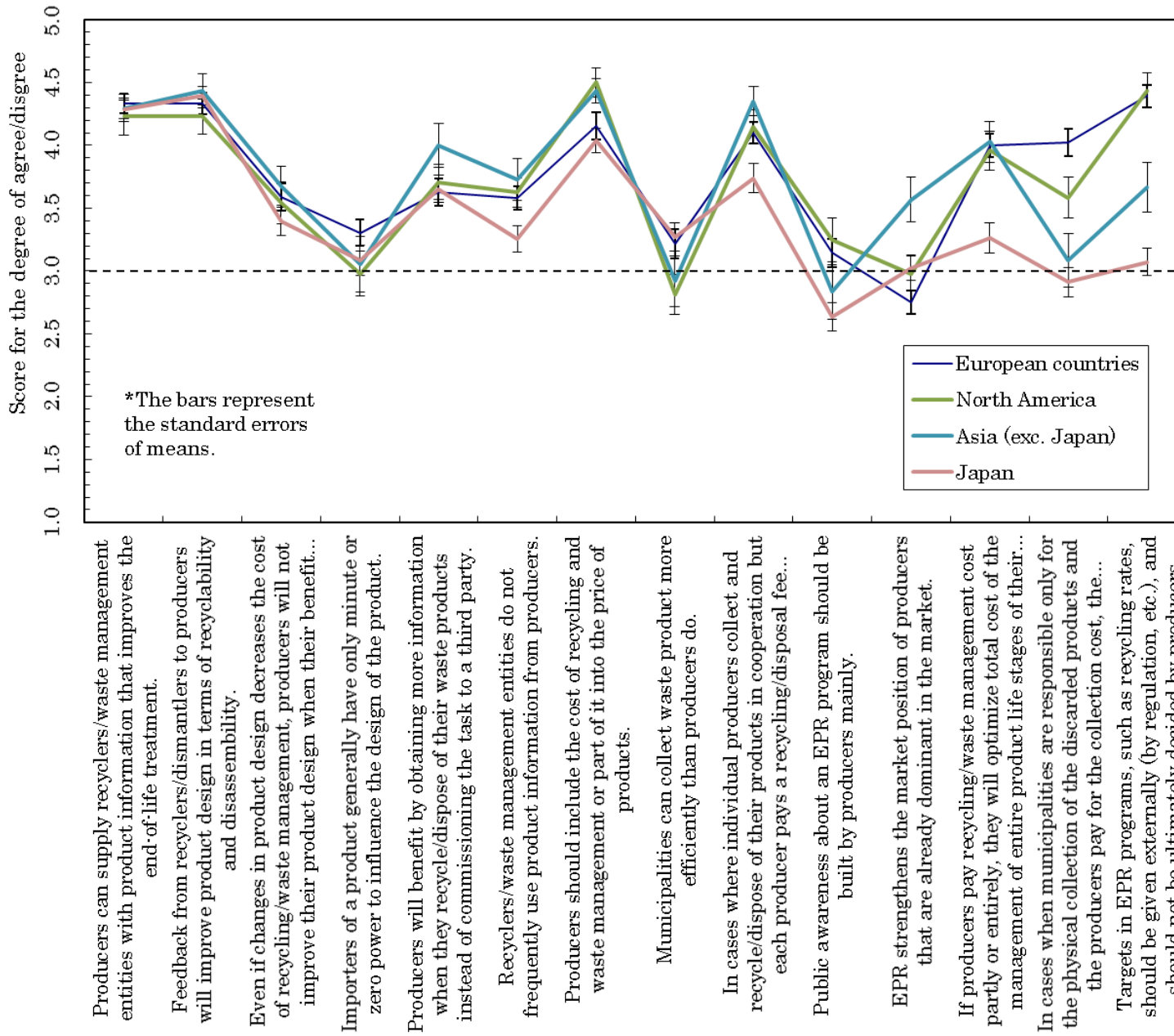


Figure 25: Differences between four regions on the respondents' perception of statements related to EPR/PS (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score, neither agree nor disagree. See Appendix 1 for the full statements)

#### 3.9.4 General beliefs

Finally, we analyzed the average general beliefs of respondents from the four regions, as found in Figure 26. The main findings of the analysis are summarized below.

- The tendency of general beliefs among respondents from four regions was rather diverse. Statements that receive relatively similar level of agreement across the regions were: “Most people can be trusted” and “The world will become a better place in the future”.
- The orders of regions were opposite when comparing where more respondents trusted companies and where more respondents perceived market mechanisms and competition positively. This seems to suggest that the more a respondent feels positive about competition/market mechanisms, the less she/he has confidence in companies.
- Compared to the other regions, less Japanese respondents considered that “Shared responsibilities tend to make no one willing to take action.” and found municipalities to be efficient.
- Respondents from Asia and Japan were oriented towards appreciating tradition.

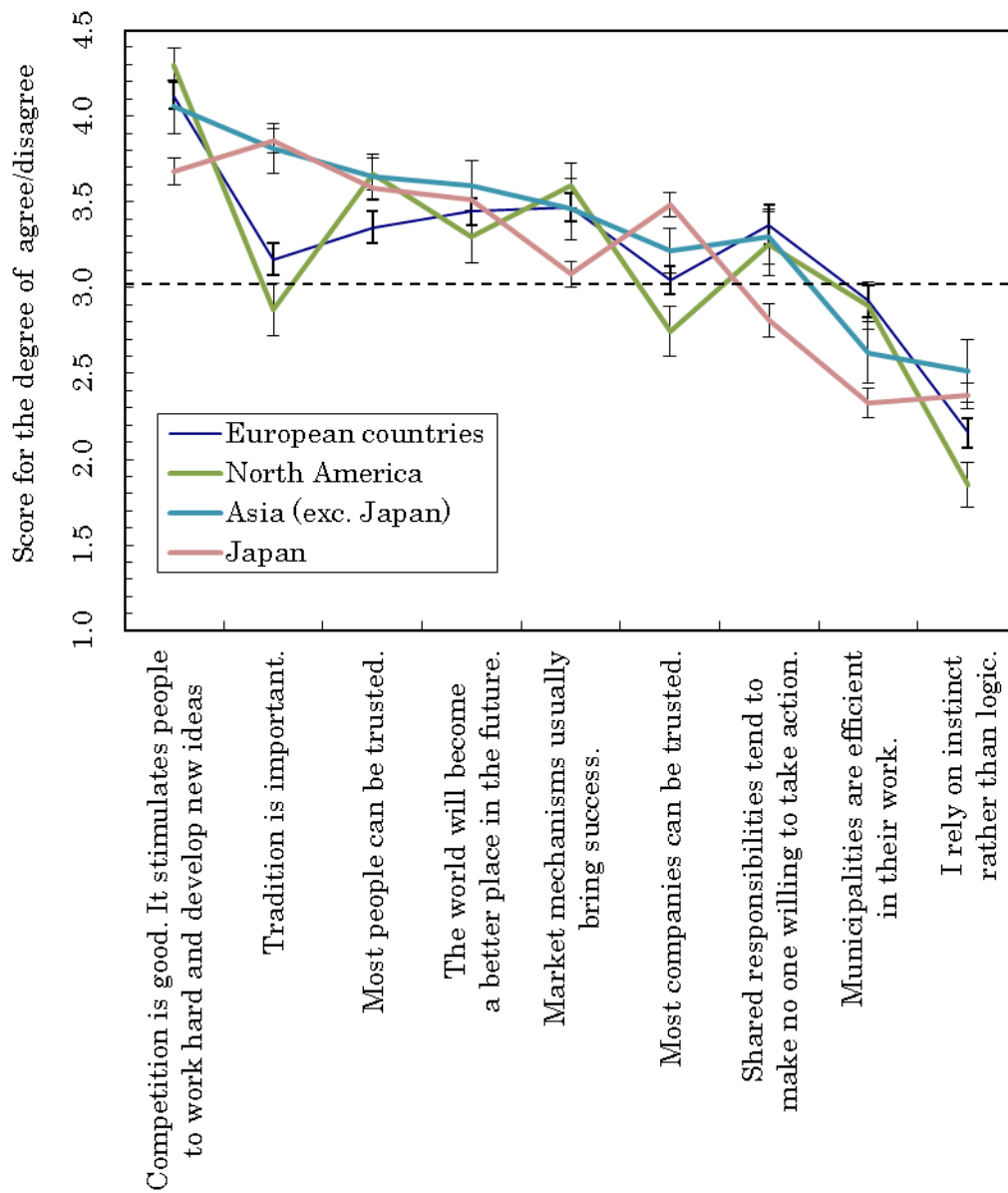


Figure 26: Differences between four regions in respondents' general beliefs (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score. The bars represent the standard errors of the means.)

## 3.10 Similarities and difference in perception and opinions by product category

### 3.10.1 Preliminary analysis

Similar to the analysis presented in Section 3.9, we examined the characteristics of the opinions and perception of respondents based on the product categories they have worked with. However, as found in Figure 27 to Figure 31, the results showed relatively small differences between product categories.

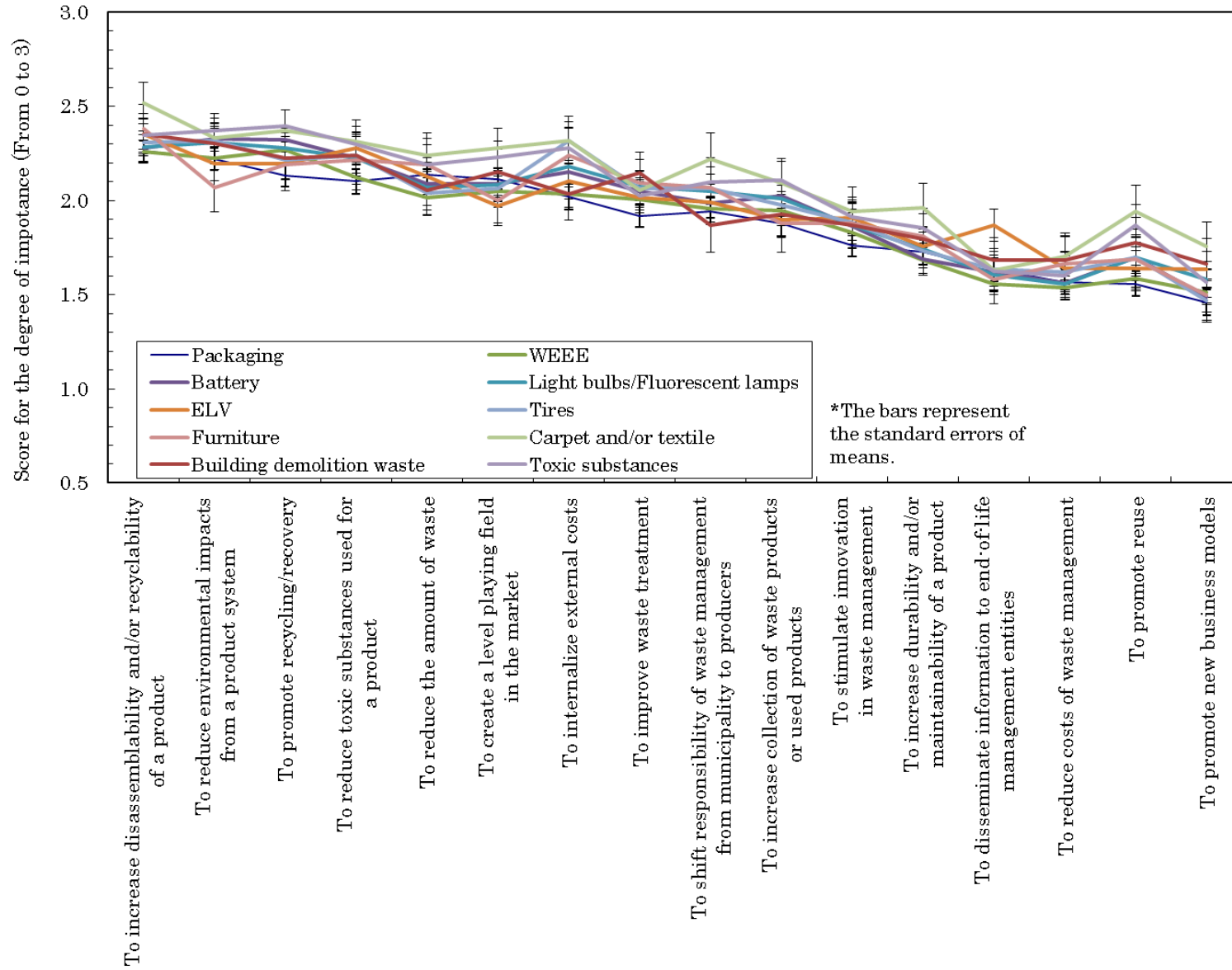


Figure 27: Differences in respondents' perception of the aims of EPR/PS based on product categories they have worked (The score ranges from 0 (not important at all) to 3 (very important))

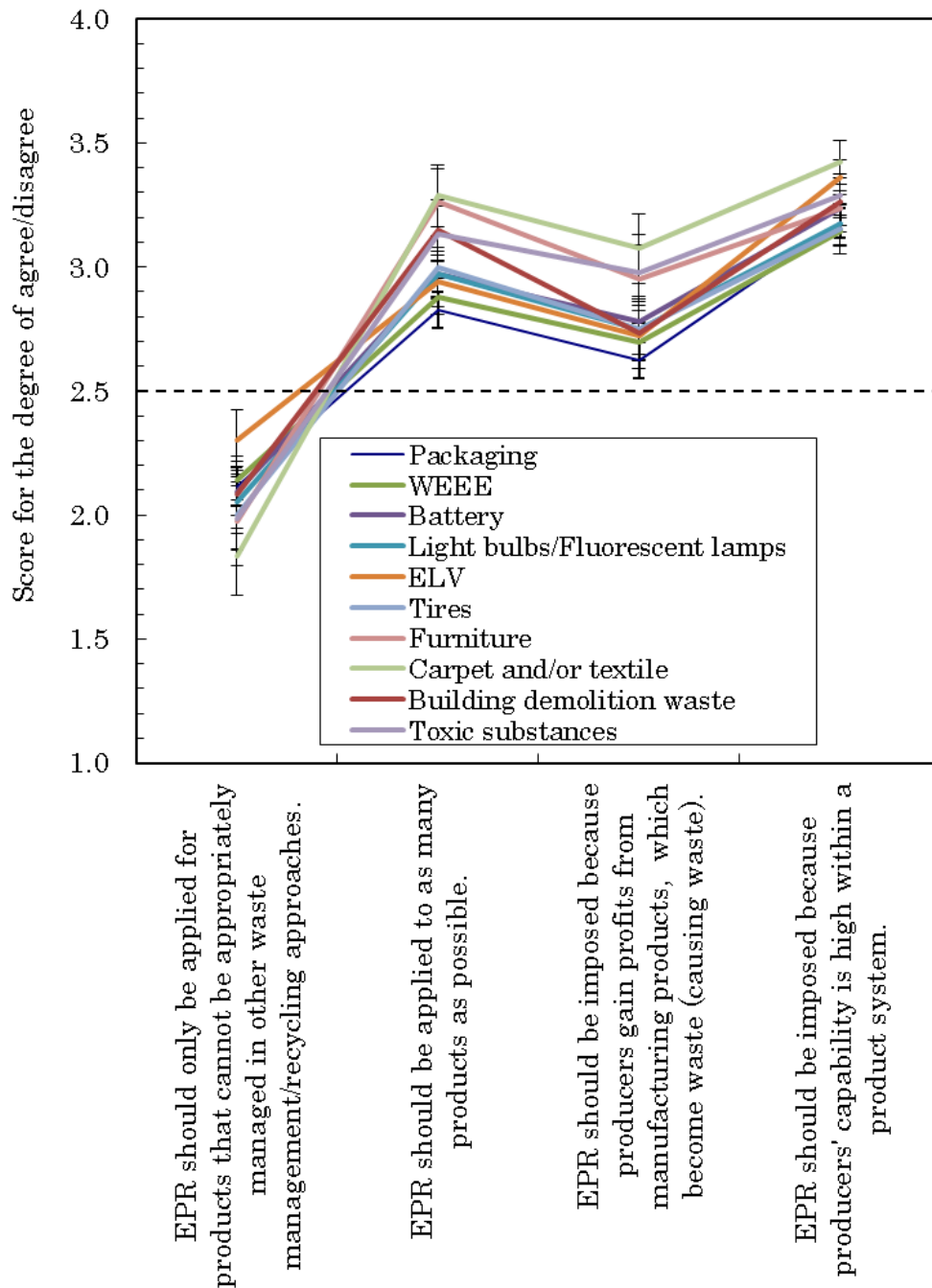


Figure 28: Differences of respondents' perception of application and rationale of EPR/PS based on product categories they have worked with (The score ranges from 1 (disagree) to 4 (agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of means.)

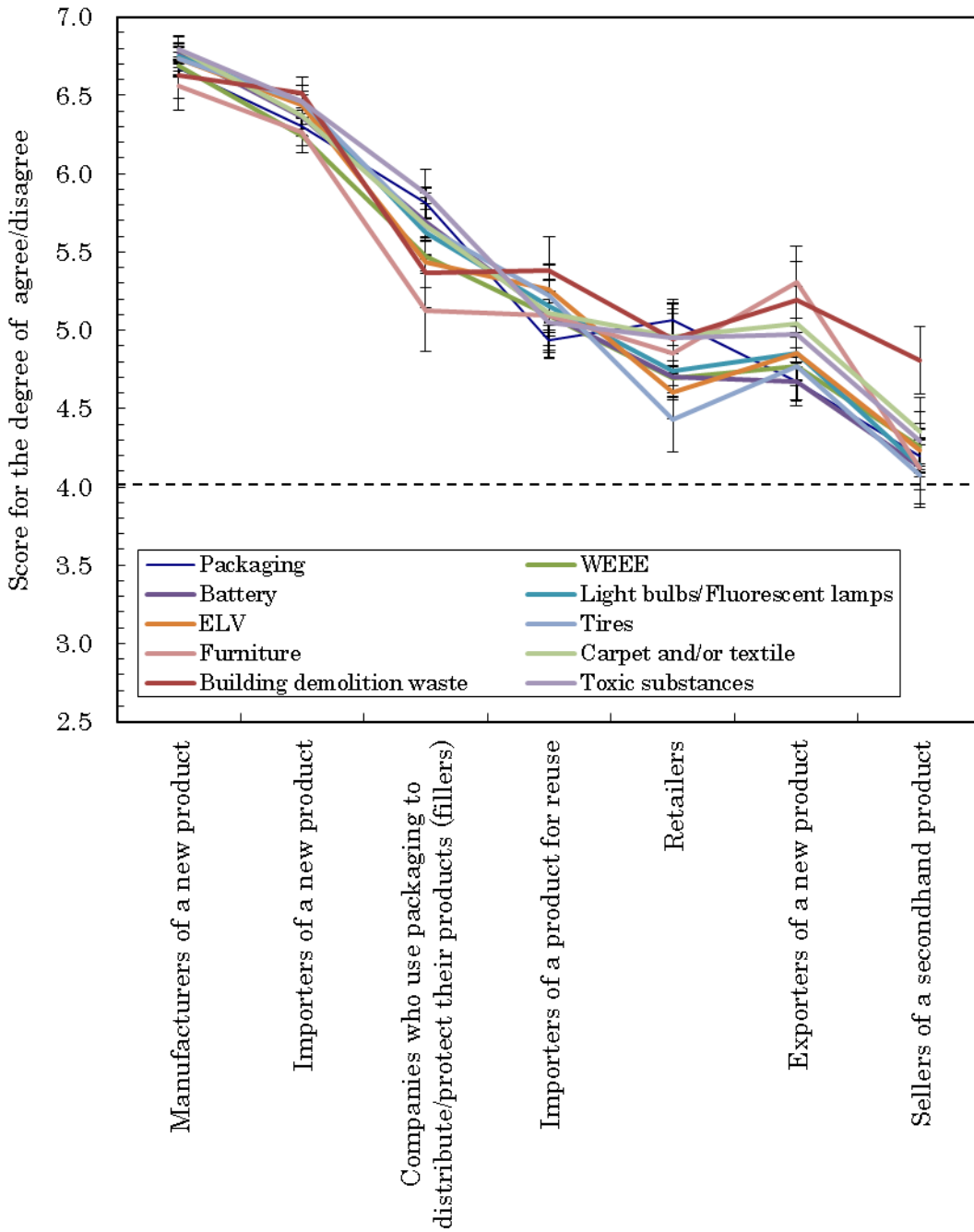


Figure 29: Differences of respondents' perception of the scope of "producer" in EPR/PS based on the product categories they have worked (The score ranges from 1 (strongly disagree) to 7 (strongly agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of the means.)



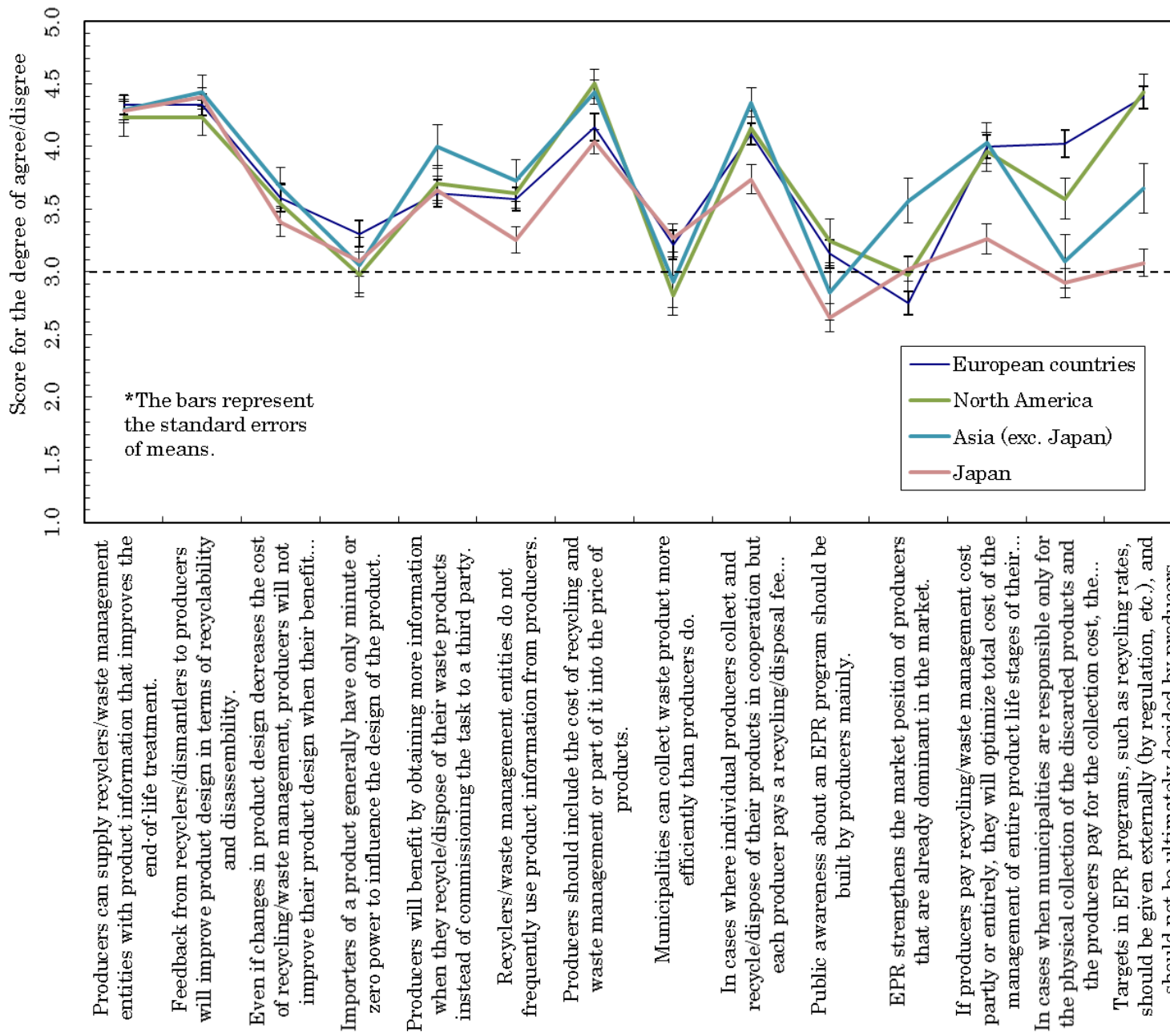
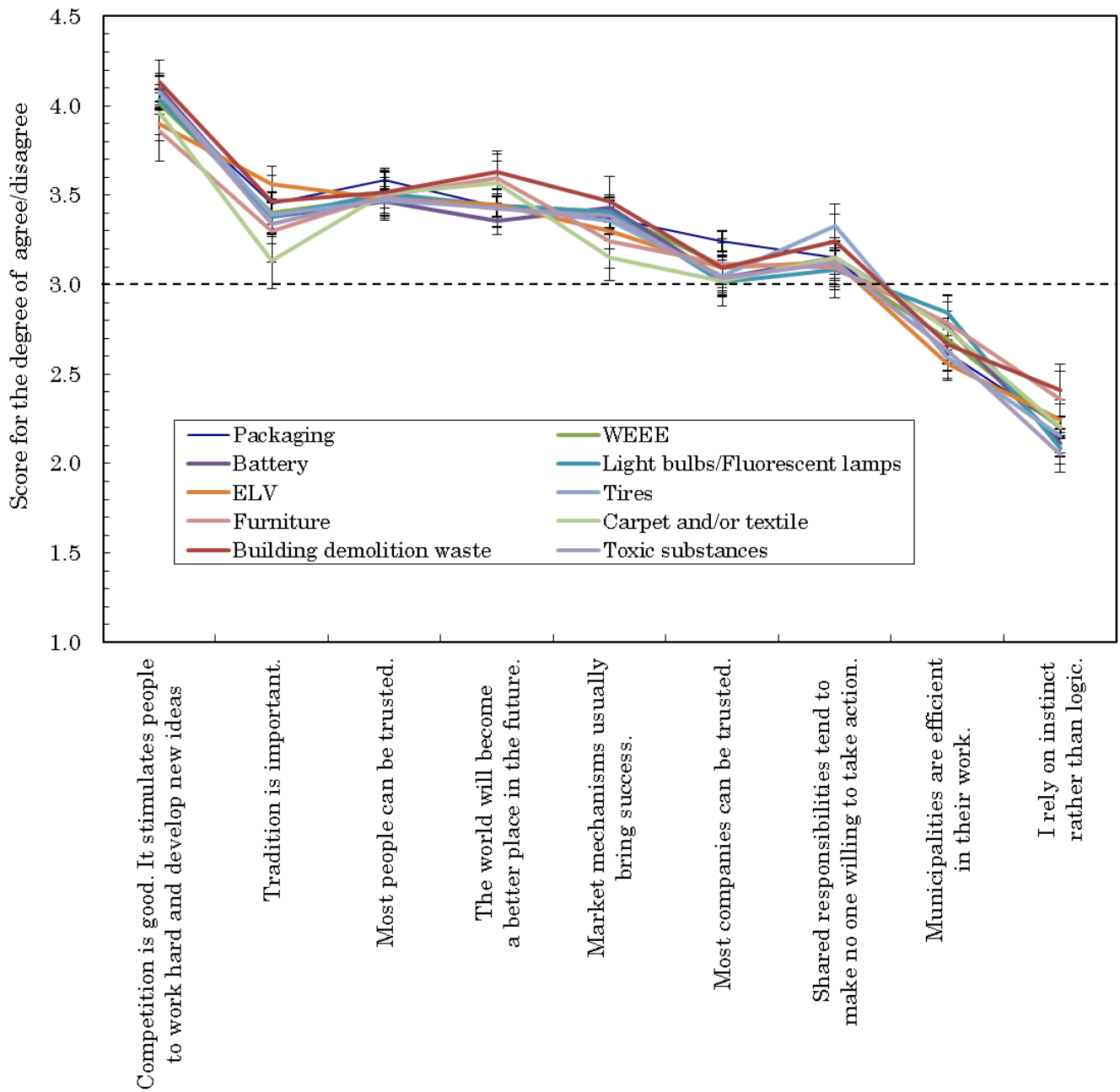


