Economic and Jobs growth for Queensland from the Waste Management and Secondary Resources Industry

WRIO

Essential for community Essential for environment

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Introduction

The value of the Australian recycling industry is approximately AU$6.145 billion with most of this being directly attributable to the sale of recovered materials[1]. Queensland's waste management and secondary resources industry is a critical business sector, contributing directly to the states economy and society by assisting with the efficient use of materials and maximising the full value of materials/ resources.

It provides an essential service to all Queenslanders by protecting the environment and public health. The industry comprises all companies involved in the collection, transfer, sorting, reprocessing, remanufacturing and safely disposing of waste materials generated.

The recovery of secondary resources and efficient management of waste in Queensland results in a variety of tangible environmental impacts including energy savings, avoidance of greenhouse gas emissions, water savings, avoidance of wastes as well a reduction of emissions to air, water and land. It is also a significant contributor to the substitution of raw/primary resources used in manufacturing.

Value is created as recyclable/recoverably materials move from generation, collection, processing and into end markets. The value-add at each step along the way is what drives the recycling economy just as primary resources add value to the manufacturing process. The higher the volume, the better the economies of scale and the larger the economic impact of material diversion.

The critical mass for economic development around recovery/recycling is driven by access. Economic development is jobs and investments that are local in scale and function as utility-based options which have potential to be scaled-up as the region grows.

The value of a secondary-resource can be realised at different points in the recovery process depending on the companies, technologies and policy structures in place. An aspect that is clear is that secondary-resources which are disposed of without any form of recovery create a negative value and should be avoided where possible. Jobs are created as access drives diversion, investment and value. The higher the material moves along the value chain, the greater the impact around job creation.

These WRIQ Plans aim to:

- Reduce where possible and recover waste produced by significant generators across all sectors
- Make the best use of waste materials through the adoption of 'secondary-resource' thinking
- Minimise the risks of environmental pollution and harm to human health
- Increase the proportion of waste managed by the options further up the hierarchy

The waste management sector as part of its role will:

- Provide integrated, efficient and dependable services to all waste producers
- Extract value from wastes generated where this is economically practical and viable
- Enter into partnerships with waste producers and all other service providers.
- Assist government policy and its regulators to oversee delivery of this important policy initiative.

WRIQ's Plans supports the government enabling an industry-led, market-driven system for providing multiple, interoperable solutions for Queensland's waste and recycling industry.

WRIQ strongly believe that for any process to be truly 'industry-led' that industry should provide a detailed and concise statement of the issues and its support and solution-focused initiatives independent of others influence. Whilst the secondary resources and waste industry has a duty in increasing the range of services available and ensuring incentives or prices affect all customers in a way that leads to a reduction in waste. The industry also performs a key role with harmful wastes as their effective management and minimisation requires technical knowledge and links to other production processes.

Queensland secondary resources and waste industry employs chemists, biologists, geologists hydrologists and soil scientists as well civil and environmental engineers that oversee the protection of the environment whilst developing more sustainable waste management practices.

Queensland is in a paradox - disposing of more at a time where commodity prices are increasing and elements are become scarce. Clearly, some markets are not working and require investigation and appropriate intervention. This is evidenced in the increase in the number of exports of waste materials from Queensland and indeed Australia including the lack of clear and enforced regulatory measures (including the loop holes exploited under Basel). Whilst there can be significant environmental, economic and social opportunities for exporting selected waste streams, particularly where no existing domestic infrastructure (for processing or recycling) or historical development of this infrastructure has been too costly; the attendant costs and risks in exporting key commodities/secondary-resources and underlining life-cycle impacts (associated with the transport distances, poor regulation of facilities in the receiving country) may undermine the overall benefit from the waste material.

[1] Inside Waste Industry Report 2011-2012.

The industry commonly hears that the cost of waste management is too expensive.

However, this is in comparison to what? In an era where the protection of public health and the environment, coupled with resource security and maximising resource efficiency are the main objectives, the true cost of waste management and the recovery of secondary-materials must be properly costed and understood by all. A matter of specific action is for the public sector operators to fully account for the full costing of all externalities from local government waste management systems including landfill operations to ensure the real costs of operating and providing this essential service to residents and business is fully understood.

WRIQ strongly supports policy drivers and interventions which promote a circular materials economy, in particular the use of secondary resources in primary manufacturing processes. The linear model for consumption assumes that the 'waste sector' will ultimately pick up the responsibility (paid of course) for dealing with and treatment the waste at end of life disposal.

Provision of recycling evidence at minimum costs often becoming the goal of both manufacturers, importers of the good and the waste processor/ recycler. Instead WRIQ believes that Queensland should be moving to conserve and secure all material flows as part of the future capital required to keep companies operating in a sustainable manner. This is a circular materials economy and by keeping valuable materials circulating in the economy, jobs are created and sustained and more business opportunities can be realised.

Current local government across Queensland is fragmented in its efforts to manage waste and increase the opportunities for the use and recycling of secondary resources. This is compounded by different regions for waste planning purposes which again frustrates the opportunity to deliver an integrated and self-sufficient platform for managing wastes across regional boundaries. The disparate local policies, fragmented markets and a serious lack of scale for the sustainable delivery of infrastructure are apparent. The rationalisation of currently outdated and environmentally-poor disposal facilities (landfills) across the regionals is urgently needed. However, the lack of proper planning, coordination or cooperation going forward will see money wasted on the delivery of infrastructure that will never be fully utilised. The concept of 'infrastructure at scale' is paramount and the development of a comprehensive waste management plan that encompasses both individual councils and their region and which focuses on environmental priorities as well as service delivery is critical for the development and investment in the sector.

The opportunities for the public sector to realise significant capital savings, a reduction in its future operating expenses and for the greater utilisation of existing industry infrastructure is real. However, without acknowledgement the state needs a cultural shift and of a clear understanding to its future secondary resource and waste management needs this will be an environmental and economic opportunity lost.

In its essence, economic growth will result in more jobs and in the immediate term, both State and Federal Government may not be too concerned about what these jobs are or the long-term stability of these roles. However, WRIQ argues that the industry must be mindful and have a plan to identify what jobs we want to be created and need to flourish and grow the sector long-term.

In many cases, the skills and experience required to undertake a role and do it well, do not appear overnight, rather accumulated over years and are often defined by tacit knowledge rather than something we can simply write a manual for. As such WRIQ encourages industry and government to work together to clearly articulate the career pathways we need in order to meet the demand for the technologies and services we offer into the future.

Therefore these WRIQ Plans seek to develop innovative and practical discussion for policy approaches and a range of interventions in Queensland and it is noted that many jurisdictions develop such documents based on iterations of other's work which relied on a specific philosophy of strategic thinking and innovation in a world which no longer exists. WRIQ acknowledges that a strategy must operate in the current legislative and regulatory framework within Queensland, but also provide synergy to the National Waste Policy (2009).

WRIQ recognises the increasing rate of regulatory challenge impacting the sector, including but not limited to the introduction of the Product Stewardship Act (2011) and the uncertainty of the Carbon Price Mechanism ongoing into 2014; and acknowledges that these provisions have changed the opportunities and costs impacting the sector since the previous Queensland strategy was devised.

Whilst increases to particular waste streams from growth across Queensland's "four-pillars" (construction, tourism, mining, agricultural sectors) and declines in others elicited from social and economic changes; changes in technologies and materials; and increases in the frequency and magnitude/severity of climatic events will also influence current strategic thinking beyond that of the last strategy.

As the lead industry body in Queensland, the State Government approached WRIQ in 2012 as a stakeholder to the development of a new 'industry-led' waste strategy. Whilst WRIQ acknowledge and commend the consultative approach that this government has adopted, there are many stakeholders with differing views and the government and its agents are confined by institutions, bureaucracies and structures. The term 'industry-led' is also poorly defined, with many agencies using the phrase with varying levels of consultation and for some an over-simplification of this concept. WRIQ is mindful that the optimal waste strategy for the waste and recycling sector may not necessarily meet the optimal requirements or best interests of other sectors and acknowledges that whilst all care was taken in the preparation of these Plans, WRIQ notes that this document seeks to primarily serve and promote the interests of the secondary resources and waste sector.

These Plans provide State Government and its stakeholders with a clear overview of our industry's requirements for growth. They outline the minimum objectives sought by the industry over the next 5-10 year period and are not inclusive of all tools and mechanisms available, rather they represent the minimum industry positions based on the current regulatory drivers and limitations.

Implemented they will underpin the desired vision, key principles and objectives the policy aspires to achieve and give structure and ideas for its successful delivery and achievements of targets.

All photographic content used in this document has been verified by WRIQ as being truly representative of current Queensland facility and industry practices

Professor Adam Read, Practice Director – Resource Efficiency & Waste Management for Ricardo-AEA[1] and a Fellow of the Chartered Institution of Wastes Management and Royal Geographical Society in the UK.

Preface

Attitudes towards unwanted materials (waste) are changing across the globe, with such materials being increasingly regarded as resources rather than waste, albeit they may need some form of transport or processing before they can be returned to a fully productive use. The efficient use of primary and secondary resources, enhanced remanufacturing and the appropriate management of unavoidable waste can all contribute significantly towards market (economic) growth, job creation and reduced environmental impacts. The Queensland Government's Waste Strategy 2014 sets out the framework for maximising these economic and environmental opportunities, while the individual Sector Plans are designed to support its successful implementation and ultimate delivery.

These Plans identify the necessary steps that Queensland's waste and secondary resource industry will need to take in order to achieve the objectives of the Strategy. They identify several key actions that align with the State Government's key principles and can help meet state-wide targets. The Plans focus is on different priority areas and outline proposals for the management and treatment of high priority wastes. In this regard, the Plans are proposing a range of 'low-hanging fruit', i.e. activities that can be easily implemented and can contribute significantly towards meeting Queensland's commitment to sustainability. Clearly this is a call to arms for the waste & resources sectors who have a key role to play in making this happen.

It is important to keep in mind that the Strategy is not funded and has a number of limitations. Like most sectors, the waste and resource management industry has to operate under challenging business conditions. A clear government steer, effective legislation enforcement and assurance that the overall intent of the strategy will not change are essential to counteract the lack of mandatory sector targets and to ensure that increased market certainty and investor confidence is not undermined. Lost opportunities to attract investment, create new jobs, foster innovation and conserve resources must be avoided, and clear policy and focused activity is key to ensuring this does not happen.

These Plans set out the waste and recycling sector's roadmap for overcoming these challenges and harnessing the economic value of waste and subsequent environmental benefits. They provide Queensland with an outline of how sustainability can be achieved through concrete actions, including the implementation of the objectives of the Waste Reduction and Recycling Act 2011 (WRR Act). They also include a set of feasible commitments for the sector to embrace and focus on driving waste up the hierarchy, addressing illegal disposal activities and driving cultural change to maximise waste avoidance and minimisation wherever possible.

The Plans aim to make individual producers and waste generators increasingly responsible for the end-of-life management of their products and waste streams and kick-start waste diversion and recycling in the industrial and commercial sectors by designating wastes for diversion and supporting that diversion through the implementation of tools already outlined in the WRR Act.

They build on approaches that have been readily adopted overseas and are known to work, such as landfill bans and restrictions, policy interventions and voluntary agreements.

These proven overseas strategies have been approved by Queensland's waste and secondary resource management industry and it is felt that they are not only appropriate to deliver the desired outcomes, but are the sector's preferred route to delivering the change needed.

[1] Ricardo-AEA is a leading global consultancy specialising in analysis, advice and support for economically sustainable solutions to the most pressing global energy and environmental challenges including waste management and the sustainable use of resources in a circular economy. Ricardo-AEA have extensive experience in supporting Governments, International Agencies and business leaders globally and they are a proud sponsor of the Waste, Recycling Industry Association of Queensland (WRIQ) to whom they provide valuable peer-review and international perspectives and insights.

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WRIQ Action Plan 1

Waste Minimisation and Sustainability Plan: Landfill Product Restrictions Plan

Background

This Plan details outcomes, policies and actions for the implementation of landfill restrictions including landfill bans. For the purposes of this Plan the following definitions apply:

- A Landfill Restriction – whereby any form of 'sorting' of the priority materials/material streams would be considered sufficient for those types of materials to be restricted from landfill; and with the waste generators, processors and transporters to be required to testify that the sorting has achieved predetermined quality specifications to the landfill operator/owner. Quality protocols for sorted secondary-resources would be required;
- A Landfill Ban – a complete ban of unsorted wastes or particular priority materials proposed by WRIQ in this Plan (regardless of origin), whereby those materials are totally diverted from landfill. This measure would be supported by defined 'requirement to sort' protocols setting out minimum requirements to apply irrespective of the destination of residual waste.

A landfill ban cannot be simply implemented at the landfill gate, it requires input from the waste generators and the waste and recycling industry; and bans must be supported by complementary interventions to change behaviours and stimulate market signals. Waste generators are critical to the success of landfill bans as the way that waste is produced, handled, stored and contained at the point of generation may significantly impact the ease of reprocessing or separation later. Whilst Queensland's waste and recycling industry has a range of technologies to separate mixed waste loads, their effectiveness and economy is influenced by waste type, specific characteristics and volume. Source separation at the point of waste generation has productivity advantages and may be a requirement of an effective landfill ban depending on product/material stream. WRIQ supports the application of the waste hierarchy by all waste generators as it is critical to move wastes up the hierarchy and ensure that the most environmentally friendly disposal option is selected as part of normal business function.
It is also important to collect accurate data about the volume and characteristics of the wastes being generated.

Finally, WRIQ notes that Queensland does not have viable and truly inclusive landfill models to determine the full externalities associated with sending particular materials or products to landfill. Whilst other jurisdictions have undertaken detailed feasibility studies regarding the impacts of introducing landfill bans and landfill restrictions and their cost/benefits, this evidence-base is unavailable in Queensland.

