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The e-waste management behaviours of household consumers in Whangarei, New Zealand

A thesis presented in partial fulfilment of the requirements for the degree of Master of Environmental Management at Massey University, Palmerston North, New Zealand



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Abstract

E-waste is known to have detrimental environmental, social and economic impacts, and its volume is growing up to three times faster than any other waste stream. Despite this growing problem, and the concurrent increase in detrimental impacts, New Zealand relies on voluntary schemes to manage the estimated 98,000 tonnes of e-waste generated in the country annually. While New Zealand could apply mandatory product stewardship of e-waste under the Waste Minimisation Act 2008, a recent report argued that there was insufficient data available to meet the requirements to enforce the labelling of e-waste as a priority product.

This research aimed to generate first-time data on Whangarei household e-waste options, knowledge and behaviours, to inform e-waste management policy, resources and services which could be specifically designed for the district, with the intention that it would work towards providing sufficient data to allow for the mandatory product stewardship of e-waste. Research was conducted by way of online survey which asked Whangarei District residents questions specifically relating to how their households managed e-waste, and what influenced these management decisions. The survey was informed by international literature on the subject, as well as a review local and central government policies, and of the e-waste management resources services available both in the Whangarei District and in New Zealand as a whole.

The research found that in the Whangarei District, cost and lack of knowledge of the services available are barriers to engagement in e-waste recycling, similar to international findings. However, contrary to international literature, general recycling behaviours and socio-demographic factors did not significantly influence e-waste behaviours in the district. The research also found that only 1.8% of the estimated e-waste generated in the Whangarei District each year was being recycled through the municipal services available. This figure could be improved via mandatory product stewardship at best, or e-waste recycling goals being set by the district council enable steps towards better services, resources and infrastructure at the very least. Whangarei and New Zealand as a whole are a long way from the appropriate management

of e-waste. It is hoped this research, coupled with other information already available in the field, will allow the planning stage to begin toward adaptation to appropriate e-waste management, encompassing the waste hierarchy principles, if not nationally, then at least in the Whangarei District.

Keywords: e-waste, WEEE (waste electronic and electrical equipment), e-waste management, behaviour change, Whangarei, New Zealand

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iv
Table of Contents.....	v
List of Figures.....	viii
List of Tables.....	x
List of Abbreviations.....	xi
Chapter 1 – Introduction.....	1
1.1 Why Focus on E-waste?.....	1
1.1.1 What is E-waste?.....	2
1.1.2 What Causes E-waste Generation?.....	4
1.2 Research Approach.....	7
1.3 Thesis Approach.....	8
Chapter 2 – E-Waste Problems and Solutions.....	9
2.1 Volumes of E-waste.....	9
2.2 Environmental and Health Impacts.....	11
2.3 Current Management Practices.....	15
2.4 Other Impacts.....	19
2.5 What are the Solutions?.....	21
2.5.1 Product Stewardship and E-waste Prioritisation.....	21
2.5.2 Economic Instruments.....	24
2.5.3 Economic Possibilities.....	25
2.5.4 Resources and Services.....	26
2.6 Conclusion.....	28
Chapter 3 – E-Waste Management in the Whangarei District and in New Zealand as a Whole.....	29
3.1 E-waste Management in New Zealand.....	30
3.1.1 New Zealand E-waste Policy Framework.....	31
3.1.2 E-waste Initiatives.....	34
3.1.3 Mandatory Product Stewardship and Data Implications.....	36
3.1.4 Recycling Standards in New Zealand.....	37
3.2 E-waste management in the Whangarei District.....	37
3.2.1 E-waste Services in the Whangarei District.....	38
3.2.2 Whangarei District Waste Policies.....	41
3.2.3 Illegal Disposal of E-waste.....	42
3.3 Conclusion.....	43