Figure 30: Differences in the degree of respondents' agreement with statements relating to EPR/PS, based on product categories they have worked (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score, neither agree nor disagree. See Appendix 1 for the full statements)



**Figure 31: Difference in respondents' general beliefs based on the product categories they have worked (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score. The bars represent the standard errors of the means.)**

We considered that small differences between product categories could be due to the fact that many respondents were familiar with more than one product category. In order to identify the differences between product categories, respondents who had worked with a single product category were extracted and analyzed. As shown in Table

4, the top three product categories on which respondents provided a single answer for the question on product categories were packaging, WEEE, and ELV. As the number of respondents for ELV was small (n=8), we focused our analysis on the perception packaging (n=67) and WEEE (n=43). It should be noted that these respondents did not belong to organizations surveyed evenly: as found in Table 4, about half of respondents were producers.

**Table 4: Number of respondents who provided a single answer to the multiple-alternative question, “What types of products are your activities on EPR related to?”**

	Packaging	WEEE	ELV	Batteries	Building demolition waste	Light bulbs/Fluorescent lamps	Furniture	Carpet and/or textile	Toxic substances	Tires	Others	Total
Producer (incl. PROs and business associations)	38	18	5	4	1	1	0	0	0	0	4	71
Academia/Research institute	5	12	1	0	1	0	0	0	0	0	4	23
Waste management entity	8	5	0	0	0	1	0	0	0	0	2	16
National governmental organization	5	2	1	0	0	0	0	0	1	0	3	12
NPO/consumer	6	2	0	0	0	0	1	0	0	0	0	9
Consultant	2	3	0	0	0	0	0	0	0	0	0	5
Local government (incl. state and province)	1	0	0	0	0	0	0	0	0	0	1	2
International governmental organization	0	1	0	0	0	0	0	0	0	0	0	1
Others	2	0	1	0	0	0	0	1	0	0	0	4
Unanswered	0	0	0	0	1	0	0	0	0	0	0	1
<b>Total</b>	<b>67</b>	<b>43</b>	<b>8</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>14</b>	<b>144</b>

### 3.10.2 Aims of EPR/PS

Regarding the aims of EPR/PS, we found the following similarities and differences between respondents who had worked with packaging or with WEEE, as seen in Figure 32.

- Respondents in both groups agreed to the same degree that it was important “To increase disassemblability and/or recyclability of a product”, “To reduce environmental impacts from a product system”, and “To reduce toxic substances used for a product” through an EPR/PS program. Both groups found relative importance in “To internalize external cost” and “To increase collection of waste products on used products” as the aims of EPR/PS.
- Compared to respondents who have been working with WEEE, respondents whose activities were related to packaging tended to find higher importance in the following as the aims of EPR/PS: “To reduce the amount of waste”, “To create a level

playing field in the market”, “To increase durability and/or maintainability of a product”, and “To disseminate information to end-of-life management entities.”

- The aims which respondents whose activities were related to WEEE put significantly higher importance than those working with packaging were: “To promote recycling/recovery” and “To improve waste treatment”.

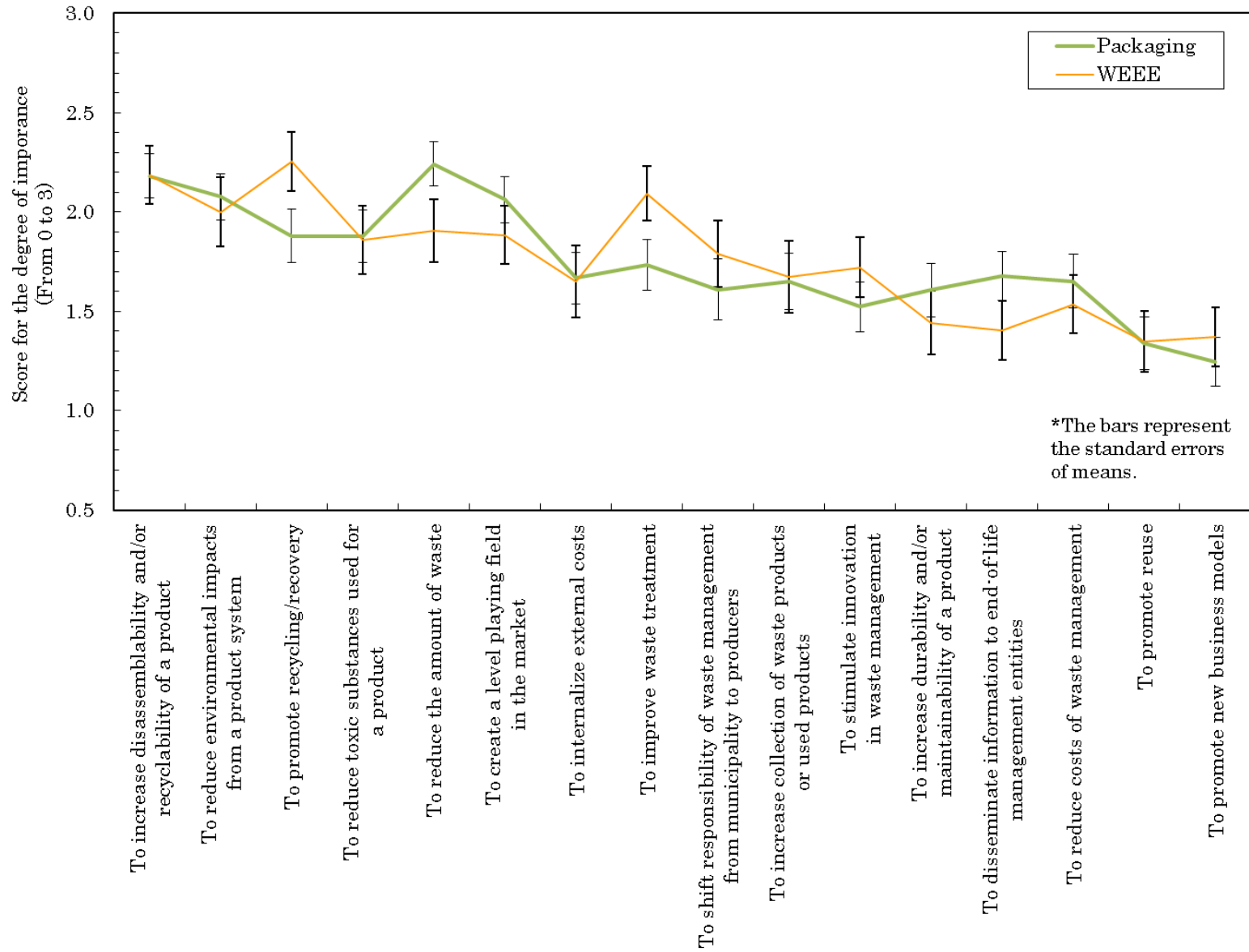


Figure 32: Differences in respondents' perception of the aims of EPR/PS, based on whether they worked with packaging or WEEE (The score ranges from 0 (not important at all) to 3 (very important))

### 3.10.3 Application, rationales, types of responsibility and scope of “producers”

Differences in perceptions about the application and rationale of EPR/PS (Figure 33) and the types of responsibility (Figure 35 and Figure 34) were not large, but there were the following differences:

- Respondents whose activities were related to WEEE tended to put more importance on physical producer responsibility, compared to respondents whose activities were related to packaging.
- A larger percentage of respondents whose activities were related to packaging considered that informative responsibility was part of EPR, compared to respondents whose activities were related to WEEE.

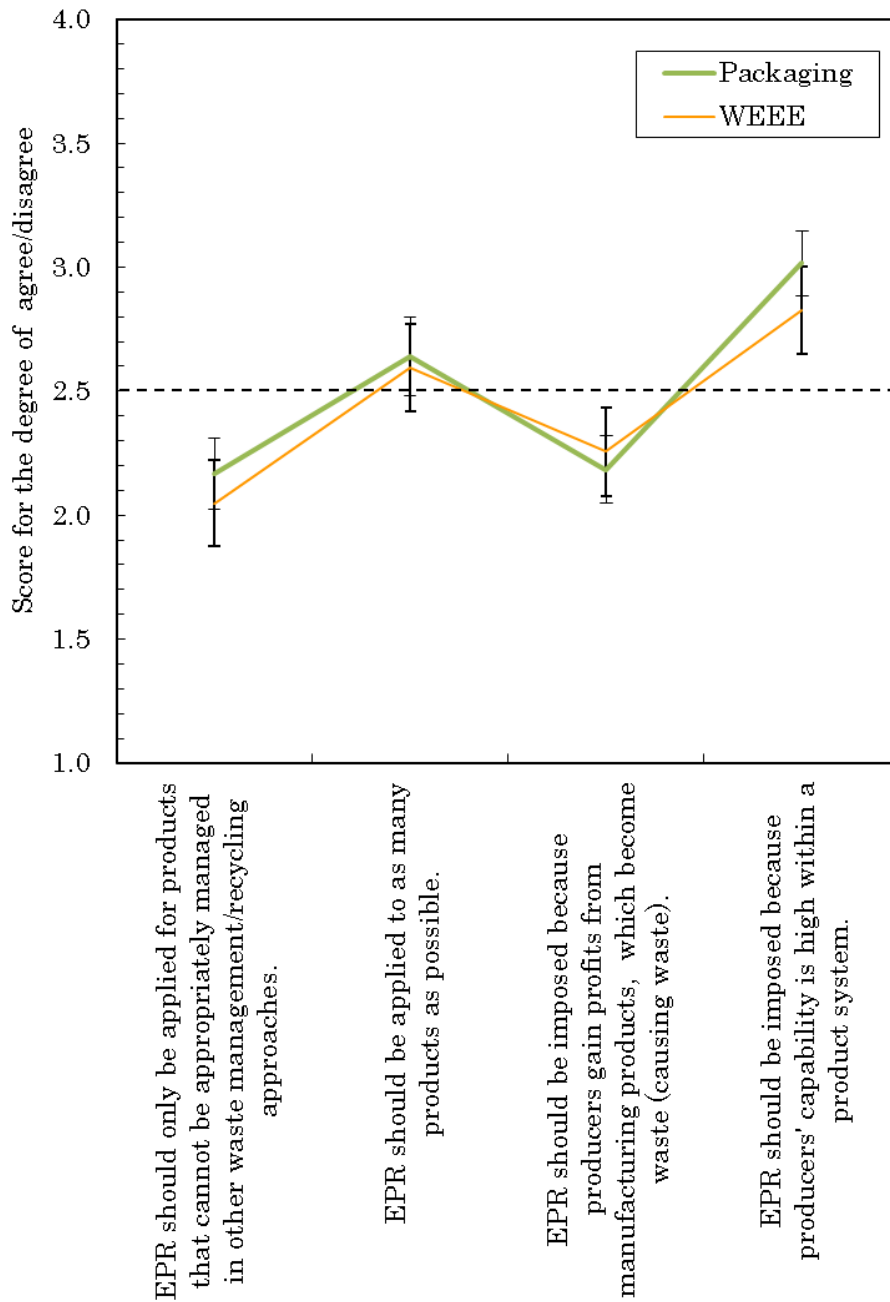
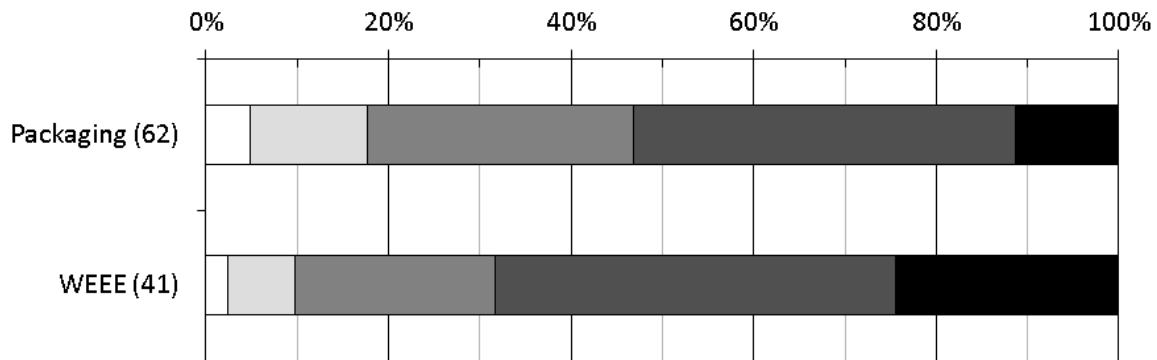


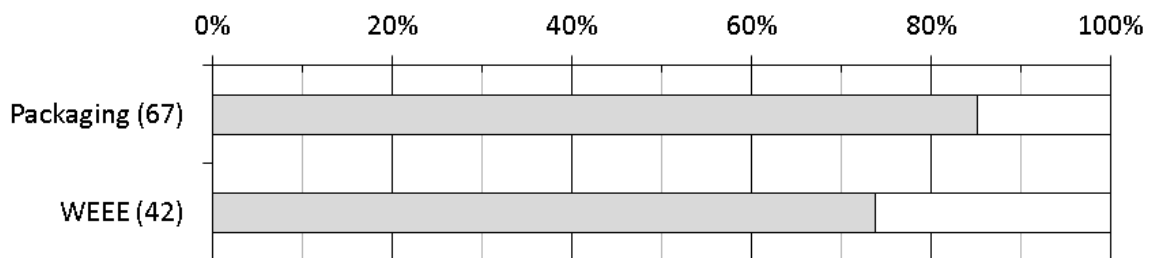
Figure 33: Differences in respondents' perceptions of the application and rationale of EPR/PS, based on whether they have worked with packaging or WEEE. (The score ranges from 1 (disagree) to 4 (agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of the means.)

- Physical producer responsibility is not important at all.
- Physical producer responsibility is far less important than financial producer responsibility.
- Physical producer responsibility is less important than financial producer responsibility but still important.
- Physical producer responsibility is as important as financial producer responsibility.
- Physical producer responsibility is more important than financial producer responsibility.



**Figure 34: Difference of respondents’ perceptions on relative importance of physical and financial producer responsibility, based on whether they have worked with packaging or WEEE (The figures in parentheses show the number of respondents.)**

- Informative producer responsibility is part of EPR.
- Informative producer responsibility should not be included in the definition of EPR.



**Figure 35: Differences in respondents’ perceptions of informative producer responsibility, based on whether they have worked with packaging or WEEE (The figures in parentheses show the number of respondents.)**

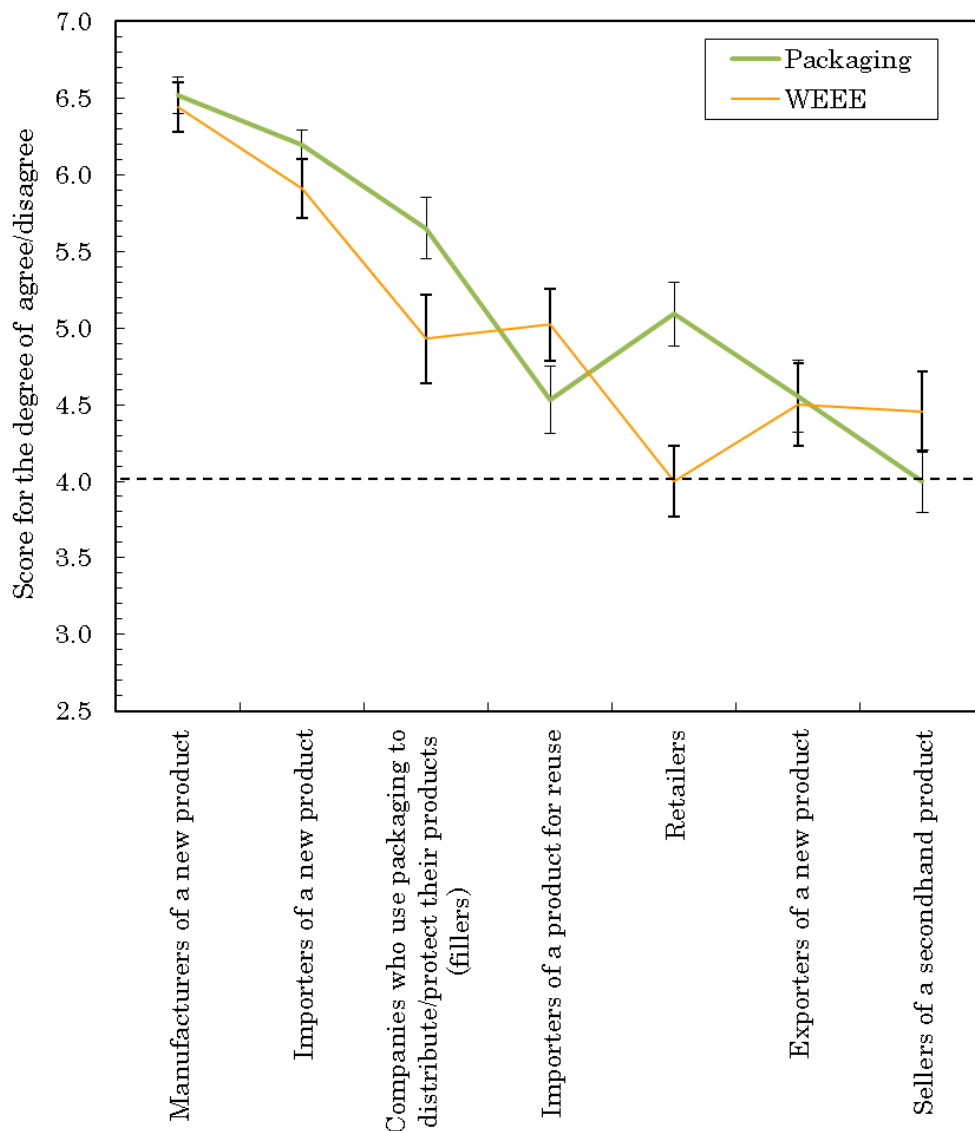
Highlights of the findings on similarities and differences between respondents working with packaging and WEEE, with regard to the scope of “producer” in EPR/PS (Figure 36) were as follows:

- Respondents in both groups highly agree that manufacturers and importers of a new product are “producers”. They both agree less that exporters of a new product are “producers” in an EPR/PS program.
- It is two actors –companies who use packaging to distribute/protect their products



(fillers), and retailers – that respondents whose activities were related to packaging consider more as “producer” in EPR/PS, compared to respondents whose activities were related to WEEE.

- Respondents whose activities were related to WEEE considered importers of a product for reuse, as well as sellers of a secondhand product as “producer”, more than respondents working with packaging. The perception corresponds with the reality: there are far more importation of EEE than packaging for reuse, and sales of EEE as secondhand product than that of packaging.



**Figure 36: Differences in respondents’ perception of the scope of “producer” in EPR/PS based on whether they have worked with packaging or WEEE (The score ranges from 1 (strongly disagree) to 7 (strongly agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of the means.)**

#### 3.10.4 Statements related to EPR

An analysis of respondents working with packaging and WEEE in regard to their perception on 14 statements relating to EPR/PS is presented in Figure 37. Similarities and differences between respondents working with packaging and WEEE are highlighted below.

- Perceptions of respondents in both groups were rather similar on many of the statements. In particular, their average score on the following four statements were identical: “If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage.”, “In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.”, “Municipalities can collect waste product more efficiently than producers.”, and “EPR strengthens the market position of producers that are already dominant in the market.” Except for the last statement, respondents in both groups agree (3.5 in the scale of 1 to 5) on these statements.
- Compared to respondents working with WEEE, respondents whose activities were related to packaging agree more on the statement that reads: “Feedback from recyclers/dismantlers to producers will improve product design in terms of recyclability and disassemblability.”
- Compared to respondents working with packaging, respondents whose activities were related to WEEE agree more on the following four statements. “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.”, “Recyclers/waste management entities do not frequently use product information from producers.”, “Even if changes in product design decreases the cost of recycling/waste management, producers will not improve their product design when their benefit from the change is small.”, and “Importers of a product generally have only minute or zero power to influence the design of the product.”