WRIQ believes that the following objectives are critical in any decision making (including risk-assessment) process:

- Protection of human health and the environment, including the reduction of climate change impacts associated with the landfill of wastes;
- Contribution to increasing productivity and resource efficiency across all industries including the waste and recycling sector;

WRIQ supports the application of the waste hierarchy by all waste generators as it is critical to move wastes up the hierarchy and ensure that the most environmentally friendly disposal option is selected as part of normal business function.

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- Increased employment (including regional employment opportunities) and financial growth within the waste and recycling sector;
- Promotion of remanufacture and use of secondary resources;
- Increased market certainty and business confidence to invest in new collection, processing and treatment infrastructure;
- Driving increased self-sufficiency and securing future supplies of secondary-resources to sustain the infrastructure;
- Increasing the outputs of existing industry infrastructure; and
- Providing a cost-benefit to the community by fully costing the externalities associated with landfill and implementing a more transparent user-pays approach which reflects consumption.

The application of landfill bans and restrictions, if implemented with other policy measures, would be effective in increasing recovery rates of various material/ product streams in line with targets proposed within the Queensland waste strategy.

A Hyder Report[1] determined that "with excellent and suitable complementary instruments, landfill bans could offer Australia good hazard control/reduction, as the already do in a number of states, and deliver good diversion outcomes in a cost-effective manner"….and "international and national examples show that the planning for and implementation of bans need to include:

- Analysis of environmental and financial outcomes and technologies;
- Local involvement and implementation;
- Clear responsibilities and cooperation between government levels;
- Judicial and financial instruments;
- Transparency and clear communication to the public; and
- Clarity in establishing timelines for compliance".

Scope

This Plan involves the participation of all organisations and individuals (including sole traders and all contractors).

WRIQ strongly believes that landfill bans and landfill restrictions are not effective on their own and may lead to unintended consequences when they are implemented in isolation. Rather, WRIQ believes that landfill bans and material restrictions should be complementary to other policy instruments such as Product Stewardship Schemes (Federal or State specific) or green energy tariffs, as well as the utilisation of current regulations, controls and effective enforcement.

Additionally, landfill bans must recognise available (built and planned) facilities. For example, a total ban on liquids and organic streams to landfill would be at the detriment of existing bioreactor landfills, but should be a consideration at facilities that are under designed and all open pit or trench facilities.

All new facilities built using appropriate treatment technologies would be considered in time and the current lead-times associated with planning and financing could be used for the development of case studies and business plans to support policy amendments.

WRIQ would also like to highlight the issues associated with determining the effectiveness of landfill bans, particularly in an environment where base-line data and historic and current materials flows are largely unknown. In particular, data relating to specific products (should specific product bans be implemented) are either unknown or unreported by product manufacturers and retailers. The lack of understanding of legacy wastes (for example e-wastes) has a proven impact on policies such as Product Stewardship as well as landfill bans and might create stress points which could lead to negative unintended consequences (such as illegal dumping or over-subscription of services).

WRIQ recognises that effective enforcement is critical to the success of landfill bans and restrictions. Secondary impacts on the environment and human health through incidents such as illegal dumping should materials no longer be accepted at landfill must also be taken into consideration. Resources to collect and monitor compliance and other data must be immediately available upon commencement of any ban or restriction, to avoid incidents associated with illegal dumping or illegal exports.

Lead-in times for commencement of any bans and/or restrictions must also be appropriate to the development of markets, collection infrastructure, and reprocessing facilities.

WRIQ suggests that all landfill bans and restrictions are based on clear science-based policy and requests that the State Government make a 'Call for Opportunity' for each of the priority material streams proposed by WRIQ as part of this Plan. This broader consultation will assist government and industry in the identification of any unintended consequences as well as provide the opportunity to individual businesses within the waste and secondary resources recovery sector to provide confidential business plans and costs to government so that a complete impact statement can be developed.

Job Opportunities from Landfill Diversion

The employment opportunities for diverting waste from landfill are well documented. An Access Economic study (2009) which identified multipliers to determine employment in the waste management and recycling sector stated “a recent survey commissioned by the Australian Government identified that for every 10,000 tonnes of waste recycled 9.2 jobs are created. Only 2.8 jobs are created if the same 10,000 tonnes are sent to landfill”.

Other studies have reported similar opportunities for landfill diversion and the utilisation of other waste and recycling technologies ranging from:-

- Incinerating 10,000 tons (1 ton is equivalent to 1.016 tonnes) of waste creates one job; landfilling 10,000 tons of waste creates six jobs; recycling 10,000 tons of waste creates 36 jobs[2].
- Recycling results in up to 36 times more jobs than landfilling[3].
- Product re-use created 470 jobs per 10,000 tonnes processed per annum; recycling-based manufacturers create 162 jobs per 10,000 tonnes processed per annum; and conventional recycling facilities create 15 jobs per 10,000 tonnes processed per annum[4].
- The high value reuse and remanufacture (retained by keeping the original design) creates between 8-20 jobs per 1,000 tonnes of product processed; whilst recycling (where moderate value is retained) creates between 5-10 jobs per 1,000 tonnes of product processed[5].
- Additionally, it found that for every job created in the recycling industry another 1.4 jobs are created through associated economic activity[6].

[1] Hyder. (2010). Landfill Ban Investigation: Final Report. Report prepared for the Department of Sustainability, Environment, Water, Population and Communities. November 2010.
[2] United States Environmental Protection Agency. (2002). Resource Conservation Challenge: Campaigning Against Waste. 530-F-02-033. U.S. Environmental Protection Authority. 2002.
[3] California Government. (n.d.). Recycling Means Business in California. http://www.stopwmx.org/calif.html#Fact Sheet #3.
[4] SITA UK. (2012). Driving Green Growth: The Role of the Waste Management Industry and the Circular Economy.
[5] Green Alliance. (2014). More Jobs, Less Carbon: Why we need landfill bans.
[6] Thomas, J. (2011). Recycling Equals Jobs. Resource Recycling. July 2011. Pp13-15

WRIQ Action Plan 1 continued

Summary Discussion

WRAP PAS Framework

In other jurisdictions wood wastes going to landfill have substantially declined. Drivers for this include landfill taxes and subsidies for renewable energy generation. Queensland has no landfill tax and renewable energy subsidies are in decline at State and Federal level. As such, there are no mechanisms in place to currently divert this valuable resource from landfill, where it produces landfill gas which, if not captured, is a lost resource which contributes to greenhouse gas emissions.

Whilst there are limited thermal plants with capacity to accept wood wastes in Queensland (outside SEQ), opportunities do exist for reuse of high quality wastes, and the export of wood for panel board production should exceed domestic demand. Further practicalities associated with the diversion of wood from landfill include the sorting and grading of wood wastes and the establishment of grading quality protocols; lead in times; and practical enforcement of the restrictions.

To address quality and develop consistent minimum product standards, UK's British Standards Institution (BSI) and WRAP produced PAS 111:2012. The aim of this PAS is to provide a specification for individuals and organizations recovering and processing post-industrial and post-consumer waste wood into wood products so that potential customers will be assured that they are procuring a material of consistent and verifiable quality. If the minimum specification is met or exceeded then the material is PAS 111 compliant; if the minimum requirements are not met, then the material is noncompliant, even if an end user's specification is met.

Queensland should consider adopting and using where relevant existing product quality standards as already accepted such as the WRAP PAS framework used in an international context. This aligns the state with an international context and fast tracks adopting proven reuse of material streams.

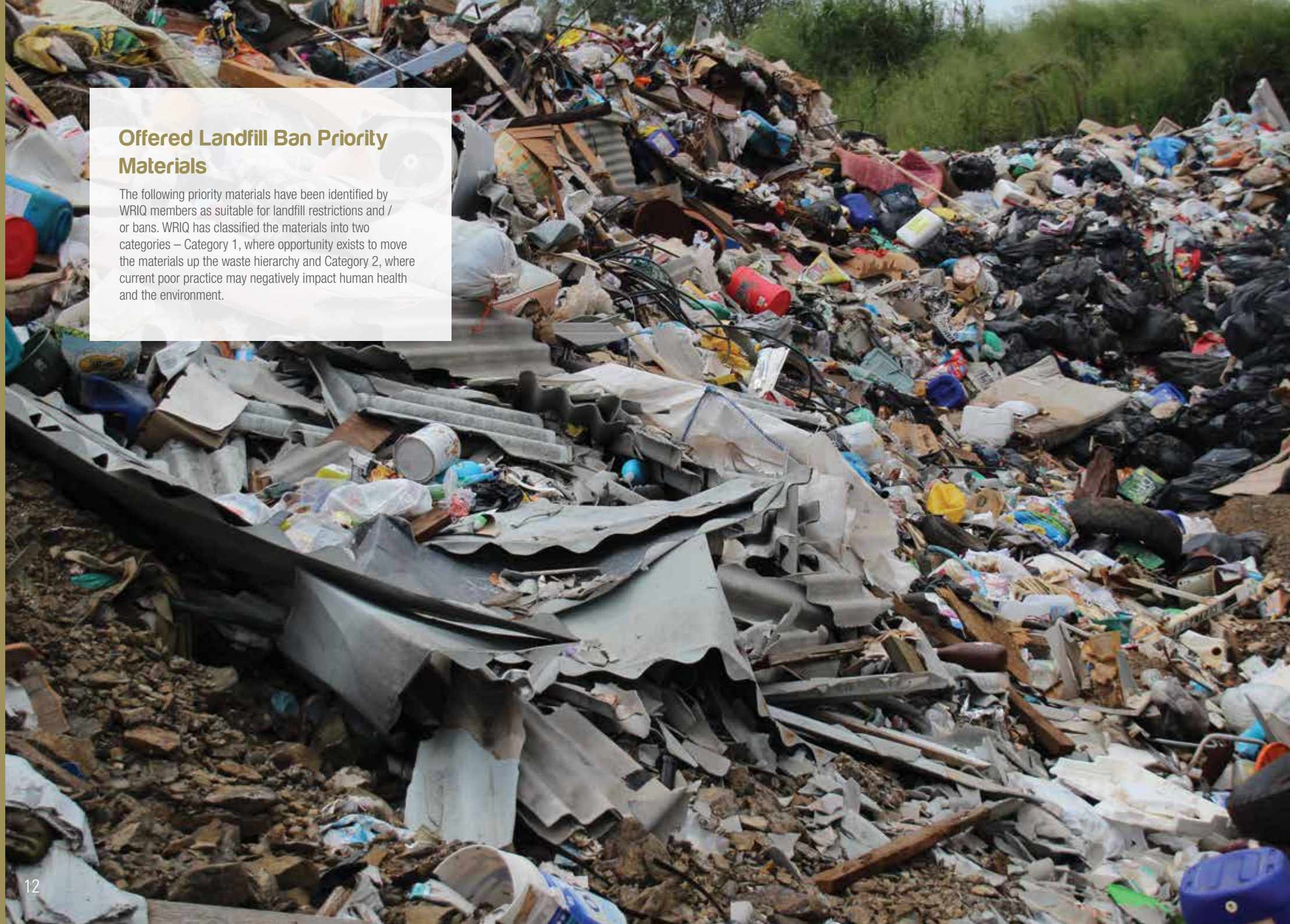
E-Wastes and Batteries Extension

The term e-waste is used to describe both electronic and electrical wastes, that is, any items which rely on an electric current or electromagnetic fields in order to operate and contain a hard-drive or significant electronic components and/or a printed circuit board. The current Federal PS scheme only covers TVs, computers and peripherals but may be extended to include DVD players, music systems and similar devices. There are no plans to extend this scheme to electrical goods.

Introducing a state based product recovery program for all electronic wastes with a cord attachment would provide for eliminating harmful electronic wastes from being disposed in the states poorly designed landfill framework. With only 17% of the state's landfills being fully engineered landfill bans of all electronic wastes provides for leveraging existing industry infrastructure and an improvement of the state's waste receiving environment.

Queensland should also lead by example and implement a trail of a the federal battery stewardship program as a matter of priority.

Queensland should consider adopting and using where relevant existing product quality standards as already accepted such as the WRAP PAS framework used in an international context.



Offered Landfill Ban Priority Materials

The following priority materials have been identified by WRIQ members as suitable for landfill restrictions and / or bans. WRIQ has classified the materials into two categories – Category 1, where opportunity exists to move the materials up the waste hierarchy and Category 2, where current poor practice may negatively impact human health and the environment.

