Product supply chain environmental management by electronics companies sourcing from Asia

A survey carried out as part of the AEDE project considering the implications for Asian SME electronics suppliers

REPORT

Prepared by:
The Centre for Sustainable Design
Farnham
Surrey, UK

September 2006 rev3

ABSTRACT AND KEY MESSAGES

Purpose and scope
The purpose of this work was to examine product supply chain environmental management practices by electrical and electronics equipment (EEE) companies sourcing from Asia .

It was conducted as part of the Asia Eco-Design Electronics (AEDE) project which aims to help Asian small and medium-sized enterprises (SMEs) in complying with product environmental legislation arising from Europe, Japan and elsewhere.

The focus of the work was to identify the level of product environmental support and assistance provided by EEE companies to Asian electronics SMEs, and to identify gaps in such support.

It was conducted in May-June 2006 through a literature review, e-mail and telephone survey and a limited number of face to face interviews with companies, industry associations and others. The survey included US, European and Japanese-based EEE transnationals supplying a range of product types.

The response rate to an e-mailed questionnaire was very low and so telephone follow-ups were necessary to gain a response. In most cases it proved difficult to obtain more than generalised information and no company was able to provide case studies at this point.

The overwhelming focus of current product environmental attention is on compliance with the requirements the European Restrictions on Hazardous Substances Directive ('RoHS'). However this remains a politically and commercially sensitive issue as well as the source of much disruption and uncertainty, even for large companies. Another reason for limited detailed information was that supply chains are often complex and detailed knowledge is vested in specialist supply chain managers in various parts of the world rather than the mainly environmental managers spoken to.

It was nevertheless possible to obtain some useful and relevant general findings from which conclusions can be drawn for the purposes of this study:

Findings
The main findings were as follows (further details are in the main report below):

- All of the companies interviewed practice supply chain product environmental management to some degree, including communicating environmental requirements to suppliers through specifications, guidelines, briefings, auditing and, in some cases environmental partnership programmes.
- Across the industry as a whole, product environmental requirements focus mainly on product materials compliance. A few leading companies such as Philips actively encourage suppliers to apply eco-design.
- The product and supplier environmental focus of international EEE companies is currently on compliance with European RoHS requirements and on associated issues such as testing and inventory management. Wider environmental or eco-design requirements appear to have generally assumed a lower priority except in those companies adopting a leadership position.

- The Directive on the Eco-Design of Energy-Using Products (EuP) is expected to elevate the importance of eco-design in supply chains, and companies are monitoring developments or involved in consultations. However they are waiting to see what will happen before committing to action. The 'REACH' Directive is expected to have more significant implications because of the potential costs of compliance.
- International EEE companies have complex, international supply chains of materials, components and assemblies. Asian countries, especially China, are a major part of the supply chains of most EEE companies and SMEs will be part of such supply chains. However, the focus of supply chain management by transnationals appears on first tier suppliers which, in a high volume industry, tend tobe relatively large companies rather than SMEs.
- International EEE companies do not generally appear to deal with, audit or directly influence or support SMEs and other suppliers in second tiers and lower tiers, although they may expect their first tier suppliers to do so, and will expect compliance and other information from along the supply chain. Original equipment manufacturers (OEMs) provide specifications and other guidance, including materials declaration and testing and other requirements which may be passed on to or accessed by lower tier suppliers
- Companies tend to adopt a risk-based approach to issues management. Products, materials and suppliers presenting compliance or other environmental issues are accordingly managed according to the business risk they present, for example risks to sales and profitability As the risks have become high for RoHS compliance – especially the risk of product withdrawal in the event of non-compliance - the requirements for suppliers in this area are becoming more stringent.
- Anecdotal evidence from International EEE companies suggests often low levels of awareness of compliance issues amongst SMEs even in Europe where there has been extensive information and consultation. The situation may be worse among Asian SMEs who have received little or sometimes incorrect information.
- Some companies such as HP are initiating Corporate Social Responsibility (CSR) and related programmes, including training and auditing relating to working conditions in supplier factories. It is not clear how far down the supply chain such initiatives will go.

Conclusions and implications for Asian SMEs

From the survey and country reports it is clear that international EEE companies are placing increasing environmental and other requirements on their suppliers: in the short term RoHS compliance is the main issue and in the medium to longer term EuP and REACH depending on how they involve.