Chapter 4 – Household E-waste Behaviours and Influences.....	45
4.1 Household Recycling Behaviours and Influences	46
4.2 Household E-Waste Recycling Behaviours and Influences	50
4.3 Adaptation to E-waste Management.....	53
4.4 Conclusion.....	56
Chapter 5 – Methodology.....	58
5.1 Research Method.....	58
5.2 Context of Research	61
5.3 Data Generation Methods.....	61
5.3.1 Sampling.....	61
5.3.2 Participants	63
5.3.3 Online Survey.....	63
5.3.4 Pre-Testing / Pilot Survey.....	65
5.3.5 Research Validity	66
5.3.6 Research Limitations	67
5.3.7 Ethics	69
5.4 Data Analysis.....	70
5.5 Conclusion.....	71
Chapter 6 – Results.....	73
6.1 Demographic Profile of Survey Respondents.....	74
6.2 General Recycling Behaviours and Values	77
6.2.1 General Recycling Behaviours	77
6.2.2 Impacts of Demographics on General Recycling Behaviours	78
6.2.3 Recycling Values.....	78
6.3 E-waste Disposal Behaviours	81
6.3.1 Reasons for Disposal	81
6.3.2 Reported Disposal Behaviours – Quantitative Results	83
6.3.3 Reported Disposal Behaviours – Qualitative Results	87
6.3.4 Changes to Household E-waste Management	89
6.4 E-waste Storage	90
6.4.1 Number of E-waste Items in Storage.....	91
6.4.2 Reasons for Storing E-waste.....	92
6.5 E-waste Management	94
6.5.1 Local E-waste Management	94
6.5.2 National E-waste Management.....	96
6.5.3 Willingness to Pay.....	99

6.5.4	Final Comments	102
6.6	Conclusion	104
Chapter 7	– Discussion	106
7.1	Influences on Household E-waste Disposal Methods	107
7.1.1	The Influence of Socio-demographics and General Recycling Behaviours on E-waste Disposal Methods	107
7.1.2	The Influence of Environmental Knowledge and Pro-Environmental Values on E-waste Disposal Methods.....	109
7.1.3	The Influence of E-waste Disposal Services on E-waste Disposal Methods	111
7.2	Household E-waste Disposal Methods and Reasons for Disposal.....	113
7.2.1	Methods of Household E-waste Disposal	113
7.2.2	Reasons for Household E-waste Disposal.....	117
7.3	E-waste in Storage	119
7.3.1	Reasons for Storing E-waste	120
7.4	E-waste Management and Policy	121
7.5	E-waste Management Adaptation	124
7.6	Conclusion	127
Chapter 8	– Conclusions and Recommendations.....	129
8.1	An Overview of E-waste Management in the Whangarei District.....	130
8.2	Policy Recommendations for the Whangarei District.....	132
8.2.1	Data Collection	132
8.2.2	Whangarei District Council – District E-waste Strategy	133
8.2.3	Mandatory Product Stewardship	134
8.3	Future Research Opportunities.....	136
References	138
Appendices	151

List of Figures

Figure 1.1 Composition of e-waste in Western Europe in 2000.....	4
Figure 1.2 An illustration of the planned obsolescence of cell phones.	5
Figure 2.1 Fluxes of contaminants associated with e-waste from producers to receivers and ultimately to humans.	14
Figure 2.2 Children burn the plastic casings of e-waste in Accra, Ghana, to access the precious metals inside.....	14
Figure 2.3 The ‘Waste Hierarchy’ and its relationship with e-waste.	15
Figure 2.4 An example of the typical material fraction in WEEE.....	17
Figure 2.5 Percentage of countries with e-waste regulation in force up to 2013 by continent...	19
Figure 2.6 The transition from product stewardship to full EPR	22
Figure 2.7 The circular economy model	23
Figure 2.8 Percentage of e-waste collected via official takeback systems versus e-waste generated per nation	27
Figure 3.1 Sources and destinations of refuse and diverted materials.....	38
Figure 3.2 Whangarei District e-waste management framework	39
Figure 3.3 Two instances of fly-tipping witnessed in Parua Bay, Whangarei, NZ, both containing CRT TVs, October 2015.....	43
Figure 4.1 Barr et al.’s path diagram of recycling behaviour.....	47
Figure 4.2 Moser, Ekstrom and Kasperson’s phases and subprocesses throughout the adaptation process.....	54
Figure 4.3 The structural elements of the diagnostic framework: interacting actors, the governance and larger socio-economic context, and the system of concern.....	55
Figure 4.4 Moser, Ekstrom and Kasperson’s scope and scale of adaptation to climate change.	56
Figure 6.1 General recycling behaviour results by percentage.....	78
Figure 6.2 Response distribution to general recycling statements	79
Figure 6.3 Response distribution to e-waste statements.....	80
Figure 6.4 Response distribution to environmental values statements.....	81
Figure 6.5 Participant responses to influences on e-waste disposal by percentage.....	83
Figure 6.6 Participant responses to method of e-waste disposal by percentage	85
Figure 6.7 Self-reported disposal method by percentage	88
Figure 6.8 Question 16 qualitative disposal method responses by percentage compared with question 12 quantitative disposal mean results	88
Figure 6.9 Response distribution to possible e-waste behaviour impact statements.....	90
Figure 6.10 Percentage of total respondents that indicated storing e-waste, further broken down by number of items.....	92
Figure 6.11 Response distribution to reasons for e-waste storage statements.....	93
Figure 6.12 E-waste services satisfaction by percentage.....	95
Figure 6.13 Local waste services awareness by percentage	95
Figure 6.14 NZ e-waste approach effectiveness by percentage.....	97
Figure 6.15 Best e-waste approach for NZ 2018/2012 survey results comparison	98
Figure 6.16 Percentage of respondents willing to pay for e-waste recycling.....	100
Figure 6.17 2012 e-waste survey results for willingness to pay.....	101
Figure 7.1 Proportion of New Zealand population with access to kerbside recycling in 1996 compared with 2006.....	109