Category 1

Material Ban	Action - Sources	Current Markets
Wood (untreated and low grade/ treated)	Construction and demolition wastes; pallets for packaging; joinery and furniture manufacture; landscape industry; forestry industry; saw mills	**Domestic** - Panel board manufacture; animal bedding; equine surfaces; mulches; compost production; fuel for power generation Export – Panel board; fuel;
Whole Loads of Plasterboard	Construction and demolition wastes, building refurbishment and fit outs	**Domestic** – Soil supplement products
Whole Loads of Concrete, Asphalt and Masonry Materials	Construction and demolition wastes, building refurbishments and fit outs	**Domestic** – Recovered secondary-resources including recycled aggregate. Substitute for domestically and internationally sourced virgin resources. Selected product standards already exist - HB 155: 2002
Selected Concrete	Landfill ban of concrete greater than >200mm in size Responsibility for all generators to comply	**Domestic** – Recovered secondary-resources including recycled aggregate. Substitute for domestically and internationally sourced virgin resources. Selected product standards already exist - HB 155: 2002 Queensland Main Roads Specifications are already in place and agreed
Metals from landfill at all state wide landfills	Car bodies, domestic appliances and other metal types All landfills in Queensland to implement metal recovery diversion plans, and Council tenders to be accepted from ERA holder entities only	**Domestic** capacity exists for gas recovery for fridges prior to them entering the scrap metal or landfill diversion system Export - metals
Mattresses	Volumes significantly increase under disaster management situations and mining camp relocation and temporary facility termination at the end of construction projects Initiate trials in SEQ for Mattress processing July 2015 Regional Diversion to follow 2016	Currently sent to landfill in Queensland although metals, foams and textiles are suitable for recovery and both domestic and export markets exist. Mattress recycling growing in VIC and SA through the third sector. Saleable reuse of mattresses is unfeasible.
E-Wastes these also fall into Category 2 as their mismanagement may have negative risks to human and environmental health	Household, commercial and industrial, electronic and electrical wastes. Growing >5% per annum in Australia. To include all electronic and small electrical goods (all sources), and domestic appliances. Recovery facilities to be established at all WTS and product reprocessed at licenced Queensland facilities	**Domestic** – Substantial existing infrastructure for the active disassembly of e-wastes across Queensland (including some regional areas). Domestic reuse of plastics and glass. **Domestic** capacity exists for gas recovery for fridges. Export – Rare Earths, Plastics, Glass
Polystyrene	Retail establishments, public building fit outs and major construction projects generate significant volumes of these streams. When landfilled it provides significant operational as well environmental impacts. Trials of Styrene diversion be implemented at all Transfer Stations SEQ 2015 Regional Trials to follow in 2016 at major regional centres Total State Ban Styrene products 2017	Queensland recyclers have the capability to handle these streams and conversion locally is possible if the supply chain is secure. This would result in industry investment, economic returns to the state and new employment
Oils and Greases (hydrocarbon)	Mainly from industrial and commercial sources. Use growing proportionally to industry growth, particularly in the mining and resource sectors.	**Domestic** (priority area) – direct reuse (through high-grade, closed-loop recycling) Export (secondary consideration)
Batteries (also Category 2)	All Batteries – handheld through to motor-vehicle Recycling facilities to be established at all Waste Transfer Station SEQ 2015 Regional 2015 State-wide 2017	Federal Government Stewardship scheme implementation

Category 2

	Issue	Opportunity
Pharmaceutical Wastes	The World Health Organisation report (2011) notes that "inappropriate disposal practices such as flushing unwanted or excess drugs down toilets or sinks and discharging them into household waste are common and may be the main contributor to pharmaceuticals in the environmental media such as surface water and landfill leachate".	Preventative measures (regulation and policy) governing disposal practices at point source are necessary and are supported by WRIQ. A State-based Product Stewardship or Take-back scheme for discarded (non-ingested) pharmaceuticals would also need to be implemented in conjunctions with a landfill ban.
Organics and other liquids from trench landfills, open pits and unlined landfills	Risk to human health, leachate, contaminated run-off into surface waters, contamination of ground water and local waterways contamination of soil, uncontrolled gas formation and migration of gas off-site. Risk to human health, tracking of infectious materials by vectors, Leachate, contaminated run-off into surface waters, contamination of ground water, contamination of soil WRIQ advocates the **closure of 65%** of the state's public sector operating landfills with a priority focus for closure on all unlined / open trench or open pit facilities which fail to meet current minimum EHP 2014 landfill standards and design guidelines by 2019. Aligned with the closure of these out dated facilities, a state wide audit and future infrastructure plan should be completed on the required needs to manage the states expected waste and recycling outputs for the next 30 years. This work should align with the agreed objectives detailed in the Queensland Plan adopted by the Government in December 2013. That document fails to identify the essential needs for the community in this area. A model plan to reference is the Victorian 2014 mapping for its sector. Closed facilities where necessary should be replaced with upgraded waste and recycling transfer operations for the affected communities. Upgraded community assets should include sorting / storing infrastructure to manage viable recycling streams where this is practical. All facilities as a minimum should have used oil recovery, used tyre recovery and metals recovery capability, and where product bans are initiated these streams should also be managed appropriately	Treated correctly Organics and Liquid streams can be processed either at Compost operations and used in remanufacturing soils and other valued added resources and where this is not feasible or possible these wastes should be processed in state of the art treatment operations, including lined landfills, according to strong regulatory protocols already set in place by the State Government. Closing unlined, open trench and pit facilities or inappropriately designed under engineered landfills provides the public sector opportunities to look at more regional and other public private sector partnerships. Planning for future infrastructure will ensure the effective use of public funds expended in this area, provide industry with confidence that assets invested will be required and ensures the community have a full understanding and expectation of the assets required. It will enable for State and Local Government plans to identify and allow for effective buffer and the allocation of land in the areas the infrastructure is needed, as well for greater utilisation of existing industry infrastructure where new assets are deemed not required. The action would result in removal of environmental harm and public health concerns from air borne and other vectors as well contamination to the environment water tables, would result in an improved state wide resource recovery performance, greater accountability to the use of public assets and ratepayer funds and create new opportunities to leverage existing waste management public assets and design / planning for new investments and technologies that will support the state's population growth
Untreated Medical and Clinical Wastes from unlined landfills	Risk to human health, tracking of infectious materials by vectors, Leachate, contaminated run-off into surface waters, contamination of ground water, contamination of soil	All medical wastes should only be disposed of at fully approved medical specialist treatment facilities. Where it is practical metals and other recyclable items can be recovered post treatment and recycled
Agriculture – Ban of on-site burial of chemicals (including oils), and plastics	Risk to human health, leachate, contaminated run-off into surface waters, contamination of ground water, contamination of soil Regional trails for diversion of all Agricultural tape and plastic drums, and plastic banana bags as a minimum July 2015 State wide ban implemented July 2017 State wide ban of burning of any agricultural plastics July 2015	Agricultural tape and drums disposed into landfill consumes valuable airspace and has an economic value and recycling benefit

	Issue	Opportunity
Resources sector operations including Mining Sites	Contamination of ground water, contamination of soil, loss of resources Muds and liquids to be transported by approved transporters and processed at approved composting/disposal operations	Secondary Resources generated by the Primary Resources and Mining industry have significant economic value to the Queensland Secondary Resources Sector. Australian industry has made significant investments in world class recycling and reprocessing operations that employ Queenslanders and Australians. This investments should be utilised by the Queensland resources sector over exporting of these complex hydrocarbon streams
Ban of all on-site burial (incl. ERA 60) of whole tyres, oils and greases, hydrocarbon liquid streams	All Used Oils and Greases to be recycled at approved ERA recycling and approved facilities Mining activities conducting landfill operations are required to design and operate all on site landfills in accordance with EHP 2013 approved Landfill guidelines design criteria. Any facility failing to operate or build a landfill outside of these guidelines be restricted to disposing a maximum of 50 tonnes of general waste in any calendar year. All liquids containing hydrocarbons banned from onsite landfill disposal and to be treated off site at fully ERA approved treatment and recycling operations. Whole tyres banned from being buried on site • Up to 25 inch rim size July 1 2015 • 26 inch and greater 1 July 2016 The ban of all regulated and hazardous waste (liquid and solid) at mine sites with approved landfills that are not duly designed to accept such complex wastes or have the appropriate liner protection.	Specific streams identified by the industry can be reprocessed at Queensland based operations providing sound environmental recycling processes, local employment and economic value to the Economy. Solid waste being heterogeneous in nature contains many potential and known contaminants Rubber crumb can be reused into asphalt and to displace other virgin product applications in Queensland

Action Items

C&D Wastes – landfill restrictions

Please refer to C&D Plan for supporting initiatives (such as the production of Mandatory 'Resource Recovery Plans', otherwise known as a Waste Reduction and Recycling Plan under the Waste Reduction and Recycling Act 2011).

For construction and demolition projects >$500,000 regardless of source for the following landfill bans:

- Whole loads of concrete, masonry and asphalt
- Whole loads of Plasterboard
- Concrete >200mm
- Only residual wastes may be landfilled after sorting

All waste loads, the following bans apply:

- Whole loads of concrete, masonry and asphalt
- Whole loads of Plasterboard

Any non-ERA facility accepting C&D and / or C&I waste cannot discharge sorted or unsorted waste (mixed and single-stream materials) directly to landfill – All wastes must be processed at a licenced RR facility prior to landfill.

Implementation Dates for Landfill Restrictions

SEQ Only	1 January 2015
Major areas	1 January 2016
Regional Queensland	1 July 2018

Link to Strategy

Driving Cultural Change & Avoidance and Minimisation - Encourages designers, architects, builders, contractors etc. to plan to avoid, minimise and recover wastes on C&D projects.

Reuse, Recovery and Recycling - A RRP has the opportunity to enforce the waste hierarchy. A RRP is a plan to help clients, developers and contractors in the C&D sector think before the start of a project about the waste that will be produced, how to reduce the waste and plan to sustainably manage waste that does arise. RRPs as a legal requirement will assist Queensland to:

- tackle the large volume of waste sent to landfill (particularly in SEQ) that is generated by the C&D sector
- help improve recycling and re-use in the C&D sector
- address the number of illegal waste sites in Queensland by requiring all contractors to identify in advance, transport and recycling and/or disposal facilities and keep copies of all licences and insurances on file
- help tackle the number of illegal dumping incidents (Disposal and Management)
- improve how regulated/hazardous waste, particularly asbestos, is managed in Queensland
- innovate the industry by developing new ways of working involving waste
- improve material efficiency and reduce the C&D sector's carbon footprint

The submission of a waste diversion report also demonstrates compliance with the disposal bans.

Regulatory Framework (Existing or Amended)

Current regulatory framework in place. Minor additions suggested.

WRIQ has broadly consulted landfill operators regarding the requirements of S.100 and penalty provisions under S.101 Waste Reduction and Recycling Act 2011. The provision of disposal bans puts a regulatory enforcement duty on landfill owners and operators. The industry acknowledged and accepts this duty. However, disposal bans will only be effective in conjunction with other tools.

The proposed priority C&D waste materials for PS and/or landfill bans meet current requirements and decision-making structure outlined under S.77 Waste Reduction and Recycling Act 2011

Amendment to Schedule 3 Notifiable Activities requested, Environmental Protection Act 1994. Item 20 – should include construction and demolition wastes. They are currently excluded.

Meeting Objectives outlined in Sections 3.1 and 5 of EHPs Model Operating Condition for ERA60 – Waste Disposal

These proposed bans meet the commitments of EHP in the Guidelines: Landfill Siting, Design, Operation and Rehabilitation, 2013. see page 2

"The department is also committed to introducing elements of best practice environmental management to existing landfilling operations (where they can reasonably be introduced) with the objective of raising the standard and reducing the risk of pollution. Best practice environmental management is defined in Section 21 of the Environmental Protection Act 1994 (EP Act), as '…the management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally'. The department will work with landfill operators wherever possible, or use the enforcement tools available under the EP Act if necessary, to introduce best practice environmental management and ultimately increase the level of environmental protection".

Existing EHP Policy – Management of Fire Fighting Foam

Amendment to the Environmental Protection Regulation, ERA60, definitions – currently reads "facility includes a naturally occurring or constructed hollow or pit, including, for example, a gully, mining shaft or quarry, but does not include a hollow or pit on a farm used for receiving and disposing of general waste produced on the farm."

Action Items	Link to Strategy	Regulatory Framework (Existing or Amended)
Single materials/product landfill bans - E-Wastes - Batteries - Oils and Greases - Mattresses - Polystyrene - Agricultural Plastics **Implementation Dates for Landfill Bans – mattresses, e-wastes and polystyrene etc** SEQ Only 1 July 2015 Major areas 1 July 2016 Regional Queensland 1 July 2018 **Implementation Dates for Landfill Bans – batteries, oils and greases etc** SEQ Only 1 July 2015 Major areas 1 July 2017 Regional Queensland 1 July 2018	**Management Treatment and Disposal** – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management. Driving Cultural Change and Driving Waste Avoidance and Minimisation(including partnership working and recognising green procurement opportunities) **Reuse, Recovery and Recycling** –Queensland will optimise economic benefits from reuse, recovery and recycling, this seeks to secure market certainty for industry investment, support Product Stewardship Schemes with additional policy drivers where implemented;	Meeting Objectives outlined in Sections 3.1 and 5 of EHPs Model Operating Condition for ERA60 – Waste Disposal These proposed bans meet the commitments of EHP in the Guidelines: Landfill Siting, Design, Operation and Rehabilitation, 2013. see page 2 "The department is also committed to introducing elements of best practice environmental management to existing landfilling operations (where they can reasonably be introduced) with the objective of raising the standard and reducing the risk of pollution. Best practice environmental management is defined in Section 21 of the Environmental Protection Act 1994 (EP Act), as '…the management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally'. The department will work with landfill operators wherever possible, or use the enforcement tools available under the EP Act if necessary, to introduce best practice environmental management and ultimately increase the level of environmental protection".
Health and Environment landfill bans - Pharmaceutical wastes - Untreated medical and clinical wastes - Organics and liquid wastes to trench, open pits and unlined landfills **Implementation Dates for Landfill Bans** SEQ Only 1 July 2015 Major areas 1 July 2017 Regional Queensland 1 July 2018	**Management, treatment and disposal** – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management.	
Landfill ban of soils contaminated with Fluorinated Organic Compounds from July 2017	**Management treatment and disposal** – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management	
Agriculture – Ban of on-site burial of chemicals, oils and plastics From July 2015	**Management treatment and disposal** – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management **Reuse, Recovery and Recycling** –Queensland will optimise economic benefits from reuse, recovery and recycling.	
Resources – Ban of on-site burial of tyres, oils and greases (ERA and non-ERA facilities) From July 2015	**Management treatment and disposal** – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management **Reuse, Recovery and Recycling** –Queensland will optimise economic benefits from reuse, recovery and recycling.	