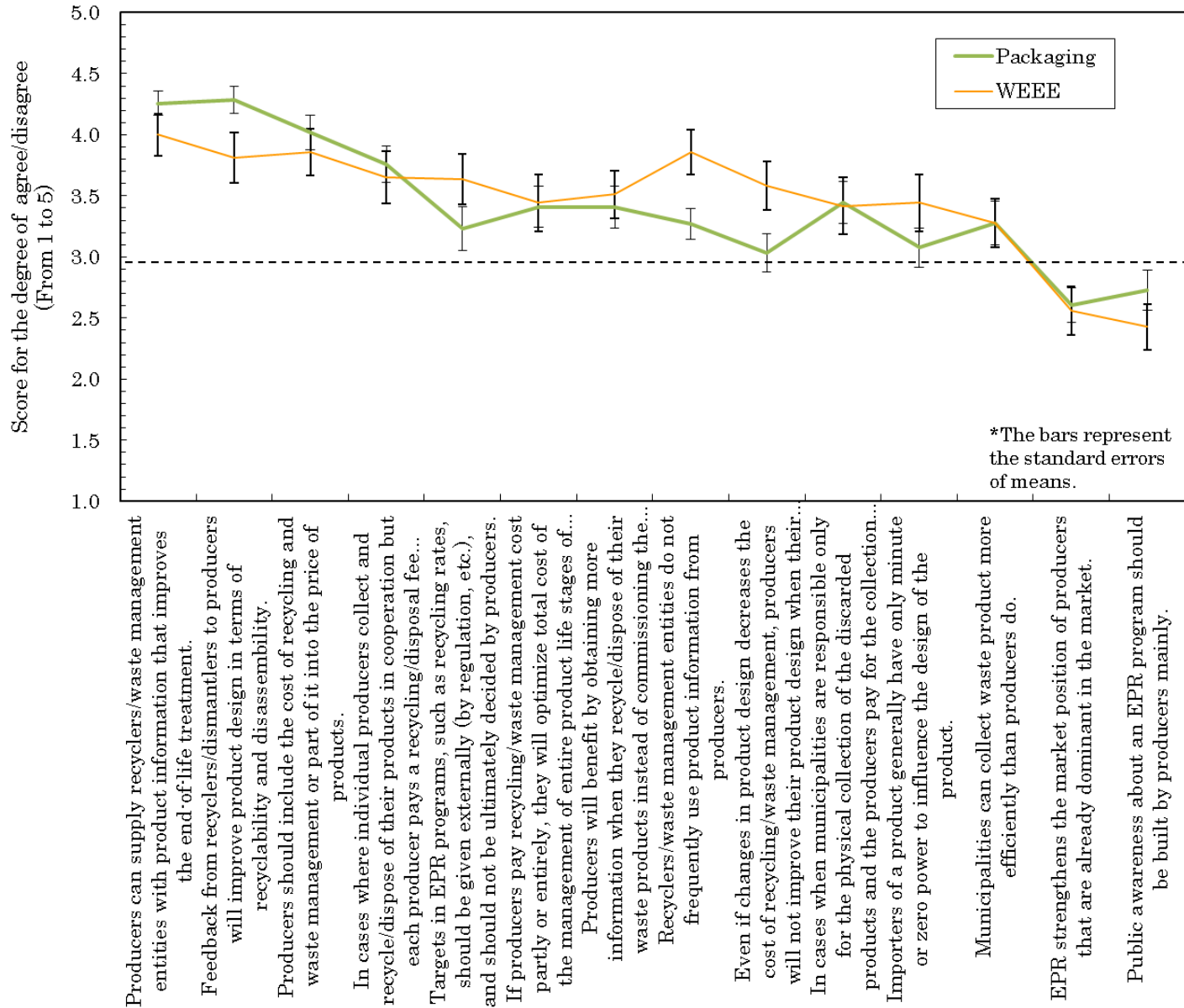
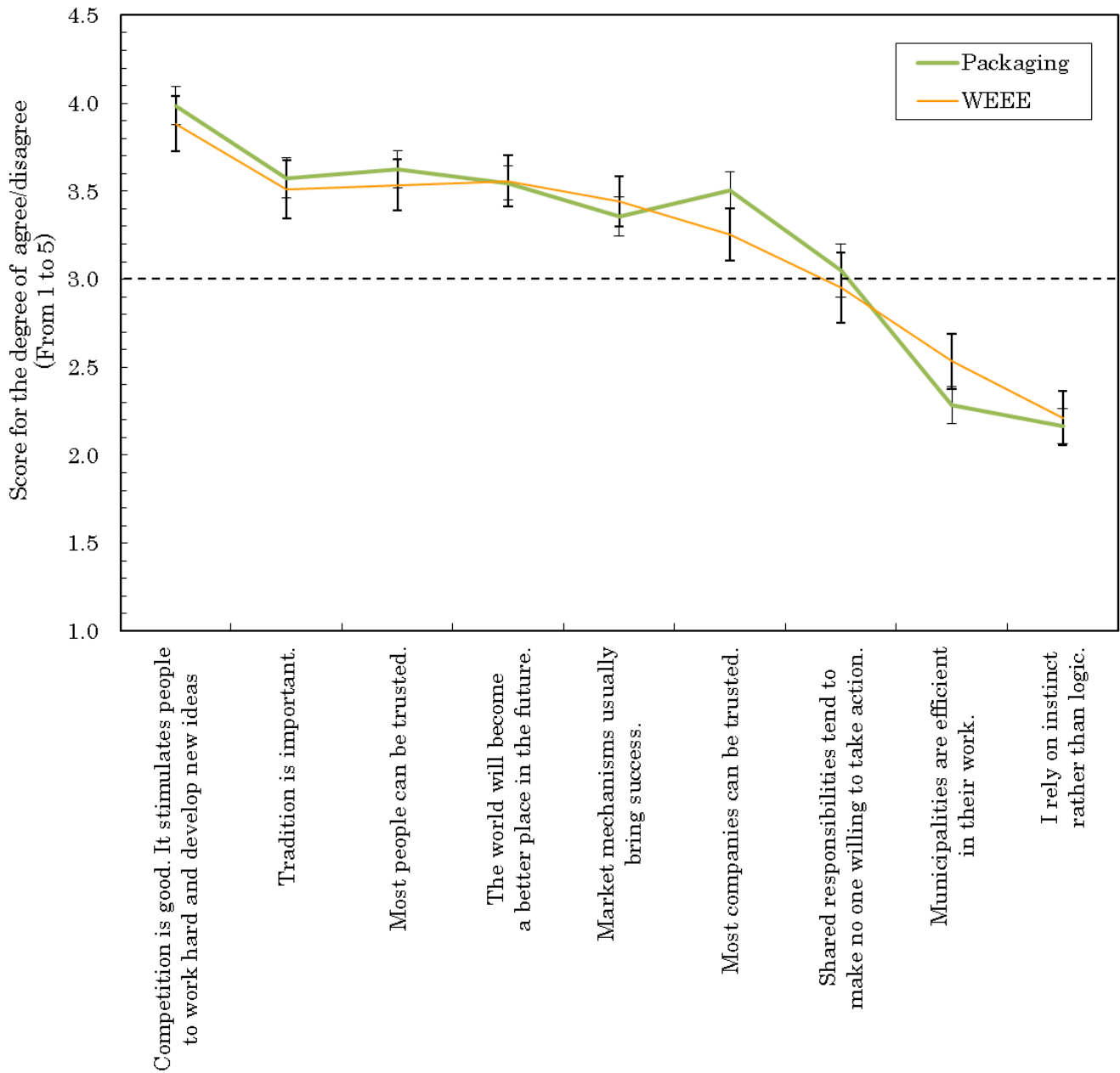


Figure 37: Differences in respondents' perception of statements relating to EPR/PS, based on whether they have worked with packaging or WEEE (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score, neither agree nor disagree. See Appendix 1 for the full statements)

### 3.10.5 General beliefs

The average general beliefs of respondents whose activities were related to packaging or WEEE are shown in Figure 38. They tended to follow a very similar pattern except for some smaller difference in trust in companies and efficiency of municipalities.



**Figure 38: Differences in respondents' perception concerning general beliefs, based on whether they have worked with packaging or WEEE (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score. The bars represent the standard errors of the means.)**

### 3.11 Similarities and differences in perception and opinions by stakeholders

Finally, we analyzed the characteristics of perceptions by types of stakeholders. The number of respondents from international organizations was not large (n=10), thus we excluded them from the analysis.

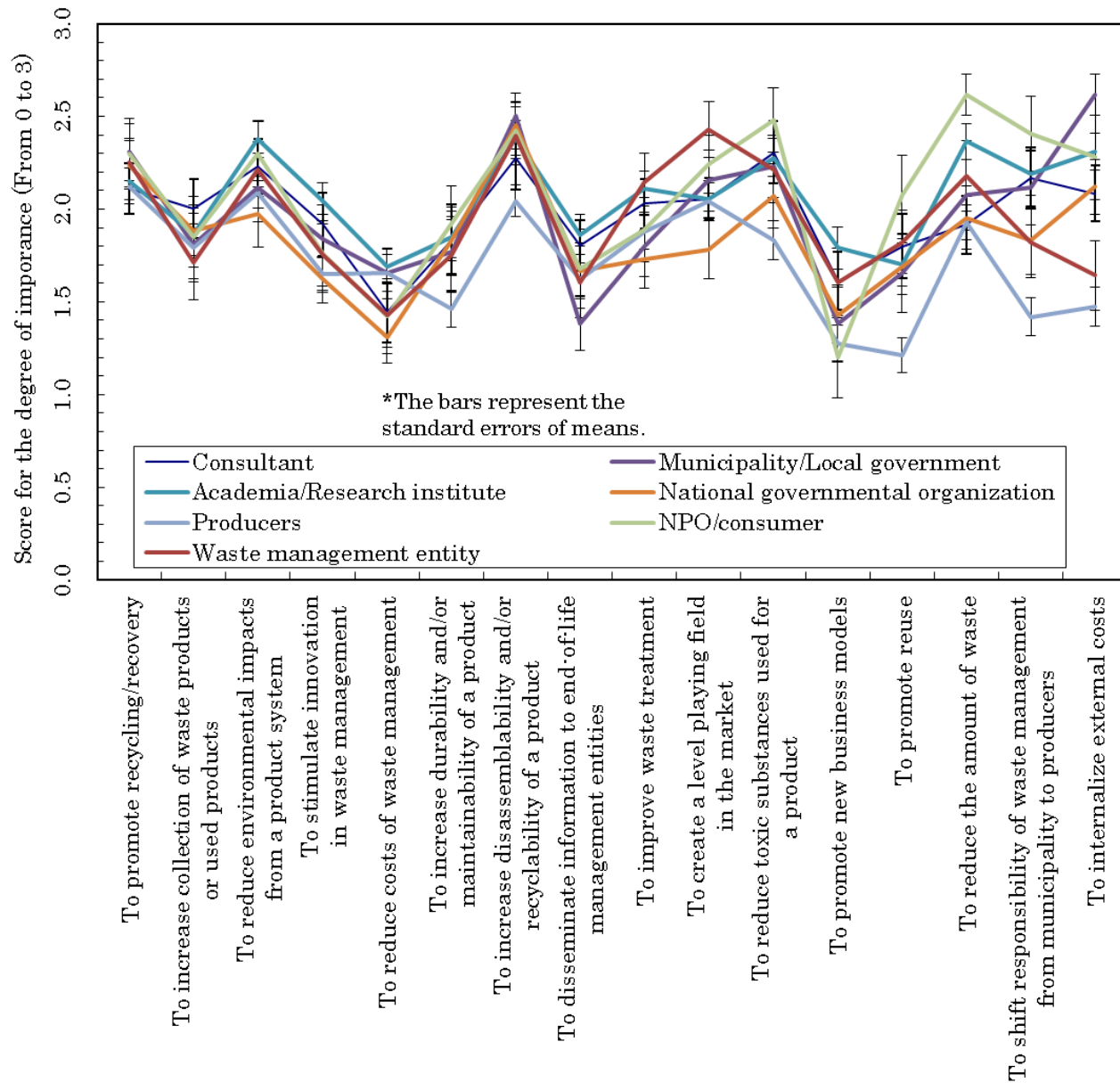
#### 3.11.1 Aims of EPR/PS

Regarding the aims of EPR/PS, we found the following similarities and differences across stakeholders (see Figure 39; The items were placed in the ascending order of deviation of the responses from left to right):

- Stakeholders shared a rather similar view regarding the following two aims: “To promote recycling/recovery”, and “To increase collection of waste products or used products”. The level of importance the stakeholders placed on these statements were rather high (on average, 2.2 in the scale of 0 to 3 for the former, and 1.9 for the latter).
- On the following aims the views of the stakeholders were diverse but the overall differences were limited: “To reduce environmental impacts from a product system”, , “To stimulate innovation in waste management”, and “To reduce cost of waste management”. In all cases, academia/research institutes were actors that relatively put higher importance, while national governmental organizations put the least. Interesting to note that national government tend to put lower importance on aims related to waste management as aims of EPR/PS.
- Stakeholders had the most diverse view on the aim “To internalize external costs”. Respondents from local governments (including state and province) tended to put very high importance on this (2.6 in the scale of 0 to 3), while producers and waste management entities tended to put less importance on this (1.5 and 1.6 respectively).
- For “To increase durability and/or maintainability of a product” and “To increase disassemblability and/or recyclability of a product”, producers put the least importance while the other stakeholders shared rather similar views.
- There were also large difference in the view of stakeholders on the following four aims: “To shift responsibility of waste management from municipality to producers”, “To promote reuse”, “To reduce the amount of waste”, “To promote new business

models”, and “To reduce toxic substances used for a product” Except for the first and fourth ones, the aims all relate to waste prevention. NPO/consumers tended put the higher importance on these five statements except for the fourth while producers put the least or less importance. The responses of municipality/local governments (including state and province), who are the main stakeholders in the first statement, lay in the middle. Academia/research institutes put the highest importance on the fourth (new business models), while NPO/consumer and producers put the lowest.

- Another aim where stakeholders had a rather diverse view was “To create a level playing field in the market”. Waste management entities tended to put rather high importance, while respondents from national governments tended to put less importance.
- The average importance score that the producers put on the following two aims was remarkably less than other stakeholders: “To increase disassemblability and/or recyclability of a product” and “To increase durability and/or maintainability of a product”.
- The only aim where respondents from local governments put remarkably less importance on the rest of the stakeholders was “To disseminate information to end-of-life management entities”.



**Figure 39: Differences in respondents' perception of the aims of EPR/PS, by stakeholder groups (The score ranges from 0 (not important at all) to 3 (very important))**

### 3.11.2 Application, rationales, types of responsibility and scope of “producers”

Similarities and differences regarding the application and rationale of EPR/PS (Figure 40) are summarized below.

- There was a common trend among all stakeholder groups regarding both the application of EPR/PS and rationales for EPR/PS. All stakeholder groups showed their higher score of agreement on the open (wider) application of EPR/PS (“EPR should be applied to as many products as possible” than its limited application (“EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches”). All stakeholders also agreed more on the rationale of “capability to bear” (“EPR should be imposed because producers’ capacity is high within a product system”) than “beneficiary bears” (“EPR should be imposed because producers gain profits from manufacturing products, which become waste (causing waste)”).
- Compared to other stakeholder groups, producers tended to disagree more on wide application of EPR, rationale as “capability to bear”. Their disagreement was especially noticeable on the rationale of “beneficiary bears”.
- Among regulatory stakeholders, respondents from municipalities/local governments (including states and provinces) tended to agree more on open application of EPR than its limited application, while the trend of responses from national governments was the opposite.
- NPO/consumers, like respondents from municipalities/local governments, strongly preferred the open application of EPR than its narrower application. NPO/consumers found importance in both of the rationales.



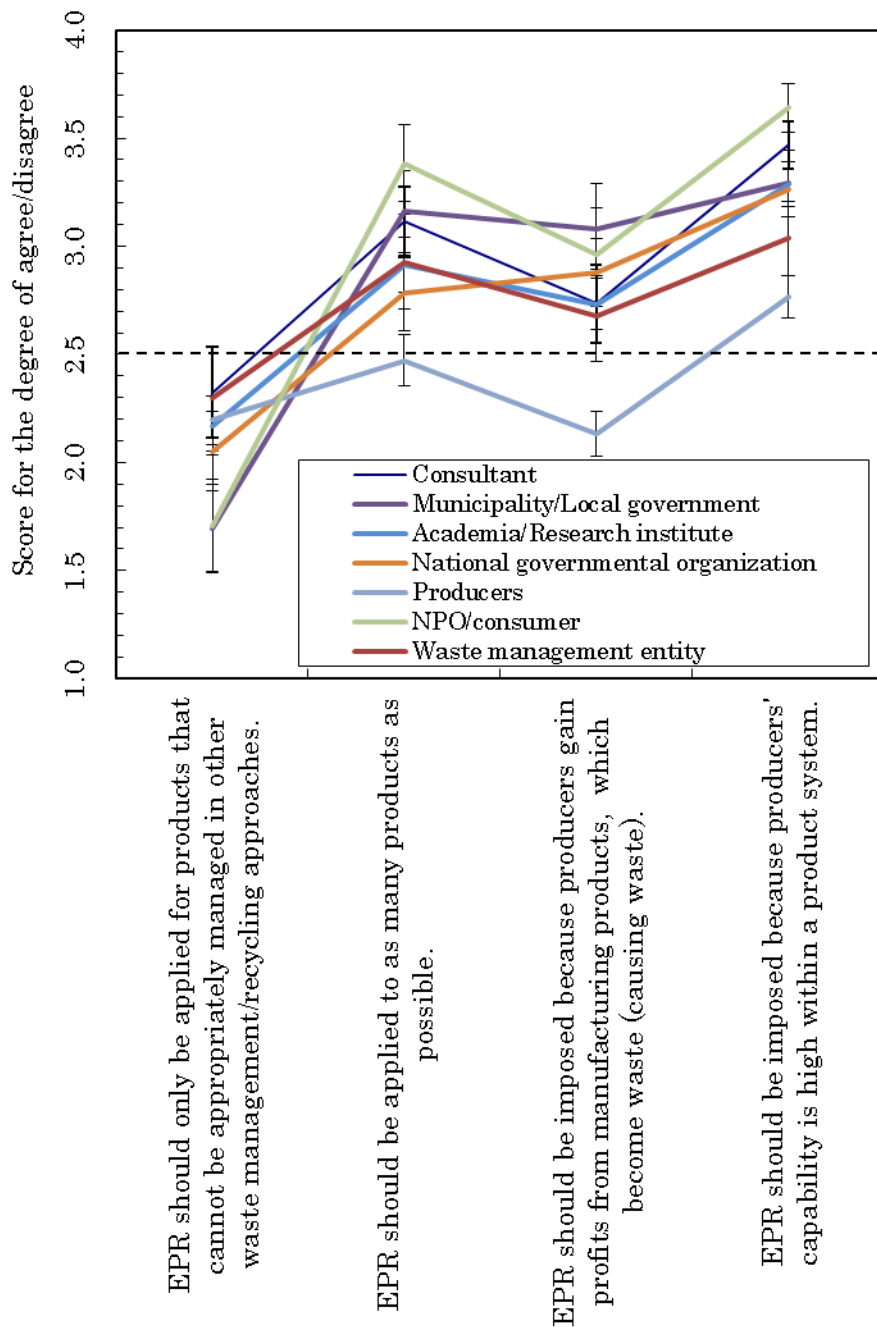


Figure 40: Differences in respondents' perception of the application and rationale of EPR/PS, by stakeholder groups (The score ranges from 1 (disagree) to 4 (agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of the means.)

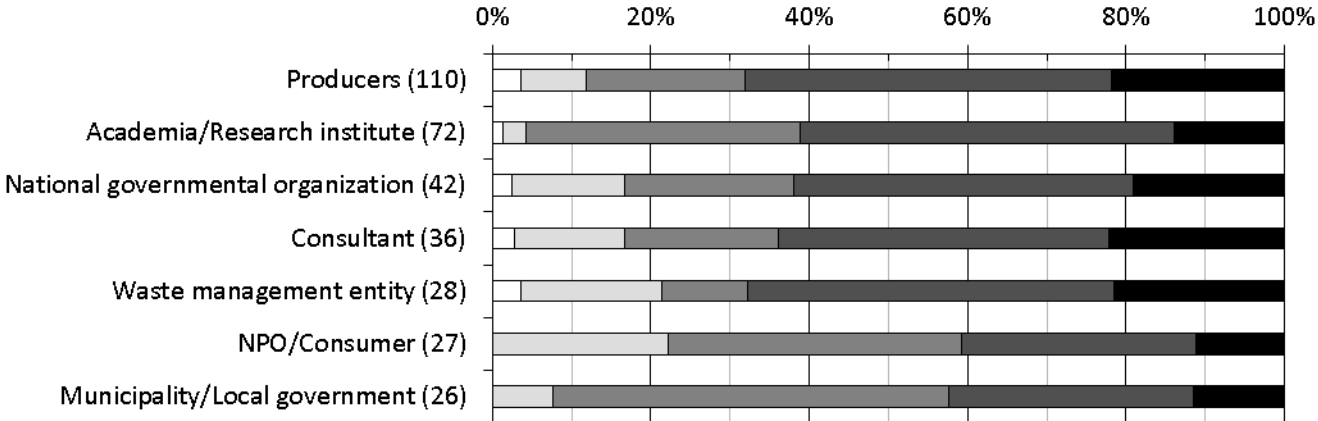
We observed the following tendency among stakeholders regarding their opinion on the types of responsibility (Figure 41 and Figure 42).

- While the majority of producers, waste management entities, consultants,

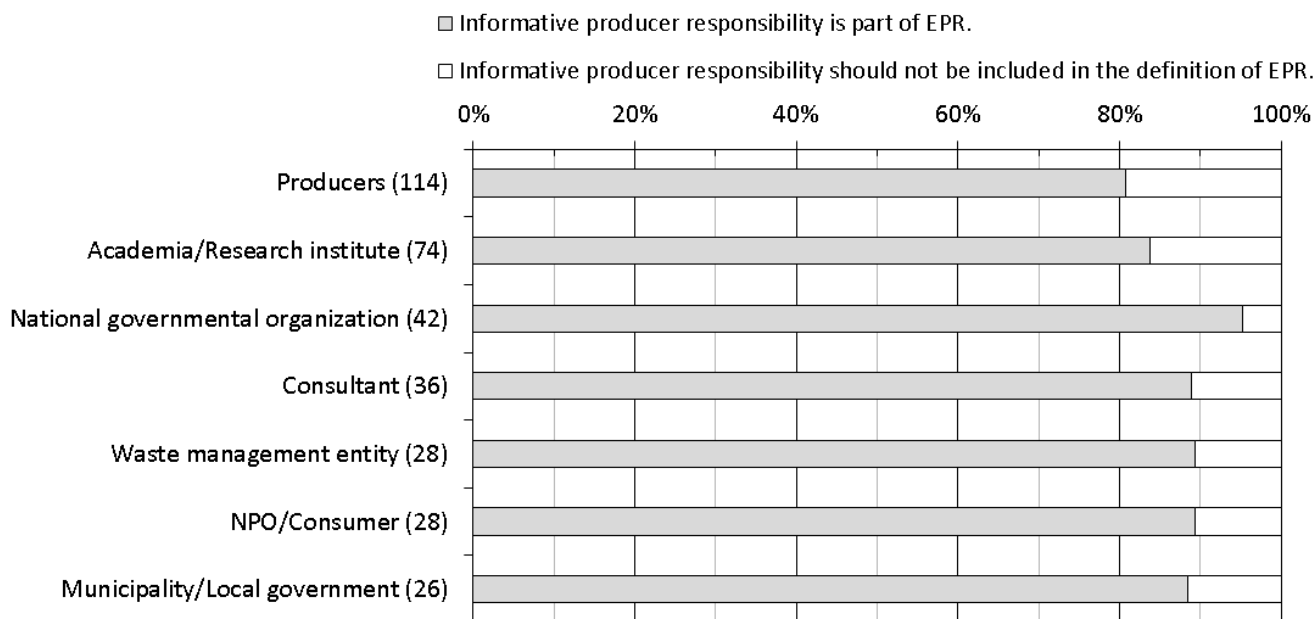
respondents from national governments and academia/research institutes considered that physical and financial responsibilities were equally important, NPO/consumer and respondents from municipalities/local governments tended to put importance on financial responsibility than physical responsibility.

- Responses from all the stakeholders tended to show that they considered informative responsibility as part of EPR/PS. The percentage of respondents who did not think so was somewhat larger among producers and academia.

- Physical producer responsibility is not important at all.
- Physical producer responsibility is far less important than financial producer responsibility.
- Physical producer responsibility is less important than financial producer responsibility but still important.
- Physical producer responsibility is as important as financial producer responsibility.
- Physical producer responsibility is more important than financial producer responsibility.



**Figure 41: Differences in respondents’ perceptions across stakeholders on relative importance of physical and financial producer responsibility (The figures in parentheses show the number of respondents.)**



**Figure 42: Differences in respondents’ perceptions across stakeholders on informative producer responsibility (The figures in parentheses show the number of respondents.)**

Concerning the respondents’ perception of the scope of “producer” in EPR/PS (Figure 43), we observed the following similarities and differences among stakeholder groups.

