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Under-estimating the importance of consumer behaviour – The UK WEEE obligations

Cerys Ponting
Research Associate
PontingC@cardiff.ac.uk

Hazel Nash
Research Associate
nashha@Cardiff.ac.uk

Frances Hines (BRASS Alumni)

ESRC Centre for Business Relationships, Accountability, Sustainability and Society
(BRASS)
Cardiff University
55 Park Place
Cardiff
CF10 3AT

Tel: +44 (0) 2920 876562
www.brass.cardiff.ac.uk

Abstract

Waste electrical and electronic equipment (WEEE) has been recognised as both the fastest growing and a priority waste stream by the European Community, reflected in the adoption of the WEEE Directive. This paper examines the transposition of the WEEE Directive into UK law, its implications for consumers and its effectiveness in encouraging sustainable design and production of electronics. In particular, the paper focuses on the extent to which the UK Government considered the role and responsibilities of consumers in meeting the obligations contained in the WEEE regulations.

The adopted mixed methods methodology combined two phased surveys with qualitative semi-structured interviews. The findings observe a disincentive amongst organisations to undertake WEEE prevention activities due to absence of consumer demand. Furthermore, findings suggest that consumers were largely excluded from the transposition process. This has led to criticisms from a variety of stakeholders that the WEEE regulations are not effective in altering consumer behaviour and thus do not assist towards more sustainable consumption and production (SCP). In conclusion, policy measures intending to promote SCP through both a life cycle approach and producer responsibility obligations are unlikely to alter patterns of design, unless consumer behaviour is recognised as an inextricable influence. The role of consumers should not be regarded as secondary if wasteful consumption of natural resources is ever going to be prevented.

Key words: Consumer behaviour, WEEE Directive, Extended Producer Responsibility, Sustainable consumption and production

Introduction

Waste electrical and electronic equipment (WEEE) is growing at a rate of 3-5% per annum, approximately three times faster than other individual waste streams in the solid waste sector. Rapid uptake of information technology, coupled with the advent of new design and technology in the electronic sector is causing the early obsolescence many electronic items used around the world today. For example the average lifespan of a new computer decreased from 4.5 years in 1992 to an estimated 2 years by 2005 and is further decreasing. Studies have revealed that around 500m computers become obsolete in the USA alone between 1997 and 2006. Similarly, over 130m mobile phones in the USA and over 105m mobile phones in Europe are discarded every year. In the UK, 6m electrical items are thrown away every year (Directgov, 2008).

Cooper (1994) observes that industrialised societies have become more acquisitive, individualistic and profligate - impacting product life. Therefore, typical design intentions are to meet regulations whilst making attractive, affordable products that perform well enough and last long enough to meet market expectations (McDonough, W & Braungart, M., 2002: 37). This 'throw-away' behaviour challenges waste minimisation and the ultimate goal of zero waste, since effective waste reduction depends upon longer lasting products (UK Government, 1994: 150-151). A report published by the Organisation for Economic Co-operation and Development underlines this:

From a technical point of view there is no question that longer-lived appliances could be made. This is freely agreed upon by manufacturers of these products (OECD, 1982:15).

WEEE was recognised as a priority waste stream by the European Community (EC). Consequently, Directive 2002/96/EC as amended by Directive 2003/109/EC on

WEEE was adopted. As a member state of the EC, the UK is under a duty to comply with the requirements of a Directive (Article 249 Treaty of the EC). The first step to compliance is the transposition of the Directive's obligations into national legislation.

This paper draws on the findings of multi-phase empirical research undertaken with key UK stakeholders in 2006 and 2008. The research examines the UK's transposition of the WEEE Directive, its implications on consumers and the effectiveness of these obligations in encouraging integrated and sustainable design and production of electrical and electronic equipment. In particular, the paper focuses on the extent to which the UK Government considered the role and responsibilities of consumers in meeting the obligations contained in the WEEE regulations.

