CREATING AN E-PRODUCTS ACTION PLAN FOR QUEENSLAND

Rethinking e-waste
in Queensland

ewaste watch

NOT GOVERNMENT POLICY

DESIGNING A BETTER FUTURE

Electrical and electronic products or e-products contribute significantly to our lives, at work, at school, in healthcare, for entertainment, and across many other sectors, industries and applications. Indeed, the role and value of technology in everyday life is ever-present no matter what the activity, function or service.

The benefits of e-products can also come with impacts and issues as we become more dependent on their production and consumption. The need to address these issues also provides opportunities to make the world a better place.

There is a role for everybody in helping to meet this challenge because it will take innovative approaches to reduce and avoid creating e-waste, that is electronic and electrical waste, across both the demand and supply sides of the problem.

While recycling has a valuable place, it alone does not provide a sustainable and waste-free solution.

Additional measures and interventions are required that delay and prevent e-waste from entering the resource recovery chain.

This discussion paper explores what we could do to avoid, reduce and reuse as well as improve our current and future recovery and recycling activities to ensure they are fit-for-purpose and reflect emerging consumer and industry needs. Input from stakeholders is sought on:

- How can we extend the life of products through increased durability, reuse and repair?
- How can we design a secondary life cycle for materials used in e-products and develop markets for that recovered material to create sustainable solutions?
- How do we retain the value of the material composition of e-products at their highest state for longer and optimise resource recovery.?
- How can we work together to design modern solutions involving authentic product stewardship arrangements that are supported by government and industry, and recognised and rewarded by consumers?

Moving to waste avoidance and reuse is a change in mindset we need to share. While change can be daunting, we should see this as an exciting time for innovation, positive disruption and better product design.

This is also a time for strategic investment in innovative resource recovery approaches and technologies, and finding markets and developing high-value products made from previously used materials.

Most importantly, this is a time to build a sustainable future that benefits the health of our Queensland environment for generations to come.
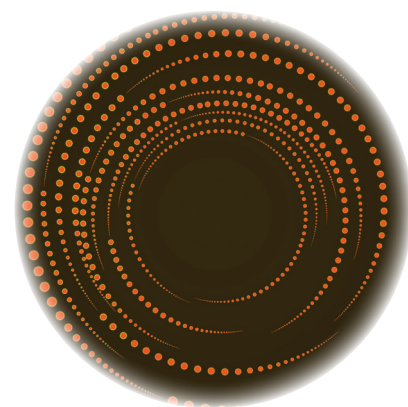
VISION

Queensland will become a zero-waste society, where waste is avoided, reused and recycled to the greatest extent possible. Strategic investment in diverse and innovative resource recovery technologies and markets will produce high-value products and generate economic benefits for the state.

QUESTION
- **How can you or your organisation help reduce Queensland's e-waste?**

A GROWING CHALLENGE

Before we go to the stats, take a moment to reflect on your own choices when it comes to electrical goods.

How many TVs are in your house? More than one? What about more than four? How old are they and what happened to the discarded items?

What about your laptops and PCs? What did you do with those old monitors and printers? How many mobile phones are in your house? How many chargers? How many of those have you got rid of in the past five years?

Then of course there are game consoles, sound systems, microwave ovens, dryers, fridges, routers, modems, powertools and the smart home device in the corner that tells us the time and what the weather is.

E-waste applies to business and industry too. What happens to all that IT and equipment that reaches its use-by date?

Every year we import about 35 million computers, televisions, printers and computer accessories and at least 9.3 million mobile phones.

As a result Australians are the fourth highest generators of e-waste per capita in the world.

We generate 23.6 kg of e-waste per person, or 574,000 tonnes a year, yet we only recycle 50,000 tonnes, and hoard more then 25 million unused mobile phones at home.

And the problem keeps growing.

The Queensland Government is invested in turning this trend around.

In 2019 it released its Waste Management and Resource Recovery Strategy which provides the strategic framework for the state to become a zero-waste society, where waste is avoided, reused and recycled to the greatest possible extent.

It provides the framework to help deliver co-ordinated, long-term and sustained growth for the recycling and resource recovery sector while reducing the amount of waste produced and promoting more sustainable waste management practices.

When it comes to e-waste, becoming a zero-waste society will require focused efforts at the top of the waste hierarchy.