- All the stakeholder groups generally consider manufacturers and importers of a new product to be producers in an EPR/PS program.
- Compared to other stakeholder groups, waste management entities agree more that exporters of a new product were included in the scope of “producer” in EPR/PS, while producers tended to agree less. .
- NPOs/consumers tended to agree more that fillers were included in the scope of “producer” in EPR/PS, while producers and national governments agreed less.
- Compared to the rest of the stakeholder groups, respondents from national governments tended to agree considerably less that importers of a product for reuse were included in the scope of “producer” in EPR/PS. They also agreed less that retailers were included in the scope of “producer”.
- Respondents from both national and municipalities/local governments tended to agree less that sellers of a secondhand product were included under the scope of “producer” in EPR/PS-

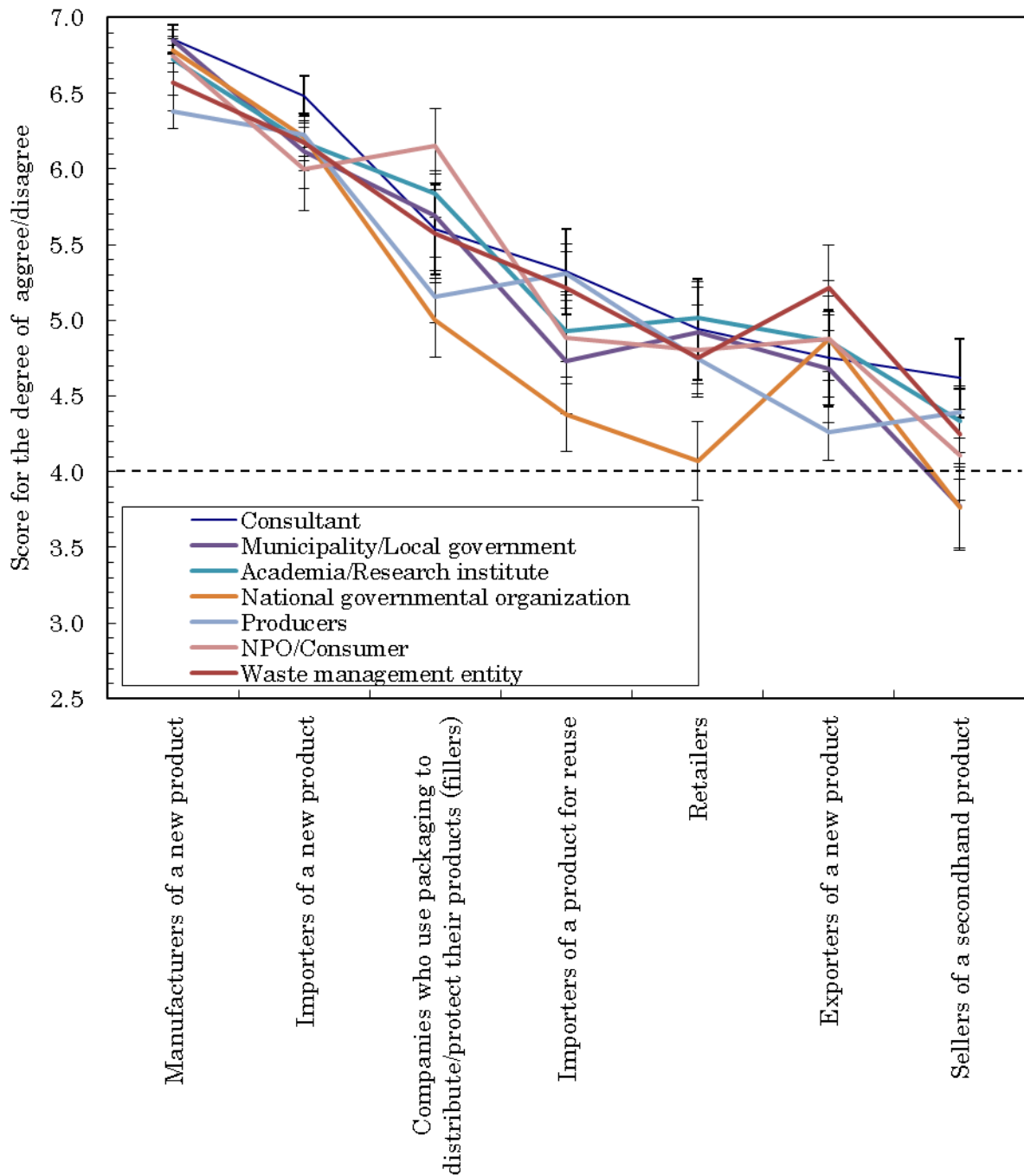


Figure 43: Differences in respondents’ perception of the scope of “producer” in EPR/PS, by stakeholders (The score ranges from 1 (strongly disagree) to 7 (strongly agree). The dotted line represents the middle of the score, neither agree nor disagree. The bars represent the standard errors of the means.)

### 3.11.3 Statements related to EPR

Figure 44 presents the findings concerning 14 statements relating to EPR/PS, the main

findings of which are summarized below (The items were placed in ascending order of deviation of the responses from left to right).

- Overall, the differences of the views on the 14 statements were not very large. The score of agreement was very close among all the stakeholder groups on the following two statements: “Importers of a product generally have only minute or zero power to influence the design of the product.” and “Producers can supply recyclers/waste management entities with product information that improves the end-of-life treatment.”
- Relatively large differences were found for the following three statements (The standard deviations of the scores were larger than 0.28): “Producers will benefit by obtaining more information when they recycle/dispose of their waste products instead of commissioning the task to a third party.”, “Even if changes in product design decreases the cost of recycling/waste management, producers will not improve their product design when their benefit from the change is small.”, and “Producers should include the cost of recycling and waste management or part of it into the price of products.” In all cases, producers agreed less on the statements compared to other stakeholder groups. For the first statement, respondents from municipalities/local governments also tended to agree less as well, while academia tended to agree more.
- In addition to the three statements mentioned above, the deviations of the following four statements were relatively large (the standard deviations were from 0.25 to 0.26), and producers tended to agree less upon them compared with other stakeholder groups: “In cases where individual producers collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of products such as recyclability and disassemblability, each producer will improve the product design.”, “If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage”, “EPR strengthens the market position of producers.”, and “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.”

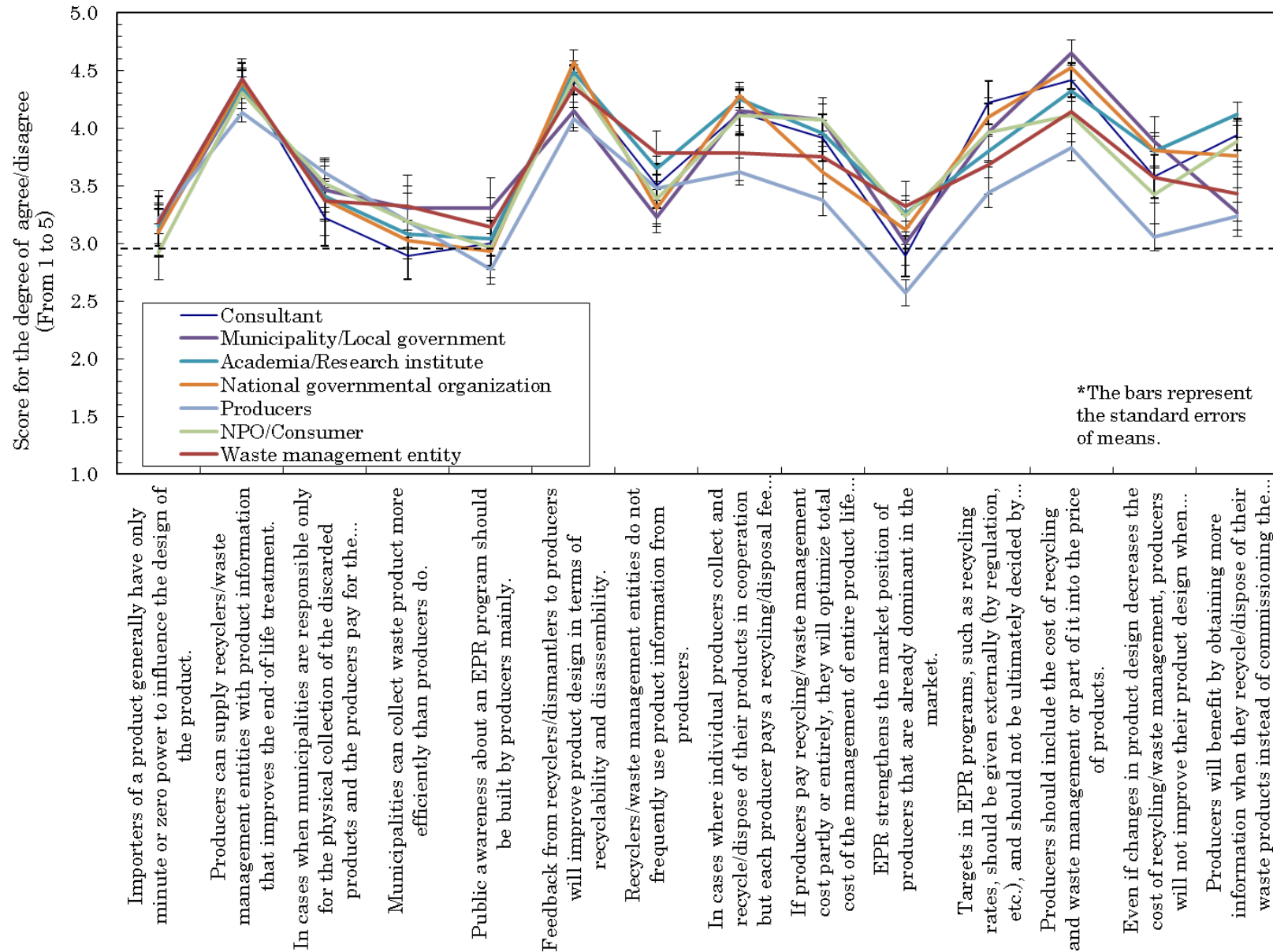
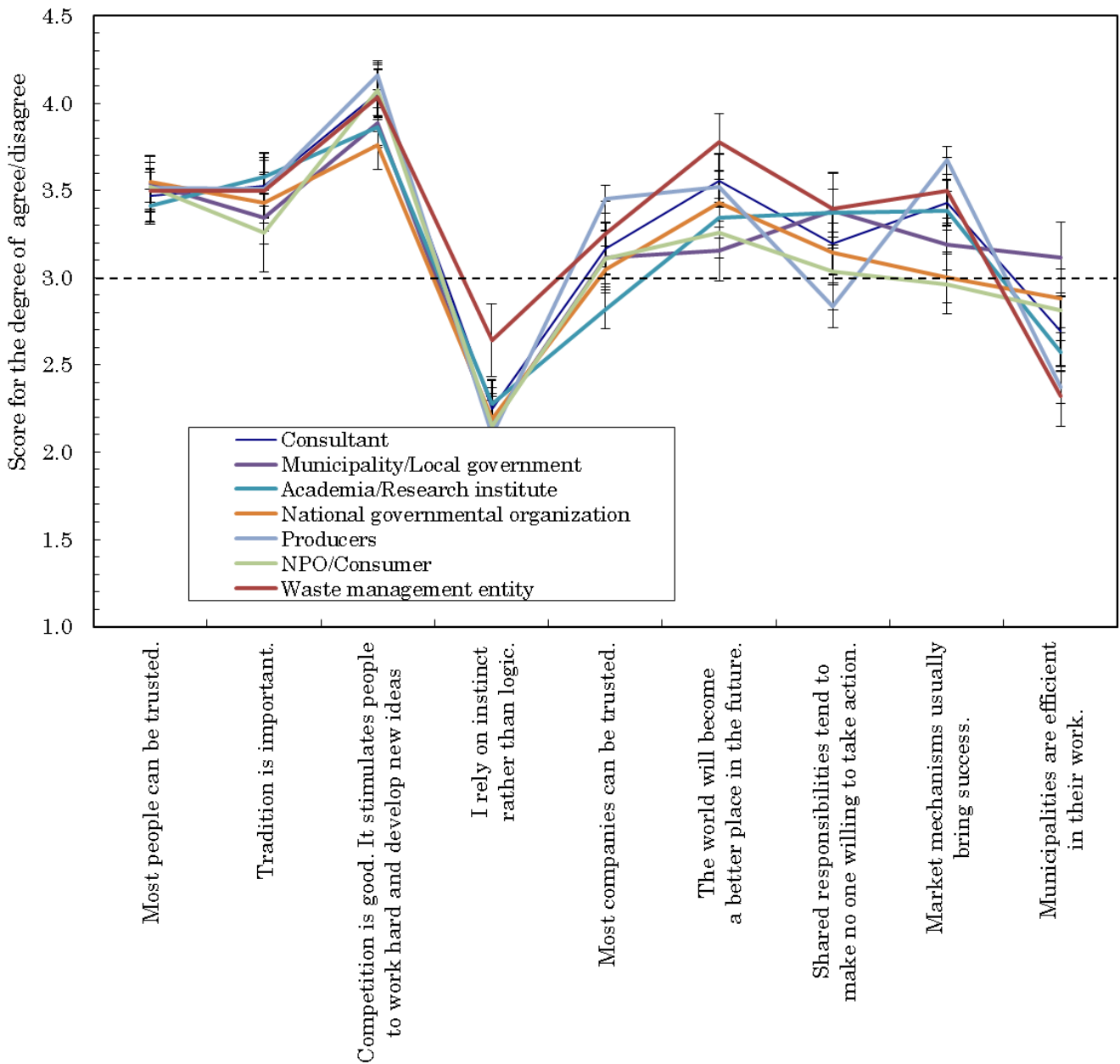


Figure 44: Differences in respondents' perception of statements relating to EPR/PS, by stakeholder groups (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score, neither agree nor disagree. See Appendix 1 for the full statements)

#### 3.11.4 General beliefs

The average general beliefs of respondents from various stakeholder groups are shown in Figure 45 (The items were placed in the ascending order of deviation of the responses – from left to right). The highlights are summarized below.

- The scores of agreement were very close among all the stakeholder groups for the following two statements: “Most people can be trusted.” and “Tradition is important.”
- Different perceptions were found concerning the following two statements: “Municipalities are efficient in their work.” and “Market mechanisms usually bring success.”
- As to “Municipalities are efficient in their work”, the score of agreement among respondents from municipalities/local governments was higher than the rest, while it was low among the private actors (waste management entities and producers).
- Contrastingly, producers tended to agree more on “Market mechanisms usually bring success” and “Most companies can be trusted”, while the former was less agreed by NPO/consumer and respondents from national governments and the latter was less agreed by academia/research institutes.
- Compared to other stakeholder groups, waste management entities agreed more on “The world will become a better place in the future” and “I rely on instinct rather than logic.”



**Figure 45: Differences in respondents’ perception concerning their general beliefs, by stakeholders (The score ranges from 1 (disagree) to 5 (agree). The dotted line represents the middle of the score. The bars represent the standard errors of the means.)**

### 3.12 Respondents’ comments on the survey

Respondents expressed diverse opinions regarding the survey itself. They are found in Appendix Table 6.



## 4 Conclusion

This report presented the results and analysis of an international survey on stakeholders' perception of the concept of EPR (Extended Producer Responsibility)/PS (Product Stewardship). The survey was conducted in English and Japanese in 2013. Out of 1,103 people contacted worldwide, we obtained answers from 426 respondents who have engaged in EPR/PS for various products (Figure 4), in various affiliations (Figure 3), and in various parts of the world (Figure 5). 86% of the respondents had known EPR/PS for more than three years, and have good familiarity with the concept (Figure 2).

In this final Chapter, we summarize and reflect upon the main findings. Note is that the findings of this survey are applicable to the respondents surveyed only.

### **EPR (Extended Producer Responsibility) and PS (Product Stewardship)**

More than three-fourth of the respondents replied that they were familiar with EPR only, very few were familiar only with PS, while the remaining one fourth were familiar with both of the concept.. More than 80% of respondents who work in European countries, Asia, and South America were familiar with EPR only and over 80% of respondents who work in North America were familiar with both PS and EPR. Some North American respondents commented on the difference/non-interchangeability of the two terms. The results mirror the fact that the term PS is used mostly in North America, but also that most North American respondents are well familiar with EPR.

### **Aims of EPR/PS**

We surveyed the respondents' perception on the degree of importance of 16 possible aims for EPR/PS. While some of the aims were commonly perceived as important, there were other aims whose importance was judged rather differently among respondents.

- More than half the respondents replied "very important" or "important" for every aim. The percentages of negative or less-positive opinions, "somewhat important", "not important at all", and "unachievable by applying EPR" ranged from 19% to 48%.
- Among the top six aims of EPR/PS perceived important by more than 75% of the respondents, three concerned waste prevention/upstream improvements in a product system. Among the specific product design features to be addressed by EPR/PS; disassemblability, recyclability and reduction of toxic substances were

included in the top six. Meanwhile, less than 60% of the respondents considered enhancement of durability and maintainability, as well as promotion of reuse, as important. The results indicate design changes that enhance end-of-life management of products (once they come into waste stream) is considered more important as a goal of EPR/PS than measures to prevent products from becoming waste.

- Among aims related to downstream improvements in a product system, promotion of recycling/recovery was deemed important by the largest number of stakeholders, followed by improvement of waste treatment, increase collection and promotion of reuse. Promotion of reuse was deemed less important.
- Respondents' view on aims related to long-term/system-wide changes was diverse. While two statements – "To reduce environmental impacts from a product system" and "To create a level playing field in the market" – were within the top six aims which more than 75% of the respondents considered important, the other two – "To stimulate innovation in waste management" and "To promote new business models", were perceived less important.
- Correlation analysis and cluster analysis of the perceived aims of EPR/PS indicated that respondents tended show similar level of importance between the following set of aims: 1) promotion of recycling/recovery and increase collection, 2) stimulation of innovation in waste management and promotion of new business models, and 3) reduction of toxic substances, increase disassemblability and/or recyclability of a product, increase durability and/or maintainability of a product, and reduction of environmental impacts from a product system.
- The survey received a number of open answers to the question related to the aims of EPR/PS. In addition to suggestions of additional aims related to actors, recycling/waste management, the market and production systems, and broad environmental/social issues, respondents expressed their opinions on, for instance, the content of the question itself, and distinction between the aims and pre-condition for the aims. Some also considered that the aims of EPR/PS were not universal but specific to context in which it would be applied.
- Analysis based on attributes of the respondents showed that the respondents from four regions, Europe, North America, Asia (excluding Japan) and Japan, had different views on the aims of EPR/PS; especially on the following ones: "To increase collection of waste products or used products", "To shift responsibility of waste management from municipality to producers", and "To promote

recycling/recovery”. There was a difference in perception of the aims of EPR/PS among seven groups of stakeholders over the following aims: “To internalize external costs” and “To shift responsibility of waste management from municipality to producers”.

### **Application of EPR/PS**

Respondents’ opinions on each of the following statements were surveyed: (1) “EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches.” and (2) “EPR should be applied to as many products as possible.”

- The opinions split into proponents and opponents for both ideas. Relatively wider acceptance (64%) was received for the idea of “as many products as possible”. Several respondents opposed both statements, and stated that responsibilities of stakeholders other than producers should be considered.
- Several open answers stated that the application of EPR/PS should be decided on a case-by-case basis taking account of the characteristics of products that EPR/PS was applied to and the surrounding conditions (such as collection rate of waste product and waste management system and regulatory framework of a country). Other respondents were concerned about the disparity of application of EPR/PS. One respondent expressed that “EPR should apply for all products as a concept but not necessarily as a legal set up.”
- Producers tended to agree less on the idea that EPR/PS should be applied to as many products as possible. For regulatory stakeholders, respondents from local governments (including states and provinces) tended to agree more that “EPR should be applied to as many products as possible.” compared to respondents from national governments. NPO/consumer tended to agree on “as many products as possible”.

### **Rationale of EPR/PS**

As rationale for EPR/PS, we investigated two ideas, “beneficiary bears” and “capability to bear”. The former idea is “EPR should be imposed because producers gain profits from manufacturing products, which become waste (causing waste).” and the latter is “EPR should be imposed because producers’ capability is high within a product system.”

- Opinions on the idea of “beneficiary bears” were split but the idea of “capability to

bear” was supported by approximately 3/4 of respondents. Knowledgeable respondents tended to agree upon the idea of “capability to bear”. Producers’ capability, which was expressed by the OECD guidance manual (2001, p. 54) as “usually the product producer has the greatest access to technological expertise, propriety information and product knowledge.” seemed to be widely agreed by stakeholders.

- Opponents of “capability to bear” showed that there was a limit to producers’ capability.
- Analysis based on attributes of the respondents showed that the respondents from the four regions perceived “beneficiary bears” differently. In Europe, Asia, and Japan, the idea was controversial while it was supported by a relatively large number of stakeholders in North America. Producers tended to agree less than other groups on both ideas, especially for “beneficiary bears”.

#### **Type of responsibility**

- There were three major opinions on the relative importance of financial and physical responsibilities of EPR/PS. 44% thought that both were important, 26% thought financial responsibility was more important, and 18% thought physical responsibility was more important. This survey does not provide any details about why some respondents considered financial responsibility as more important or why others saw physical responsibility as more important.
- Respondents whose activities were related to WEEE only tended to put more importance on physical producer responsibility, compared to respondents whose activities were related to packaging only.
- Many respondents thought that physical and financial responsibilities were equally important, and NPO/consumer and respondents from local governments and North America tended to put importance on financial responsibility.
- 86% considered informative responsibility as part of EPR/PS. The percentage of respondents who did not think so was larger in North America and smaller in Asia (excluding Japan).

#### **Scope of “producer”**

- Most respondents agreed that manufacturers and importers of a new product were the producers of EPR/PS. With regards to retailers, 61% of the respondents regarded them as “producers” in EPR/PS, 25% did not, and 14% replied “neither

agree nor disagree”. Opinions paying attention to features of the supply chain, such as structure of the market, showed that it was hard to conclude who were producers because of diverse product and country situations.

- Stakeholders that were not discussed much a decade ago — for instance, in the OECD guidance manual (2001) — are importers and sellers of a reused product and exporters of a new product. The percentages of respondents who thought that these were “producers” were 65%, 45% and 59%, respectively. Despite of difficulty of applying EPR in reality, the percentages were far from negligible.
- A decisive factor for whom was classified as “producer” appears to be stakeholders who could influence product design and product pricings. A respondent suggested that in practice, “putting on the market” was an important judgment criterion. Several respondents deemed importers as second-best “producers” for certain cases and manufacturers as the most important “producers”. There were many comments on brand owners.

#### **Opinions about 14 statements**

- Analysis based on attributes of the respondents and their opinions on the 14 statements relating to EPR/PS and waste management showed relatively large differences between respondents from the four regions (Europe, North America, Asia excluding Japan, and Japan). In particular, such differences were observed for “Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.” and “In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.” Respondents from Europe and North America tended to agree more on these opinions.
- Respondents from Asia (excluding Japan) tended to agree more than other respondents that “EPR strengthens the market position of producers that are already dominant in the market.”
- Cluster analysis showed that these perceptions related to EPR/PS were significantly divided into those emphasizing theoretical concepts and those emphasizing practice. Dialogue filling the gaps around these perceptions on EPR/PS is needed.

The authors have decided to leave this report without much of comments and

discussion on the results of the survey and will return to this in the near future.

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## Acknowledgement

We could not conduct this survey without cooperation and help from many people in making lists of potential respondents, distributing the questionnaire, and participating in the survey. We truly appreciate all the cooperation given by these people and we express our sincere gratitude by noting their cooperation



## Afterword

The idea of this survey was generated while I was a visiting researcher at IIIIEE of Lund University, Sweden from October 2010 to September 2011 through discussion with my joint research partners, Naoko Tojo and Thomas Lindhqvist. At that time I was interested in roles and responsibilities of municipalities in a country where Extended Producers Responsibility (EPR)/Product Stewardship (PS) legislation and programs were widely spread. I wanted to reframe the concept of EPR/PS. However, I could not help realizing—although I had sensed for a long time—that peoples' perception on EPR/PS varied from person to person and by product and country. As such, it seemed meaningless to present my own view on the concept of EPR/PS on top of all these different perceptions, and my hope of contributing to the evolution of the concept seemed to be destined to fail.

We, the research team, faced a difficulty soon after starting to plan this survey. As EPR/PS was introduced for different products, in different countries, in different ways, it was difficult to ask questions about EPR/PS as general concepts. At first, we made a draft questionnaire considering an individual EPR/PS legislation/program (For my case, Japanese recycling acts). However, these questions did not seem suitable for other people in different countries or those working on different products, that is, people who do not know the exact context of the EPR/PS program. Our interest was on individual programs as well. Above all, our interest was on general concepts of EPR/PS that have developed over the last two decades, elements of the concepts common to various EPR/PS programs, and differences in the concepts (In addition, it seemed difficult to extract common concepts of EPR/PS from individual EPR/PS programs because existing EPR programs were usually a mixed-up with other policy concepts and aims of waste management).

We therefore deleted many questions and tried to include general points as much as possible in the questionnaire. In particular, we paid attention to ends and means of a policy, its mechanism, and surrounding situation, and then finalized the questionnaire. We have received many comments that stress it depends on situations and contexts, which we are aware of. If there is a chance, we would like to conduct a survey on the perception within individual and specific contexts.

The second difficulty we faced was to contact enough respondents and to collect sufficient responses. We made a great effort to do this. Although we tried to make questions as easy to answer as we could and to arrange the questionnaire so that

respondents could answer it in a short time, we admit that our survey posed a certain burden to the respondents. We greatly appreciate kindness and cooperation from the respondents. Several respondents kindly introduced us other respondents. We express our gratitude by mentioning this here. We will be glad if the findings in this report help to deepen stakeholders' understanding on how different stakeholders perceive the concept of EPR/PS in various ways and to facilitate relevant discussions.

We found the open answers and comments very interesting and all of these are presented in Appendix. If you are quite interested in EPR/PS, we recommend you to read them. Besides, this report is the results of the survey, and we avoided to examine and discuss specific points in detail. If we had done so, this report must include our own views on EPR/PS, which is not what the authors intended. Rather, we hoped to simply reveal the perception that stakeholders had on EPR/PS at the present time. We look forward to examining the comments herein and presenting our own views on another occasion in the future.

May 2015

On behalf of the authors,

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# Appendix

Appendix 1	The questionnaires	A-1
Appendix 2	Open answers and comments	A-17



**Appendix 1 The questionnaires**

# Survey of Views on EPR

## A survey on stakeholders' views on EPR and product stewardship

### --- Introduction of this survey ---

Extended Producer Responsibility (EPR) is, according to OECD (2001), an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle. Several countries use the word "product stewardship" instead of EPR as a very similar concept.

The concept of EPR and product stewardship has been one of the most important ideas for waste management policy in the world for the last two decades. However, different stakeholders perceive the concept and the role of producers in various ways.

**The aim of this survey is** to identify how differently various stakeholders in different countries perceive the concept, rather than to conclude how it should be. The purpose is to deepen our understanding about EPR and product stewardship and possibly facilitate relevant discussions.

This survey is done for **an academic purpose** and conducted by researchers from the IIIIEE (International Institute for Industrial Environmental Economics), Lund University, Sweden and the Center for Material Cycles and Waste Management Research, National Institute for Environmental Studies, Japan. If you have any inquiry about this survey, please contact us at the following e-mail address:

epr "at" nies.go.jp (Please replace "at" with "@").