Figure 7.2 Survey responses to question asking who is to blame for environmental problems stemming from waste generation.....	111
Figure 7.3 Signs in a Salvation Army op-shop illustrating the donation issue, and advising that electronic goods will no longer be accepted for donation.	116
Figure 7.4 Moser, Ekstrom and Kasperson’s phases and subprocesses throughout the adaptation process, with an arrow indicating where this research is placed.	125
Figure 7.5 Scope and scale of adaptation to appropriate e-waste management – orange arrow indicates where the author proposes Whangarei District sits currently, and the green arrow indicating where the EU EPR approach could sit.....	126

List of Tables

Table 1.1	Indicative list of EEE which falls into the EU Directive WEEE categories	3
Table 2.1	Lifespan and weights of common e-waste items.....	11
Table 2.2	Common hazardous substances found in e-waste and their possible health impacts. 12	
Table 2.3	Some e-waste management approaches to EPR (not including EU Directives)	22
Table 3.1	The NZ e-waste scape: key national waste management policy documents, legislation, non-governmental initiatives, and supranational waste directives.	33
Table 3.2	Current New Zealand consumer voluntary e-waste recycling methods/schemes.....	34
Table 3.3	E-waste sent for recycling from WDC managed processes.....	41
Table 5.1	Question, research aim, and literature map	59
Table 6.1	Participant age groups compared with 2013 NZ Census data	75
Table 6.2	Participant ethnic groups compared with 2013 Whangarei District demographic profile data.....	75
Table 6.3	Participant supported political party compared with 2017 general election results for Whangarei electorate	76
Table 6.4	Participant responses to method of e-waste disposal by percentage with most common method of disposal by e-waste category and disposal method, and least common disposal method highlighted.....	86
Table 6.5	Number of items participants held in storage by percentage with most common option highlighted	91
Table 6.6	E-waste services satisfaction 2018/2012 results comparison	96
Table 6.7	NZ e-waste approach effectiveness 2018/2012 results comparison	97
Table 6.8	General themes from open forum question	102

List of Abbreviations

ADF	Advance Deposit Fee
CANZ	Computer Access New Zealand
CRT	Cathode Ray Tube
EEE	Electrical and Electronic Equipment
EOL	End-of-life / End of Useful Life
EPR	Extended Producer Responsibility
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communication Technology
ISWA	International Solid Waste Association
MFE	Ministry for the Environment
NEP	New Ecological Paradigm
NRC	Northland Regional Council
NZ	New Zealand
OECD	Organisation for Economic Co-operation and Development
PBDE	Polybrominated Diphenyl Ethers
PCB	Printed Circuit Board
RoHS	Restriction of Hazardous Substances
SLR	SLR Consulting New Zealand Limited
SWMB	Solid Waste Management Bylaw
TV	Television
UK	United Kingdom
UNEP	United Nations Environment Programme
US	United States of America
WDC	Whangarei District Council
WEEE	Waste Electrical and Electronic Equipment
WMA	Waste Minimisation Act 2008
WMF	Waste Minimisation Fund
WMMP	Waste Minimisation and Management Plan