Methods

Phase 1 comprised of a UK industry postal and on-line survey. Phase 2 built on Phase 1 through semi-structured stakeholder interviews and Phase 3 consisted of a follow-up survey disseminated to a sample of Phase 1 participants.

Phase 1

The aim of Phase 1 was to gain insight into the extent to which UK industry and other relevant stakeholders considered the requirements of the WEEE Directive to be effective in achieving its aims. Phase 1 was instigated after the Department for Trade and Industry's (DTI) announcement that there would be further delay to the UK implementation of the WEEE Directive. Accordingly, it sought to investigate the experiences and attitudes of participants towards (i) the UK transposition process led by the DTI, and (ii) the way in which the DTI had framed those obligations within the draft regulations. A large-scale UK industry survey was launched on 19 April 2006. The survey was posted to 8,251 electrical and electronic goods manufacturers and other related industrial sectors in the UK. The web-based version used Bristol Online Surveys software and its uniform resource locator (URL) was sent out through trade

association e-newsletters by the Association of Manufacturers of Domestic Appliances (AMDEA), Intellect (represents software and IT organisations) and Radio Electrical and Television Retailer's Association (RETRA) and was also hosted on the ESRC Centre for Business Relationships, Accountability, Sustainability and Society (BRASS) website.

The survey contained a mixture of qualitative and quantitative questions. It sought participants' views on both the WEEE and RoHS Directives. The survey questions were based upon (i) a desk-based legislative, policy and literature review and (ii) prior research conducted by BRASS which examined the nature and extent of the WEEE problem and related strategies in three US States, Massachusetts, California and Oregon (Darby et al. 2004). The majority of questions were closed, using likert scales to measure agreement on five point scales, from strongly disagree through to strongly agree. This provided standardisation across a range of questions, for data coding, entry and analysis (Bryman 2001:123). Optional open-ended questions were included to enable participants to expand upon their closed response. The survey was divided into seven sections¹. This paper focuses on findings from sections 2, the effectiveness of the WEEE and RoHS Directives and 3 experiences of the consultation process, the transposition and implementation of the WEEE and RoHS Directives in the UK of the Phase 1 survey with reference to the WEEE Directive.

The survey was pre-tested within BRASS before being piloted with an AMDEA representative prior to its launch. By the close of the survey in August 2006 the total number of responses received was 205, representing a greater response by industry than achieved by the DTI consultation in October 2006. 91.2% participants in Phase

¹ 1. Company Information; 2: Effectiveness of the WEEE and RoHS Directives; 3: Experiences of the consultation process, the transposition and implementation of the WEEE and RoHS Directives in the UK; 4: Eco-Design and Household WEEE Prevention; 5: Product take-back and end of life management; 6: The Social Economy (social enterprises, community waste groups or charities); 7: Future Directions

1 provided information in relation to the number of employees. In total, the participating businesses employed 42,996 people in the UK and 1,871,750 worldwide. 81.6% of participants fell within the category of small to medium sized enterprises (SMEs). To be classified as an SME a business can have up to 249 employees. The remaining 18.4% of participants were businesses with over 250 UK employees. Just 6.3% declined to provide information on turnover. From those that supplied information on turnover, 61.7% fell into the category between £3M - £50M.

Phase 2

Phase 2 consisted of of 24 semi-structured interviews with UK Government Representatives, Trade Associations, NGOs and industry representatives. These took place between 23 May and 24 July 2006. By the date of the first UK qualitative interview 58% of surveys (n=119) had been returned. Indicative UK interview fieldwork questions developed upon some of the preliminary findings from Phase 1 . Fifteen interviews were conducted face-to-face and nine were conducted over the telephone.

Telephone interviews took place where face-to-face was unviable for reasons of time, location, cost or at the request of the participant. The interviews were aimed at gaining a deeper understanding of opinions and experiences of stakeholders affected by the formulation and implementation of the WEEE requirements in the UK whilst providing flexibility in questioning to explore issues raised by the interviewee (Bryman 2001: 317).