1 WRIQ Action Plan 1 continued

Examples of International Landfill Bans

	Bans/ Restrictions
Austria	Restrictions on organic waste (TOC<5%) to Landfill (1996)
Germany	Ban on separately collected waste materials, unsorted municipal waste – the part of municipal wastes that can be recovered and untreated waste with TOC<3% (1993 with a 12 year lead in period)
Sweden	Bans on the landfilling of sorted combustible waste (2002) and organic waste (TOC<10%) (2005)
The Netherlands	Ban on the landfilling of combustible and biologically decomposable wastes, as well as separated construction and demolition wastes (1995)
Flanders, Belgium	Landfill ban on both unsorted waste and on separately collected waste materials (1998) Landfill ban on combustible residual wastes (2000)
Massachusetts, U.S.	Bans on the landfilling and combustion of a range of materials including: Asphalt pavement, brick and concrete; Glass and metal containers; leaves and yard wastes; metal; recyclable paper; single polymer plastics; white goods; tyres (banned from landfill only); and wood (banned from landfill only).
South Australia	Landfill bans include oil and whole tyres from landfills (1 September 2010); computer monitors and TVs from (metro-only) landfills (1 September 2012); and all electronic and electrical goods state-wide from landfills (1 September 2013).
ACT	Landfill ban of e-wastes

Recent Research/Evidence

According to a recent WRAP report[7], the UK could save around GBP2.1 billion by banning unsorted wastes from landfill. The purpose of the study was to determine whether the costs and benefits of specific landfill bans and restrictions justified their use. Further goals were to understand how landfill bans and restrictions could assist the UK to meet their EU Landfill Directive targets for the diversion of biodegradable municipal wastes and opportunities for increasing business prospects and growth.

For paper and card, the study reported that the potential savings from restrictions from landfills could result in a net benefit to society of GBP130 million while a total ban could increase that to GBP720 million. For metals, the figures ranged from GBP75 million for a restriction up to GBP800 million for a ban; and for textiles, GBP 110 million for restrictions and GBP250 million for a ban.

Interestingly, for wood the report noted a restriction from landfill could result in net benefits to society of GBP 48 million but a total landfill ban would only offer savings of GBP 21 million. The report also noted a net cost for restrictions and bans of green wastes, plastics and e-wastes to landfill.

In summary, the report concluded that the climate change benefits and resource efficiency gains were greatest where a ban on landfilling unsorted waste is implemented. As such, the report recommended the consideration of those materials in association with accompanying measures so that the requirements are not “side stepped”.

Whilst care must be taken in the application of these potential costs and benefits to a Queensland environment given the significant differences in the intensity of waste generation, existing infrastructure, market development and economics amongst other factors associated with the United Kingdom, the study provides an interesting insight into both a methodological approach and practical considerations.

7 WRAP. (2012). Landfill Bans: Feasibility Research. The Environmental, Economic and Practical Impacts of Landfill Bans or Restrictions – Research to determine feasibility. Waste and Resources Act Program, UK.

2

[1] Welsh report

WRIQ Action Plan 2

Waste Minimisation and Sustainability Plan: Construction and Demolition Waste

Background

The construction (including reconstruction) and demolition sector is vital to Queensland's economy. It is a significant agent for change and has a highly influential role in changing behaviours and the promotion of sustainable development practices across a range of activities and related sectors.

Queensland's Waste Reduction and Recycling Strategy 2010–2020 defined construction and demolition waste as "Waste that is generated as a result of building, refurbishing, renovating or demolishing structures, buildings and infrastructure such as roads, bridges and docks, and includes material such as timber, clean soil, concrete, asphalt, plasterboard, steel, bricks, ceramic and clay tiles, and aluminium".

This Plan outlines a number of proposals for action for the management and treatment of construction and demolition waste to achieve more sustainable and affordable outcomes – essentially proposing a range of easily implemented activities which meet the State Government's Key Principles and Objectives as articulated in the 2014 Waste Strategy. This plan assists the State Government to meet their commitment to sustainability and Objectives of the Strategy.

The construction industry must minimise the amount of waste produced and increase the proportion of materials recovered for reuse and recycling. It is recognised that a significant challenge within the sector is the large numbers of small builders which have limited management options and also the contractual issues associated with the high proportion of sub-contractor arrangements which often do not clearly articulate responsibilities or dilute responsibilities for sustainable waste management practices.

Many construction and demolition wastes are easy to recycle using proven technology and existing infrastructure (including mobile and temporary plant). For example, masonry material is relatively easy to reprocess, when it is separated at source. Whilst Queensland's C&D waste is typically dominated by soils and aggregates (including masonry) by weight, 75% of the ecological footprint of C&D wastes are attributable to five materials, wood, plastic, insulation and gypsum products, hazardous wastes and metals

This Plan details outcomes, policies and actions for organisations and individuals involved in the construction and demolition sector across Queensland. This Plan is one of five plans that, overall, comprise a set of feasible commitments to achieving the principles and objectives enshrined in the Strategy.

This Plan details outcomes, policies and actions for organisations and individuals involved in the construction and demolition sector across Queensland.

2 WRIQ Action Plan 2 continued

Scope

This plan is intended to cover all organisations and individuals (including sole traders and all contractors) operating within Queensland's construction and demolition sector, setting particular responsibilities for all those working on projects with a value of $500,000 or more (including GST).

The Plan covers all wastes which are directly generated through a construction and/or demolition project and throughout each phase within a project (for example, demolition, site clearance, sub-structure/foundation, super-structure, fitting); and also to all renovation and maintenance projects associated with existing structures/buildings.

Construction and Demolition Waste in Queensland

This Plan is evidence-based where data exists. On 30 June 2010, there were 515 businesses in Australia working primarily within the construction and demolition (C&D) waste sector, contributing $542.7 Million and contributing 10.5% of the total income from the waste services sector2. During 2010-2011 (financial year) 5,577,200 tonnes of C&D wastes was sent to landfill in Australia, (132.3m/t organic; 3,994.6m/t non-organic; 1,212.4m/t unseparated organics and non-organic; 237.9 m/t unspecified)[3].

By comparison, recovery of the valuable material streams within C&D is limited. Table 1 shows the quantities of materials recovered, disposed or transferred to facilities other than landfills across Australia for financial year 2009-10[4]; whilst Table 2[5] shows the waste streams of materials received at facilities other than landfills by source which indicates that recovery of C&D across Australia may not be as developed as recovery of other waste streams.

Construction and demolition waste	Total received by facility '000 t	Recovered or reprocessed '000 t	Disposed to landfill or other final destination '000 t	Transferred to other businesses for recovery/ reprocessing '000t
Bricks, pavers etc.	171.1	103.5	11.1	63.1
Concrete	1,012.8	840.5	4.2	174.8
Other construction and demolition waste	1,330.3	805.8	262.7	245.1

Table 1: Quantities of materials recovered, disposed or transferred, facilities other than landfills across Australia for financial year 2009-2010

[2] Australian Bureau of Statistics. (2011). 86980DO001_200910 Waste Management Services, Australia, 2009-10. Table 6 Income from waste services, private and public trading sector.
[3] Australian Bureau of Statistics. (2011). 86980DO001_200910 Waste Management Services, Australia, 2009-10. Table 16 Waste streams of material received at landfills, by source
[4] Australian Bureau of Statistics. (2011). 86980DO001_200910 Waste Management Services, Australia, 2009-10. Table 17 Quantities of materials recovered, disposed or transferred, facilities other than landfills.
[5] Australian Bureau of Statistics. (2011). 86980DO001_200910 Waste Management Services, Australia, 2009-10. Table 19 Waste streams of material received at facilities other than landfills, by source.

	Organic '000 t	Non-organic '000 t	Unseparated organic and non-organic '000 t	No source type provided '000 t	Total '000 t
Domestic and municipal waste	2,120.0	971.2	1,692.2	124.7	4,908.1
Commercial and industrial waste	2,266.6	5,647.7	872.6	51.3	8,838.3
Construction and demolition waste	28.9	1,630.7	652.6	10.8	2,323.0
Other waste	170.4	3.6			211.7
No waste stream provided	69.8	355.3			1,332.0

Table 2: Waste streams of materials received at facilities other than landfills by source for financial year 2009-2010

Data provided by Queensland's Department of Environment and Heritage (Table 3) indicates that the recovery of C&D wastes in Queensland during 2011–12 was around 53% .

	Disposed (tonnes)	Amount Recovered (tonnes)	Percentage Recovery Rate
Municipal solid waste	1,698,029	1,067,054	40
Commercial and Demolition	1,673,099	1,092,837	40
Construction and Demolition	848,907	949,298	53
Total	4,220,035	3,109,189	42

Table 3: Waste (by Type) Disposed to Landfill

Of these volumes, 640,601 tonnes of C&D waste was reportedly sent to landfills in the Brisbane region[6]. This indicates that there is a significant loss of resources in SEQ; yet WRIQ members in South East Queensland (SEQ) have reported difficulties in securing volumes of C&D wastes for recovery (in particular concrete, asphalt and clean wood), having to import secondary resources from outside the region to meet production efficiencies and contractual obligations.

The report[6] goes on to state:

"Developments in the building industry and major infrastructure projects influence the volumes and geographical origins of construction and demolition wastes.

Private landfills recovered 16% (84,000 tonnes) and councils recovered 62% (264,000 tonnes) of the construction and demolition waste received. Masonry materials used at council facilities, rather than being sent to recyclers, account for most of the council-recovered waste.

Private facilities landfilled 685,000 tonnes of construction and demolition wastes, and 164,000 tonnes were disposed of at council facilities.

A significant change over the last 5 years is that the amount of construction and demolition waste landfilled has fallen from an average of 1.2 million tonnes per year (2008–2010) to less than 900,000 tonnes per year (2011–2012). A contributor to this downward trend is councils recovering greater amounts of concrete".

It is noted that these figures show a reduction in C&D processing from independent figures reported for 2009-10 including but not limited to a Hyder 2011 report (as in Table 4).

[6] Department of Environment and Heritage Protection. (2013) State of Waste and Recycling in Queensland 2012. (see Table 2, page 11).
[7] It should be noted some tonnage data shown in jurisdictional summaries varies from data sets shown in national summaries (such as those provided by ABS). There are several differences between the standard national methodology and that used to gather and report waste information in Queensland, especially in relation to the definition and treatment of 'clean fill'.

2 WRIQ Action Plan 2 continued

	Company 1	Company 2	Company 3	Company 4	Total
Mixed waste	150,000	50,000	284,000		484,000
Concrete/Brick	120,000	10,000	120,000	1,020,000	1,270,000
Asphalt	25,000			120,000	145,000
Clay Rubble	30,000	10,000	70,000	60,000	170,000
TOTAL	325,000	70,000	474,000	1,200,000	2,069,000

Table 4: C&D reprocessing by four major Queensland C&D operators as reported for 2009-10

In Queensland's current Draft Strategy, Version 4, the following targets are proposed

Queensland's Draft Waste Strategy Version 4

The Draft Strategy identifies waste diversion targets for each waste sector and identifies a series of priority waste and products for attention.

The targets in the Strategy relevant to C&D waste are:
2002-13 baseline: 61%
- By 2024: 80%

The Strategy also includes targets to increase recycling of commercial waste:
- 2012-2013 baseline: 42%

The range of priority C&D products / materials includes:
- Mixed C&D materials (highest priority)
- Timber, concrete (highest priority)
- Packaging (secondary priority)

According to Hyder[8] "achieving the 50% recycling target by 2014 will require the recovery of at least 650,000 tonnes of additional C&D material (excluding soils and clean fill), compared to 2008-09 levels of recovery. The total tonnes of material that will need to be processed to achieve a 75% recovery rate in 2020 will depend on waste generation rates and population growth, but it is likely to be more than 3 million tpa. Achieving this target will require the development of significant additional processing infrastructure".

Whilst WRIQ supports the provision of targets, they only work where there is credible baseline data in association with mandatory reporting, and the targets are mandated with clear responsibilities and punitive provisions for non-achievement or false claims.

A number of Queensland-specific recommendations were provided in the Hyder Report for EHP, including:

- A five year rolling infrastructure program, that prioritises infrastructure in key C&D waste generation areas, should be developed. On the basis of C&D quantities generated, and potential for recovery, planning should give consideration to fixed or mobile facilities to service material volumes as appropriate.
- Where obvious gaps exist in the geographic spread of existing facilities in relation to the generation of C&D waste, DERM could work with local governments to support the incorporation of C&D waste recovery infrastructure and programs in waste management strategy reviews.
- Mixed C&D loads are a key challenge for all jurisdictions. The introduction of a landfill levy in Queensland may see some of these mixed load materials diverted in the short term. Longer term options may include evaluating the performance of South Australia's requirements to pre-sort waste prior to disposal.
- One of the key approaches of Queensland's Strategy, Waste – Everyone's Responsibility. Draft Waste Avoidance and Resource Productivity Strategy for Queensland (2014-2024) is the development of partnerships. In the public realm, peak agencies, including Local Government Associations, will help to facilitate planning and resource sharing, and the development of local market outlets for materials. Additionally, government agencies such as QBuild and Project Services within the Department of Public Works should be considered priority partners.
- Private partnerships should also be supported. Beyond obvious partnerships with the waste management industry and reprocessors, opportunities exist within the civil sector and quarrying industry. These relate particularly to the most immediate opportunities in material recovery and market development in regards to recycled masonry materials.
- Planning and operational measures also need to be managed. DERM has the opportunity to work proactively, and in partnership with industry, to support the development of guidance. Priority should be given to:
- The siting and operational requirements of both fixed and mobile equipment, to manage expectations as the industry goes through a growth phase
- Guidance on the management of asbestos in the C&D waste reprocessing sector.

WRIQ strongly supports South Australia's requirements to pre-sort C&D wastes prior to disposal, recognising its potential in providing long-term, sustainable solutions to the recovery of C&D wastes and long term industry behaviours. WRIQ also advocates this approach as a successful solution to eradicating unlicenced operators from the waste industry and reducing illegal dumping of C&D wastes. This will provide increased business confidence and the associated investment in the new infrastructure identified in the report.