Because of prosecution or other business risks that face international EEE companies, they will seek to minimise risks in their supply chains. SMEs which are slow to comply or which lack quality certification and product information are likely to be de-listed as suppliers. This is likely to happen anyway for quality reasons but RoHS may hasten the process,

SMEs down in the second, third tiers and beyond of the supply chain are unlikely to receive direct assistance with environmental compliance from transnationals although there may be indirect assistance or guidance. It was not possible within this study to identify the degree to which first tier suppliers are providing such assistance but it appears to be limited to information passed on through specifications and guidelines.

In conclusion, it appears that most Asian SME suppliers in second or lower tiers of supply chains are receiving little or no direct support from international EEE companies on product

environmental compliance and are at risk of elimination from markets as a result of more stringent requirements.

Assuming no significant further support by transnationals to SMEs, this survey reinforces the need for capacity – building assistance from government and trade associations.

The generally low awareness of compliance and eco-design awareness among SMEs suggests a need for simple tools such as management guidance and eco-design checklists rather than more complex tools. Pointers to more sophisticated tools may nevertheless be provided for those wishing to progress or needing to generate life cycle data.

In view of the continuing regulatory uncertainties and change, not to mention liability implications, it will not be feasible to provide ‘ tools’ or other assistance going beyond general guidance on compliance. Links to updates and interpretation will be needed.

CONTENTS

1 INTRODUCTION

1.1 Background

This review was conducted by The Centre for Sustainable Design (CfSD) at University College for the Creative Arts (UCCA) as part of the Asia Eco-Design Electronics Programme (Asia-Pro Eco) supported by the European Commission. The work was conducted in May-June 2006.

Work already carried out under the AEDE Project includes a review of European and Japanese product environmental legislation and other developments relating to electronics and electrical equipment (EEE), and country reports for China, India and Thailand. Other activities planned under AEDE include working conferences, the development of training tools and information links to help Asian SME EEE suppliers comply with European and Japanese environmental and sustainability regulations.

1.2 Purpose and scope

The purpose of this work was to map existing supply chain product environmental management activities by EEE transnationals sourcing from Asian countries, assess the implications for Asian SME suppliers, and inform the development of the eco-design 'tool(s)' for suppliers in Stage 3.

The work was to involve a survey to determine

- How major companies are presently managing or planning to manage product-related environmental and corporate social responsibility (CSR) aspects through the supply chain e.g. the WEEE, RoHS, REACH, EuP legisalation arising from Europe, and eco-design generally.
- What environmental aspects are being incorporated into product design and what will flow through to suppliers in South/South-East Asia.

The required output was to be a report setting out the survey findings, analysis of the implications for Asian SME suppliers, and recommendations for the development of tools to assist suppliers.

1.3 Conduct

The survey was a mix of e-mail, telephone and face to face interviews with a sample of EEE companies and others.

A questionnaire (Annex 1) was e-mailed to named individuals with environmental or related responsibilities in 25 major international EEE companies (using CfSD lists and other sources).

The response to the e-mail questionnaire was very small and was followed up with some telephone interviews and a limited number of face to face interviews. The organisations which kindly helped are listed in Annex 2,

In most cases it proved difficult to obtain more than generalised information and no company was able to provide case studies at this point. There are various possible reasons for this. The overwhelming focus of current product environmental attention is on compliance with the requirements the European Restrictions on Hazardous Substances Directive ('RoHS'). However this remains a politically and commercially sensitive issue as well as the source of much disruption and uncertainty, even for large companies. No company wants to be the first to be

prosecuted by an over-zealous inspector. The Sony Play Station product withdrawal experience in the Netherlands in 2003 is etched on the industry.

Personnel involved are under intense pressure and 'survey fatigue' is always a factor in responses. Another reason for limited detailed information was that supply chains are often complex and detailed knowledge is often vested in specialist supply chain managers in various parts of the world rather than in environmental departments. Providing detailed information may have been too difficult without extensive internal research. In Japanese companies supplier management is often conducted in Japan.

Through the responses received it was nevertheless possible to obtain some relevant general findings from which conclusions can be drawn for the purposes of this study:

2 FINDINGS

Eco-design requirements for suppliers
All of the companies spoken to practice supply chain product environmental management to some degree.