[Notice] Please answer the questions based on **your personal opinion**. Your answers do not have to reflect a position of your affiliation.

[Notice] It would take **about 10-15 minutes to answer**, but there is no time limitation. You can pause answering at any page (Your answers will be stored after pressing the button in pages.) and resume answering by accessing this web site if you access from the same computer and the same browser and the function of Cookie of your browser is activated.

[Notice] If you do not know EPR at all, please do not answer the survey. Thank you for your kind intention to help us.

[Notice] In case that you would like someone more to answer this survey, please kindly send us the name and e-mail of the person. This procedure intends to clarify to whom this survey is distributed and to determine the rate of response.

## EPR and Product Stewardship

### 1. Which of the following concepts, EPR or product stewardship, are you familiar with most?

- EPR (Extended Producer Responsibility) or producer responsibility
- Product stewardship
- I am equally familiar with both of them
- I am not at all familiar with them (-> Finish)

# Survey of Views on EPR

## Note

We will use the term "EPR" in the following questions. If you are more familiar with product stewardship, please replace "EPR" with "product stewardship".



## Knowledge and experiences

### 2. How long have you known about EPR?

- Less than one year
- Less than 3 years
- Less than 10 years
- 10 years or more

### 3. Regarding your knowledge about EPR, which of the following sentences best applies to you?

- I can intensively discuss EPR with stakeholders familiar with EPR.
- I can state my opinions about EPR.
- I am not knowledgeable enough to state any personal opinions about EPR

# Survey of Views on EPR

## Aims of EPR

**4. What, in general, should be achieved by applying EPR? Please indicate the importance of the following objectives.**

	Very important for EPR	Important	Somewhat important	Not important at all	Unachievable by applying EPR
To shift responsibility of waste management from municipality to producers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve waste treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To promote recycling/recovery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To promote reuse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To increase collection of waste products or used products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce the amount of waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce toxic substances used for a product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To increase disassemblability and/or recyclability of a product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To increase durability and/or maintainability of a product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce costs of waste management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To stimulate innovation in waste management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To promote new business models	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To internalize external costs (*1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To disseminate information to end-of-life management entities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce environmental impacts from a product system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To create a level playing field in the market (a producer who takes environmental actions should not be disfavored.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Comment] In case you find other objectives not listed above, please indicate below.

# Survey of Views on EPR

\*1 External cost is a cost that is not included in market prices.

# Survey of Views on EPR

## Application and rationale of EPR

**5. To what extent do you agree or disagree with each of the following statements about cases when EPR should be introduced? Select the alternative that best corresponds to your opinion.**

Agree    Tend to agree    Tend to disagree    Disagree    Do not know

EPR should only be applied for products that cannot be appropriately managed in other waste management/recycling approaches.

EPR should be applied to as many products as possible.

[Comment] In case you have opinions other than what is listed above, please indicate below.

**6. To what extent do you agree or disagree with each of the following statements about the rationale of EPR being imposed to producers? Select the alternative that best corresponds to your opinion.**

Agree    Tend to agree    Tend to disagree    Disagree    Do not know

EPR should be imposed because producers gain profits from manufacturing products, which become waste (causing waste).

EPR should be imposed because producers' capability is high within a product system.

[Comment] In case you have opinions other than what is listed above, please indicate below.

## Financial and Physical Responsibility

### **7. The OECD distinguishes two types of EPR.**

**One is *physical (producer) responsibility* that “refers to direct or indirect responsibility of the physical management of the products at the end of their useful life (post-consumer stage).**

**The other is *financial (producer) responsibility* that “refers to the responsibility of the producer for paying all or part of the cost for managing the waste at the end of the product’s useful life.”**

**Generally speaking, how important is physical producer responsibility?**

- Physical producer responsibility is more important than financial producer responsibility.
- Physical producer responsibility is as important as financial producer responsibility.
- Physical producer responsibility is less important than financial producer responsibility but still important.
- Physical producer responsibility is far less important than financial producer responsibility.
- Physical producer responsibility is not important at all.

## Informative responsibility

**8. A definition of informative producer responsibility is that it "signifies several different possibilities to extend responsibility for the products by requiring the producers to supply information on the environmental properties of the products they are manufacturing."**

**Which of the following best coincides with your opinion?**

- Informative producer responsibility is part of EPR.
- Informative producer responsibility should not be included in the definition of EPR.

# Survey of Views on EPR

## Who are producers?

**9. Who, in general, should be considered as a producer in the context of EPR? Please indicate to which degree you agree or disagree with the inclusion of the following actors as producer.**

	Strongly agree	Agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Disagree	Strongly disagree
Manufacturers of a new product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Importers of a new product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exporters of a new product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Companies who use packaging to distribute/protect their products (fillers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Importers of a product for reuse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sellers of a secondhand product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Comment] In case you find actors that should be considered to be producers under an EPR program, other than those listed above, please indicate below.

# Survey of Views on EPR

## Statements related to EPR (1/2)

### 10. To what extent do you agree or disagree with each of the following general statements about EPR?

Agree      Tend to agree      Neither agree nor disagree      Tend to disagree      Disagree

Importers of a product generally have only minute or zero power to influence the design of the product.                             

Targets in EPR programs, such as recycling rates, should be given externally (by regulation, etc.), and should not be ultimately decided by producers.                             

In cases where individual producers collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of their products such as recyclability and disassemblability, each producer will improve the product design.                             

Producers will benefit by obtaining more information when they recycle/dispose of their waste products instead of commissioning the task to a third party.                             

Feedback from recyclers/dismantlers to producers will improve product design in terms of recyclability and disassemblability.                             

If producers pay recycling/waste management cost partly or entirely, they will optimize total cost of the management of entire product life stages of their product, including end-of-life stage.



# Survey of Views on EPR

## Statements related to EPR (2/2)

### 11. To what extent do you agree or disagree with each of the following general statements about EPR?

Agree      Tend to agree      Neither agree nor disagree      Tend to disagree      Disagree

Even if changes in product design decreases the cost of recycling/waste management, producers will not improve their product design when their benefit from the change is small.                             

Recyclers/waste management entities do not frequently use product information from producers.                             

Producers can supply recyclers/waste management entities with product information that improves the end-of-life treatment.                             

In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers rather than the municipalities have the property right of the collected materials.                             

Municipalities can collect waste product more efficiently than producers do.                             

Producers should include the cost of recycling and waste management or part of it into the price of products.                             

Public awareness about an EPR program should be built by producers mainly.                             

EPR strengthens the market position of producers that are already dominant in the market.                             

[Comment] In case you have opinions regarding EPR other than those listed above, please indicate below.

# Survey of Views on EPR

## Respondent

Now, a few questions about yourself.

**12. What type of organization have you been working for or is your position most close? Please select the one that best applies to you.**

- Manufacturer/Importer
- Retailer
- PRO (Producer Responsibility Organization)
- Business organization (except for PRO)
- Environmental NPO/NGO
- Municipality/Local government
- National governmental organization
- International governmental organization
- Other public organization (including joint public-private organization)
- Collector
- Recycler/Waste management entity (including recycling organization)
- Academia/Research institute
- Consultant
- Consumer
- Other (please specify)

# Survey of Views on EPR

## 13. What types of products are your activities on EPR related to?

Please select all that apply to you.

- Packaging
- WEEE (waste electrical and electronic equipment)
- Batteries
- Light bulbs/Fluorescent lamps
- ELV (end-of-life vehicle)
- Tires
- Furniture
- Carpet and/or textile
- Building demolition waste
- Toxic substances (paint, chemicals, pharmaceuticals, etc.)
- Other(s) (please specify)

## 14. What country or region is the main area for your work on EPR?

Country or region

## 15. To what extent do you agree or disagree with each of the following statements?

Tend to Agree to agree    Neither agree nor disagree    Tend to Disagree

	○	○	○	○	○
Municipalities are efficient in their work.	○	○	○	○	○
Shared responsibilities tend to make no one willing to take action.	○	○	○	○	○
Market mechanisms usually bring success.	○	○	○	○	○
The world will become a better place in the future.	○	○	○	○	○
Tradition is important.	○	○	○	○	○
I rely on instinct rather than logic.	○	○	○	○	○
Most people can be trusted.	○	○	○	○	○
Most companies can be trusted.	○	○	○	○	○
Competition is good. It stimulates people to work hard and develop new ideas	○	○	○	○	○

# Survey of Views on EPR

## Last page

If you are interested in the result of this survey, please fill in your name and contact e-mail address. We will send the result to you when compiled and analysed.

**16. .**

Name

E-mail address

**17. If you have any other opinions about EPR and/or this survey, please feel free to indicate below.**

This is the end of the survey. **Please close this window by pressing the button, "Done", to submit your answers.**

(\* You cannot change your answer after pressing the button.)

## Appendix 2 Open answers and comments

The below are the results of answers to open questions. Parts of the answers where an individual person or an organization is identifiable were undisclosed with “xxx”, and totally irrelevant answers were excluded.

Table A1 Comments to a question, “What, in general, should be achieved by applying EPR?” (Shaded cells represent those translated from Japanese into English.)

To secure future recycling costs at the time a Product is put into the market in order to avoid free riders in the system and to create clearer incentives for producers to improve end of Life-processes
An easy and quick way to finance better waste management, when household and municipalities only have limited financial resources or if they are not willing to spend much money on better waste management
What "should" be achieved is a strange way of putting the question. Should in relation to what? Everything depends on the way in which EPR is applied. EPR should be designed with clear purposes/objectives in a way that design of the implementation really contributes to the accomplishment of the objectives.
Wording of the question should be changed to not ask what should be achieved by EPR - you should ask if EPR is the best policy instrument to achieve these objectives...
I've indicated my personal opinion of what EPR should be. So far not all of these have been achievable.
To support "green" choices of consumers by providing to them information on the embedded environmental impacts of products
To help promote job creation and socio-economic inclusion for people distanced from the labour market, especially where reuse and repair activities are concerned.
I think it is more important to shift the costs for waste management from local governments than to necessarily shift the responsibility. There are some terminology issues with the questions above - for instance, I think it is important to increase the collection of products and packaging for reuse and recycling and toxics for proper disposal, but I don't think it is important for increasing the collection of "waste products" that will be disposed as garbage.
This statement is in line with actual European legal Framework. If Framework changes EPR has to evolve.

I couldn't totally understand the last statement
Ranking depends on the product - I would answer differently for packaging EPR than for electronics EPR. Provisions on use of toxics are often included in EPR legislation but are not an intrinsic part of it.
EPR is a responsibility on top of the usual responsibilities of a company. Taking care of of the product at the end of its useful life. This responsibility is also a duty and it should not be allowed this duty is transferred to third parties (investors and waste operators). Waste operators are key, but their role is supplying a qualitative service based on market conditions and fair prices. For products ending up in household waste, compulsory partnership with local authorities is a must.
for many of the above mentioned groups there is a gap between theory and reality
In my view, the principle as such doesn't work. There is no proof of a well functioning upfront end-of-life to design feedback loop.
Disassembly is different than recyclability - these should not be put together e.g. why make a mobile phone easy to disassemble?
I want to make a separate point - I think inter-changing the notion of "EPR" with the word "stewardship" is a problem in itself. Early "EPR" initiatives in Canada often devolved towards "shared responsibility" models here that often co-opted the phrase "stewardship". For the organization I helped to create (called EPR Canada), we felt the need to create a continuum between what Canadians call "stewardship" and what we mean by EPR - please see the EPR Canada website for more information
Most of these factors are very important and given in legislation. However, they may be difficult to achieve because of the lack of incentives. E.g. re-use and to disassemblability and/or recyclability of a product are very important parts of EPR, but they cannot be achieved unless producers are charged more incentivised to work with these issues, which they are not with today's legislation. My point is that the question is difficult to answer. The points are important, but largely unachievable by applying EPR as it is in today's legislation.
It is more about sharing responsibility than shifting it
Without distinguishing if the EPR in question is IPR (individual producer responsibility) or just a collective waste management financing obligation, the answers will be unprecise. I have answered the questions assuming EPR as a collective obligation. If assuming IPR the statements on reduction on toxic substances and on increasing disassemblability would have got high scores.
To generate financial incentives for effective ecodesign (at product level) and market

design (product-service, marketing, strategic market decisions etc...)
Another important objective: to improve production processes, considering resource productivity and sustainable management of materials. Explanation: 'improve waste treatment' is considered as more recovery/recycling and less final disposal/illegal management 'reduce environmental impacts from a product system' includes both production process as waste management.
The question would be clearer if it stated 'who', respectively which party, prioritizes the listed objectives. An NGO has different reasons to call for IPR than let's say an association of municipalities.
I think should be specified in which contexts you imagine EPR. Answers might be very different sometimes moving from one waste stream to another one. Answers might be misleading.
This question was a bit confusing, as I was tempted to check the "unachievable" answer in many cases, since EPR does not seem to be able to achieve many of the objectives, but I instead went with the "important" answer, since EPR should try to achieve these things.
For the first objective, it is critical to define responsibility not only in terms of financial responsibility but also a transition to management and implementation responsibility.
To create a level playing field in the market (all undertakings involved in WEEE processing should be confronted with equivalent requirements)
Well I find this part tricky to answer. Although you say "should", my answers are influenced to a great extent by the way EPR has been applied and would be evaluated as a policy intervention.
About the shift from waste management from municipality to producers: this is dependent on national law about collection. In many countries, municipalities have the responsibility to dispose of all their waste. The waste that municipalities have to collect may also be the waste that producers are held responsible for by other legislation. In this case, additional agreements are necessary.
The first question should have been formulated on shifting 'financial' responsibility which is different from operational responsibility
Inform (e.g. media campaigns) consumers on environmental aspects regarding product choice and product use.
it is of crucial importance to communicate the advantages/need of EPR to the general public and also explain the average citizen how implementation of EPR affects the

everyday life and prices/quality of consumer goods
Please note that I define EPR as manufacturer taking responsibility for the full product life cycle, not just waste management - the original principle. Especially since you make EPR product stewardship equivalent (we are clearer about this in the US). I founded XXX (an eco-label) which I consider to be an EPR (product stewardship) program. Thus I include eco-design elements (which are not practically achieved for electronics by the EoL-only EPR programs) as well as waste management elements.
level playing field is not an objective, but a pre-requisite
Stimulate innovation in product design, stimulate investment in emerging MRF technology to handle more materials, open minds to an integrated approach to waste management
Maybe it is captured in one of the items above, but I believe a priority is sending signals up the supply chain to improve product design.
EPR for packaging cannot be expected to create dramatic shifts in material selection.
EPR schemes are imposed on certain end-of-life goods (priority waste streams) that were already being recycled, the added benefit of EPR could then be questioned on many of the aspects above. It was difficult to answer such an 'in general' set of questions as answers would differ EPR Scheme to EPR scheme.
this is what should ideally be sought, but reality falls short of the ideal
to improve marketability of product. to create positive image of producer.
I think individual incentives combined in EPR schemes, through IPR or modulation of fees could help on some issues such as increased recyclability, less hazardous and durability, today there is still a race to the cheapest option rather than to the best design
Allow flexibility to industry in meeting government-set goals
The closest is "to reduce the amount of waste," but I would add "to not produce unnecessary materials in the first place," or "source reduction."
To design changes of products
I have serious doubts about the exact meaning of some questions. E.g. To reduce costs of waste management (global costs?)
Re first question above - one of the values of EPR is the benefit of being able to implement the best system for the market (country, state). That may very well be to utilise the municipality. so moving away from municipalities in some durastictions may not be a benefit for EPR.
The key objectives of EPR is to stimulate the creation of efficient collection networks



and treatment/recycling facilities 1) to prevent pollution dissemination from products and 2) to close the loop of raw material use (cradle to cradle).

Increase the level of information across the supply chain on the waste materials, collection rates and recycling rates, as well as the challenges in recovering various wastes as it relates to design.

This set of questions has no constraints or tradeoffs - so there is little reason to give any of the above less than an 'important' rating! I am not sure your results will be meaningful.

EPR means that the producers take responsibility and thus contribute with their skills and resources in order to improve waste management and lead us into a circular economy, in a sustainable and efficient way

The answers applicable to Lithuania where we have special EPR models and importers, not producers are dominating.

Creation of compliance schemes which should be able to represent producers interests and become government interlocutors.

EPR is a means of policy. The objective is to lessen environmental load across society as a whole. At question is what kind of responsibilities producers have in the product life cycle, particularly in the waste and recycling stages after product use, and what kind of objectives should be achieved by society as a whole. In Japan, it is often misunderstood to be a concept that says the producer (i.e., business) should bear all responsibility. This includes arguments made from an ideological approach. There is a need to build a groundwork for objective, fair, and transparent discussion.

Product design changes, development of systems for communicating information on supply chains, including consumers

Eco-friendly businesses should have advantages over competitors.

Manufacturers alone cannot realize reductions in the environmental loads of waste processing for product packaging and products themselves. Coordination and cooperation among stakeholders related to product distribution, consumption, and waste processing are essential. Also, currently general household waste collection is the responsibility of government, which needs to conduct collection and waste segregation from the perspectives of effective use and recycling of resources. It also should be recognized fully that general household waste collection conducted by government includes elements of realizing policies in areas such as administrative services and regional development.

Breaking free from conditions in which waste processing cannot be conducted

(avoiding "garbage wars").
An assumption of the above is that producers are thoroughly aware of matters related to the waste stage of their products.
Since waste processing involves more than just the "three R's," it is hard to conceive of a solution to everything simply by holding producers responsible for it. Also unless the consciousness of consumers is changed, EPR will not be the same as waste prevention. In light of this, how should we think about the purchasing and waste responsibilities of the public, for example by raising consumer (public) awareness through EPR?
Parties who manufacture products and supply them to the market are obligated to use their imagination to envision the ultimate stage in which the products become waste, and minimize their environmental load to the greatest extent possible. While it is natural for these costs to be internalized, the effort would be pointless if this were not communicated properly to consumers. It is thought that EPR is an activity conducted jointly with consumers. At the same time, suppliers of products need to use their imagination concerning upstream processes as well, and this question remains unsatisfactory in that it lacks such an upstream perspective.
To form a sound material-cycle society, even more important than individual policy objectives is the development among parties related to all aspects of the product life cycle of an awareness of the need to lessen environmental load and reduce social costs, and the spirit of avoiding waste. Economic incentives are not well suited to Japanese society, and not a concept that should be transplanted.
As long as how to apply EPR (extended producer responsibility) remains unclear, no clear objectives to achieve can be identified.
While it is described as shifting responsibility for waste processing from local governments to producers, I believe the core of EPR is internalization of external costs.
It is important to build a system in which companies bearing the costs of recycling will have no choice but to automatically aim to lessen environmental load and promote recycling, utilizing nationwide infrastructure and taking economics into consideration.
The nuance is that all of the above should be used in accordance with necessity and objectives, rather than using at all times.
Guaranteeing the minimal necessary processing costs, cutting costs, and other efforts

to reuse collected parts and purify and recycle collected materials.
Appropriate recycling needs to be promoted for products manufactured and sold globally.
Reducing net social costs.
I answered "cannot be achieved with EPR (extended producer responsibility)" because I do not have a clear understanding of the meaning of "product system."
Since a question on recycling follows that on appropriate processing, in my answers I interpreted the category of the term "appropriate processing" to refer to appropriate disposal. In my answers I limited waste prevention to the stages through the manufacturers and users (interpreting waste prevention to refer to the stages from manufacture through waste generation). The meaning of product systems is unclear. In my answers I assumed it referred to the category of the manufacturers and users, envisioning DfE (design for the environment).
EPR (extended producer responsibility) is no more than assigning certain responsibilities to producers. I believe that in reality when attempting to incorporate it into social systems it would be very difficult to achieve results unless it is designed appropriately, taking into consideration matters such as the capabilities, relations and business practices of each player. In this sense, I believe that much of the above question is inappropriate.
I believe it would be effective for things that only producers are capable of doing. The basis is the idea of a division of responsibilities among related parties. Since this also concerns the interests of existing systems, I believe that the methods of involvement of producers should be revised on a case-by-case basis, and for this reason the theory of responsibility often will not be able to achieve results. This is not meant to deny that participation by producers can achieve effective results.
All of the questions are inappropriate. The mechanism is all about: EPR (extended producer responsibility, resulting in shifting of costs to prices) to DfE (design for the environment) to waste prevention of quantitative and hazardous substance wastes. I also don't think it would work that way.
(i) The questions included "encouraging reuse," but this can be understood to have a variety of meanings, such as reuse (by consumers) of (used) products themselves or

collection, processing, and reuse by producers of unneeded products, such as retread tires. I answered these questions envisioning the example of returnable bottles.

(ii) The definition of "product systems" in "reducing environmental load from product systems" in the questions is unclear. I answered these questions assuming it referred to the product life cycle.

Since I could not understand the main point of "reducing environmental load from product systems," I answered "not achieved."

Since ownership of products transfers with their sale, methods of disposal of products and related matters are subject to the intentions of the owners. It would be difficult to implement EPR (extended producer responsibility) unless product waste is transferred from its owner to the producer or its agent.

Effective use of resources. Eliminating inequalities in tax burdens by having buyers also bear some of the costs of processing of packaging. When the final means of processing is incineration, employing heat recovery.

EPR: Extended Producer Responsibility does not apply only to producers (manufacturers). All producers need to take responsibility. This fact is of the utmost importance.

Table A2 Comments to a question, “To what extent do you agree or disagree with each of the following statements about cases when EPR should be introduced?” (Shaded cells represent those translated from Japanese into English.)

The longer the Life cycle of a product the more important to implement EPR
The question does not reflect that if EPR is used on very diversified products (products not very homogenous in design/material use/volume/costs) it is often very difficult to achieve environmental benefits. For example the EPR of packaging waste in the European countries is first of all used to minimise management costs of packaging and not to improve the environmental standard of the packaging product as such. Opposite EPR on vehicles is linked to a more homogenous product regarding material choice, volume and in fact also design, which seems to provide better possibilities for improving the environmental standard.
What are "other" approaches. All depends as said on design of the EPR. The polluter pays principle should always apply as well as the internationalization of environmental costs. Therefore I like EPR. Although, when applied, it does not necessarily lead to the objectives set, for example it didn't lead in Sweden to reduction of packaging quantities or environmentally better packaging.
Depends entirely on the product & market. Should be applied when adds value.
Not manageable for household and industry/trade to handle to many fractions of waste
EPR should be applied to products that have a significant environmental impact (e.g. WEEE), and/or products that are registered for other reasons (e.g. ELV) to decrease the administrative burden.
Before introducing EPR for a certain product it should be investigated whether the product can fulfill the principles of EPR
EPR should incorporate the premise that all companies have to take responsibility for the end life of all products. Waste Management and Recycling approaches vary with technology therefore if the above statement is exclusive, there could exist a tendency of producers trying to avoid their responsibility. Even though it is very important to have EPR in difficult postlife treatment products, EPR should gradually be a general recycling approach to all products. It should tend to be a general praxis.
A difficult question. France is leading the way in Europe with the number of national EPR schemes it has in place but I have not yet been in a position to analyse how successful these schemes have been in improving collection, reuse and treatment rates of the materials they cover so it is difficult for me to comment here.