8.8 million tonnes
of headline wastes reported
(a 20.3% decrease from previous year)

54% overall recovery rate for **headline wastes**
(a 5.4% increase from previous year)

81% of materials recovered were recycled in **Queensland**

Local governments sent **306,000 tonnes** of paper and packaging to recyclers

1.27m tonnes of domestic waste picked up by weekly council kerbside collections

Organic processors converted **1.38 million tonnes of organic material** into higher-value products such as soil, potting mixes and mulches

The waste levy raised **$294.97m**

62% less waste from interstate sources (447,000 tonnes received)

Targets for 2050

- **25% reduction** in household waste
- **90% of waste is recovered** and does not go to landfill
- **75% recycling rates** across all waste types

MOST PREFERABLE

Avoid and reduce

Reuse

Recycle or compost

Recover fuel
Recover energy

Dispose

LEAST PREFERABLE

QUESTION
- **What is your organisation doing to reduce the growing e-waste problem?**

DEVELOPING A PLAN FOR ACTION

We can see the problem, agree on a start point and identify the key focus areas under the waste hierarchy, but nothing will change without a comprehensive action plan to chart a new direction, complete with clear goals, actions, targets and metrics.

Thankfully there is a framework under which we can move ahead and the path forward to a more sustainable future is being laid down.

In addition to Commonwealth processes working on stewardship for e-products, the Queensland Government has invested in developing an E-Products Action Plan.

The Ewaste Watch Institute is partnering with the Queensland Department of Environment and Science to co-design an E-Products Action Plan to address the waste-related issues and impacts arising from e-products.

This plan represents an ambitious approach to step-change improvements on how waste avoidance and reduction can be transformed into real-world, circular economy actions.

It will define "e-waste" more specifically, and identify the issues, impacts and opportunities.

It will identify goals, objectives, priorities and timeframes for action by relevant stakeholders, especially for those manufacturers, brands and retailers placing electrical and electronic products on the market.

The plan will also inform government policy, funding, investment, public programs, and strengthen procurement across agencies, departments, industries and sectors.

To set achievable actions, it will seek input from across the board. From those who make and sell these products, consumers and repairers to those who collect, repair, repurpose and recycle them. Everyone should be having a say in how to address the waste-related impacts resulting from e-products.

To support the co-design process, an E-Products Reference Group has been established to provide ongoing multi-stakeholder input.

This will be complemented with broader stakeholder engagement activities including online surveys, interviews and workshops across the State as the action plan is developed over the coming months to enable and encourage solution-oriented participation.

As well as a detailed analysis of how we use, reuse and dispose of e-products to establish the scale of the e-waste problem in Queensland, the size of the e-product industry/market, the associated flow of products in the economy and the potential opportunities for avoidance, reuse, repair, repurpose and recycling.

More information about the Commonwealth Government's work program on e-products can be found here: https://www.environment.gov.au/protection/waste/e-waste

QUESTIONS

- Do you want to contribute to the development and implementation of an E-Products Action Plan?
- Who do you consider are the key players or stakeholders that can make a difference?
- What should the action plan focus on?
- How can all levels of government work together productively on rethinking e-waste?

THE ROLE OF DESIGN

One way of looking at this problem is to view e-waste as a design flaw.

In which case, the answer is self-evident. We need e-products that have smarter design solutions that avoid waste, extend product life, enable easy repair, parts harvesting, reuse and repurposing and increase recyclability and resource recovery rates as part of the overall product package.

E-products have typically had a linear lifespan. They are made, bought, used and disposed of, often going to landfill.

There is now an international movement towards creating a circular economy, that is one that promotes sustainable solutions that eliminate waste through good design.

In fact, design is central to the three principles of a circular economy: eliminating waste and pollution, circulating products and materials, and regenerating nature.

A circular economy transitions us from a linear 'take, make and dispose' model to one in which the material loops gets closed and products are regenerated.

Designing products and services for the circular economy can lead to:

• Reduced environmental and human health impacts by designing-out waste and pollution;

• Longer life products that are designed for durability, repair, reuse, repurposing, remanufacturing and recycling;

• Increased use of environmentally preferable materials through closing materials loops; and,

• Creation of high-value upcycled products, materials and related design services that close supply chain loops.

Case study

Operating in 170 countries, technology company HP is one of the world's leading printing and personal systems technology companies.

HP has repositioned its services for a circular economy.

By focusing on eliminating waste, being innovative and using more recycled content, the company says it is aiming to enhance customer experience while driving progress toward a circular and net-zero carbon economy.

HP Planet Partners, available in more than 50 countries, is the company's return and recycling program for computer equipment and printing supplies.