The report went on to state (page 75):

"Following the introduction of the Landfill Levy in the border region of northern NSW, there is anecdotal evidence that C&D waste disposal levels dropped off significantly, with the inference that a portion of this material was disposed in much cheaper landfills across the Queensland border. Skip bins of C&D waste are by their nature very transportable, and most private operators will weigh the pros and cons of increasing transport costs to achieve lower disposal costs. It is not uncommon for less sophisticated transporters (such as the multitude of 'a man with a truck' operations) to focus more on the disposal cost, especially where they are of the view 'the truck doesn't owe me anything'"

Whilst the inter-state movements of C&D wastes is not a concern to WRIQ as they provide business opportunities to Queensland (employment and growth); the tracking and reporting of such loads is essential. Problems occur with the differences in State regulation and classification of wastes, for example, as evidenced by the differences relating to contaminated soils, including acid sulphate soils. WRIQ strongly supports the harmonisation, where possible, of hazardous waste classifications, reporting requirements and waste tracking provisions. The current issues provide an administrative burden to the waste industry and can result in lost opportunity, both to Queensland and interstate operators.

The ease of entry to the Queensland waste industry, as articulated as the "multitude of 'a man with a truck' operations" in the report, is also of concern as this leads to a lowering of overall business practices and standards which may directly impact human health and negatively impact environmental values where waste is poorly managed. As such, WRIQ advocates the licensing for all C&D waste facilities and waste transporters as a mandatory requirement for this action plan to be successful and sustainable as well to protect existing industry investments.

[8] Hyder Consulting. (2011). Construction and Demolition Waste Status Report. Report specifically provided for the Department of Sustainability, Environment, Water, Population and Communities and the Queensland Department of Environment and Resource Management (now the Department of Environment and Heritage Protection – EHP)

Action Items

Mandatory 'Resource Recovery Plans' (otherwise known as a Waste Reduction and Recycling Plan under the Waste Reduction and Recycling Act 2011) for all construction and demolition projects >$500,000.

- Wastes must be processed at an approved and registered facility. These facilities should be located at the front end of landfills or other approved locations such as waste transfer / resource recovery purpose build operations with specific hard stand and other infrastructure allocated to sorting these wastes.
- Waste Transfer operations or landfills without appropriate required sorting infrastructure would not be deemed a registered facility.
- Only residual wastes should be landfilled following the processing.
- Landfill bans for concrete >200mm
- Supporting the development of appropriate energy from waste routes for suitably separated wastes
- Submission of a waste diversion report to EHP within two (2) months of completion of the project
- EHP to provide annual performance returns on diversion targets and tonnes recovered

Implementation Dates for Strategy

SEQ Only	1 January 2015
Major areas	1 January 2016
Regional Queensland	1 July 2018

Link to Strategy

Driving Cultural Change & Avoidance and Minimisation - Encourages designers, architects, builders, contractors etc. to plan to avoid, minimise and recovery wastes on C&D projects.

Reuse, Recovery and Recycling - A RRP has the opportunity to enforce the waste hierarchy. A RRP is a plan to help clients, developers and contractors in the C&D sector think before the start of a project about the waste that will be produced, how to reduce the waste and plan to sustainably manage waste that does arise. RRPs as a legal requirement will assist Queensland to:

- tackle the large volume of waste sent to landfill (particularly in SEQ) that is generated by the C&D sector
- help improve recycling and re-use in the C&D sector
- address the number of illegal waste sites in Queensland by requiring all contractors to identify in advance transport and recycling and/or disposal facilities and keep copies of all licences and insurances on file
- help tackle the number of illegal dumping incidents (Disposal and Management)
- improve how regulated/hazardous waste, particularly asbestos, is managed in Queensland
- innovate the industry by developing new ways of working involving waste
- improve material efficiency and reduce the C&D sector's carbon footprint

The submission of a waste diversion report also demonstrates compliance with the disposal bans.

This approach also addresses the challenges posed by 'mixed C&D loads as identified in the Hyder 2011 report for EHP.

Management, treatment and disposal – this seeks to manage the potential of illegal dumping of C&D wastes, and mitigate poor practices including mitigation of adverse effects from wrongful disposal and management

Regulatory Framework (Existing or Amended)

Current regulatory framework in place. Minor additions suggested.

Licencing Assessment Officers in Local Government under the DA process to assess at application stage.

EHP to ensure reports received from relevant entities (as provided by Local Government).

For the purpose of this section 'Building Work' (including a construction and/or demolition project) is defined under S.5 of the Building Act 1975 and requires a Building Development Application under the Planning Act.

Waste Reduction and Recycling Act 2011

This meets S.5 (b) & (c) under 'achieving the Act's Objectives' – providing for the preparation of industry strategic waste plans & providing reporting requirements for State, local government, business and industry.

Under S.139 – Chief Executive Officer needs to identify the construction and demolition sector (projects over $50,000) as a planning entity.

S.150 – Chief Executive Officer to identify all Construction and Demolition Projects >$500,000 as reporting entities.

Suggested Amendments

S.142 (3) to include:

(g) Type of project (demolition, new construction or renovation)

(h) Methods for segregation and collection of secondary resources and wastes on-site

(i) submission of a waste diversion report to EHP within two (2) months of completion of the project

S.149 (4) to include:

(g) Estimate of square metres of project

(h) How the secondary resources were collected

(i) Who hauled the materials

(j) What facilities received those materials

(k) How many items/square metres/tonnes materials were delivered to each facility (based on facility weighbridge receipts)

(l) Details of any secondary-resources/materials utilised under beneficial use

Waste Reduction and Recycling Regulation 2011

Part 5 Reporting About Waste Management –S.40 & S.41

Obligations for a waste diversion report post-project completion can be met under existing S.150 Waste Reduction and Recycling Act 2011

On-line access for identifying licenced facilities – can be facilitated through EHP's current web site.

EHP to commence a program of educational outreach to the construction, demolition and waste sectors in association with the relevant industry associations.

Action Items	Link to Strategy	Regulatory Framework (Existing or Amended)
Encourage all producers of C&D wastes (projects under $500,000) to note the Waste Strategy and Best Practices outlined in the Resource Recovery Plans	**Driving Cultural Change** - Encourage behavioural change, through voluntary agreement, green commitments and green marketing to obtain competitive advantage. Focus on reducing reliance on construction and building products which have high ecological footprint. **Management, treatment and disposal** – this seeks to manage the potential of illegal dumping of C&D wastes, and mitigate poor practices including mitigation of adverse effects from wrongful disposal and management	N/A Role for EcoBiz – Support of C&D businesses to work more sustainably through the provision of relevant guidance and support services. • EHP to maintain a strong regulatory presence targeting illegal waste disposal and litter enforcment provisioins and report annually on prosecutions achieved and fines imposed • Repeat offenders to be named and shamed
Development of Priority Product Statements (under S.76, 79 & 80 Waste Reduction and Recycling Act 2011) for future regulated Product Stewardship (PS) measures for the C&D Sector (see S.85 Waste Reduction and Recycling Act 2011), with the potential for delivering a life cycle approach to building development – (may include take-back options by suppliers [voluntary PS by supplier as defined under S78 Waste Reduction and Recycling Act 2011]); and corresponding staged disposal bans (under S.100 Waste Reduction and Recycling Act 2011) of these products. **Priority materials include:** **Stage 1:** All new and unused materials and whole loads of single stream materials **Stage 2:** Concrete, masonry and asphalt (inc. tiles) **Stage 3:** Metal, wood, cardboard, gypsum scrap **Stage 4:** Plastics, paints and solvents, and insulation products (including polystyrene)	**Driving Cultural Change & Avoidance and Minimisation** - Encourage designers, architects, builders, contractors etc. to plan to avoid, minimise and recovery wastes on C&D projects. Production efficiencies and cost savings to businesses. **Reuse, Recovery and Recycling** – market development for unused materials, single stream materials and, in time, mixed stream materials. Development of appropriately sized recycling and recovery infrastructure throughout Queensland and product stewardship. **Management, treatment and disposal** – this seeks to manage the potential of illegal dumping of C&D wastes, and mitigate poor practices including mitigation of adverse effects from wrongful disposal and management **Implementation Dates for Strategy** Stage 1 – SEQ Only – 1 January 2015 Major areas – 1 July 2015 Regional Queensland – 1 July 2016 Stage 2 – SEQ Only – 1 January 2015 Major areas – 1 July 2015 Regional Queensland – 1 July 2016 Stage 3 – SEQ Only – 1 January 2016 Major areas – 1 July 2016 Queensland – 1 July 2017 Stage 4 – SEQ Only – 1 January 2017 Major areas – 1 July 2017 Regional Queensland – 1 July 2018	N/A – current regulatory framework in place. Supports the Product Stewardship Principle as introduced in the Objectives of the Waste Reduction and Recycling Act 2011 (S.4 & 5) The proposed priority C&D waste materials for PS and/or landfill bans meet current requirements and decision-making structure outlined under S.77 Waste Reduction and Recycling Act 2011 It is essential that the RRP is mandated and reporting occurs as per the S139 and S.150 Waste Reduction and Recycling Act 2011 in order to comply with S.82 Waste Reduction and Recycling Act 2011 Projects under $500,000 in value are not subject to RRP under S.139. However, to meet the requirements of data reporting and S82, all C&D projects over $100,000, a reporting entity under S.150. WRIQ cannot support S.84 Waste Reduction and Recycling Act 2011 (Voluntary PS) for any material stream. WRIQ does support S.85 (& corresponding S.98) Waste Reduction and Recycling Act 2011 (Regulated PS). WRIQ has broadly consulted landfill operators regarding the requirements of S.100 and penalty provisions under S.101 Waste Reduction and Recycling Act 2011. The provision of disposal bans puts a regulatory enforcement duty on landfill owners and operators. The industry acknowledged and accepts this duty, however, disposal bans will only be effective in conjunction with other tools. Exceptions: The recovery requirements do not apply where C&D wastes have hazardous or asbestos containing constituents that are difficult to recover as they are bound in other materials, or are only present in quantities under 5% by weight, or are generated during disaster management situations where disaster debris must be cleared quickly to protect human and environmental health and recycling options are unavailable.

Action Items	Link to Strategy	Regulatory Framework (Existing or Amended)
Ensuring that the Queensland Government uses its influence as the largest construction client in Queensland to 'green' its public procurement and mandate recovery targets and recovered materials where appropriate on all government funded projects	Driving Cultural Change and Driving Waste Avoidance and Minimisation(including partnershis and recognising green procurement opportunities) The Hyder 2011 report also recommended that peak agencies, including local government associations, should facilitate planning and resource sharing, and the development of local market outlets for materials. Additionally, government agencies such as QBuild and project services within the Department of Public Works should be considered priority partners.	N/A Green Procurement Plan for C&D Wastes Review of Australian Standards to ensure that recycled materials are not discriminated against. Development of new specifications for recycled materials where specifications are currently absent. For example, Main Roads Specification MRS35 - Recycled Materials for Pavements. This publication has been created for use in the design, construction, maintenance and operation of road transport infrastructure in Queensland by or on behalf of the State of Queensland. This specification applies to the requirements for recycled materials to be used in pavements for road construction, rehabilitation and maintenance. The Main Roads permitted asphalt aggregates are: • Coarse aggregate Crushed rock or crushed gravel • Fine aggregate Natural sand particles and/or crushed rock or crushed gravel particles • Filler Natural sand particles and/or crushed rock or crushed gravel particles
Encouraging greater use of surplus materials and resources through the creation of an on-line data base	Driving cultural change - Coordinated partnership approach with the waste industry, government (all levels) and the third sector through the creation of local networks for the allocation of resources.	N/A Role for EcoBiz and third sector with industry supported infrastructure
Encouraging a reclamation approach to demolition and promoting deconstruction approaches where possible. • To include a mandatory 'pre-refurbishment plan' (PRP) for all public entities prior to work commencement to maximise materials reuse and recovery.		

Action Items

Disposal ban (S.100 Waste Reduction and Recycling Act 2011) of sorted and unsorted C&D wastes from non-ERA approved facilities.

Any non-ERA approved facility accepting C&D or C&I waste cannot discharge sorted or unsorted waste (mixed and single-stream materials) directly to landfill – All wastes generated must be processed at a licenced RR facility prior to landfilling.

Implementation Dates for Strategy

1 July 2015

Link to Strategy

Reuse, Recovery and Recycling – market development for unused materials, single stream materials and, in time, mixed stream materials. Development of appropriately sized recycling and recovery infrastructure throughout Queensland and product stewardship.

Management, treatment and disposal – this seeks to manage the potential of illegal dumping of C&D wastes, and mitigate poor practices including mitigation of adverse effects from wrongful disposal and management.

Regulatory Framework (Existing or Amended)

N/A – no changes to current regulatory framework required.

UK Waste Management Regulations Eliminated this Building Practice

The UK's Site Waste Management Plan Regulations 2008 apply to all construction projects with a value of GB£250,000 or more, (with additional updating requirements for projects with a value of GB£500,000 or more). The client must produce the plan before the construction project commences. The aim of the plan is to reduce waste crime and reduce the environmental impact of construction waste during the project.

Moreover, the C&D sector in England committed to halving the waste it sent to landfill by 2012. The commitment was successfully implemented by over 800 companies through accurate measurement and reporting, increased waste prevention, more recycling and increased use of recycled and recovered materials.

The aim of the plan is to reduce waste crime and reduce the environmental impact of construction waste during the project.

3

WRIQ Action Plan 3

Waste Minimisation and Market Development Plan

Background & Scope

This Plan offers policies for a range of opportunities to improve material recovery within Queensland through increased business confidence, clearer responsibilities for waste generators and for increasing data validation.