<p>Many materials have established systems in place providing reuse and recycling options. EPR can interfere with these systems and increase the cost of managing at end of life.</p>
<p>"appropriately managed" is not defined. Lots of packaging is collected curbside without EPR but there exist many problems: lack of consistency, no collection rate requirements, poor promotion, etc. To my way of thinking, that doesn't constitute "appropriate management"</p>
<p>If the collection is operating well (people are using it and the quality is good) and the municipalities are satisfied with the cost management, no EPR is needed.</p>
<p>Without knowing whether you'll address this in a separate question, there is an issue that PR or EPR has continued to focus on end-of-life management since its introduction, i.e. there has not been further development of the concept beyond waste management. What other 'responsibilities' could be more strongly linked to producers? Sourcing of materials? Information provision (not just to consumers, and not (only) through labels - more consistent and transparent information provision on what materials and substances are used in product production and what remains in the product when it leaves the factory) is another key issue that is little dealt with, or mostly on a voluntary basis (unless you consider consumer information required through the EU's Ecodesign Directive).</p>
<p>EPR should be applied in cases where the waste product causes additional costs to the society. There is probably no need for EPR for such products which still have a value at end-of-life as other actors on the market will take care of it.</p>
<p>However, EPR should be very carefully introduced in growing markets as well as in developing countries. It should be introduced when the environmental and health policies and regulatory framework of a country are mature enough to assimilate it. Further, markets should be mature enough to address and respond to any economic instrument associated with EPR's introduction. Every country should have their own model for its implementation.</p>
<p>EPR can apply to different parts or all of the product life cycle. It isnt just about end of life - it is also about design, manufacture and use as well as end of life</p>
<p>The expression "appropriately managed" in the first sentence is confusing. Eg. Packaging waste was appropriately managed (it was collected and sent do landfills/incinerators) before the German Duales System, as far as I understand, the problem was more related to the cost of the system.</p>
<p>product waste management should not be a core function of local government; should</p>

<p>be a producer - consumer responsibility, with government as referee and regulator, rather than market participant</p>
<p>As there still is an important end-of-pipe solution needed first, the main responsibility should not lie with producers but either at government levels or as shared responsibilities with other actors including recyclers, collection points, consumer organisation and producers.</p>
<p>What does appropriate management of waste mean in this case? EPR should only be implemented when it's objectives can be fulfilled i.e. incentives creation of better products.</p>
<p>EPR may not be the only appropriate policy approach to waste management, although it should be favoured in most cases.</p>
<p>True EPR has two main benefits - transfer of financial responsibility (where there has been some benefits) and design for environment (where there is little evidence of success). I see no other waste management approaches that are driven buy these two specific intentions.</p>
<p>The product and the market and waste management systems for the product have to be mature enough for EPR to be applicable in the local society</p>
<p>EPR should be applied when the recycling of a product truly translates into a benefit for the environment. Unfortunately, some governments use this concept to obtain a political benefit and not to protect the environment.</p>
<p>Agree that EPR should apply for all product as a concept but not necessarily as a legal set up.</p>
<p>The application of EPR to products with a positive value as waste is difficult. EPR would need a broader concept as within current "system boundaries" producers will take costs and "other players" free to take benefits.</p>
<p>EPR should be applied where it can have a positive impact on the EoL treatment, i e minimizing negative environmental impact and improving material recovery.</p>
<p>EPR can be applied broader than only at product level, but even before, at the level where decisions are taken on the way a producer likes to approach its market</p>
<p>In my view EPR should definitely be applied to products whose a) residual material value is lower than collection and treatment costs (and as such require subsidies to create functioning waste management markets) and b) whose residual value maybe high but they contain hazardous substances in which case they are prone to sub-standard recycling</p>
<p>EPR can be applied even to products where other approaches exist.</p>

EPR can be inappropriate depending on the product type, and adding EPR to a well-functioning reuse/recycling market can have negative consequences.
EPR should become the basis for closed loop economic opportunities and part of the transition to a zero waste system.
EPR should be applied to those products where the it is demonstrated that EPR would maximise the environmental benefits
EPR is not really necessary for products with a value such as silver oxide batteries. EPR should be for every product that costs anything to recover.
I disagree to the first sentence because of the words "should only"
The principle behind the argumentation lies in the free market of goods and services. If the closed loop can work in a situation with a free market, then it should be applied like this. In this free market, legal responsible organisations (e.g. municipalities) should be able to do their duties without having to incur structural costs. If this is not the case, then EPR is a good instrument to make the closed loop work. In general, producers/importers have shown to take their legal duties seriously and to achieve the targets that are given to them.
Looking at the possibility to optimize the Whole product cycle should be more efficient than only looking at a Waste management system. However, in can be difficult in practice. Many institutional factors make it difficult for producers to actually optimize the entire product cycle. Equally optimization must result in a clear economic benefit. Either lower cost, income or risk reduction for the producer, in order to keep EPR a relevant business case for the producer. This has not been successfully implemented yet.
There should most definitely be criteria about which products should be managed by EPR and which by traditional municipal programs. The first is closer than the second, but it is not "cannot be appropriately managed". I have a more complicated answer to this question than this allows.
Where collection rates are high without market intervention, legislated EPR is not required
As many products as would be useful or effective. This is a different answer from the 2 above.
I agree with the second one with the important caveat that EPR be implemented in a way which supports, and doesn't undermine, existing successful recycling programs.
To avoid discrimination, EPR should cover as wide a range of materials as possible.
EPR needs to be appropriate for the waste stream, generally items with value are



treated without EPR in place which leaves items without value which can be hazardous needing collection and treatment, EPR can encompass all products with or without value but will make the biggest impact for those items without value..
EPR should be applied where the social benefits outweigh the costs
There is a pressing need for complimentary policy tools beyond mere product "take back" requirements for producers, which may not always provide the right or sufficient incentives for innovation. Need to look at use phase tools especially.
It should be applied with products with toxic chemicals or where the free market management options are not resulting in responsible recycling without government subsidies.
If all products/material may not be relevant for EPR, the principle of internalization is something to promote. The fact that a wasted material is still valuable (in terms of economic) should not mean EPR should be stopped.
Depends on product category, universe of participants, whether existing programs are sufficient, etc. Difficult to apply EPR to organics and to C&D, which are 2 primary components of waste stream.
EPR should not become a government data collection exercise. It should be used to help resolve end of life issues to divert waste from landfill.
Producers are in the best position to start and coordinate actions that enable the supply chain to guarantee the achievement of resource efficiency targets
EPR, again, is about implementing the system that best suits the environment.
EPR should be applied when there is a pollution risk and/or when critical raw materials are involved.
Should be applied for raw material recovery, considering the scarcity of minerals and oil
EPR should only be applied to products that meet a number of criteria.
I think EPR should be applied in emerging and developing markets to the FMCG sector. That is the only way I believe we can solve the waste issues.
Good to have an overall waste MM strategy in society, EPR might be part of such a general strategy, for products/ product groups
EPR covers a broad variety of approaches. The answer is influenced by approaches that one can imagine. If EPR is implemented in a way that money is collected by producers but producers do not have the possibility to manage "their" waste, then the answer to the second question is: tend to disagree.
If the EPR implementation is the creation of a national monopoly (or sort of), all

benefits can be lost!
Many products with high value at end of life will be collected and recycled for a profit by recyclers. We don't need traditional EPR for those streams, producers should only be a safety net for those products so they get recycled if EOL cost would change and become negative. we do need to make sure that minimum treatment standards are achieved for these streams.
I disagree with both statements. In my opinion, EPR should be introduced for those waste streams where EPR is the best possible instrument to enhance recycling and create easily accessible low threshold collection infrastructure, including its financing. In some cases, EPR will not be the best instrument for that, depending on the specific waste stream. Such a decision should be taken in a case-by-case approach.
The fundamental premises of a waste recycling system are reductions in social costs and in environmental load. An approach that calls for recycling at all costs should be avoided.
It is important to process wastes properly, rather than to have the objective of recycling. Articles that are difficult to process cannot be considered in the same terms as recyclable products.
Specifically, what kinds of products traditionally have not been able to be handled well? Using packaging as an example, the aspects of lessening the environmental load of the products contained and encouraging effective use of resources through the product life cycle have been overlooked, with attention focused solely on packaging after use. Producer (i.e., business) responsibility should be considered by thinking about the proper forms of waste processing and recycling after use, from a comprehensive perspective including the products contained in packaging.
It is not desirable to collect recycling costs at the point of waste disposal as under Japan's Home Appliance Recycling Law. It should be collected in advance. Costs in the final waste processing stage also should be subject to EPR.
I cannot answer the question because it is unclear what it refers to by "EPR (extended producer responsibility)." If this "EPR (extended producer responsibility)" refers to the whole, then my answer would be "disagree."
There are differences in the designation and understanding of EPR (extended producer responsibility). The answer above assumes a system of obligations to the level of bearing costs, as under the Packaging Recycling Law of Japan, which

<p>requires collection and recycling. Based on the idea of including matters such as provision of information as well, it should apply to as many products as possible.</p>
<p>Currently, some waste also has inherent value, and under the Small Electronic Appliance Recycling Act as well, waste processors are more proactive than EPR. While it is thought that EPR began with the issue of processing costs for products that have large environmental loads in the waste stage, today, when laws such as those on recycling of packaging, vehicles, home appliances, and construction materials are firmly established, consumers need to be informed more of the flow of products after the waste stage, including both good and bad points, such as publicizing the state of unethical businesses that evade the law to discharge burdens on the environment.</p>
<p>Policy should be adopted in a ultimate and emergency situation, and all products should be recycled. All related parties should think about recycling instead of waste, including energy recovery. Incorporating EPR into recycling methods would be an ill-advised policy that would eliminate effective methods in areas such as coordination among leading parties. Problems in society result from generating waste. However, adoption of policy could be positioned as an expedient means of correcting the thinking and acting of parties with no consideration for others.</p>
<p>Service industry. For example, educational services provide a variety of follow-up care even after the educational term ends, and consulting firms take some responsibility for their past consulting business. Industries such as electric power need to reconsider what the power they produce was produced from and how (for example, nuclear power), and to be thoroughly aware of their physical and monetary responsibilities for proper processing of the radioactive waste generated as a result.</p>
<p>Hazardous substances. Hard-to-manage materials to disposal.</p>
<p>I believe it also is important (necessary) to develop systems for coordination and cooperation among all related parties from production through waste processing.</p>
<p>There also is a need for the perspective of wastes difficult to process appropriately.</p>
<p>If application of EPR (extended producer responsibility) does not involve significant contradictions, problems, etc., then it should be applied.</p>
<p>I believe that if there is no environmental load when a normally licensed business collects and processes waste, then there is no need to force adoption of EPR for all products. However, thinking about the matter in detail, it seems that it would be better to adopt EPR if a feasible system is available, since holding producers</p>

<p>responsible could lessen the costs of collection and processing, and reduce the likelihood of wastes flowing to improper routes and outflow of resource to overseas. (However, from the perspective of practicality I believe it would be difficult to require EPR for all products.)</p>
<p>When it is determined that the producer should take responsibility after giving consideration to the life cycle of the subject products and judging whether or not it would be appropriate for the producer, among all related parties, to take responsibility, then it should apply. Cases such as system products that involve multiple industries and those covering wide areas and having high levels of public nature should be discussed thoroughly.</p>
<p>It should apply to things for which net social costs would be reduced by applying EPR.</p>
<p>While it is a fact that producers are a major driving force in recycling, forcing companies to shoulder excessive EPR (extended producer responsibility) that puts pressure on their business would have the opposite effect of making it more difficult to advance recycling.</p>
<p>It should apply to wastes difficult to process, such as hazardous or dangerous materials, and to complex processing. It should apply to products for which safety and quality can be secured even after simplification of forms, equipment, etc.</p>
<p>As mentioned above, there are both cases in which it would be better and less expensive to hold producers responsible and opposite cases as well. It probably should be employed in the former cases but not in the latter.</p>
<p>The social justifiability of producer participation should be discussed thoroughly.</p>
<p>As one definition difficult to handle well, I believe that a major issue in the future will be whether to apply this to cases that can be considered wasteful from the perspective of resources but do not involve large environmental impact.</p>
<p>While in principle it should apply to as many products as possible, it is not so simple because in some cases even if responsibility is shifted to businesses, effects such as promoting recycling cannot be expected to result. However, it should be applied to small household electric appliances.</p>
<p>It would work in cases where EPR (extended producer responsibility) would achieve the objective of encouraging DfE. Since EPR is a means for that purpose, there would be no point if it is ineffective. In such a case, it would be no more than a simple</p>

transfer of costs.
There is a need to think about subjects giving consideration to producer capability as well. However, rather than not applying it at all because the producer has no capability, I believe that it should be applied in accordance with capability.
I believe that to begin with there is a need for the perspective of whether the policy objective is absolute (e.g., public health) or would be carried out through policy significance (e.g., securing resource recycling). Accordingly, if the EPR (extended producer responsibility) approach is defined as giving economic incentives to businesses by having them bear an economic burden, then in the former case it would not be appropriate because it would be insufficient to achieve the objective while in the latter case an EPR scheme should be adopted if comparison of balance with the resulting achievement of policy objectives from other means shows that it would be effective. A later question concerns the balance between physical and financial responsibility. Since it is thought that which of these would be effective depends on the policy objective, for that question too I consider it to be "neither" as a general answer.
It would be problematic to hold only the producer responsible for waste. There would be considerable differences between collection and processing costs for waste generated by good users and that from bad users. A system that depends on producers alone could merely increase social costs.
EPR is effective only for products that can be collected separately by individual makers and brand owners. EPR is merely an economic policy theory; it is not a theory of responsibility. It should be applied when it is clear that it can reduce total costs to society as a whole.
For example, the fact that the small electronic appliance recycling system adopted in April 2013 assigns so much responsibility to producers can appear tough from the producer's point of view in some ways.
The term "producers" does not refer only to producers of industrial products. While the OECD concept might have included only industrial production, it should include primary industries as well.

Table A3 Comments to a question, “To what extent do you agree or disagree with each of the following statements about the rationale of EPR being imposed to producers?” (Shaded cells represent those translated from Japanese into English.)

EPR should be imposed because end of life costs should be taken into consideration from the start
1) I would add to that statement, that by manufacturing products that become waste, externalities are being generated and "absorbed" by society as a whole. Therefore the profits made do not reflect the real net value generated. 2) I think producers capability is high within a product system, but to produce, not to reuse or recycle. EPR will definitely mean a change in operations in some level for producers, therefore supporting mechanisms and incentives should be created to ensure a proper application of EPR.
EPR should be imposed because producers have the capability of having the greatest ability to reduce the impacts of the products they produce and should be responsible for their products.
I'm not sure I would use the term 'imposed', rather I would see EPR as a key principle on which policy frameworks should be based and therefore on which policy instruments should be based.
Manufacturing and recycling the very same product is often not connected at all. So the capability of the producer to recycle its own product should not be overestimated. Additionally economies of scale have to be taken into account for recycling.
Partly agree with both the above statements. In addition to the above, all the stakeholders in society are also responsible in many ways e.g. consumers are responsible for bringing back the waste to its designated place or responsible for its proper management.
Profits = future ability to provide employment and the goods that people want to buy. Local government should have a statutory duty to collect waste from households, so I'm only interested in EPR where it results in a more resource-efficient or more cost-efficient waste management system. I don't see it as much of a moral issue.
All costs of a product including external environmental, social, human health costs should be accounted for in the price of the product
unclear formulations
EPR should be imposed when it's profitable to the company
Retailers also gain profits and consumers benefits. The existence of profit is not a driver to nationalise waste systems. The reason is producers are in a position to

change their products.
EPR should not necessarily be imposed on producers because they have capability to manage waste products, although that capability should make it easier for producers to adapt to an EPR requirement.
I have no idea what you mean by "producers capability within a product system"? do you mean control?
EPR should be imposed because producers have a responsibility for what they produce in terms of damage to the environment and human health, i.e. they are responsible for carrying out sustainable practices. I did not understand the last statement that "EPR should be imposed because producers' capability is high within a product system"
It would be important that experts of the University explain to authorities and NGO the concept EPR, because it is usually used incorrectly.
2nd question is irrelevant - most producers actually have very LOW capability at the end-of-life phase of a product system. that is why EPR is important.
Depends on how EPR is set-up and structured
There are many "producers" (parties that gain profits) on a products way "up-stream", not only the manufactures. Same is true for capability within system.
EPR should not be imposed, it's a way for industry to organise and fulfill obligations
The EU producer responsibility for WEEE has fostered a certain degree of awareness among producers on the end-of-life aspects of their products, primarily in pushing for cost-efficient and high-quality treatment, and secondly on the inherent material value of scrapped products. And also for the increased awareness on that what is put in will one day come back as a potential liability, i e there is some level of concern for putting in new materials or components that can have a negative impact on EoL aspects.
EPR should be imposed because it is such an efficient policy measure, like other economic policy instruments
EPR should be imposed to consider waste management as part of a production process, these economic and environmental costs MUST be considered as part of total costs for the producer.
There is a cost to waste now, and in the future, and that cost should be reflected in the manufacturers' accounting. It should be become the burden of tax payers. It should be born by the consumers which should drive the market to more sustainable practices.

EPR should be imposed on producers to enact the polluters pay principle and because producers have the greatest influence on product design
EPR should be imposed because producers should be made responsible for the costs related to the management of their products at their end of life
Should be introduced when there is a need for economic support to ensure environmentally friendly recycling of products
The first argument in point 6 is nonsense. Just because you earn Money on something it is not the same as to say that EPR should be on you. Turn the argument around. The producer do not earn Money on the product, therefore they should not have responsibility for their product. Alternative example. I earn Money for going to Work, therefore I should have extended responsibility, extending further than my job. Nonsense.
EPR should be impose because producer has the responsibility of managing the EoL of their products
Capability is part of the answer to #5, but not all.
Also, depends on how the producer is defined.
EPR should be imposed because of its likely outcomes -- which is not exactly the same answer as above.
Must leverage producer capabilities, innovation, expertise to drive efficiencies
EPR is not a punishment, it is a solution.
I don't think the questions in this section are 100% clear to me. The first one is very aggressive making out as if industry is wrong by manufacturing products. EPR solutions should be established to ensure producers play thier part in better managing the resources they use in making the products. The second question makes no sense to me, it should be clarified further.
This will very much depend on the country's growth status and development.
Manufacturers historically have not paid to recycle products and containers that they produce; local governments and State governments have been playing the recycling roles, along with funding recovery of materials. It is time for the manufacturers to play a role.
Should be imposed because only the producers have the power to modify the designs of their products.
EPR should be applied because the end-of-life stage of a product is a creation of waste, which is an environmental impact. Just as we impose regulations to limit environmental discharges during the manufacturing stage, we should also impose



regulation to limit environmental discharges at later stages.
EPR cannot be an excuse for the rest of the players not to take their role in the recycling system.
We should know what problem we are trying to resolve before introducing regulations
EPR should be ENABLED whether it is in conjunction with collective systems or stand alone. It should be ENABLED because it may mean lower pricing and ultimately the consumer pays the price whether it is high or low.
Second statement not very clear...
Producers can design products with reduced environmental impact. Producers require, in the mid to long term, access to moderately priced raw materials. Thus critical raw materials strategically need to be recycled, it makes sense to rely on the producer for this strategy.
I agree with these statements, however they are not how I would word the main rationale for EPR: 1) our economic system should be designed to improve the signals to consumers (information & price) regarding waste. 2) producers should have an incentive to consider design for recovery of their product development.
The knowledge and competence that a producer has are unparalleled. EPR has significant implications on design and they are more crucial than the EOL implications.
Careful EPR is not IPR, with IPR equation is different ! (especially #1 here)
EPR should be imposed because recycling of certain waste streams has a high cost and will not happen without EPR.
EPR should be imposed in order to create collection and recycling facilities and obtain a high return of the primary resources.
Production of products is determined by the balance between demand and supply. Since demand depends on consumers, responsibility for production should be placed equally on producers and all consumers.
While I agree with the idea of holding producers (i.e., businesses) responsible for waste processing and recycling after use of products, specifically what kind of responsibilities would they bear, and under what kind of system? With regard to plastic packaging and related matters, EPR is being discussed all by itself, without discussion from the perspectives of technology, current social systems, how to recycle resources in the sound material-cycle society of the future. As a result, the discussion appears biased.

Minimization of total costs throughout the product life cycle through a fair competitive mechanism.

A diverse range of stakeholders takes part in the product system as a whole, and each of these gains from it. For this reason, each stakeholder should participate and cooperate in fulfilling responsibilities.

EPR needs to be designed to be favorable for achievement of the optimal waste processing system throughout society as a whole. Depending on the product, it also is important to entrust proper processing of hazardous substances to specialist waste processing businesses, providing only information on such substances. EPR should be designed taking into consideration matters related to final waste processing.

Producers should be held responsible when doing so would result in realization of the most efficient countermeasures.

Producers do not produce their products with a feeling that they are creating waste. They produce them so that consumers can use them with satisfaction. For this reason, it is questionable to speak of producer responsibility alone. Disposable containers too involve something of a market principle, since they are what consumers choose. Since there are limits to the efforts of producers (makers), it seems that it would be difficult for individual makers to address this matter unless they all were on a level playing field, regulated under national law.

Waste processing is an issue common to producers, sellers, and users, and would be strange to hold only producers responsible.

Shifting responsibility to producers only will not solve any of the root problems. Coordination and cooperation to avoid generating wastes among all the constituent members of society is needed. Resources from the earth and from nature are used by human society, not by producers alone. Of course consumers too have an important responsibility, and in Japanese society basically a social system has formed in which the roles of appropriate processing of resources entrusted from the public (including producers) that have temporarily become waste, and recycling and reusing these, including energy recovery, are conducted based on mutual agreement. Introduction of a new concept would only invite inefficiency and would not solve any problems.

If nobody else will take on the responsibility for waste processing, then the only solution is to have producers take it on.

The idea of imposing a burden on a party simply because it is capable of bearing it is out of the question.

While this may overlap with the latter question, it is conceivable that this is

<p>“because it is producers that they can take the lead on DfE.”</p>
<p>I consider recycling to be part of production processes rather than part of waste processing processes.</p>
<p>EPR (extended producer responsibility) should be applied to producers because they should take responsibility for product design, which has a major effect on a product's environmental load. While this is similar to the second choice, it is thought that there are some cases in which it should be applied even if it is not necessarily capable from the perspective of management of product systems as a whole.</p>
<p>It is not only producers who receive profits and benefits from the products but also retailers and the consumers who use them. Also, I believe that EPR has been chosen because it would be most efficient to have the producers, who can have the largest impact on product systems as a whole (i.e., are most capable), take the lead. It should not be denied that if there were a party with a greater impact in the product life cycle than the producer, or that could take the lead more efficiently than the producer, then it should do so.</p>
<p>Should not the producer be held responsible in cases in which it is impossible for third parties to obtain information or that would be difficult for them to handle, such as highly complex products and products whose origins are unknown and could include hazardous substances or designated chemicals?</p>
<p>The above way of thinking seems to have been employed at the stage of EPR adoption (mid-1990). Since 10 or more years have passed since then, I understand that doubts have arisen in society as to whether producers really are sufficient as leaders for product systems as a whole.</p>
<p>Whether or not the producer is capable on the waste side of the product system depends on the product.</p>
<p>While it is a fact that producers enjoy profits from products, at the same time users enjoy some form of benefit from using the products, so that it would be unfair to hold only producers responsible. Since having only a certain company or organization bear responsibility would mean that if that company or organization were to dissolve then a hitch would arise in waste processing, beneficiaries should be held responsible on a prorated basis.</p>
<p>I do not understand the definition of producer as used here. Does it refer to the manufacturer? To businesses using the product? To both? My answers here assumes</p>

it refers to businesses using the product, who control the real economic conditions.

Producers can incorporate design considerations

The form that an optimal social system should take should be discussed thoroughly based on comparison with the other options.

My thinking assumes that producers are able to function in capable positions.

EPR should be considered a means of policies from the perspective of the efficiency and rationality of waste control throughout society as a whole. EPR should not become a foregone conclusion from the start. Put another way, it should be applied to products (such as small household electric appliances and batteries) for which it appears that a collection system can be developed easily through application of EPR.

It must not bring about unlawful dumping of waste.

Is it not the case that what should be considered is how to enable the functioning of an equitable system rather than idealistic theory? If consumers always make the proper decisions, then simply providing them with accurate information should eliminate the problem.

As mentioned before, it depends on whether or not EPR achieves the objectives as a means.

It would be effective to apply EPR to producers to internalize exterior costs.

While I may not have much of a perspective on control of hazardous materials since I am responsible for packaging, I consider the approach of EPR (extended producer responsibility) to be one policy means for giving businesses economic incentives to promote DfE (design for the environment). Where the questions refer to a "capable party," since in promoting product DfE (design for the environment) the producer is a capable party, I think the answer is in the affirmative.

It is the consumer who profits the most from a product. It would be dangerous to impose waste processing responsibility on the producer alone based on a distorted concept of profit. The producer too shares in the responsibility for waste processing, and it should be important to build a system of cooperation between producer, consumer, and government.

Properly speaking, EPR refers to having related parties (producers and consumers) bear the costs of the entire product life cycle. While the share borne by each party will vary with the market structure, Question 6 stresses a financial responsibility on

the producer greater than its physical responsibility (system development), based on the argument of internalization of external costs to the market. Shouldn't the question stress on producer bearing primary costs, and leaving the issue of how to recoup (transfer) those costs to the market?

Since beneficiaries also bear costs, it seems to involve overall responsibility instead of just producer responsibility alone.

The argument for applying EPR is grounded in the position of being able to manufacture products and control their design.

Producers need to be more aware of resource depletion and to make products based on sustainable consumer behavior.

In connection with the point mentioned before, I am not particularly fond of the idea of applying it to small articles. Wouldn't it be a good idea to hold producers responsible for large articles not suited to collection by local government?

The most important responsibility is that of disclosure of environmental information (such as DfE and chemical substances included).

Table A4 Comments to a question, “Who, in general, should be considered as a producer in the context of EPR?” (Shaded cells represent those translated from Japanese into English.)