Under this program, HP ink and LaserJet cartridges go through a multi-phase "closed loop" recycling process.

Because of their construction, original HP cartridges cannot be effectively recycled using conventional, commercial processes.

HP partners with shipping companies to collect and return printing supplies. Once the supplies have been returned, HP works with advanced recycling organisations to recover and recycle materials from empty or used HP printing supplies.

The recycled plastic from empty cartridges is used to create new original HP cartridges and other everyday products.

HP has also developed strategies to address sustainable packaging, product energy efficiency and replacing materials of concern.

More information: https://www.hp.com/au-en/hp-information/recycling/ink-toner.html

QUESTIONS

• **How can Queenslanders and the State Government encourage closed loop recycling initiatives by major manufacturers?**

• **How can procurement by government and industry be used to drive waste-free e-products?**

• **How can design be influenced and enabled to help deliver more circular e-products and services?**

THE ROLE OF REPAIR

These days we can choose from an enormous range of products, from cars to coffee machines, that incorporate sophisticated technology with embedded software, sometimes involving manufacturers' intellectual property.

Some technology companies guard this intellectual property closely, however, under a circular design approach to product stewardship, consumers would be more enabled to repair products.

Community interest is demonstrably growing around this "right to repair", that is a consumer's ability to repair faulty goods, or access repair services, at a competitive and affordable price.

This movement is not just about getting manufacturers to facilitate straightforward repairability and increased durability, it's also about enabling and encouraging consumers to take control of the products they buy, own and use.

Around the world, the right to repair is proving a powerful advocacy movement and those winds of change have reached our shores.

In Australia, Right to Repair advocates would like to see copyright laws changed to allow repairers to legally circumvent digital locks to access report information.

In its draft report to the Australian Government, the Productivity Commission has found there are significant barriers to repair some products and it is considering the reforms that can improve consumers' right to repair, without the uncertainty and costs associated with more forceful policy interventions.

But some Australian laws have already started to make a difference. In June the Australian Government introduced a mandatory scheme to promote competition in automotive servicing.

The changes to the Competition and Consumer Act require motor vehicle service and repair information to be made available for purchase by Australian repairers at a fair market price.

The Commonwealth Recycling and Waste Reduction Act 2021 includes a focus on the relevance of repair, reuse and design for durability.

Most state governments have also developed and are implementing circular economy policies and programs that call-out greater attention to repair, reuse and product durability.

QUESTIONS

- Would a 'Repairability Star Rating' on e-products at the time of purchase help reduce e-waste and extend the life of e-products?
- Would a Repairability Star Rating help inform consumer choice?
- Should manufacturers be required to provide uncomplicated access to parts, diagnostic software and service manuals for specific types of e-products?

Case study

Want to know how to replace a battery in an iPad Air 3? Or replace the rear camera?

The answers to a myriad of these questions can be found at iFixit, a website offering consumers the opportunity to fix a wide range of electronic products using step-by-step video guides and detailed instructions on the right tools.

Born in the US "to show the world how to fix anything", the iFixit community has arrived in Australia.

Australia's first "Repair Summit" was held in July with sponsorship backing from iFixit and Repco.

REPAIRABILITY SCORE:

2 OUT OF 10

Australia's first Repair Summit hosted by Griffith University in July this year provided an opportunity to have a broader discussion about the role of repair, and it's potential to avoid and reduce waste from e-products.

The summit also heard from the Productivity Commission about its inquiry into a Right to Repair for Australia. The Commission flagged some preliminary recommendations aimed at addressing "the barriers and enablers of competition in repair markets and the costs and benefits of a regulated 'right to repair', including facilitating access to embedded software in consumer and other goods."

The Commission's inquiry has also been considering options to prevent premature product obsolescence and growing e-waste volumes through improved access to repairs.

The summit involved diverse stakeholders sharing their views on repair, including perspectives from the consumer electronics, IT and smart phone industries on current repair initiatives available to consumers and e-product users.

Meanwhile, iFixit says it is intent on expanding its catalogue of repair information for devices of all kinds.

"Our philosophy is that if you can't open it, you don't own it," the iFixit says.

"Once you disassemble, repair, and put back together your laptop or iPod, you have a much better understanding of what goes into it. "It's astounding how just 20 minutes of work and $10 can make an iPod good as new -- but most people have no idea that there are instructions available to make the work easy.

"And why should they?

"Apple tells everyone that the battery isn't user-serviceable.