Examples are presented in this Plan to identify opportunities which include:

- Increasing onus on waste generators, driving the application of the waste hierarchy at the point of generation and by increasing current 'Reporting Entities' to include significant waste generators;
- Methods for monitoring the movement of wastes 'up' the waste hierarchy;
- Development of guidance materials for recovered secondary-resources; and
- Increased green procurement policies by Government at all levels.

More Emphasis on the Waste Generator

In many jurisdictions, waste generators have a legal obligation to ensure that they follow the waste hierarchy. For example, Regulation 12 of the Waste (England and Wales) Regulations 2011 outline the following steps for all waste generators:-

- Prevent the production of waste where it is reasonable to do so;
- See if the waste may be reused;
- Recycle it;
- See if the waste could be used for another form of recovery (such as energy recovery); and
- As a last resort, dispose of it without any derision of value.

Waste generators are required to make a legal declaration that they have fulfilled their duty to apply the waste hierarchy before handing over waste for collection (see s35 (d) of the Regulations).

There are exceptions to having to follow the waste hierarchy. For example, s12(2) of the Regulation allows waste generators to depart from the waste hierarchy "so as to achieve the best overall environmental outcomes where it is justified by lifecycle thinking on the overall impacts of the generation and management of the waste". A company must also justify its decisions and, under the Regulation, can consider "(a) the general environmental protection principles of precaution and sustainability; (b) technical feasibility and economic viability; (c) protection of resources; (d) the overall environmental, human health, economic and social impacts"

This Plan details outcomes, policies and actions for organisations and individuals involved in the construction and demolition sector across Queensland.

3 WRIQ Action Plan 3 continued

Reporting and Data

Taiwan's Environmental Protection Administration (now known as the Ministry of Environment and Natural Resources) has implemented a sustainable materials management system (SSM) to achieve its zero waste goal and ensure resource-efficient economic growth is maintained.

Taiwan recently combined its Waste Disposal Act and Resource Recycling Act in order to provide further leverage of its database.

Since 2000, specific industries have been required to use the EPAs online waste tracking and reporting system (the Industrial Waste Control Report System - IWCRS) to report waste within 24 hours of it being shipped, received or completely treated. The Waste Disposal Act stipulates that all garbage trucks must have permits for transportation and disposal as well as GPS tracking systems which transmit the truck's location every 30 seconds to the IWCRS.

Around 7,000 trucks are connected to the IWCRS. Industrial hazard and toxic waste trucks are closely monitored and employ bar-code scanners to check manifests and compare data between generators and transporters. If a truck enters a water course protection area, an alarm system automatically dispatches inspectors for on-site investigation.

On 30 Dec 2011, the EPA also launched their on-line Illegal Dumping Management System to create a database of dump sites and discover unreported sites using GPS satellites. This database is now aligned with IWCRS to verify violations and prosecute offenders.

The Waste Disposal Act requires 25,861 generators, 4963 transporters and 865 treatment, storage and disposal facilities to make on- line reports on the IWCRS, altogether over 466,000 companies voluntarily use the system (comprising of 22% of the total waste generators and 80% of the waste generated annually).

The IWCRS permits waste disposal facilities to track quantities as well as condition of post-treatment materials for possible reuse and illegal dumping has been almost eliminated.

Monitoring Progress Against, and Applying the Waste Hierarchy

The first critical challenge is to question the conventional thinking imposed by the adoption of the 'traditional waste hierarchy model'[1] (Figure 1a).

Queensland is unique from many other countries and States in so much that it has a low population density. An area covering 1,734,157m2 with a population of just over four million, most of which are located in South East region of the State with other major developments being mainly coastal. Population densities inland and in 'central' Queensland are particularly low, with considerable transport distances. This makes collections of recyclate non-viable (in cost or carbon terms) where recyclate cannot be locally used.

Additionally, some of these remote communities have significant mining and resource industry operations which lead to the production of large quantities of general wastes in addition to drilling muds, including highly hazardous mixed liquid wastes, and sewage streams from mining camps. In regional areas there is evidence that the existing waste disposal infrastructure is now incapable of managing these complex waste streams. This is leading to significant stress being placed on these unlined and open pit facilities as well as impacting void capacity limits.

The Waste Hierarchy, used by policy designers, dates back to the 1970s. The aim of the waste hierarchy, as enacted through policy and strategy, is to provide a clear ranking system for waste management options.

WRIQ's action plan offers an alternate model that adopts the recent change made to the hierarchy by the UK Government to make reuse more important, moving from simply 'reuse' to 'prepare for reuse' (see Figure 1b). However, WRIQ notes the difficulty with identifying the precise point at which an article is deemed to have qualified as having been prepared for re-use. For example, with a donated computer to charity, is it when the computer is donated or when it is resold by the charity?

[1] DEHP. (2014). Waste – Everyone's Responsibility. Draft Waste Avoidance and Resource Productivity Strategy for Queensland (2014-2024).

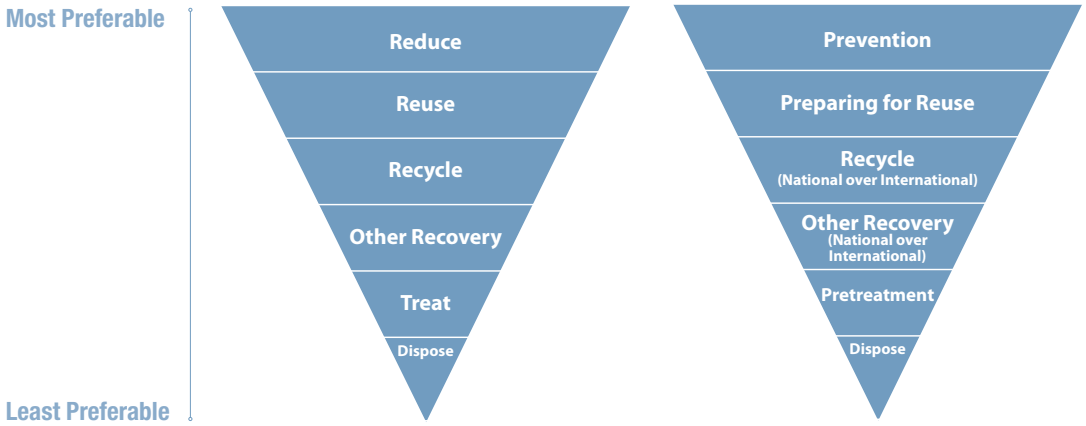


Figure 1a and 1b: Waste hierarchy (DEHP, 2014) and WRIQ Waste Hierarchy

WRIQ's hierarchy forms the basis of a plan to move Queensland's economy away from a linear model of production, consumption and disposal towards an economy that maximises economic potential by creating cycles to flow continually throughout Queensland and, more widely, Australia. The hierarchy aims to clearly identify the preferences for Queensland and Australian solutions (including, but not limited to, recycling and energy recovery) over off-shore solutions, and clearly states its position with regards to waste trafficking. This will reduce Queensland's reliance on new commodities and raw materials that are becoming increasingly costly (both financially and in their environmental externalities).

WRIQ acknowledge that there are circumstances for deviating from the waste hierarchy and adopting a life-cycle approach or carbon-cycle approach that compares the environmental impacts of managing wastes, particularly for specialist waste streams and regional communities.

For example, WRIQ notes that burying source segregated waste streams in regional communities may have lower environmental impacts than currently transporting those commodities to recycling infrastructure in South East Queensland; and that burying them in planned and designated locations may ensure future opportunities for landfill mining to occur as markets and resource-availability changes.

WRIQ also notes that there is a distinct difference in many of the hierarchy processes. For example, future acknowledgement must be made by Governments to 'High Quality Recycling'. Evidence demonstrates that there are more benefits to closed- loop recycling (where a product is used, discarded, captured and then the component materials recycled into a new product with similar or the same functionality – subject to the laws of thermodynamics). For example:

- The use of recovered glass cullet in remanufacture of new glass products, over the use of crushed aggregate for use in construction; or
- The use of recovered paper for the production of new paper products, rather than reuse in animal bedding.

These principles can also be applied to recovery, where the use of a secondary resource in tri-generation is preferable to co-generation facilities. WRIQ does not support mass-burn disposal for waste/resource streams – thermal disposal is only supported for hazardous wastes such as complex chemical compounds, quarantine and medical wastes.

WRIQ strongly believes that it is essential that any exported wastes / recyclables are only transported to approved government licenced facilities, then recycled to achieve the same environmental benefits as recycling domestically would have achieved had it been economically and technologically feasible.

WRIQ Action Plan 3 continued

Guidance Materials

Some international jurisdictions have produced 'Material Specific Guidance' on applying the waste management hierarchy to specific waste streams. For example, Scotland has produced guidance and options for 12 commonly collected recyclable materials ranging from food waste to tyres. Each material has a set of general guiding principles to adhere to when selecting options for managing the particular waste stream, a short summary of the main points of evidence associated with best environmental options and key points for waste producers, collectors and processors to consider to reduce the overall life-cycle impact.

By contrast, England has developed a Quality Action Plan which sets out measures aimed to support a market environment which is capable of promoting high quality recycling and delivering recyclates of sufficient quality to meet the standards of the relevant recycling sectors. It is critical to build relationships and transactions between the different actors in the supply chain, based upon and informed by robust, consistent and transparent information on quality and end destination. This information flow will improve confidence and participation in recycling, and resilience in the recyclate market.

WRIQ supports both of these approaches, particularly with regards to the 'evidence' component to support collection and treatment options for co-mingled collections and outputs from Materials Recovery Facilities where the quality of recyclate must be transparent and meet the necessary standards for the relevant recycling and reprocessing sectors. However, it is noted that both England and Scotland have a large body of research and supporting Quality Standards for recycling products which are currently absent across Queensland's policy and regulatory framework. High quality recycling will need to be properly incentivised in the interim to stimulate change away from the historical 'easy' methods of exports to making 'down-cycling' the least attractive option and only a last resort.

This evidence component is critical to the enforcement and regulation of the waste hierarchy. Historically in Queensland there has been no mechanism or strategy for enforcing the waste hierarchy, thus leaving it redundant, whilst other jurisdictions have enforced it. For example, under the Waste (England and Wales) Regulations, all businesses and local authorities that produce or handle waste are required to apply the waste hierarchy. This is a legal duty and compliance with the hierarchy is declared through appropriate documentation (for England and Wales, the Duty of Care documentation). In practice, this duty is significant and adequately replaces the old recycling targets as a driver of local authority recycling performance, however, the hierarchy must be enforced to drive and deliver those changes.

Tools for enforcing the Waste Hierarchy include a Resource Recovery Plan as outlined in WRIQs C&D Plan. For example, a Resource Recovery Plan for C&D waste is a plan to help clients, developers and contractors in the sector think before the start of a project about the waste that will be produced, how to reduce the waste, and plan to sustainably manage waste that does arise. RRPs are already a legal requirement for Planning Entities identified under the Environmental Protection Act 1994 and will assist them to:

- tackle the large volume of waste sent to landfill that is generated by a sector or organization;
- help improve recycling and re-use of resources;
- address the number of illegal waste sites in Queensland by requiring all contractors to identify in advance transport and recycling and/or disposal facilities and keep copies of all licences and insurances on file;
- help tackle the number of illegal dumping incidents;
- improve how hazardous waste is managed;
- innovate the industry by developing new ways of working involving waste;
- improve material efficiency and reduce a sectors/ organizations carbon footprint; and
- reduce the cost of waste and waste management to an entity.

Implementing Green Procurement Policies by all level of Government

Such guidance materials can also be used to set requirements/characteristics for identifying secondary materials that are no longer waste, thus allowing the industry and the regulator to maximise the value of resources and letting them compete with primary materials. This can only be achieved by the regulator and industry working together to create market opportunities.

In order to secure Queensland's secondary resource sector the following issues must be addressed:

- The definition of waste, and beneficial use, must be re-considered. For example, all waste derived materials continue to be a waste until the point at which the beneficial properties are realised

- Waste has been fully recovered if it is
  - Distinct and marketable
  - Suitable for use
  - Poses no greater risk to the environment or human health than the virgin equivalent.

In England currently they demonstrate the 'end of waste' through the use of Quality Protocols - through an 'end of waste submission' to the Environment Agency's End of Waste Panel or compliance with EU 'end of waste' Regulations. The 'test' applied assesses whether:

- the waste has been converted into a distinct and marketable product,
- the processed substance can be used in exactly the same way as a non-waste, and
- the processed substance can be stored and used with no worse environmental effects when compared to the raw material it is intended to replace.

In the UK Quality Protocol compliant material is free of any further waste permitting and currently includes:

- Aggregates from inert waste;
- Compost;
- Anaerobic digestate;
- Biodiesel; and
- Processed fuel oil.

Organisations can submit evidence to the environmental regulator to demonstrate that the product they manufacture has ceased to be waste. The EU have started to develop end of waste regulations which define criteria for materials to achieve end of waste status across all member states for materials including, but not limited to composts, digestates and RDF (fuels).

However, this is only one aspect of the solution. Markets need to be developed for secondary-resources and green procurement policies strengthened to secure demand. Government, at all levels, has a critical role to this end, by supporting the demand for those resources. Industry has a role in the development of quality standards which deliver consistent and safe secondary resources and confidence to the end-user.

Selected product standards already exist for secondary resources such as HB 155: 2002 but more need to be developed whilst existing standards which penalise or restrict the application and use of secondary-resources must be reviewed.

Historically in Queensland there has been no mechanism or strategy for enforcing the waste hierarchy, thus leaving it redundant, whilst other jurisdictions have enforced it.