It is worthy of note that interview transcripts and data analysis also have their limitations. Consequently, caution should be used in generalising the findings of this research and placing it within a wider context. Interviews lasted on average 90 minutes and were recorded and subsequently transcribed. Transcript analysis

followed largely that outlined by Miles & Huberman (1994: 428-444), consisting of data reduction, data display and conclusion drawing. The analysis and transcripts were stored electronically using a password secured network drive.

Phase 3

The final phase, conducted autumn 2008, assessed changes in attitudes towards the effectiveness of the UK WEEE Regulations since implementation of the WEEE Regulations. In order to enable comparative analysis between Phase 1 and 3, the 2008 survey was again divided into seven sections² with questions reflecting Phase 1 whilst taking into account legislative and practical developments. This follow-up survey drew on business experience of the practical implementation of the transposing UK WEEE Regulations and did not include questions regarding RoHS.

In total, 69 participants from Phase 1 had agreed to participate in follow-up research, and were invited to participate in Phase 3 by email and telephone. The response rate for Phase 3 was 36%. This follow-up survey was conducted electronically only, as all respondents had opted to participate in this way, with the URL included in an email.

In comparison with Phase 1, 68% of Phase 3 respondents were SMEs (81.6% in Phase 1) and the remaining 32% were large businesses (18.4% in Phase 1). In this way, a higher proportion (26.9% in Phase 3 compared to 8.8% in Phase 1) fell within the higher turnover range of £100M+ pa. The number of people employed in the UK by the participating businesses totalled 19,063 with a further 741,546 employees worldwide.

² 1: Company Information, 2: Reflections on the consultation process, the transposition and implementation of the UK WEEE regulations, 3: Effectiveness of the UK WEEE Regulations, 4: Eco-design and household WEEE prevention, 5: Product take-back and end of life management, 6: The Social Economy (social enterprises, community waste groups or charities), 7: Future Directions

Results from Phase 3 generally indicate that attitudes of participants towards the WEEE obligations had changed. The passionate feelings relating to weaknesses at the height of the transposition process, described by Phase 1 participants, appear to have faded in Phase 3. Phase 3, for example, found an increase of 16.4% in the number of participants who considered that the obligations contained in the WEEE Directive were imposed across stakeholder groups in a fair and equitable manner. It may also be the case that respondents in Phase 3 were not in post, or involved with the WEEE Directive in 2006, a common risk with follow-up research ().

Results and discussion

General findings suggest that to a great extent consumers were excluded from the transposition process. This was reflected largely in phases one and two, although there was also an acknowledgement of a continued lack of consumer awareness in phase three.

Just 27% of Phase one respondents cited consumer demand as a motivation to carry out WEEE prevention activities, with 33% citing a *lack* of consumer demand as a barrier. In Phase 3 this number had dropped to 12%, and increased to 48% respectively. In terms of eco-design, 23% of Phase one respondents felt that consumer demand would stimulate motivation with a similar number (28%) stating that a lack of consumer demand was a barrier. This compares to only 8% in Phase 3 feeling that consumer demand would motivate eco-design activities, with 40% feeling that a lack of consumer demand would be a barrier for them in implementing eco design. The difference in the number of respondents has to be taken into consideration if comparing these figures directly, with respect to the different response rates in the surveys (205 in Phase one, only 25 in Phase 3), however, the figures do suggest that after two compliance periods after the introduction of the WEEE Regulations, there is less expectation from consumers to demand WEEE

prevention or eco design activities than at the outset of the transposition of the Directive at UK level.

The first phase survey found that just 20.2% of respondents considered that the WEEE obligations would be effective in preventing household electronic waste. Moreover, findings suggest that the transposition process was ineffective in raising consumer awareness of (i) EEE life cycle impacts & associated WEEE management issues, and (ii) the role of consumers in managing WEEE (see Table 1). In the third phase survey 60% either strongly disagreed or disagreed that UK WEEE regulations have been effective in raising consumer awareness of EEE life cycle impacts & associated WEEE management issues:

Table 1: Levels of agreement as to the efficacy of the WEEE Directive:

4.f To what extent do you think the Directive has been effective in terms of raising consumer awareness of EEE life cycle impacts & associated WEEE management issues?		Phase 1	Phase 2
1	Strongly disagree	23.8%	16.0%
2	Disagree	30.6%	44.0%
3	Neither agree nor disagree	23.3%	12.0%
4	Agree	17.6%	28.0%
5	Strongly agree	4.7%	0.0%
<p style="text-align: center;"> Ranking Statistics (ranks shown above, 1 - 5, in red): </p>		Median: 2 Mean: 2.5 Variance: 1.4 SD: 1.2	Median: 2 Mean: 2.5 Variance: 1.2 SD: 1.1
4.g To what extent do you think the Directive has been effective in terms of raising consumer awareness of their role in management of WEEE?		Phase 1	Phase 2
1	Strongly disagree	27.3%	16.0%
2	Disagree	34.0%	44.0%
3	Neither agree nor disagree	20.6%	12.0%
4	Agree	14.9%	28.0%
5	Strongly agree	3.1%	0.0%
<p style="text-align: center;"> Ranking Statistics (ranks shown above, 1 - 5, in red): </p>		Median: 2 Mean: 2.3 Variance: 1.3 SD: 1.1	Median: 2 Mean: 2.5 Variance: 1.2 SD: 1.1

Also, when asked about strengths or weaknesses of the WEEE Regulations, there were some that continued to criticise the lack of information given to consumers and

the confusion that could arise from differences between facilities available at local authorities:

There has not been enough publicity for the consumer about discarding of products. [And] Even now not all LA's are collecting all types of WEEE.

Participant 2436348

This has led to criticisms from a variety of stakeholders that the WEEE regulations are not effective in altering consumer behaviour and thus do not assist in achieving sustainable consumption and production (SCP).

There is clear agreement amongst the stakeholders interviewed that consumers bear a substantial amount of responsibility for the environmental impact of the products that they buy and use, although it is an under discussed and unregulated arena:

It's about making consumers, producers and retailers aware of their responsibilities in connection with the recycling of defined and designated waste electronic and electrical equipment. You don't see much debate about that, and those issues and those concerns, at any level in the UK.

Participant ID06

the problem with the consumer is there is no legislation that says the consumer can't throw it away... so there is a direct disconnect between what's the consumer responsible for and if he throws it in his bin, that's fine... it's not illegal to throw it in the bin.

Participant ID22

However, consumer social responsibility is a relatively under-researched area . Issues surrounding the rapid nature of product replacement in the home i.e. due to fashion, changing décor, acquisitiveness and other such factors are highlighted as indications of how difficult it will be to change such **behaviours**:

The only way that WEEE will increase recycling is changing people's attitudes and behaviour, which I know is difficult. But this directive does nothing, I mean there's no requirement on people to take things back... particularly when most electrical goods are you know, consumer related, you need to put some sort of pressure on them to make them segregate them and make them take things to the community sites.

- Participant ID07

Much of this is thought to belong to the wider **sustainable consumption** debate, and the need for awareness raising and **education** of consumers to highlight the need to think more carefully about the environmental impacts of product purchase and product replacement.

There are clearly differences in the debate and discussion about how to involve consumers in the take back of electronic waste. Some stakeholders feel that consumers should have **greater onus of responsibility** put on them, and that they should be coerced or forced into accepting change in the purchase of electronic products and the management of any resulting waste. The only way that this seems to be possible is to bring in legislation to force people to segregate waste more effectively, although this goes against the voluntary no-cost to end consumers principle of the WEEE Directive.

However, the idea of the **visible fee** has been suggested as a way of making consumers aware of the need to pay the true environmental costs of the products that they buy:

From the perspective of some of the retail representative organisations, the UK Government have missed an opportunity to learn from other European countries, and have shied away from the visible fee or other system that identifies the cost of recycling to consumers at the point of purchase, perhaps because of concerns at being thought to employ some sort of stealth tax. It is argued from this perspective that much more could have been done during the development of the WEEE implementation period to respond to such issues of consumer engagement, but that this wasn't done at the policy level, and the opportunity has now passed.