"That's where we come in, filling the ecosystem hole that Apple created by manufacturing a device without an end-of-life maintenance and disposal strategy."

QUESTIONS

- **Are there current examples of repair activities in Australia that we can learn from, promote and expand?**
- **What are some of the barriers to mainstreaming repair activities?**
- **If e-products are not repairable, should manufacturers and/or retailers cover the cost of recycling them??**

CONSUMERS AND USERS CAN LEAD THE CHANGE

You can never underestimate the power of the marketplace as a driver of change.

There is ample evidence that consumers' expectations, attitudes and preferences are quickly changing around the world and that some manufacturers and retailers are already responding.

To help guide consumer choices, Australia has a host of ecolabel certification and labelling organisations such as Green Tick, Fairtrade, EPEAT and TCO Certified that advise consumers and users on which products and services meet environmental standards or are the most environmentally preferable within their category.

In Australia, the Energy Star Ratings Programme is a readily identifiable label on most whitegoods and household electrical appliances.

Research by leading consumer advocacy group CHOICE suggests there is growing consumer demand for increased repair information and other sustainable product solutions.

In a CHOICE "consumer pulse" survey, 85% of Australians said they want products that are durable, and 73% said they consider repairability when deciding what to buy.

But 39% reported finding it difficult to make decisions about environmental factors for products and services.

CHOICE says labels like the Energy Ratings Programme work because they are consistent, mandatory and clear.

The consumer advocate is now campaigning for the same clarity about product durability and repairability.

CHOICE says providing repairability information at the point of sale we can lift the quality of all products.

In this area the Europeans are leading the way.

France recently introduced a law that requires companies to tell people how long spare parts will be available.

The country is also rolling out a "repairability rating" label for some e-product categories.

Case study

The EPEAT ecolabel, managed by the Global Electronics Council, covers products and services from the technology sector.

Products meeting EPEAT criteria, known as "active" EPEAT-registered products, are listed on a registry.

Purchasers can search for products based on product category, manufacturer, where the product is expected to be used or by EPEAT rating, either bronze, silver or gold.

Manufacturers and/or brands interested in getting their products registered under EPEAT must choose a "Conformity Assurance Body", a third party organization that works with manufacturers to verify its products meet the EPEAT criteria as claimed.

The Conformity Assurance Bodies providing verification services are experienced testing and certification organizations that must meet the appropriate standards.

The EPEAT ecolabel ensures the veracity of EPEAT-registered products through an ongoing surveillance process known as "continuous monitoring".

All EPEAT-registered products in all product categories and all participating manufacturers are subject to continuous monitoring.

More information: https://www.epeat.net/

QUESTIONS

- **Does Australia need a product durability and/or repairability star rating to guide consumer choice?**
- **What role does the government (at all levels) have in educating consumers and users about waste avoidance, reduction, reuse and recycling of e-products?**
- **How can manufacturers and retailers help to educate consumers and users about waste avoidance, reduction, reuse and recycling of e-products?**

BRANDS CAN LEAD THE CHANGE

Manufacturers, brands and retailers are central to achieving higher levels of waste avoidance, reduction, reuse, repair and recycling. Many companies are already designing e-products with these objectives in mind, and some are exploring how alternative models of production and consumption can be achieved to meet consumer expectations on functionality, sustainability, value and convenience.

Today's youth have grown up with music and video streaming services and so the idea of having to physically own albums, CDs or DVDs must seem absurd.

Why own when you can stream? And there is far less waste.

Businesses, too, are changing their ways as they revise business models to accommodate this era of digital transformation and the growing awareness that maximising the use of precious resources is not only good for the planet, it can be good for the bottom line.

One of the emerging themes of the circular economy is a move from ownership of products which need replacing to the introduction of a managed service.

Offering products-as-a-service through rental, leasing, pay-per-use and pay-per-service is happening around the world.

And when material components of a product are seen by manufacturers as investments, rather than simply a cost, new business models that promote multiple uses of the product over multiple cycles can make perfect business sense.

The director of sustainability at technology company Philips, Anton Brummelhuis, says the idea of ownership is still engrained in some businesses.

"These concepts require a change in thinking as well as in actions and in roles and responsibilities," he says.

"Some people don't like to change, but the clear trends show that we're moving in this direction. The sharing economy is on the rise."

Case study

In the Netherlands, Gerrard Street is revolutionizing the headphone industry through an innovative business model.

Gerrard Street customers get online access to an "all in" subscription service, for the world's first circular, high-quality, headphones.