Action Items	Link to Strategy	Regulatory Framework (Existing or Amended)
Increasing current 'Reporting Entities' to include significant waste generators. Sectors to be expanded to include: Public and Private Health Sectors Hotel and Tourism Sector Major Retail establishments and centres Major Entertainment facilities Major Special Events World Heritage listed sites ie Fraser Island, Great Barrier Reef activities	**Reuse, Recovery and Recycling** - A RRP for some large-generating waste sectors has the opportunity to enforce the waste hierarchy. A RRP is a plan to help various stakeholders who are generating significant waste volumes to plan projects and /or day-to-day activities with regards to waste reduction, avoidance of unnecessary consumption, reduction of operating costs etc. RRPs as a legal requirement for significant waste generators will assist Queensland to: • help improve materials recovery rates • innovate the industry by developing new ways of working involving waste • improve material efficiency and reduce the waste generators carbon footprint • reduce business costs associated with wastes and therefore increase productivity. • Provide opportunity for waste recovery activities such as waste minimisation clubs etc. • The submission of a waste diversion report also demonstrates compliance with the disposal bans and other policy drivers, including the recovery targets set-out in the Waste Strategy.	**Waste Reduction and Recycling Act 2011** This meets S.5 (b) & (c) under 'achieving the Act's Objectives' – providing for the preparation of industry strategic waste plans & providing reporting requirements for State, local government, business and industry. Under S.139 – Chief Executive Officer may identify significant waste generators (to be determined) as a planning entity. S.150 – Chief Executive Officer to identify all significant waste generators as reporting entities. S150 – Chief Executive Officer to publish annually a public register of all identified reporting identities.
Green Procurement, Guidance Documents and Quality Protocols	**Driving Cultural Change and Driving Waste Avoidance and Minimisation (including partnership working and recognising green procurement opportunities)** **Reuse, recovery and recycling.** Queensland will optimise economic benefits from reuse, recovery and recycling. Local Government tender frameworks for processing of green and organic wastes are amended to include a mandatory requirement that all Councils purchase a minimum 20% of processed quality organics back as a part of any future procurement arrangement. All purchased organics must meet agreed approved and published industry standards. Local Government processing and mulching / grinding of green waste be required to meet approved industry quality standards if made available for community use to eliminate fire ant spread, weed and other flora problems as well as community health risks from pre-processed un treated organics. All government infrastructure projects (local and State) to specify and report on the use of recycled aggregates, compost / soils generated from waste and recycling operations, as well as used tyre rubber crumb in asphalt road laying operations. Queensland recyclers to be afforded a higher order of purchase priority in the first instance as opposed interstate and international sources The purchase of material streams related to secondary products cannot be used on any Government project unless the source of its generation is from an approved fully licenced operation registered in accordance with all state planning requirements. State significant projects be required to use a minimum 15% recycled content across the project cycle where this material meets engineering, quality and competitive pricing processes with like virgin material streams. This to be linked to all development conditions applied in all approval processes.	Enshrine green / recycled purchase requirements into the legislative framework of the State Purchasing Policy . Supports critical Government legislative drivers and published policy commitments to drive local investment, create and support jobs in the remanufacturing sector and leads to improved waste management practices overall

Action Items

Review of the Regulated Waste Schedule and identified synergies to the ADG Code for transport & the registration of all waste carriers

Enshrining into the state purchasing policy a requirement for Government to commit to procuring recycled aggregates and organics provides demonstrated leadership for other sectors to follow.

Link to Strategy

Driving Cultural Change - Encourage waste generators etc. to plan to avoid, minimise and recover wastes and review wastes as secondary resources.

Reuse, Recovery and Recycling - opportunity to enforce the waste hierarchy.

Management, treatment and disposal – this seeks to mitigate poor practices including mitigation of adverse effects from wrongful disposal and management

Regulatory Framework (Existing or Amended)

Amendment to ERA57 to:

X Waste Transport

(1) Waste transport consists of

(a) transporting on a non-commercial basis 250kg or more of waste in a vehicle; or

(b) transporting on a commercial basis any quantity of waste in a vehicle.

(2) Regulated waste transport (the relevant activity) consists of—

(a) transporting on a non-commercial basis 250kg or more of regulated waste in a vehicle; or

(b) transporting on a commercial basis any quantity of regulated waste in a vehicle.

(3) Regulated Waste Transport does not include transporting chemically treated power poles in a vehicle.

(4) In the following table, the aggregate environmental score, if any, for the relevant activity is the score stated opposite the threshold within which the relevant activity is carried out.

Threshold	Aggregate environmental score
1 transporting waste	No score
2 transporting tyres no score	No score
3 transporting regulated waste, other than tyres,	
(a) 1 to 5 vehicles	7
(b) 6 to 35 vehicles	21
(c) 36 or more vehicles	42

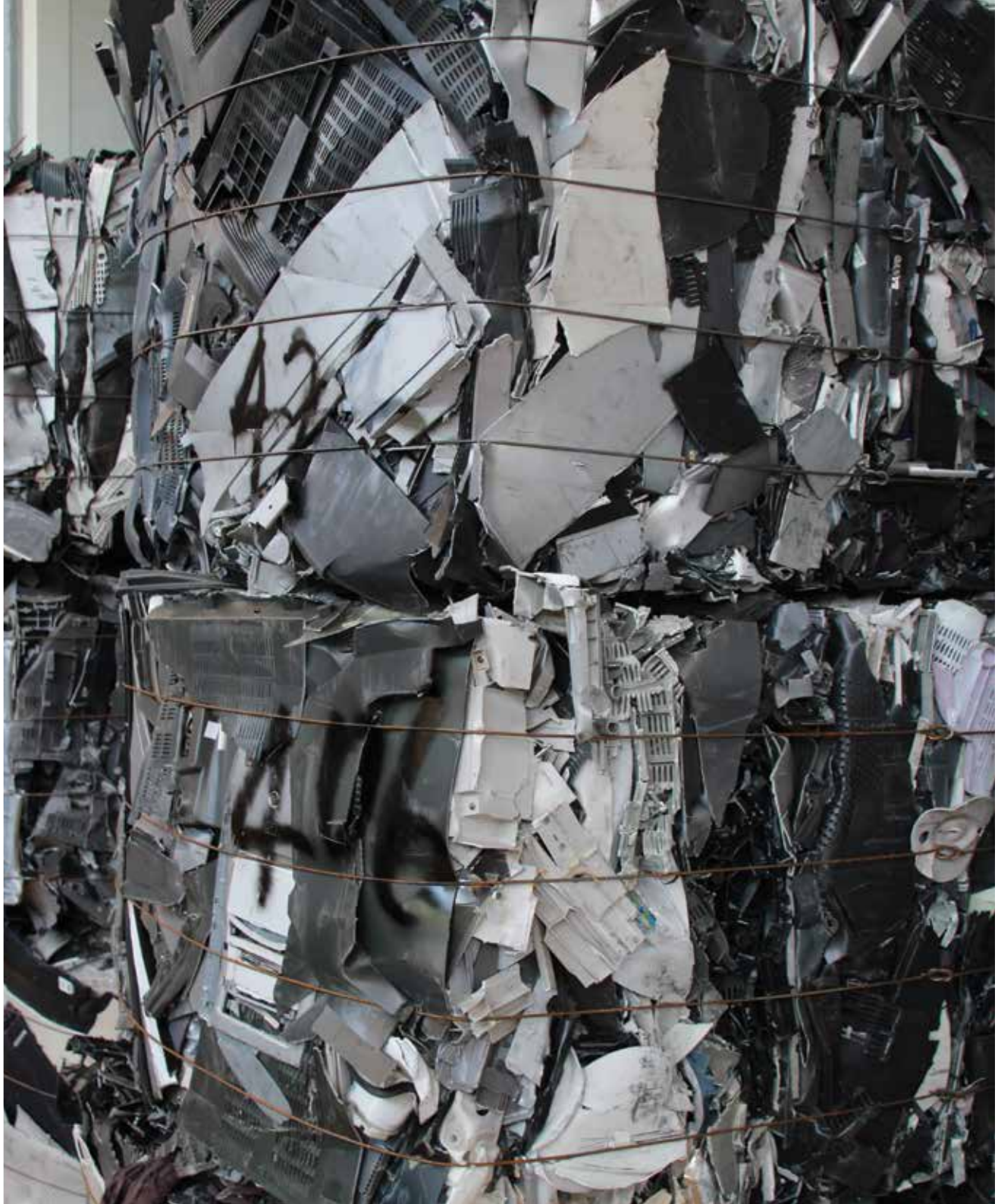
(5) In this section—

vehicle includes the part of an aircraft, boat, rolling stock, semi-trailer, tanker, trailer or truck, used to transport the regulated waste.

Items to be considered:

- All waste transporters be required to be centrally registered on EHPs Operator Register.
- No Code of Practice currently exists – the creation of Standard Conditions applicable for solid and liquid waste transport and regulated waste transport.
- Standard conditions are enforceable – there are no enforcement mechanisms for Codes of Practice
- All waste generators must only use a REGISTERED and licenced waste transporter and the transporter must only take the waste to a REGISTERED facility (and appropriately licenced if required).
- Validation by the waste generator that they are using a REGISTERD waste transporter would be easily determined via the EHP web site.
- An offence must be included in the Act for not using a registered and licenced Waste Transporter.
- Waste transporters need to be further defined – so not to include self-haul or enterprises whose primary role is not waste management (such as electrical contractors), and haulers of sorted/segregated secondary resources.
- This ERA must be supported by an 'End of Waste' determination as the policy intent is not to include shopping centres and haulage of secondary resources (example provided bales paper leaving AMCOR/Visy).

4



[1] Federal Waste Policy. Key Direction 1
[2] Federal Government Voluntary Product Stewardship Arrangements
[3] Part 3 Product Stewardship Schemes

WRIQ Action Plan 4

Queensland Based Product Stewardship Schemes

Background

Product Stewardship (PS) involves shared responsibility for reducing the environmental, health and safety footprint of manufactured goods and materials across the life cycle of a product[1].

In Australia, and internationally, various models of product stewardship have been adopted to manage the impacts of different products and materials. Product stewardship can take many forms and may have a whole of lifecycle focus, or focus on fixing a specific problem related to part of a product's lifecycle. More and more, organisations are participating in voluntary product stewardship as part of their environmental or corporate strategies. There are already a number of voluntary and co-regulatory product stewardship activities being undertaken across Australia achieving different outcomes, such as the collection and recycling of televisions and computers, mobile phones, fluorescent globes, newspapers and PVC products . In Victoria a trial for the paint industry is underway and Queensland is leading the hand held battery stewardship work currently in design.

These programs acknowledges that those involved in producing, selling, using and disposing of products have a shared responsibility to ensure that those products or materials are managed in a way that reduces their impact, throughout their lifecycle, on the environment and on human health and safety[2].

These structural guiding principles are also enshrined within the proposed 'Draft Waste Avoidance and Resource Productivity Strategy', and form two of the five Guiding principles that are agreed by all stakeholders. These are described in detail on page vi of that document.

According to the Product Stewardship Institute, in 2010 the potential US Financial Benefit was defined at approximately $2.0 billion from these style of programs. The critical point to note in this business estimate is the fact that the success of the programs were not based on a national approach rather aligned to separate jurisdictional approaches that delivered this economic benefit.

Queensland's Waste Reduction and Recycling Act[3] provides both the legislative framework and scope for implementing state based programs and defines the interrelationship of these if adopted without compromising or duplicating current federal approaches.

Queensland's Waste Reduction and Recycling Act provides both the legislative framework and scope for implementing state based programs

4 WRIQ Action Plan 4 continued

Scope

As proposed in the WRIQ Action Plans – Landfill Product Restriction Bans, and the Market Development Plan, State based Product Stewardship schemes, if implemented, would complement and reinforce the agreed principles proposed in the Draft Waste Avoidance and Resource Productivity Strategy for Queensland (2014–2024) (The Strategy). Such an approach would be an effective means of increasing recovery rates of various material / product streams directly assisting in the delivery of the targets proposed.

A number of issues will need to be considered when determining the implementation and effectiveness of State Based Product Stewardship programs where base-line data and historic and current material flows are largely unknown. In particular, data relating to specific products (should specific product schemes be implemented) are either unknown or unreported by product manufacturers and retailers.

Lead-in times for commencement of any programs must also be appropriate to the development of markets, collection infrastructure, and reprocessing facilities.

WRIQ suggests that any adopted State Based Product Stewardship scheme is based on clear robust analysis of social, economic and environmental cost/ benefit policy; and WRIQ requests that the State Government make a 'Call for Opportunity' for each of the following priority material streams proposed by WRIQ as part of this Plan, before implementation. Such a process will provide clear evidence based facts for introducing new initiatives as well as likely uptake and scope of the long term success for their introduction. The suggested framework developed by GlobalPSC for the Product Stewardship Advisory Group, draws upon the objects and criteria of the Product Stewardship Act. This framework may be easily expanded to cover the objectives of the Waste Reduction and Recycling Act 2011 (the Act) and, in particular, Queensland's ability to select "priority products" as specified under Part 2 of the Act.

This broader consultation process will assist government and industry in the identification of any unintended consequences, which can then be considered, as well as providing the opportunity for individual businesses, within the waste and recovery sector, to forward confidential business plans and costs to government so that a complete impact statement can be determined between all parties.

Action

The Global Product Stewardship Council (GlobalPSC) provides the following context to implementing such schemes. WRIQ as a member of that Council endorses and offers the following subject matter for consideration within the context of this plan.

Understanding when and how to implement product stewardship schemes is crucial to ensuring that product stewardship principles maintain their integrity and promote meaningful program development.

The GlobalPSC proposes the following approaches for translating product stewardship principles into action.

Determining Need

Products proposed in this Plan are more likely than less likely (under any future RIS assessment) to show that the benefits of taking action on a product have the potential to outweigh the costs of action and can be backed up by a persuasive rationale and evidence.