Thus, WEEE as a piece of legislation is generally not thought to be of any use in encouraging consumers to change their attitudes or behaviours, or to act as a communication tool to increase consumer awareness of the new legislation regarding electronic waste management in the UK. Table XX indicates that a large proportion of businesses responding to both rounds of the survey felt that it was not within their remit to plan consumer awareness campaigns.

Table XX: % of Respondents planning consumer awareness campaigns

Does your organisation currently carry out, or plan to carry out, any of the following: 17.i. Consumer awareness campaigns	WEEE Implementation & Impact Survey 2006	All (WEEE Impact survey 2008)
1 Current	12.3%	19.0%
2 Planned	10.3%	0.0%
3 Not applicable	77.4%	81.0%
Ranking Statistics (ranks shown above in red):	Median: 3 Mean: 2.7 Variance: 0.5 SD: 0.7	Median: 3 Mean: 2.6 Variance: 0.6 SD: 0.8

One multinational manufacturer interviewed in Phase one stated the complexity of demarcating the responsibility of educating the consumer, suggesting that it will be very difficult to find ways of engaging consumers to make such behavioural changes when there are issues such as a lack of trust:

Whenever we try and educate the consumer in terms of environmental issues, they don't particularly listen to manufacturers because they believe it's hype ... but there again, the consumer doesn't listen to the Government anyway. You know, so it's a very, very difficult situation in terms of education, as to who does it and where it's done.

- Participant ID22

However, many stakeholders interviewed pointed to the **Government** as possibly being ultimately **responsible** for informing consumers about their role in changing behaviours and attitudes towards a more sustainable form:

...right from the outset of the discussions about the Directive and certainly from the promulgation of the Directive in 2002, [the Government should have educated] ...consumers in this country about recycling costs of electrical kit within a context which is about educating ...members of the public in general

- Participant ID06

Government has got to make people aware of the general scale of the problem

whether it's waste or climate change and has then got to say well you know, these are the targets, these are the limits

- Participant ID17

One respondent felt that the Government should encourage other key stakeholders to ramp up the consumer interaction:

I'm hoping that the emphasis that is being placed by government on other stakeholders to do that interaction with consumers will be effective. Government itself will do a little bit of promotion but not very much.

- Participant ID14

On these issues surrounding communication and awareness raising, there appear to be some stakeholders, including some Government departments, that think this has to take place at a **local level** i.e. through retailers of local facilities for take back, as, the argument is, a national programme of awareness raising may provide inaccurate information or raise expectations leading to confusion amongst consumers.

Some stakeholders think that there needs to be a **simple message** delivered through the television, press and similar media to make consumers more aware of the moves towards increased product recycling, and their responsibility to take part by better waste segregation and management.

Other stakeholders argue that there is relatively **little point in raising awareness** or informing consumers of actions which constitute some sort of choice i.e. by offering products which might be more energy efficient or more easy to recycle if these are in competition with cheaper, more attractive products; the argument here is that systems should be developed that operate on a *fait accompli* approach – consumers should be told what to do once policy makers and others have made the decisions about the most sustainable and effective ways forward.

There seems to be some **confusion** as to the degree to which householders in the UK already have a **duty of care** to manage their waste, but there is a general consensus of opinion that consumer awareness is low, not only about the WEEE Directive, but also about take-back (and CE marks and other such labels), and recycling generally, and that it will be four or five years before any analysis is likely to show that consumers are engaging with the system of WEEE management in the UK following the implementation of the Directive.