The modular headphones are available for rent for a fixed amount a month or year with customers receiving their headphones in a building kit box.

If something breaks, you will get what you need to repair your headphones with its modular construction making that possible.

The company says its modular design allows 85 percent of components to be reused.

Their products are made using durable, standardised designs, meaning fewer virgin materials are used to create new headphones.

The subscription model allows Gerrard Street to recover and recycle headphones at the end of their life.

Through clever design and by offering increased durability and repair, the Gerrard Street model sees less waste going to the lower levels of the waste hierarchy.

The business can benefit, too. The model forges a closer relationship with customers who share the company's values and it creates a more reliable and predictable material supply chain.

More information: https://gerrardstreet.nl/

QUESTION

- How can investment in R&D contribute to creating waste-free e-products that meet market demand and environmental objectives?

GOOD WORK AT THE GRASSROOTS

Queenslanders are already finding ways to make worthwhile contributions to our e-waste issues through grassroots organisations.

A growing number of social enterprises and community-based, impact-oriented organisations are developing sustainable solutions of their own.

The waste management and resource recovery industry is central to the state's waste reduction and recycling efforts, but is there opportunity for these community organisations to play a greater role in helping Queensland to become a zero-waste society?

For instance, in Kingston a social enterprise is helping Brisbane's long term unemployed get back on their feet at an e-waste recycling project.

Substation33 specialises in electronic waste collection and processing, diverting e-waste from landfill.

It has a team of technical specialists who are developing and commercialising innovative products and services including flooded road smart warning signs, electric e-bikes, 3D printers and a vertical garden monitoring system.

Dedicated volunteers are also the backbone of the **Brisbane Tool Library** which is largely funded through a flexible membership scheme.

Queensland's first tool library allows people to borrow hand and power tools, and other equipment, such as camping and sport gear.

Based on a circular economy, it is building a more sustainable society, reducing consumption and waste going to landfill.

Based at the State Library, the Brisbane Tool Library allows users to access thousands of tools for the price of one, saving space and money and preventing waste from going to landfill.

More information:

https://substation33.com.au/

https://brisbanetoollibrary.org/

QUESTION

- **Is funding and investment a barrier to social enterprises and community -based groups doing more?**
- **How can social enterprises and community-based organisations innovate and deliver further waste avoidance, reduction reuse, sharing, repairing and recycling of e-products?**

OPTIMISING RESOURCE RECOVERY

There are three main reasons why e-waste in Queensland is currently collected and recycled:

• the value of the materials, in particular ferrous, precious, and rare-earth metals;

• product stewardship schemes like the National Television and Computer Recycling Scheme (NTCRS), MobileMuster, FluoroCycle and Cartridges 4 Planet Ark which fund the cost of collection and recycling; or

• local and international regulatory frameworks such the state government's landfill levy, the federal government's Hazardous Waste Act and Ban on Export of Waste Plastics and the international Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

This means that generally a large proportion of larger white goods (i.e. fridges, dryers, microwaves), televisions, computers, computer peripherals, printer cartridges, mobile phones, batteries and their accessories, and some mercury containing lamps are being collected and processed.

However, there is still a substantial number of e-products like smaller appliances, electrical and electronic tools, toys, sound systems, solar panels, lighting equipment, medical and other monitoring electronic equipment that are ending up in landfill.

E-waste is generated by both householders, businesses, government agencies and other organisations. The options for how they can recycle their e-waste varies.

For householders there are several options including Council run hard waste kerbside collections, drop off collection points at a council transfer station or resource recovery centre, a retail or charity outlet or a temporary collection event; or for smaller items like mobile phones a post back option is offered. Collection services for televisions, computer, printers, mobile phones and their batteries and accessories are usually free. For other types of e-products a fee may be charged.

While community access to collection services in metropolitan areas in Queensland is reasonable, access outer regional and remote areas is intermittent at best.

Queensland e-products material flow analysis

As part of developing the E-products Action Plan Ewaste Watch together with the Department of Environment and Science will prepare a Queensland specific material flow analysis to map the current and possible pathways for e-products in Queensland. This will include how many e-products are placed on to the market, how long they are used for, what is being repaired, what is being resold or harvested for parts, what e-products being are being shared and their fate once they are no longer in use i.e. refurbished and exported off shore, recycled or landfilled.

This study will help identify and quantify the current material flow issues, weak points and opportunities, as well as develop and evaluate scenarios to optimise the use of e-products and the materials they are made from.