<p>The question is not so much whether a party should also be considered a producer, but whether the party should be allocated some part of the EPR related responsibilities. If the (only) way of legally achieving this is through the notion of "producer", the two issues merge.</p>
<p>Important that the entire chain is covered to ensure high recycling rate and good recyclability properties of product</p>
<p>Administrative burden will be lower, and the system easier to understand with only one defined "producer". Preferably early in the value chain as the costs for EPR will then follow the product. Definition must make made so competition is equal between imported and domestically produced items.</p>
<p>Retailers are producers as long as they've got own brand products they are selling. As for the last two types of companies/activities, I'm not sure about these. These are sometimes charitable organisations, and I'm not sure that they would be able to financially afford such responsibility, so it could be that a PR system could integrate their costs, but be paid by for-profit bodies in the PR system (i.e. the previous 5 types of producers). In any case, these last 2 types of bodies often exist for other aims (reskilling/rehabilitation of long-term unemployed or ex-convicts or ex-drug/alcohol abusers, poverty reduction, etc.), hence the benefits of their activities should be quantified alongside the costs of their activities if they are financially supported by the other types of 'producers'.</p>
<p>Exporters of a new product: I assume that the company which imports from this exporter is responsible for managing that products EOL in its market.</p>
<p>But there are practical considerations in how responsibility should be allocated, and this may differ from product to product or country to country depending on the structure of the market.</p>
<p>Everyone involved in the manufacture, sale and use of a product has some responsibility to reduce the environmental and human health impacts of the product. The organisations that put the product into market (either OEM, importer, exporter second hand dealer) have the majority of responsibility</p>
<p>Difficult to say, it depends very much on the product type, also with questions before I have difficulties with the very general way of stating things</p>
<p>To me EPR concerns packaging, and in Finland it is the packers and fillers and</p>

importers of packed goods that are responsible
Brand owners should also be included here. Due to globalisation they sometimes are only responsible for product design. The manufacturing is done by other companies, somewhere in Asia or Latin America.
First importer covers others
The practical implications and administrative burden for any of these above is very significant even for very small environmentally irrelevant products.
In the legislative case producers are those placing a product on the market, they are the only ones that can be addressed by legislation within a country.
It depends on the nature of the market, whether there it is 100% imported or a mix.
It's important to capture all of these possibilities if EPR is being implemented in a smaller market.
I assume the term "manufacturer" refers to the brand owner, not the company that manufactures a product to the specifications of a brand owner.
Consumers, Governments, Supermarkets should be considered as producers.
Suppliers, in that they are responsible for making clear to manufacturers what environmental impacts might be associated with the goods/materials/components they supply
It depends....
EPR should be a responsibility throughout the supply chain, and throughout the pre-producer, producer and distribution phases of a products life cycle, and in its post-waste phase.
Retailers, as well as distributors, are producers in case they import EPR products. In other cases they have an important role in a recovery program, but they are not producers.
Again you should specify maybe the context
The clearest definition of Producer is who put on the market (POM) as stated in the original WEEE directive in the EU. It means Producer should be varied by the size of the countries but it should be reachable by the law enforcement body.
If EPR is legislated, then many actors can/should be the "manufacturer" including - importantly - the brand owner of the primary brand/mark placed on the product. In other cases, the importer or retailer can/should be the main responsible for the legal obligations. But, this administrative necessity works against the justification for EPR policies that the manufacturer will make design changes or increase recyclability. For many electronic brands, the "manufacturer" can change every

year.
MANUFACTURE IF YOU MEAN BRAND OWNER The Brand Owner who is for the design of the product IF THE RETAILER IS THE BRAND OWNER YES
Retailers as brand owners (private label brands) probably should be classified as distinct from retailers.
You need to create a clear definition. Keep it simple
Just a note that, particularly for enforcement purposes and thereby providing a level playing field, responsibility should be assigned in a tiered manner, such that if the manufacturer is not located in the state/province/jurisdiction, then the first seller of the product is responsible, for example.
Exporters: they cannot be held responsible for laws in other countries, only to international standards. Still, they should somehow have the duty to cooperate with parties in the product chain to reduce environmental impact. Retailers: I disagree because the retailing function they perform should in my opinion have a rather low impact on the design of products or packaging. In case a retailer sells products under private label, they should be seen as a producer of this brand and be responsible as a producer.
The question is not appropriate, it should be those placing products on a market for end sale whether importers of domestic companies
In general only the producer has physical influence and brand responsibility. They can have a Financial and logistical influence.
The essence of this is the brand-owning company. Dell is not a "manufacturer". However, they must be responsible. It is the brand that signals product responsibility and for which product responsibility should be assigned.
If the retailer is an importer then they should also be a producer. If the packaging used is to supply a product that was manufactured or imported with the same packaging then it should be the importer or manufacturer's responsibility. Whoever adds further transit packaging should then take responsibility for the packaging.
If the exporters only export to countries where there is no EPR legislation they should not be included as a "producer".
Need to focus responsibility to as high degree as possible on the party that can make the desired design innovations a reality. Many large international brands do not manufacture what is sold under their name - they contract this function out to a manufacturer (sometimes in distant countries/regions) that works to design specs.
Importers should be held responsible if the producer has no presence in the



importing country. It's not really the same as EPR, but this mechanism is more about fairness and equity.
EPR for reused goods has not yet been fully developed, so it is not easy to give an informed opinion, as regard retailers responsibility, it should be explored more as they are part of the supply chain
To the extent that a retailer also is a brand owner or importer, then I would change my answer to "Strongly Agree"
In relation to companies who use packaging, I understand at this point we do not refer to EPR for packaging
Need the practical obligated party within jurisdictional control
I expect that exporters will be considered in the context of importing countries' EPR
All above responses are 'caveated' by the responsible party being the organisation who places the product for sale for the first time in the market. Packaging should be managed under the packaging directive.
To enforce legislated EPR, the responsible entity must have a presence in the jurisdiction. Manufacturers should carry primary EPR responsibility, with importers responsible when manufacturer do not have a presence in the jurisdiction responsible for enforcing EPR requirements.
I feel that the responsible party greatly depends on the specific product, as well as the economy where the policy will be enacted. The greater scale the economy, then perhaps the closer to the producer you can mandate EPR. If it is not global/national legislation then it may make more sense for it to be tailored to retailers/importers. It gets incredibly confusing when there is a number of actors that could be responsible...
Importers are to be covered in EPR in case the manufacturer does not have the presence in the country where the product is sold. From an intent perspective exporters should be liable for EPR in countries where their products are sold but they are not present themselves.
In case of photovoltaic modules and similar products, the technical firm installing and uninstalling the PV modules might be in a position, which is similar to a "producer"
Be careful, question 8 : information is not applicable to consumers returns (C2B)...
Ideally the manufacturer should be the producers. However if manufacturer is not based in the region (for instance Chinese producer selling into EU) the importer should be responsible. As the manufacturer doesn't know if a product is sold for reuse

<p>he cannot be the producer so the importer needs to take over this obligation</p>
<p>In the case of packaging, the relation to the product contained is important, and packaging is just one part of the product. In this sense, it is unclear from this question how packaging should be positioned in the case of a new product. This survey itself cannot be considered to have questions based on a proper understanding of the concept of packaging. For this reason, the answers through now concern fundamental principles, not packaging. One gets the impression that a basic understanding of packaging is lacking in society as a whole. Of course, this also reflects the inadequacy of education by businesses.</p>
<p>Small businesses also should be subject in a fair way. Consideration for the vulnerable should be conducted separately, and the EPR system should not be made too complicated. Monitoring to ensure that it is enacted appropriately involves administrative costs, and even so that does not guarantee fairness.</p>
<p>It must be noted that shifting consumer responsibility under the principles of PPP would force inefficient processing and force consumers to bear greater economic burdens.</p>
<p>User</p>
<p>I did not understand the meaning of "businesses using packaging materials for transportation and protection of their own products."</p>
<p>What about assessing environmental tax on materials, not products? There are limits to focusing on packaging. Is it not the case that as materials become more expensive, makers naturally will shift to those with lower loads on the natural environment and think about conserving materials? Matters such as this should be given consideration, including whether the producer should be held responsible.</p>
<p>Parties earning profit from bringing products to consumer markets, brand holders</p>
<p>To repeat, while producers too have a role in waste processing, there is a need for sharing of information and cooperation with consumers and the public and cooperation among all members of society as a whole who are involved in the product life cycle, including retail and distribution, to create a system that will avoid waste. The idea of holding only producers responsible is a concept that would impede the formation of a sound material-cycle society, and it should be understood as no more than a policy means adopted as a ultimate and emergency countermeasure.</p>
<p>It is thought that producers of remanufactured goods using used parts should be treated in the same way as producers of new products.</p>

<p>The answer is based on the understanding that “exporters of new products” refers to those who manufacture new products overseas (not specialist exporters). Since it is unclear whether “importers of products for reuse” refers to reusable new products (e.g. reusable cups), reused (secondhand) products, or new products that can be used repeatedly (e.g. mugs), the answer “none of the above” was selected.</p>
<p>Packaging manufacturer</p>
<p>User</p>
<p>Is it not the case that businesses using packaging materials for transportation and protection of their own products should bear responsibilities as waste-generating businesses?</p>
<p>One concern I have is what is the difference between “products for reuse” and “used products”?</p>
<p>Of the above, I do not believe that exporters of new products, importers of products for reuse, or sellers of used products qualify as producers who should bear ultimate responsibility. However, when also considering matters such as informational responsibility, they could bear some responsibility. For this reason, I chose “neither.”</p>
<p>Telecommunications carrier (particularly in Japan)</p>
<p>I cannot answer for the above individual categories because I understand this from the perspective of a business that has put products on the market.</p>
<p>While from the definition of producer, only manufacturers would be subject. However, I believe that the party that should be responsible is the business closest to the consumers (because that is the final transit point of transfer of price and ownership).</p>
<p>Users of products</p>
<p>To repeat, I believe that what should be aimed for is the optimal social system and that starting from the premise of producer responsibility is the wrong way.</p>
<p>Is it not the case that in principle, producer responsibility should fall on the producer (maker) and that how to share responsibility among businesses would be a secondary topic of discussion? Isn't that where product stewardship and EPR differ?</p>
<p>For example, some countries include makers of raw materials. Basically, what is important is who decides on the design for the product. Under the way of thinking that says that this is the consumers who make up the market, it would make sense to transfer costs to product prices.</p>

I believe that it is producers who influence product design (i.e., are able to decide on and change specifications) and product pricing.

There is considerable variation in retailers and importers/exporters, with some being very large and some practically individuals. I answered these with no designation of business size.

I answered this question based on consideration of the perspective of thinking of packaging waste prevention in a packaging recycling system and influence on consumer choices (regarding the shopping bags, trays, etc. used in retail stores). However, there is a need for consideration from perspectives such as policy objectives to be achieved, and which parties should be held responsible for achieving them efficiently. I think perhaps this should be considered on a case-by-case basis depending on the policy objectives to be achieved.

The responsibility of product users (consumers) is important.

Table A5 Comments to a question, “To what extent do you agree or disagree with each of the following general statements about EPR?” (Shaded cells represent those translated from Japanese into English.)

<p>The value of the recycled products (secondary materials) is not visible enough to most producers, due to lack of information from both recyclers, collective schemes and/or authorities. That's the biggest problem!</p>
<p>There is a danger that producers can drive down the costs paid to service providers, not by improving their products or the collection systems, but through monopoly like powers. The price may go down, but the performance of the system or products is not necessarily improved.</p>
<p>Impending resource scarcity would encourage producers to improve product design for recycling in the long run. This would ensure future availability of raw materials or resources which is a prerequisite for business to exist. If municipalities are responsible for collection of various products, consumers might mix all products and dump. This might increase costs of separation but there would be some other benefits from economies of scale. If retailers collect waste products, then it might be possible that the separation is easy and less chance for contamination.</p>
<p>But again, it all depends on the product and the country concerned. I assume that in the last question, you mean "should" have the property right rather than "does" have it.</p>
<p>Municipalities can be great collectors, but engaging producers and retailers in the collection process some innovative and efficient collection methods can evolve. to simply leave collection to municipalities can be restrictive. by engaging the producers in the collection they may develop new business models for more sustainable products</p>
<p>Depends, what we understand by physical collection? My clear point of view, is that EPR should be in hands of the legal obliged companies who pay the bill and should conclude contracts with the municipalities and via them with the waste operators. The EPR compliance schemes should not be trucks and so, but decide upon the logistics and technical standards for collection and sorting. Their technical standards should be approved by the competent national authorities via accreditation. I'm always available to give more details about the Belgian system re household packaging.</p>
<p>Public awareness should be paid for by producers but shared with government -- producers have an incentive to keep awareness low.</p>

<p>There is a negative competitive advantages for SME's when being producer compared to existing large enterprises due to the administrative nightmare EPR are causing in state by state patchwork in the US/ Member States of the EU. Am in favour of cost externalisation/internalisation at point of sales, preferably as a tax iso producer compliance costs due to its admin advantages and collective nature</p>
<p>The issue of property rights can introduce significant risks to the EPR program, they should be judged on merit, rather than generalised. For example, hazardous waste from products versus non hazardous</p>
<p>I assume producers will deliver waste management function through other entities -- but that municipalities will exit this activity, which should not be a core municipal function.</p>
<p>If producers bear 100% of the financial burden of EPR then they should have to "play by the rules" of entrenched, not competitively awarded municipal contracts/services (which is not generally common, but still does happen)/</p>
<p>It depends on multiple factors</p>
<p>It is very product dependent if design changes can impact recycling.</p>
<p>EPR should take into account financial responsibility (and thus a financial incentive to make technical or market transitions) for the whole life cycle of a product including distribution, use-phase/consumption, waste and post-waste phases.</p>
<p>Explanation point 2: the regulations should take care this will not happen. Explanation last point: considering producers contract waste management companies.</p>
<p>Many of the statements depend on national conditions, hence the neutral position</p>
<p>The market position statement depends on the financing mechanism.</p>
<p>The correct answers for above might differ country by country. Since the WEEE recycling is entirely societal system, the optimal solutions differ by country to comply with local e-waste flows, collection/recycling infrastructures, people's mind and habits etc.</p>
<p>For the last statement, my only experience is with electronics. In that case, the time lag between when a producer would give product information and when that product comes back for recycling is too great to have an impact.</p>
<p>Please consider that the majority of your questions (in this and other sessions) depend on the situation, product type, price, etc..</p>
<p>In cases when municipalities are responsible only for the physical collection of the discarded products and the producers pay for the collection cost, the producers</p>

<p>should be in a position to influence those costs.</p>
<p>You lack comment fields to section 7, 8 and 10. The answer to q8 is dependent on who the information should be directed to. Is the information for recyclers or the general public? 2: Often there is no contact between recyclers and producers. Therefore the information has no quality for recyclers. Recyclers apply a "bulk technology" and no specialized technology. Therefore specialized product information has little value for recyclers. 3: If EPR is introduced and a producer has no access to the waste. Then the EPR is an illusion. 5: however, only if recyclers and producer agree to Invest in specialisation of recycling rather than the "bulk" Technologies that are Applied today. 6: yes, because the introduced governmental or semi-governmental fees and administrative burdens are often equal for small and large producer. However, the large producers have a profit from the material recovery, where the small producers only experience the costs. 7: can they insert the cost other Places? 8: depends strongly on the national/local context and the product characteristics: Are the products distinct and of high value when they becomes Waste such as mobile phones and are the products for professional applications such as Wind power plants. In both cases EPR could Work. However, less likely for a cup or a iron.</p>
<p>With regard to "Producers should include the cost of recycling and waste management or part of it into the price of products." I believe that they should not , but are very likely to do so. With regard to "Municipalities can collect waste product more efficiently than producers do." I see examples in Lithuania where municipalities are far away from being efficient in collecting recyclable materials, and with the lack of control mechanism are not likely to improve in the near future.</p>
<p>Note that in the US we have a more pure form of producer responsibility than does Europe, by which the producer is responsible for collection from the public. So question #2 is odd for me.</p>
<p>Targets should be discussed between authorities and producers to avoid unrealistic targets such as we see in Australia. Authorities should also engage reputable analysts to ensure proposed targets are achievable. EPR is not about the property right of producers to the items. Recycling and treatment costs should be internalised by producers and not just passed on as a fee to consumers. Public awareness should be a partnership between producers and authorities/municipalities, producers may pay for some or all of the awareness raising but municipalities should be encouraging good consumer behaviour at end of life anyway.</p>

Public awareness is the responsibility of producers, NGOs and government
EPR policies can strengthen position of dominant market players is there is failure of proper oversight on part of competition authority on things like PRO structure/function. Dominant players should not be able to structure PROs to their advantage. There is real potential for abuse/unfair practice and it does happen. Also, effective government oversight of product end-fate is an area that could improve. My sense is that there is an assumption among many policy makers that an EPR program will automatically lead to better environmental outcomes (so, according to this assumption government does not need to monitor that environmental performance of the EPR program). Business incentives are to comply at least possible cost. If government standards for product management are absent or not enforced, the cost cutting objective can be achieved though environmentally inferior methods, such as export to jurisdictions with low environmental standards (e.g. export for "reuse"). In absence of effective treatment standards, there is little point in an EPR program.
As regard who has the property right, it is difficult to have a black or white answer as depends on the level of coverage by producers
This is more of a comment on the statements in section 10. Many of those were common opinions about EPR, but I have not seen actual evidence (through research studies) that would validate the opinions as true.
Cost transparency to consumers is an important educational and control tool, especially for durable goods.
There are lots of countries that have no municipality collection points or infrastructures. A lot of these questions really lead one to see the producer only as a 'large' producers. Small producers may not answer these questions the same way.
Many of these depend on the product in question.
Question 1 and 7: This strongly depends on the approach taken to implement EPR! Question 8: This depends on the product. In case of a product which is sold in small numbers in a non-competitive market the answer would tend to "agree". In cases where high numbers are sold in a very competitive market the answer would be "disagree"
During design EOL cost are often too far in the future to predict accurately what the cost are and too justify a design change. by making producers responsible for all public awareness you will get very fragmented communication campaigns, different for every product group while there is really only a simple message to convey:



separate all your waste for recycling. There is role for government to coordinate this. Recyclers only require generic product information, not too detailed on product level. There are simply too many different products available. Furthermore recyclers are very good in finding this information by themselves if a municipality wants to be compensated for cost of collection he will need to hand over the collected materials. If the municipality wants to trade the materials he will not be compensated. Care must be taken that municipalities select recycled that reach minimum collection rates

A vicious circle is hypothesized in which 1) the costs of recycling are reflected in product prices, 2) this causes consumers to avoid purchasing the products, 3) this in turn leads to a shift toward products that do not require recycling, and 4) as a result the issues of recycling and waste processing themselves are left unresolved (i.e., their costs can no longer be secured).

In Japan, local governments are considered to have primary responsibility for wastes generated by ordinary consumers. The framework of the Waste Disposal Law is based on this concept.

While the answers to the questions under 10 and 11 are general since there are differences among individual products, isn't question 11-6 subject to the systems of society as a whole and the legal system on waste processing? I refrained from answering it. This tendency can be said to apply to other questions as well. The answers will differ in connection with how one thinks about the systems of society as a whole. Such points are not clear in basic recycling plans or similar matters either.

EPR (extended producer responsibility) should be understood as a social responsibility to be fulfilled by a single stakeholder in waste processing of products and packaging. I believe that development of an efficient and rational system and rationalization of social costs cannot be achieved without the participation and cooperation of stakeholders.

There are gaps between the concepts of EPR (particularly locations of responsibility) in Japan and in Europe. To ensure a broad-based understanding of it, if these ways of thinking are not standardized then doubts would grow.

It is thought that if waste has value, then a market for it would form on its own. Even in such a case, some waste would remain after removal of the valuable components, so that even valuable waste probably would eventually lead to some environmental load. For this reason, the issue of waste processing cannot be resolved through its economic potential alone. It is thought that this will lead to the eventual

<p>establishment of the concept of EPR. Thus, it is hoped that some positive examples will accumulate, even if only a little at a time.</p>
<p>Shifting of costs is not a solution. Fundamentally, the concept of EPR (extended producer responsibility) should be changed to one of the duty of coordination and cooperation with related parties to lessen environmental load and reduce social costs. The burden of social costs should be determined based on agreement among related parties as a result, and costs should be externalized for purposes of sharing of information and transparency.</p>
<p>It would be more efficient for local governments, which have close ties to the community, to conduct waste collection and other activities in an integrated manner than to have each producer do so individually. Also, if producers bear the costs of such collection and other activities, then local governments will not carry out efficiency improvements, resulting in rising social costs.</p>
<p>I would like more venues to be created for exchange of information between producers and recyclers concerning appropriate processing and recycling. (While the Home Appliance Recycling Law does set up organizations having such a function for both groups A and B, this seems to be highly exceptional.)</p>
<p>It is important to clarify the scopes of producers' and local governments' roles and responsibilities.</p>
<p>I chose "neither" for the second from the top to mean it as "don't know," since it was hard to understand the relationship between benefits and costs.</p>
<p>It is a fact that the information that producers can provide to recycling and waste processing businesses is limited.</p>
<p>The final question cannot be considered appropriate. It is my understanding that ownership cannot be assigned to wastes.</p>
<p>While this may be off the mark or a groundless fear since I am not highly familiar with the law, of course domestic laws should apply to overseas makers too. It is vital that consideration be given to ensuring that it will not be a system that disadvantages only domestic manufacturers. Also, strict systemic requirements that only apply domestically will foster an outflow of waste products to overseas markets and illegal transactions, so that I believe that this is an issue on which a system should be designed in cooperation with foreign countries, particularly China and Southeast Asia, instead of discussing it only within Japan.</p>

I would like you to consider the fact that it is not such a simple subject.
Regarding reflection in final product prices, I believe that the results will vary depending on whether or not that is made visible. For this reason, discussion of this matter is essential.
Whether or not processing costs can be shifted to product prices probably depends on the product. It will also likely vary on whether it would be better to internalize prices or it would be more effective to add them on explicitly, whether it would be an incentive to consumers, and on whom to expect monetary incentives to work.
I believe that EPR would be impossible without transferring costs to product prices.
The questions included "ownership of collected items." I believe that if the producer entrusts it to local government then ownership belongs to the producer, and if there is a division of responsibilities established by law or regulation then even if, for example, the producer bore the costs it is not the case that bearing costs equals ownership. Since which of these cases applies here is not identified, I answered "neither."
The questions included "producers . . . should reflect it in product prices." I answered this for a case in which the producer collects and recycles used products.
With regard to ownership of collected articles staying with the producer instead of the local government when the local government has only physical responsibility for collection of used products and the producer pays the cost of collection, aside from ownership of the articles, it would be appropriate for authority for control over local government with regard to matters such as collection methods to arise on the part of the producer.
This question is one-sided and hard to answer. Whatever the case, a stereotypical approach of holding only the producer or only local government responsible is unlikely to be able to achieve rational waste processing. It is important to support cooperation and helping each other among related parties.
If EPR assigns physical and monetary responsibility to market participants (producer and consumer), then collection by local government would contradict or change the definition of EPR. If the producer entrusts collection to local government voluntarily rather than by law, then the producer would retain ownership, but in other cases it would not. Traditionally EPR has been implemented through voluntary agreement between government and industry. Responsibility differs from legal

liability. The law defines the framework for EPR, and the start of everything is leaving it to market principles.

Since product lives, forms of distribution, and waste flows differ greatly by product, many of the questions seem meaningless if answered in a general sense.

For example, the copier/multifunction printer industry in which my company (XXX) takes part is advancing joint industry-wide collection. Though it has to be mentioned that it reflects the unique situation in which the copier/multifunction printer industry consists almost exclusively of Japanese firms.

The idea of EPR is changing in quality worldwide. The trend worldwide is toward producers thinking it is enough to pay money, local governments and waste processing companies thinking it is enough to receive money, and consumers not wanting to pay money. This tendency is advancing in developed countries, to say nothing of developing countries.

Table A6 Open answers to “If you have any other opinions about EPR and/or this survey, please feel free to indicate below.” (Shaded cells represent those translated from Japanese into English.)

<p>The EPR application in specific areas, especially for those that don't have market potentials, such as waste batteries, plastic bags etc.</p>
<p>Maybe the scarcity of rare metals and extended knowledge of the values in the waste resources (WEEE/Batteries/ELV) can lift the importance of EPR among the producers....first then the environment really benefit from EPR</p>
<p>EPR on textiles is currently being discussed in Sweden, voluntary or mandatory</p>
<p>At the beginning of the survey, you explained that EPR and product stewardship are similar concepts, which I agree. However, I would not use EPR and product stewardship interchangeably. In the Northwest Territories, Canada (XXX), we have a product stewardship program for beverage containers. This program is operated/administered (both physically and financially) by the Government of the Northwest Territories. However, the program is financed through visible fees placed on the product at the producer level (which gets passed on to the retailer, and eventually the consumer). This is where the distinction is between an EPR program and a product stewardship program - who is operating the program and who is managing the money. In a true EPR program, the producer operates the program and they manage the money. In a product stewardship program, a government body (either a department, a crown corporation, or something similar) operates the program and they manage the money. Both EPR and product stewardship programs finance the program through visible fees place on the product at the producer level that is usually passed on to the retailers and then consumer.</p>
<p>some of the questions were a bit too simplistic, especially the last ones, so i answered the middle road - neither agree nor disagree. it's interesting to receive such a survey, especially as there appears to be renewed interest in EPR, although i'm not sure what will 'officially' come of it (I'm speaking specifically about the run-up to the EU waste legislation review to come in 2014).</p>
<p>It would be interesting to see how EPR creates value for companies by innovation, new product development, development of new business models, reduces risks and creates more opportunities etc. This might convince companies to adopt EPR.</p>
<p>I am on the board of XXX and it would be great to exchange and share information with this group - the CEO of XXX - i have forwarded this survey to him, just in case you haven't. XXX. EPR is about producers firstly to reduce the environmental</p>

and human health impact of their products. Importers/retailers/government and the community have a responsibility to work collaboratively with producers in optimising producers efforts to reduce this impact. There is no set formula for how an EPR scheme should work - it really depends on the product. What is important is that producers work collaboratively with governments to develop an appropriate regulatory framework that enables producers to achieve the goals of EPR - sustainable products that do not negatively impact human health or the environment

EPR should be run by the legal obliged companies. EPR should be a not for profit or profit not for distribution activity. Paying the full cost gives the obliged companies the right to codecide on the operational implementation and to control it. Each actor his role: EPR in hands of obliged companies; partnership with the municipalities; waste operators suppliers of a qualitative service; ... If the Compliance Scheme pays the full cost, it has the right to have the income of the recycled material. As a consequence, if the prices are negative, the compliance scheme should also pay that bill. If you are interested in XXX and XXX, please do not hesitate to contact me.

