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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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Vicktoria Marie Blake

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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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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