This reflects the situation for most if not all transnational EEE companies. Unless having exempted products, most EEE companies serving the EU as well as other markets are now having to work with suppliers to address RoHS and other compliance issues for most or all of their products. Even companies with product exemptions may only have temporary respite.

Among those spoken to some, such as Philips are already recognised as leaders in eco-design, practicing it internally and encouraging suppliers to do the same.

Across the industry as a whole the emphasis in supplier management appears to be on material content compliance rather then eco-design itself, and also includes first tier supplier production processes as well as product design.

The product and supplier environmental focus of EEE transnational is currently on compliance with European RoHS requirements and on associated issues such as testing and inventory management. As a result, wider environmental or eco-design requirements appear to have generally assumed a lower priority except in those companies adopting a leadership position.

The Directive on the Eco-Design of Energy-Using Products (EuP) may elevate the importance of eco-design in supply chains, and companies are monitoring developments or involved in consultations. However they are waiting to see what will happen before committing to action. Leading companies such as Philips have already integrated eco-design into products and supply chain management and so appear to be well placed to comply with whatever requirements may arise.

The 'REACH' Directive is expected to have more significant implications because of the potential testing, inventory management and other costs of compliance.

Working with suppliers

Transnational EEE companies have complex, international supply chains of materials, components and assemblies. Asian countries, especially China, are a major part of the supply chains of most EEE companies and SMEs are part of such supply chains.

Companies tend to adopt a risk-based approach to supply chain management. Products, materials and suppliers presenting compliance or other environmental issues are accordingly managed according to the business risk they present.

All suppliers will receive at least specifications and guidelines. Depending on the risk some may receive face to face briefings, training and auditing. ISO 9001 and sometimes ISO 14001 certification is an expectation or requirement for major suppliers.

For RoHS compliance the level of testing and verification will similarly depend on the product, material content and risk.

It appears, however, that the focus of supply chain management by OEMs is on first tier suppliers which, in a high volume industry, tend to be relatively large companies rather than SMEs.

This is possibly to be expected. The degree to which any company, however large, can exert control or influence over suppliers becomes difficult beyond the next tier. In any vertically structured industry with complex supply chains, the first tier suppliers have an important integrative role.

Transnational EEEs provide specifications and other guidance, including materials declaration and testing and other requirements which may be passed on to or be accessed by lower tier suppliers. Transnationals do not generally appear to deal with, audit or directly influence or support SMEs and other suppliers in second tiers and beyond, although they may expect their first tier suppliers to do so, and will expect compliance and other information from suppliers along the supply chain.

There may on occasions be involvement with second tier suppliers e.g. where they attend briefings.

Philips audits companies in lower tiers and provides them with eco-design guidance in the form of simple management tools. Philips considers that good practice by suppliers along the supply chain enhances the environmental and business performance of the end-product.

Anecdotal evidence from EEE transnationals suggests often low levels of compliance and eco-design awareness amongst SMEs even in Europe, even where there has been extensive information and consultation. The situation may be worse among Asian SMEs who have received little or incorrect information.

No new supplier product environmental initiatives were reported by any of the companies spoken to. As noted above, the RoHS pressure is still on.

No direct contact was made with participants in the Electronics Industry Code of Conduct (EICC). HP is about to launch new CSR programmes, including training and auditing relating to working conditions in supplier factories. It is not clear how far down the supply chain such initiatives will go.

3 CONCLUSIONS AND IMPLICATIONS FOR ASIAN SMEs

From the survey and country reports it is clear that EEE transnational are placing increasing product environmental and other requirements on their suppliers: in the short term RoHS compliance is the main issues and in the medium to longer term EuP and REACH will become issues depending on how they involve.

Suppliers will be expected to comply with increasing demands on product design, content and quality as well as testing and information provision.

Because of prosecution or other business risks that face EEE transnationals, they will seek to minimise risks in their supply chains. SMEs which are slow to comply or which lack quality certification and product information are likely to be eliminated from supply chains. This may happen anyway for quality reasons but RoHS may hasten the process,

SMEs down the supply chain are unlikely to receive much direct assistance with environmental compliance from transnational end customers. It was not possible within this study to identify the degree to which first tier suppliers are providing such assistance but it appears to be limited to information passed on through specifications and guidelines.

In conclusion, it appears that most Asian SME suppliers in second or lower tiers of supply chains are receiving little or no direct support from EEE transnationals on product environmental compliance and are at risk of elimination from markets as a result of more stringent requirements.