This is a very thoughtful survey. It demonstrates that a lot of effort has gone into it's preparation. I am very interested in seeing the results of your work. All the best to you. XXX

Definitions on EPR, shared responsibility, obligated industry, post-consumer packaging etc. are needed. I offered my personal views.

The concept as such is too academic. The application helped in early stages to have EPR programs, but is harming further development due to its Single actor focus. Improvement in the waste management (collection and treatment) phases are much more urgent than prevention via EPR and design feedback loops, even when as such there is nothing wrong with prevention as an approach.

Cost internalization of any eco-fee associated to product management through a regulated EPR program is essential. True cost accounting will drive waste management costs down and will provide an opportunity for successful Extended Producer Responsibility programs rather than Extended Consumer Responsibility programs.

I would like to have seen more questions about the possibility of a more diversified waste management industry emerging in response to EPR, rather than the implication in these questions that municipalities (and their traditional waste management contractors) will play a central role. This may be a subject for further

research by the program.
Interesting set of questions - I look forward to seeing your analysis of the results
Question 14. The point about trustworthiness of people and of companies: If companies are watched by the society, and legal measures clearly show what must be done, I believe that companies do follow the law. Maybe more so than individuals, since companies' activities are (or should be) more intensively monitored.
Great survey!
EPR is a complex concept and I would really appreciate if you could send me more information about it or studies, everything you can provide me with to deeply understand this concept will be useful for me. Thank you very much.
The promise of EPR to deliver improved product design has not been realized, as most systems enacted around the world have focused primarily on shifting cost for collection and recycling from government to producers. In order to make these systems cost-efficient for producers, they mostly have avoided any direct feedback mechanisms (either regarding the physical products or financial flows) to actually drive producers to bear the true cost of their design decisions. The next general of EPR laws and policies should look at this more carefully and be designed to provide greater incentives for truly greener products, through such mechanisms as individual product responsibility, differential fees based on product design especially around EOL processing and reuses, etc.
EPR is effective if it leads to real world technical changes or prevention, more than an effective financing system for collection and recycling. The scope of EPR is to make change happen, not to finance waste treatment (although this is a nice side effect). The power of EPR is its financial incentive for individual companies to change its products, processes, packaging and market strategies. Individualised iso global fees are necessary for this. Why not extend EPR to financial responsibility for marine litter and remediation of environmental harm caused by it (including plastics, packaging, micro litter...)
Related to EPR, it is important to have recycling industries for these products in a country. That is not always the case, which means export is required. But in Southern America most countries have forbidden import of hazardous waste, which complicates finding recycling solutions at regional level, while recycling solutions at national level might result being very expensive. Affortunately that is not the case for Chile, as import of hazardous waste is not forbidden.
There was no comment box for this statement: 'In cases where individual producers

<p>collect and recycle/dispose of their products in cooperation but each producer pays a recycling/disposal fee differentiated based on end-of-life feature of their products such as recyclability and disassemblability, each producer will improve the product design.' I believe it would be a great deal of work to create a pre-assessment system for recyclability of 1000s of new products that will then take many years to arrive at a recycling facility. It's probably better to create a collaborative for designers to learn from EOL recyclers (this may already exist), and perhaps make some annual recognition to companies that are designing for EOL.</p>
<p>I am curious to see the results. But have some doubts regarding comparability of answers across different sectors</p>
<p># I'm afraid EPR concept is almost dead in the advanced countries (EG in the EU) since Producers are not appropriately incentivized as the EPR concept originally targeted for. I feel many producers in EU merely negotiate recycling fee with service providers, recyclers, not by promoting DfE/DfR by themselves, It will just lead big producers survive in the market. On the other hand, in some emerging counties legislators wrongly utilize EPR as a tool to make producers bear the financial burden.</p> <p># It is necessary to observe local conditions country by country, but most importantly, I believe Extended Stakeholder Responsibility (ESR) should become a key concept in place for EPR.</p>
<p>A nice survey but I have concerns that some questions are more complicated than the given answers can convey.</p>
<p>Successful EPR's should work together to communicate the values of good EPR in a more systematic way.</p>
<p>The discussion about EPR is often theoretical. What sets the limit is the physical collection because it involves all citizen and also the administration, it easily gets to complicated.</p>
<p>I enjoyed answering the survey but, as i said in one of the questions, please consider that the majority of your questions (in this and other sessions) depends on the situation, product type, price, etc.. So, even if I was considering an "average", the correct answer for many questions depends on the context and the features and price of the product.</p>
<p>I would be interested in receiving some feedback on the results of your survey. Please include me on that when made public.</p>
<p>I was unable to change EPR for Product Stewardship at start of survey. therefore my</p>



answers are PPS related
<p>About competition:     EPR organizations (PRO's) act as an extension of producers and importers. As long as they are controlled by these producers/importers, there is no need to have competition. PRO's work can be controlled to work at the lowest possible costs. Any form of competition would lead either to profit making of PRO's at the expense of producers/importers (which might lead to higher costs in situations where the cost structure is already low), or to inefficient and thus also ineffective and inefficient (in terms of costs) waste management. Competition between PRO's might only lead to cost minimization in markets where the total costs of recycling are high. An example is packaging EPR in Germany, where the cost of EPR per capita was much higher than in other European countries, but is reduced because of competition. Worth mentioning in this case is that no PRO is owned by producers and importers.</p>
<p>One area where I believe more work on EPR needs to be done is in the setting of performance targets and in monitoring and reporting on program performance including the meeting of targets. Equally important is structuring EPR programs to ensure producers have individual producer responsibility rather than collective PRO responsibility and that program costs are not flowed through to consumers as eco-fees at the point of purchase. Cost internalization is one of the essential elements of all EPR programs to ensure that producers are given clear signals for the improving the environmental performance of their products.     XXX</p>
<p>You lack comment fields to section 7, 8 and 10. The answer to q8 is dependent on Who the information should be directed to. Is the information for recyclers or the general public?</p>
<p>Thank you very much for challenging and interesting questionnaire. It was a pleasure filling it. I only have a small comment on the structure of the Question Nr.15. It would have been great if there was a Comment place after it (as was with others), as some of the statements are discussible and answer depends on the specific case, rather than an average value/performance. e.g. I agree that "Tradition is important", however only as long as it doesn't become a way to avoid beneficial and necessary changes/improvements; and I do hope that "The world will become a better place in the future", while I cannot claim it will if everyone of us will continue living as usual without any changes in our daily habits, such as keeping high consumerism level, reducing the durability of consumer goods, manufacturing and buying low quality consumer goods for short term use etc. Wish you good luck and</p>

all the best with future research on this topic.
Please know that I answered from an electronics perspective only. I have been involved with other EPR programs, but mostly electronics. EPR is a very positive policy initiative that will take many years to achieve its potential. But it must address all life cycle stages. Simply EoL responsibility is inadequate to the challenge. That is why I started XXX.
I am a supporter of EPR and I am worried about divisions within the US recycling movement about EPR because it is sometimes presented as a competitor to existing recycling programs. If EPR advocates work with recyclers, we can use EPR to clean up the discard stream, get producer support for recycling and figure out how to deal with hard-to-recycle items. But today, many EPR advocates are disregarding the concerns of the existing recycling sector and turning would be allies into adversaries.
Thanks. This is important work you are doing.
It would have really helped if you had started with a definition of what you meant by EPR as the term is understood differently in different regions. In some it means the whole lifecycle and others just the end of life elements.
I would have included some questions to differentiate EPR activities in developing countries and developed nations. Factors that affect EPR are different in these areas.
Thanks for taking this on. I look forward to the results.
I wish you were asking more about QUALITY of recycling resulting from EPR. This is a big issue in the US (it's BAD).
I am very glad that you are conducting this survey. I'm concerned about the way the term "EPR" has been re-defined recently in the US, to mean only "legislated take-back programs." The brand owners and their consultants have had an oversized influence in shaping EPR policy in North America, and so the concept has been watered down and redefined to weaken government monitoring and enforcement. That said, programs all over the world suffer from weak accountability in the calculation of recycling rates, which are inflated by not counting the waste of "free riders," and recycling rates that are inflated by contamination, and recycling rates that are inflated by other techniques. Thank you for doing this survey!
Great approach! Thanks for inviting to take part.
Information to consumers / citizens is crucial. So information responsibility must be reinforced in EPR
A lot of these questions were open to debate - as in from what perspective they are prepared, so I am interested to see the results.

<p>It is important that external costs get internalized and EPR will be introduced all over the world. It makes not sense to introduce it in only one country.</p>
<p>EPR is a great idea if in the long term the industry created by its financing can sustain itself through the sale of raw material extracted from its waste. It is a bad idea if the only objective is to "punish" someone for what is viewed as wasteful product consumption.</p>
<p>See OWMA's just released policy paper on EPR - <a href="http://www.owma.org/lib/db2file.asp?fileid=1279">http://www.owma.org/lib/db2file.asp?fileid=1279</a></p>
<p>Both as secretary general for XXX, and all our members organizing schemes for plastic packaging and agri film, and for me as a consultant for take back systems (existing and new schemes) both for industry and Governments EPR is important. And might be the key for a circular economy and thus in order to reduce climate emissions and conserve resources. However EPR is still just a tool, a tool to be handled in the right way (Look to Swedish endless discussions on packaging)</p>
<p>Major problem in Europe is the monopolistic system. There is not enough efficient benchmark between PRO in Europe. PRO should be audited and qualified by an external organization which would depend from the European Commission. Reporting provided by Governments are not 100% correct! Your survey should separate consumer products returns (C2B) and professional products returns (B2B)</p>
<p>Social costs cannot be reduced without the use of caution regarding monetary problems. I think that the entire population needs to be more aware of the fact that higher costs mean a greater environmental load.</p>
<p>One view on the subject of food-product packaging waste is that the businesses should bear responsibility for collection and transportation. Considering this argument deeply leads to the question: What about fresh vegetables and fresh seafood? While these too are food products, vegetable scraps and fish bones are generated as raw waste and local governments collect and transport them. All food products should be handled in the same way, and particularly dirty packaging, etc. should be treated as raw wastes.</p>
<p>The degree of recognition of EPR (extended producer responsibility) seems very low. In particular, there seems to be zero recognition of it among SMEs.</p>
<p>I was impressed by the way the items on questions and answers are well organized, without disproportionate emphasis on any subject. While it is unfortunate that it is unclear how the results will be tabulated and what findings will be drawn from the results, perhaps this makes one anticipate seeing the results more. I look forward to</p>

seeing them.
Please refer to the papers and other works published by the author XXX. I plan to transmit some of them later.
I believe that the waste processing costs minimized by society through an EPR (extended producer responsibility) system and fair market competition should ultimately be borne by consumers, and that consumer choices are the most important elements in improving society. For this reason, I believe that EPR should be "Extended Consumers' Responsibility."
In consideration of factors such as Japan's waste processing administration (including permits), consumers' awareness of rights and sense of duties they should fulfill, and the awareness of local government agencies, it still would be difficult to apply EPR in Japan. Even in my scant administrative experience, there were cases in which environmental administration could not be accomplished due to factors such as systems and historical and social issues unique to the Kansai region. When implementing EPR, in the absence of more transparency in areas such as environmental accounting, including the environmental administration of local governments, it is unlikely that the understanding of related parties can be achieved. However, politicians of any party are likely to agree with having companies provide money to local government agencies.
In discussing EPR (extended producer responsibility), discussion at a general or abstract level alone is not enough. I believe that discussion needs to be conducted based on matters such as product characteristics, market structures, and the actual conditions of production, distribution, and consumption, for each group of products. Even in general or abstract discussions, practitioners will tend to think based on their experience with the products with which they are involved. I believe that this fact also needs to be taken into consideration.
EPR is a project promoted under Japan's sponsorship. It has succeeded in avoiding a "garbage war." Has it not contributed to efficient waste management?
For many years I have addressed the question of how to put EPR (extended producer responsibility) to use in Japan's Basic Law for Establishing a Sound Material-Cycle Society and individual recycling laws. Particularly when attempting to apply it to individual recycling efforts instead of just to fundamental principles alone, there is a need to think about more efficient systems within all relationships including the distinguishing features of industry in specific fields, the distinguishing features of resources, sales methods and waste logistics, and technological innovations in

recycling, instead of just thinking in a fixed way based on one's own awareness. Also, in recent years incorporating market mechanisms has come to be seen as important, amid tight resource supply and demand worldwide. I believe that another interesting point to consider is how these changes in social, economic, and global factors will lead to changes in awareness.

It was hard to understand the main points of a number of choices. Also, I believe that some very interesting findings might have resulted from questions about whether EPR (extended producer responsibility) was considered a principle or a means of policy.

From the point of view of the retail industry, it would be quite difficult to, for example, shift the costs of the Packaging Recycling Law to product prices amid conditions of consumer price orientation and a tough competitive environment. Also, while collection of packaging in stores is well established as a social infrastructure, the restrictions of the Waste Disposal Law serve to hinder its efficient operation, making it difficult to expand. I believe that there is a need to review the ideal form of incentives for efforts (or disincentives for making no efforts) and provide systemic backing, including legal matters.

While it is natural for the parties earning profits from business activities to bear their costs, thorough system design should be conducted through laws. The EPR concept itself is not established in law. For example, although the Law for Promotion of Effective Utilization of Resources is based on the EPR concept, it places weak obligations on foreign products, forcing only domestic firms to bear massive responsibilities. Also, the Small Electronic Appliance Recycling Act completely rejects EPR, so that the laws are completely inconsistent and serve only to invite confusion about the EPR concept.

Greetings, XXX. It's been a long time. As noted above, I am involved in activities intended to choose products with knowledge of their entire life cycles. While of course the waste stage is very important, I would like producers to give more attention to upstream stages as well. I think that having full knowledge of upstream stages would lead to changes occurring on their own in consideration of both manufacturing and waste stages. I also would like them to work to make the buyers of products aware of such upstream information and use it as a condition in making choices. While it was said that this questionnaire could be completed in 10 minutes, it somehow took a full hour.

While EPR (extended producer responsibility) has been considered as a means of shifting part of the administrative responsibility for processing swelling urban waste to producers (with consumers bearing the cost) and it is thought that it would encourage DfE efforts by producers as a result, almost no solution regarding the approach of recycling urban waste would result from shifting part of the responsibility to producers. It would be difficult to form a sound material-cycle society without reconstructing the urban community through fostering the spirit of valuing things and a way of thinking that wants to avoid waste. It should be recognized firmly that a society in which all related parties work together instead of one in which everybody expects somebody else to do it will lead to lessening of environmental load, reducing social costs, and protecting the earth's environment. Japan should set an example for the world, since it is one of the few countries with a social structure that would make it possible to do so, in which a concept valuing harmony is shared. Multiethnic, multi-religious countries such as those of the West are individualistic societies that have attempted to realize urban waste processing through the EPR method by making responsibilities clear. It should be understood that in some aspects there is no other method available for them to take. However, it definitely cannot be said that this approach has been successful. While some objectives have been achieved, this has not proved a solution to the essential problem. Even forcible transplanting of the OECD's EPR approach could not achieve its objectives in Japan, which has different ways of thinking and ideologies. We should aim to build social systems and environmental preservation systems suited to the state of affairs in Japan. If EPR is adopted, it should be used as a partial, emergency countermeasure.

It is thought that EPR (extended producer responsibility) refers to revising the existing way of thinking that considered products to consist of only their content to one of responsibility for products in their entirety.

I believe that in building a sound material-cycle society, sharing of responsibilities and cooperation among related parties are important. I consider these to be prerequisites for EPR (extended producer responsibility).

Even though products are generally made from recyclable resources, they become hard-to-manage materials to disposal from the stage at which they are combined with different materials. I believe that this ultimately leads to resources turning into wastes, with large volumes of waste arising as a result. I would like consideration to be given to creation of sustainable rules in the direction of long-lasting products

<p>gaining competitive advantages, through development of recycling routes for simple, high-quality products when they are no longer usable after lengthy use, as well as having (construction and other) companies fulfill their production responsibilities over time.</p>
<p>I believe there is a need to move forward to create an environment in which consumers proactively take steps such as buying products involving less waste, products that are easy to recycle, and products that can be used for a long time, as well as repairing broken products to continue using them, so that businesses consider the best products to be those that do not generate wastes and are less likely to become waste themselves.</p>
<p>While it goes without saying that EPR (extended producer responsibility) is important, I believe that it cannot be applied uniformly to all businesses. I think that it is important to organize related patterns and develop an effective system.</p>
<p>I had difficulty choosing answers for some of the questions, because their main point was unclear.</p>
<p>In answering this survey, I got a true feel for how EPR contains a wide range of content and involves a variety of approaches.</p>
<p>Since conditions vary by product, I do not think it would be appropriate to discuss EPR (extended producer responsibility) as a general argument.</p>
<p>Please publish the results of this survey and related information, in some form.</p>
<p>Despite the fact that in Japan various recycling laws since the Packaging Recycling Law have adopted EPR (extended producer responsibility), it seems that it has become difficult to adopt it in amendment of the Packaging Recycling Law. To break out of this situation, I believe that there is a need for business performance data and a strong message on how EPR (extended producer responsibility) is most effective for building a sustainable, sound material-cycle society on a global scale, from countries around the world including the EU.</p>
<p>It seemed difficult to answer these questions, not only for subjects about which I had not thought much until now but even for those that I had discussed thoroughly. I look forward to the survey's interesting results.</p>
<p>I believe that EPR policy needs to be adopted in accordance with the level of responsibilities that producers can fulfill. Also, within the scope of what I have considered through now, there is a difference between the idea and what is practical. I believe that there is no need to force EPR if it is not practical or forcing it would be</p>

<p>inefficient, even if the producer ideally should be responsible.</p>
<p>This is a very valuable survey. Thank you for all your hard work.</p>
<p>With regard to environmental legal systems, since a variety of fields, organizations, etc. are affected over a broad scope, the number of matters on which no progress can be made unless multiple organizations and groups work together is increasing, not just in recycling but in other areas as well. Since similarly there are matters on which progress could not be made through EPR (extended producer responsibility) alone, I believe it is vital to advance through a system that does not seem unfair, with related parties having their own individual responsibilities, because the responsibilities of producers should be specified after making clear the division of responsibilities with organizations and groups other than producers as well.</p>
<p>Items on page 10 were overlapping (last and second from last). Please take care of this matter.</p>
<p>Excessively applying EPR (extended producer responsibility) involves the risk that it would weaken the sense of responsibility of the buyers and users of products, leading to expansion or continuation of social costs.</p>
<p>Since the question is too simple I found it difficult to decide on my answer. Note that my answer might have differed if the meaning of the question were clearer. I consider EPR (extended producer responsibility) to be no more than a means of policy that should be used first of all in policies to encourage DfE (design for the environment) on the part of manufacturers and to encourage use of DfE (design for the environment) products by users. Secondly, it should be used in policies to contribute to assigning responsibility for processing hard-to-manage materials to disposal in the waste stage. Thirdly, it should be used in policies to contribute to encouraging recycling that only businesses can carry out. In some ways it is pointless to shift responsibility for the costs of segregated collection and storage of waste for processing by local governments, depending on the size of such costs, under the name of EPR (extended producer responsibility). From the perspective of the responsibility of parties generating wastes, the user (consumer) should bear such costs. From the perspective of DfE (design for the environment) as a policy for waste prevention, it would not be unreasonable to hold businesses responsible as well. It is my belief that if adopting waste prevention policies, then measures such as waste processing charges should be used as responsibilities of the parties generating the wastes (i.e.,</p>



<p>consumer responsibility) and that EPR (extended producer responsibility) will not necessarily serve as a waste prevention measure.</p>
<p>Society is formed through cooperation and competition among diverse players. In not a few cases poverty in the public economy can be seen to provoke unreasonable argument. I would like to see a fair argument and thinking about the public benefit.</p>
<p>I believe that one aspect that can be expected from producer responsibility is the movement of social mechanisms in the direction of improvement through producers playing a role.</p>
<p>Many of the questions made one think, and it took considerable time to answer them. I am interested in seeing the kind of results that come from the survey.</p>
<p>The survey had too many questions. The person who asked me to complete it told me that it would be finished in 10 minutes, and I started answering it based on this belief. However, it would be impossible to complete it in 10 minutes if thinking seriously about the questions. If you want to get a large number of respondents, the questionnaire should be simplified.</p>
<p>While probably this is unavoidable in a survey like this, it seems that in some cases the explanatory definitions in individual items were vague and hard to understand. Even so, the results are likely to be very interesting, and I definitely would like to be informed of them. Personally, I think that Japan in some sense has quite a strong national character, and I think comparison is important in this sense too. (Although in some ways specialists are internationalized and this might not apply in that case.)</p>
<p>While EPR (extended producer responsibility) should apply to all used products, it is conceivable that when actually collecting and recycling them, social costs would be lower in cases when it would be efficient to do so using existing infrastructure. Currently, a wide-area certification system is in place. I believe that there is a need for flexible operation, for example through presumptive processing of products from other makers that cannot be collected under the system.</p>
<p>I can see that EPR in Japan would increase the burden on businesses from its current level. For this reason, the question is whether such an increase in the burden will lead to waste prevention through DfE, the objective of EPR. I believe that it would not function in such a way. Even if the costs were transferred to product prices (although such transfer of costs is practically impossible), I do not believe that it would transform consumer buying behavior. I believe that since EPR would not change things, the most important key is to reform the consciousness of the</p>

<p>consumers who make up the market, and execute autonomous action plans by businesses.</p>
<p>Until now, discussions of EPR (extended producer responsibility) have been conducted along the axis of financial burden. I believe that the waste processing responsibilities of local governments should be discussed from a broad-ranging perspective, not simply one of cost burdens. I would like efforts to be made aiming to establish a Japanese EPR through consideration of subjects including the experiences of foreign countries, not just Japan. This survey has served as an opportunity for reconsidering EPR.</p>
<p>I believe that when sorting this out from the perspective of responsibility it would be effective to do so by incorporating the responsibilities of other players (such as those responsible for generating waste [waste generated by consumers]).</p> <p>I believe it is difficult to discuss the subject of internalization of external costs in product prices without a firm definition of matters such as what “external costs” refers to and how far the scope extends in cases of export of used products, since products are diverse.</p> <p>I believe that some very interesting perspectives would arise from comparison of EPR with the thinking of Japan's Small Electronic Appliance Recycling Act.</p>
<p>On some points the questions were vague or unclear, and in some places questions were difficult to answer. Also, the answers available to choose from employed rigid and uniform phrasing, so in some cases there was no choice matching the answer I wanted to give. I believe that this is a result of a mismatch between the questioners' understanding of EPR and the understanding of respondents.</p>
<p>Thinking about the content of my answers to the questions in this survey provided a good opportunity for me personally to reconsider the concept of EPR (extended producer responsibility). Thank you for this opportunity.</p>
<p>I fear that when the options tend to be either-or choices, then the survey might not express the diverse ways of thinking about EPR, since the answers may become intermediate or conditional (disclosing results only, not the conditions) depending on the options.</p>
<p>Somehow, I think that awareness and opinions could differ considerably depending on the age of the respondent.</p> <p>It was easy to answer because it retained a record of answers even if one did not save it while in progress.</p>
<p>Cases stand out in which while trying to lessen environmental load by advancing</p>

environmental design of products, too much attention is given to lessening the environmental loads of the products themselves, actually making it more difficult to recycle them after the end of their useful lives. To resolve such contradictions, stages through processing of wastes should be clearly included in producers' EPR (extended producer responsibility).

While I believe it is important for manufacturers to take responsibility for moving forward because they have the abilities to recycle useful metals (e.g., rare metals, rare earth) and to process hazardous materials appropriately, since the role of the user also is important I believe there is a need to develop an overall system in which producers can take responsibility.

While originally this concept was from the waste and recycling field, it should be reconfigured to a way of thinking to contribute to lessening environmental load overall. In particular, the concept of reducing is a more fundamental issue with meaning for not just waste problems but also for resource use as well.

In the recycling and recovery field as well, specialists (companies) have the most knowledge of the field. Is it not the case that it is the sound working of market mechanisms based on compliance with various environmental regulations that would be most effective for reducing social costs?

Even if the groundwork for reducing and reusing has been prepared through applying EPR in the Packaging Recycling Law, there is a need for a system giving preferable treatment to businesses putting it into practice.

This is a very interesting survey. I think it would be very informative if a seminar-type event were organized to explain the results of the survey.

The Small Electronic Appliance Recycling Act conflicts with the idea of EPR (although it can be described as the most advanced regulation in the world).

There are many honest misunderstandings on the subject of reuse. Reuse should be promoted only within one's own country.