Product Lifespan
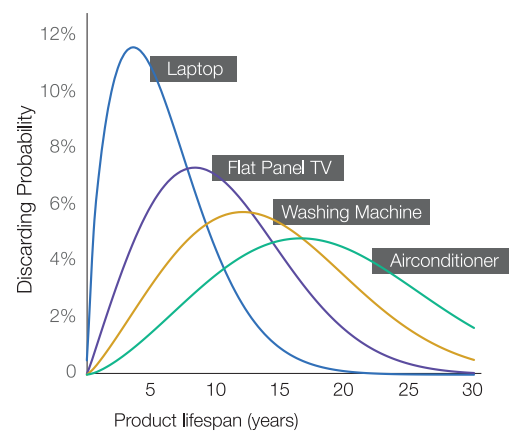
Baldé, C.P., Wang, F., Kuehr, R., Huisman, J. (2015) The global e-waste monitor – 2014, United Nations University, IAS – SYCLE, Bonn, Germany accessed via http://i.unu.edu/media/ias.unu.edu-en/news/7916/Global-E-waste-Monitor-2014-small.pdf.

More information: http://ewastemonitor.info/

For businesses, government agencies and other organisations, they usually pay for a pick-up or take back service. A rebate may be paid in some cases depending on the type of e-products being collected and if they can be resold for reuse. For some organisations their collection service may be included as part of the procurement of the e-products through a leasing arrangement. This is especially so for printers, IT and mobile telecommunications equipment.

E-waste is either processed manually or mechanically in Queensland. Manual disassembly is where parts may be harvested for resale, material types (i.e. metals, plastics, ceramics, glass, circuit boards) are sorted and graded and then sold as a commodity locally or overseas in either a baled, bagged, or shredded form. Mechanical processing is where e-waste, once hazardous items such as batteries are removed, is crushed, shredded and sorted using magnetics, optical and x-ray into material types for further reprocessing and recovery.

Metal recyclers also use mechanical shredders. Most e-waste received by metal recyclers comes straight from collection points (e.g. local councils or businesses), with a smaller volume of steel and aluminium coming from e-waste recyclers after they have removed the more precious metals.

The NTCRS requires recyclers to achieve a material recovery rate of over 90% and they must be AS:NZS:5377 certified. At least 50% of NTCRS e-waste once collected and processed in Australia is exported for further recovery and remanufacture. Likewise, MobileMuster achieves a recovery rate above 98%, with the a large proportion of recovered materials exported offshore for further processing and manufacture into new products.

Currently, it is legal to dispose most types of e-waste to Queensland landfills.

As Queensland develops its action plan for e-products it will be important to ensure these actions complement existing product stewardship schemes, related legislation and the federal government's e-stewardship taskforce work program.
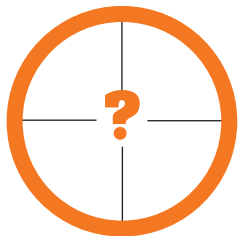
QUESTIONS

- **How can we be more innovative and effective with our collection and processing of e-waste?**
- **Which collection approaches work well?**
- **What are the barriers to increasing collection rates?**
- **How can we improve community access to collection services?**
- **How can we improve local processing capacity?**
- **Is Queensland getting the best value from its e-waste?**
- **Are there certain potentially hazardous substances in e-products that should be banned?**
- **Should Queensland ban e-waste from landfill, like the ACT, South Australian and Victorian governments?**
- **How will the export ban on waste plastics impact e-waste recovery rates?**

GET INVOLVED

To develop the E-Products Action Plan with input from the Reference Group, the Ewaste Watch Institute would like to hear from people about their experience with the purchase and disposal of e-products.

SHARE YOUR VIEWS

Additional Questions

- **What do people think about when purchasing e-products and whether long-term durability, repair and life cycles issues are taken into consideration?**

- **How are people extending the life of e-products and how easy is it to get repairs?**

- **What products do people repair easier than others?**

- **Do people know where to recycle?**

- **Are people aware of the quality of second-hand goods and where and how easy they are to buy?**

- **What is the demand for what is being thrown out?**

- **How can collection and recycling be improved?**

- **What is coming out in hard waste collections and is any of this being recovered for reuse?**

- **Do people know where they can reuse, repair and recycle?**

CLICK HERE TO VISIT OUR ONLINE SUGGESTION BOX
https://bit.ly/QLD-Action-Plan

EMAIL US YOUR THOUGHTS

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