Assuming no further support by transnationals to SMEs, this survey reinforces the need for capacity –building assistance from government and trade associations.

The generally low awareness of compliance and eco-design awareness among SMEs suggests a need for simple tools such as management guidance and eco-design checklists rather than more complex tools. Pointers to more sophisticated tools may nevertheless be provided for those wishing to progress or needing to generate life cycle data.

In view of the continuing regulatory uncertainties and change, not to mention liability implications, it will not be feasible to provide ‘ tools’ or other assistance going beyond general guidance on compliance. Links to sources of updates, interpretation and advice will be needed.

ANNEX 1: RESPONDENTS

The following were interviewed by telephone except for those marked by asterisk which were face-to-face. All respondents are thanked for their assistance.

Agilent
BT
Ericsson
Fujitsu
IBM
Kiddie
Kyocera
Philips
Samsung
Sony Computer Entertainment*
Xyratex

Also interviewed:
Fraunhofer Institute re. its European eco-design workshops and survey (www.ecodesignarc.info)
Intellect (The UK trade association for the electronics industry)*

ANNEX 2: QUESTIONNAIRE

Eco-design and Supply Chain Management by Electronics Companies

The Centre for Sustainable Design (CfSD) at UCCA in the UK is undertaking a project (see www.cfsd.org.uk/aede) funded by the European Commission (EC) aimed at helping small and medium-sized electronics suppliers in Asia to comply with EU and other product-related environmental legislation (RoHS, WEEE, EuP etc). We are seeking to:

a) Clarify the scope of current environmental and corporate social responsibility (CSR) supplier programmes by electronics companies sourcing from Asia.
b) Identify potential participants for the exchange of information and experience with the aim of developing a 'tool' or guidelines for use by suppliers.
c) Identify possible case studies for presentation in the guidelines.

We would be most grateful for your assistance with these questions and early response. Completion will take between 5-10 minutes and all information supplied will be treated as in confidence and non-attributable without your permission. All respondents will receive an executive summary of questionnaire analysis.

1. Does your company actively apply/require eco-design* to be applied to the design of its products?.....
   Does this apply to all products?……

* The systematic integration of environmental considerations into product design and development

If yes to 1

2. Where is eco-design applied
   a) Centrally in your company (in-house or by consultants)……
   b) By suppliers (according to your company's requirements)……

Where eco-design is applied by suppliers

3. What environmental or related processes are applied to supplier/product selection e.g.
   a) Questionnaire e.g. on evidence of environmental management……
   b) ISO 14001 certification……
   c) ISO 9001 certification……
   d) Inspection and/or audits……
   e) Risk assessment (as part of procurement procedures)……

4. How is eco-design applied by suppliers and verified
   a) Conformance to environmental specifications……..
   b) By following specified tools or guidelines……
   c) Product and material declarations……
   d) Independent or in-house testing……
   e) Audits……

5 What assistance does your company provide to suppliers e.g.
   a) Guidelines and information (on-line or hard copy)……
   b) Hands-on and technical assistance……
   c) Training……
   d) Online tools……
   e) Other (please state)……..

6. What new initiatives (if any) are planned by your company? ……..
   ……
…

7. What do you see as the main challenges for the increased application of eco-design (in-house or by suppliers)……
……
Has your company yet considered the potential impact of the European Energy Using Products (EuP) Directive?.....

8 What is the structure and scale of your supply chain in Asia:
a) Main countries……
……
…
b) Numbers of suppliers (approximately)……
c) Size range/typical size by employee numbers (approximately)……
d) Main types of operation (eg materials and component suppliers, contract assemblers)……
……

9. What are your company's primary products?.....
……
What is its size (number of employees)……

10. Would you/your company be interested in further participation in our work and exchange of information and ideas through
a) A follow-up telephone discussion (if yes, please provide a contact number)……
b) Attending a workshop……
c) Possibly providing a case study for the proposed guidelines (this could be on technical application of eco-design involving suppliers or it could be on management processes)……

Please advise as to your contact details

Name_____Job title_____

Organisation_____

Telephone_____Email_____

Thank you for your assistance. Please reply to tomsclark@bigpond.com, or mcharter@ucreative.ac.uk OR faxback on 00 44 1252 892747