There is also a debate about the level to which **consumers** will become involved in **segregating** different types of WEEE and taking it to appropriate disposal facilities. Some stakeholders argue that the regulations will stimulate a flood of small WEEE products such as hairdryers, electric toothbrushes, toasters and the like, to be taken to CA sites and other disposal points, along with the televisions, computers and white goods. This is disputed by other stakeholders who argue that the average householder or consumer is not going to take electronic items with them when seeking new purchases (i.e. for takeback). Government stakeholders seem to think that the management and disposal of small WEEE will eventually be integrated into the wider system, but that nothing should be done to encourage householders to segregate or seek to dispose of these items through the routes being set up for white goods, CRTs and TVs, as the UK already meets its obligations under the Directive, and it is felt that taking longer over the system to eventually provide such small WEEE management will be more effective in the long run. This does not respond to some of the concerns raised by local authority representatives who see themselves at the sharp end of any wave of small WEEE that householders bring for disposal.

Overall, it appears that there is some general, if rather vague hope that the WEEE Directive will, in the fullness of time, assist in changing consumption and waste disposal behaviours amongst the general UK population, but the extent this needs to

be supported by education and awareness raising is a point of disagreement, and there is some general pointing of fingers amongst stakeholders as to who is likely to be the most responsible, and effective, for such informational activities in any case.

- Household WEEE Prevention

There is less opinion given about the ways in which the WEEE Directive might affect **household WEEE prevention**, which, to a large extent, is linked to the ways in which consumers might become involved in, or engaged with, the implementation of the regulations in the UK. This is essentially because both activities will involve changes in attitude and behaviour. If consumers are to become involved in the implementation of the Directive it is likely to be through awareness raising and education and subsequent changes in waste management behaviours i.e. the segregation of WEEE for more efficient and sustainable disposal, whether that be takeback and recycling, or repair or reuse.

Prevention at the household level implies that changes in purchasing and use will occur. This is bound up in the wider sustainable consumption and production debates, and the policies and strategies being developed by the UK Government, local government, NGOs and others which aim to achieve widespread behavioural change. The cultural dimension of more sustainable behaviours, for example in certain countries of Europe such as Sweden and Switzerland, is highlighted, and the substantial cultural change that will be needed to reach such levels of recycling in the UK is identified.

There seems to be some level of agreement amongst those stakeholders interviewed that the WEEE Directive is **unlikely to have much direct impact** on household prevention of WEEE, although the main discussion about **visible fees**, regardless of their other strengths or weaknesses, is that such a fee would be likely to bring home

to the consumer the need to be aware of environmental and waste disposal implications of buying electrical and electronic products. Even here, though, many stakeholders think that consumption factors such as fashion, rapid technological change and acquisitiveness would mitigate against moves towards more 'green' thinking on the part of the consumer.

There is some discussion about the possibility of **renting of products**, or the use of product service systems as enabling householders to be more environmentally conscious in their use of electrical and electronic products, but even here there is argument, and some stakeholders think that renting products just encourages them to want new forms or technologies more quickly even than if they own them outright.

The WEEE Directive is therefore not seen to be encouraging prevention, rather the management of waste as it arises from the household following purchase and use. It is not seen as a means of encouraging consumers to consume less, as even if waste products are repaired for reuse, there is nothing to force or even encourage consumers to purchase such products.

Conclusion

In conclusion, legislative and policy measures intending to promote SCP through both a life cycle approach and producer responsibility obligations are unlikely to alter patterns of design, unless consumer influence and behaviour is recognised as an inextricable and significant influence. In this way, successful implementation of the WEEE Directive is embedded within the wider sustainable consumption debate.

The process of transposing the WEEE Directive into UK law provides useful lessons for the future. The lack of engagement with the public and the timing of publicity relating to WEEE requirements have undoubtedly inhibited public awareness of the

obligations. There is a need for educating the consumer in the adverse environmental impacts of WEEE. The role of consumers should not be regarded as a secondary issue but of paramount importance if wasteful consumption of natural resources is ever going to be prevented.

Overall, it appears that there is some general hope that the WEEE obligations will, in the fullness of time, assist in changing consumption and waste disposal behaviours amongst the general UK population. This is only achievable through support and investment in consumer education and awareness that highlights the need to think carefully about environmental impacts of product purchase and product replacement. However, there is general pointing of fingers amongst stakeholders as to who is likely to be responsible and effective for such informational activities. Until this is resolved the WEEE obligations remain another retrospective waste management system.

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