Using Market Instruments to Improve Product Stewardship and Waste Management Outcomes for e-waste in Australia

*Insights from the Wealth from Waste project.*

By Wayne Gumley,
Dept of Business Law and Taxation, Monash University
The e-waste problem— the cost of connectivity

The information technology boom:
- constant demand for new products
- shorter product lifespans
- developing world economies catching up

And thus e-waste is growing rapidly (and constantly changing)
Policy context

- Environmental costs of raw materials (mineral ore grade decline, land degradation and fossil fuel use)
- Potential scarcity/criticality of some metals (copper, rare earths)
- External costs – growing burden of e-waste management falling upon local government and not-for-profit sector
- Recognition of e-waste as a valuable resource providing economic opportunities – the “circular economy”
- International obligations
  - Basel Convention on Transboundary Movements of Waste
  - Rio Declaration, Millennium Development Goals etc
- National Waste Policy 2009
  - Product Stewardship Act 2011 (Cth) supports voluntary and co-regulatory
About the Wealth from Waste project.

CSIRO Flagship Cluster project funded over 2013-2016 (part of “Minerals Downunder”) - involves 5 Australian universities and Yale carrying out 4 related projects.

Monash Project

Multi disciplinary team working on filling gaps in our understanding of the magnitude and value of metals in the waste stream. Includes investigation of the landscape of collection systems for scrap metal and e-waste.

Based on series of semi-structured interviews with industry stakeholders, to identify types of organisations involved, barriers and incentives, including regulatory dimensions - includes consideration of market based instruments:

- environmental taxes and charges
- subsidy schemes
- market creation strategies
Mapping the commodity chain for end-of life electronic products

Collection of dispersed resource

- Large corporations contract certified recycler for e-waste disposal
- e-waste collections under product stewardship legislation (NCTRS)
- Local community and informal collections

Centralised sorting facility

- Sorting & separating

Disassembly & reprocessing

- Disassembly into component parts and materials

Sale/disposal

- Second hand sales - international
- Materials recycling - Domestic
- Materials recycling - international
- Domestic disposal

The regulatory matrix

- **International agreements and declarations**
- **National regulation**
  - Export/import controls on hazardous waste
  - Co-regulatory market creation scheme for computers and televisions (similar proposals for hand held batteries)
- **State and Territory governments, including local municipal governments**
  - Environmental fees and charges - landfill levies
  - EPA – illegal dumping offences (but still OK to put e-waste into landfill!)
  - Second-hand goods regulation, criminal offences re stolen goods
- **Industry policies and certification schemes**
  - Accreditation for waste handlers and recyclers, due diligence audits for suppliers
- **Voluntary action by households, businesses, social enterprises and NGOs**
  - Assisted by various subsidies (eg. disability employment schemes, prison day release)
The National Computer and Television Recycling Scheme

Design

• A national co-regulatory product stewardship scheme established in 2011 – a more limited version of WEEE – the EU Waste Electronics and Electrical Equipment Directive.

• Liable parties are importers and manufacturers of televisions, computers, printers and peripherals, with over 5000 units per annum (or 15,000 for peripherals).

• Must provide arrangements for collection and recycling of a specified proportion of their products – must be free of charge to consumers.

• Collection targets based on import data over prior three years.

• Five private firms contracted to deliver the collection services nationwide.
Preliminary observations on the NCTRS

- NCTRS seems to have reshaped supply chains to favour materials recycling, rather than reuse, and a higher level of disassembly in Australia prior to export.
- Much higher than expected discard volumes reflected many wider factors – technology changes, hoarding, increased community awareness etc.
- Many scheme participants, including co-regulators, local government and social enterprises have been adversely affected.
- No major reprocessing facilities in Australia. Thus a high proportion of e-waste is “recycled” by being exported to countries with lower environmental standards (for both reuse and reprocessing).

Lessons

- Commodity chain is more complex than expected – eg. role of social enterprises.
- Data on stocks and flows inadequate - NCTRS adopted a simplistic formula based on import data to predict the market volume.
- Different types of organisations are influenced by different barriers and incentives - some more exposed to the Australian regulatory environment than others.
The role of market based instruments?

Pricing strategies - State landfill levies.

- Significant price signal but can create perverse incentive for illegal disposal, and differing rates encourage transport to lower cost jurisdictions (eg. Qld has no levy).

Market creation – the NCTRS.

- Has created a limited market for e-waste collection services in Australia (industry funded, with 5 participants/tenderers).

- Limited contribution to ‘closed loop’ e-waste reprocessing in Australia due to lack of IT manufacturing in Australia, supply uncertainties, constantly changing product technology (tending to increased complexity) and fluctuating market prices for recovered metals (eg. copper, gold).

- Co-regulatory strategy is questionable NCTRS is a limited scheme involving only (part of) one link in the commodity chain.

- Many underlying regulatory barriers undermine the scheme objectives.
Regulatory barriers

- Most relevant regulation is still built around a linear production model ("take-make-waste") which envisages waste as a hazard not a resource.

- Weaknesses are compounded by diversity of regulatory arrangements – national programs are superimposed over eight separate State and Territory regimes, in addition to local government, private sector and not-for-profit schemes.

- National Waste Policy pre-empted choice of regulatory instrument with a preference for self-regulatory, co-regulatory and informational arrangements, rather than direct regulation and pricing/charges.
  - “COAG 2007 Best Practice Regulation” guidelines requires a Regulatory Impact Statement for most new regulation (to maximise net benefit for community based on cost benefit analysis). NCTRS RIS analysis found little difference between a range of options – ultimately guided by stakeholder consultation.

- e-waste is a deeper market failure requiring more holistic regulatory approaches.
The problem of global markets

Electronic goods and e-waste are primarily traded in global markets. National and local regulation is unlikely to cover the entire commodity chain. Impose cost upon certain local participants whilst unregulated parties share the benefits.

Market based instruments can be very suitable to overcome jurisdictional limits, but must be systemic. E-waste regulation needs a stronger focus upon:

- Obligations/incentives for manufacturers to design products to facilitate end-of-life collection/take-back and recycling (extended product responsibility).
  - Eg. EU Eco-Design Directive (2009)
- More comprehensive user pays funding mechanisms for collection, recycling and reprocessing infrastructure (not community pays)
  - Eg. California’s Advance Recycling Fee for electronic goods
- The essential role of direct regulation in managing waste and provision of essential infrastructure.
  - Eg. Prohibition on e-waste to landfills, product design rules
Thank you!