- Intended policy objectives need to be made clear and prioritized, and options to achieve those objectives must be fully evaluated and strive to effectively balance social, economic and environmental outcomes.
- A comprehensive, carefully considered, approach is necessary as no single policy approach can deliver all desired outcomes nor reflect the full diversity of products.
- Extended producer responsibility (EPR) schemes, and to a lesser extent product stewardship schemes, are generally more appropriate and cost-effective for truly hazardous or expensive- to- manage products than for relatively benign or inert products where externalities are minimal or where such products do not impose net costs on the community . That said, product stewardship schemes should be facilitated in conjunction with stakeholders in instances where products are not hazardous, rather addressing them through a consensus-based approach which could provide significant externality reduction.
- Programs are more likely to be effective when similar EPR or product stewardship schemes exist overseas, as the programs can leverage existing frameworks

Understanding when and how to implement product stewardship schemes is crucial to ensuring that product stewardship principles maintain their integrity and promote meaningful program development.

and design principles. However, the relative costs, benefits and risks of such schemes need to be understood and examined within a local context prior to adoption, i.e. Queensland operating landscape.

- Approaches requiring greater levels of regulation should be pursued only after market-based, voluntary and co-regulatory approaches have been clearly shown to be relatively ineffective in achieving desired outcomes.
- National, and to an extent practicable, international consistency is critical, and should reflect regional differences, available resources and commitment to common objectives.
- There is potential to significantly reduce the impact that the products have on the environment, or that substances in the products have on the environment, or on public and worker health.
- There is potential to significantly increase the conservation of materials used in the products, or the recovery of resources (including materials and energy) from waste from the products.
- Where necessary, underpinning legislation should be developed in cooperation with industry and effectively enforced by Governments.

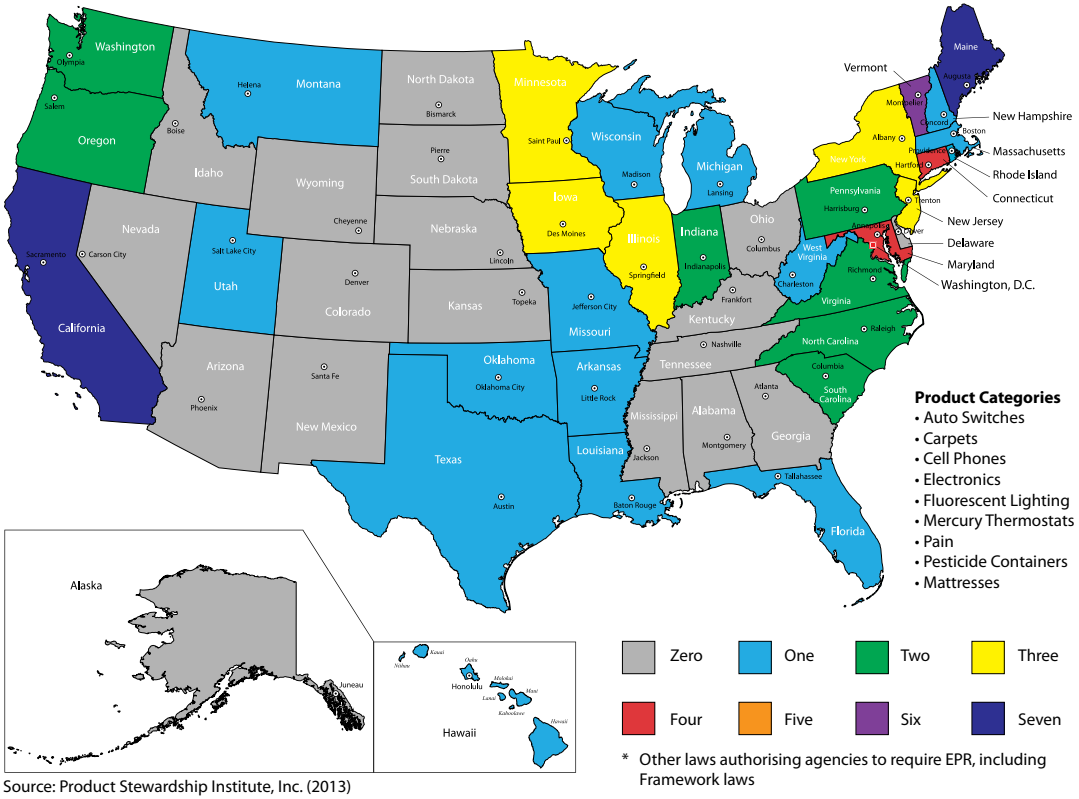
Engaging Stakeholders

- Active stakeholder engagement, joint fact finding and constructive, good-faith commitment to achieving optimal outcomes are needed in clarifying objectives and priorities and in developing and implementing product stewardship programs.
- Stakeholders are more likely to collaborate on, and effectively implement,voluntary and/or co- regulatory approaches than where approaches are unilaterally mandated.

Sending the Right Signals

- Stewardship initiatives should meet their environmental objectives in the most efficient, cost effective, manner.
- Appropriate incentives must be designed to send appropriate signals to all affected parties.
- Intended approaches should incorporate existing infrastructure, policies and programs to the fullest extent possible and seek to minimise negative impacts on existing programs.
- Industry leaders should be rewarded for improving sustainable practices, while laggards should be sent clear messages about the need for improvement and be given the opportunity to respond accordingly. Innovation should be encouraged, not stifled.
- Industry should be provided significant flexibility to ensure environmental objectives are achieved in a sensible, cost-effective, manner.
- Environmental impacts of energy consumption should also be minimised across the supply and recovery chains, for example decision making should consider how the product is to be distributed and whether distribution requires special conditions such as refrigeration. The design of the product system should optimise transport efficiency (and therefore fuel consumption), for example by maximising the amount of product transported in a truck or container.
- The potential impacts of external influencers such as changing demographics should be understood and recognised.
- Stewardship initiatives should include promotion of market development and the use of recovered materials where appropriate.
- Appropriate mechanisms should be instituted to ensure effective transparent monitoring, data collection and public reporting.
- Where available, and where carried out under regulations imposing strict emission standards such as those in the EU, energy recovery and resource utilisation through energy from waste (EfW) or alternative waste technologies (AWT) are appropriate for residual materials remaining after cost-effective recycling.

4 WRIQ Action Plan 4 continued



Source: Product Stewardship Institute, Inc. (2013)

International Perspectives on State based single jurisdiction programs

The United States Product Stewardship Institute has estimated the potential financial benefit of producer responsibility in the US at $2 billion[4].

The values estimated represent current costs in the US to manage these products and would represent significant benefits to public budgets if these products were managed through producer responsibility. The costs have also been calculated on a per capita basis.

Product	Total Financial Benefit	Avg. Per Capita
Electronics	$682 million	$2.21
Paint	$515 million	$1.67
Medical sharps (home)	$195 million	$0.63
Batteries (primary)	$247 million	$0.80
Batteries (secondary)	$ 74 million	$0.24
Fluorescent lamps (household)	$ 85 million	$0.28
Thermostats (mercury)	$ 46 million	$0.15
Pesticides	$ 40 million	$0.13
Phone books	$ 40 million	$0.13
Total Potential Financial Benefit for the US = $2 billion PA		
*Based on an estimated US population of 308,745,538 (U.S. Census Bureau, April 2010)		
** Values in US $		

The US has a wide range of EPR laws that address a broad range of products. It is important to note that these laws (summary in table below) represent Extended Producer Responsibility (EPR) laws that require manufacturers to finance the costs of recycling or safe disposal of their products.

It does not include other laws the states have in place that contribute to the appropriate management of products, simply leverage these.

[4] GlobalPSC Presentation to WRIQ members 27/8/2013, Brisbane, by Mr Russ Martin

Canada

A summary of the Canadian programs provides examples of how independent state based initiatives are now also complimenting and delivering a broader national outcome. The regional provinces (and British Columbia specifically) are at the forefront in terms of applying EPR to a wide range of additional product categories. These areas also have similar demographics and socio-frameworks to Queensland's situation.

The schematic demonstrates the consistency that is being applied across provinces and of the alignment to different, but complimentary, material streams industry groups are using in order to reduce program costs. By leveraging industry infrastructure and taking advantage of in-build labour and operational aspects builds a more sustainable program balance.

There is consistency to the materials targeted based on their potential to cause environmental harm / nuisance if disposed of incorrectly as all streams are complex and do not ordinarily avail themselves to standard recycling programs, i.e. Weekly kerbside collections.

By designing and then adopting product specific programs has removed the environmental risk and also changed community perception and awareness. This has seen additional programs being added and community acceptance to new ways of managing complex items.

Stewardship Programs in Canada

★ In-Place
★ In-Place (Voluntary)
● Pending (Regulated)
● Future

	Small Appliances	Oil	Trees	Organics	Beverage Container Deposits	Packaging & Printed Paper	Used Paint	Printed Materials	Electronics	Fluorescents	Batteries	Household Special	Pharmaceuticals	Needles / Sharps	Autos	Milk Containers	Commercial Pesticide Cntrs	Ink Cartridges	Mercury Containing Equip	Cell Phones	Anti-freeze	Single-use retail bags
Newfoundland		★	★		★		●		●		●	★	●	●	★	●	●	★	★	★		
Nova Scotia		★	★	★	★		★	★	★		★	★	★	★	★	★	★	★	●	★		
New Brunswick		●	★		★	●	★		●		●	★			★	●	★	★	★	★	●	
P.E.I.	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	
Quebec		★	★	●	★	★	★	★	★	★	★	●			★		★	●	●	★	★	
Ontario	●	★	★		★	★	★	★	★	●	★	★	★	★	★		★		★	★		
Manitoba	★	★	★			★	★	★	★	★	●	●	★	★	★		★		★	★	★	
Saskatchewan		★	★		★	●	★	●	★						★	★	★		★	★		
Alberta		★	★		★	●	★		★		★	●	★		★	★	★	★	★	★		
British Columbia	★	★	★		★	●	★		★	★	★	★	★		★	●	★		★	★	★	●
Northwest Territories					★				●							★						★
Yukon			★	★	★	★			●													

Chart compiled by MGM Managemend, mckenney@vip.net

*ONT - Deposits on wine, liquor & beer only
*BC Milk Containers part of Packaging & Printed Paper

July 1, 2013

By designing and then adopting product specific programs has removed the environmental risk and also changed community perception and awareness.

4 WRIQ Action Plan 4 continued

'Queensland will become a national leader in avoiding unnecessary consumption and waste generation, adopting innovative resource recovery approaches, and managing all products and materials as valuable and finite resources'

Queensland Opportunities

The key opportunity for Queensland in executing State Based Product Stewardship initiatives will be the opportunity to take advantage and leverage existing Federal Government programs, targeting like material streams which currently fall outside the Federal programs scope.

Adopting State-based initiatives that compliment, and add to, the existing industry infrastructure provides significant additional economic and employment benefits to existing businesses where the national programs have already had an influence.

Where national approaches are not identified Queensland can take the lead in introducing new initiatives and approaches for some of the more complex items to be managed. Adopting these new initiatives reinforces The Strategy's proposed Vision statement which states:

'Queensland will become a national leader in avoiding unnecessary consumption and waste generation, adopting innovative resource recovery approaches, and managing all products and materials as valuable and finite resources'[5].

Queensland currently has more than 475 public waste management disposal locations to service its 74 local government jurisdictions for its 4.6 million. It is reported that, of these assets, less than 17% are fully engineered, more than 48% are unlined operations and 35% open trench designs.

The potential for environmental harm to occur to these sensitive receiving environment's from items that may contain hazardous materials, as well as bulky items that consume valuable air space, provides the pivotal driver for underpinning state-based Product Stewardship Schemes for complex waste forms that contain solid economic value and opportunity for leveraging existing recovery and recycling industry infrastructure.

Material programs

- **Electronic Waste for all electrical appliances with cords to power them**

The current Federal Television and Compute Recycling scheme targets particular electronic items but fails to capture many other electronic items and small electrical items. The environmental impacts these items that are not being captured have on the receiving environment are no different to the items currently being collected. Queensland industry infrastructure (local government, private and third sector) is already in place with the capability to capture, reprocess and/or recycle additional electronic items.

By leveraging the national program and introducing phased bans across the state prohibiting landfilling of any electrical wastes that has a power cord (including electronic outside the scope of the existing federal scheme) diverts a complex material stream from the environment and changes community behaviour enforcing a cultural shift.

- **Agricultural Trickle tape, Drip lines and Fluming, Banana and Fruit growing bags**

According to AgStewarship Australia[6] the sector has developed world-leading voluntary stewardship programs in agriculture through the Industry Waste Reduction Scheme.

Since 1999 the industry has diverted more than 75% of packaging that would have otherwise gone to landfill. The key objective for AgStewardship Australia is to support and develop Australian agriculture's reputation for environmentally sustainable stewardship through waste management and other programs within the agribusiness supply chain.

AgStewardship's key priorities are to:

- Consolidate and continue to improve the drumMUSTER® and ChemClear programs, to ensure their long-term sustainable operation.
- Contribute to the ongoing development of waste management and stewardship policy relating to the agribusiness supply chain.
- Work with participating organisations to identify and capitalise on mutually beneficial partnership opportunities.
- Facilitate the development of new stewardship programs in Australian agriculture.

Agricultural plastics including, Drip Lines, Trickle Tape, fluming, plastic bags used in Banana growing and other agricultural applications are typically formed from polyethylene or like plastics that, if recovered, have value as a recyclable material.

Current practices for the disposal of these are aligned to either landfill disposal, left on the farms or burnt by the users in rural and remote areas. The tyranny of distance and access to local rural recycling service providers are current program limiters however introducing a stewardship scheme aligned to the Drum Muster and ChemClear initiatives provides a positive additional source of product for recyclers to access as well as solving significant landfill and other issues currently facing these streams.

Such schemes for farm wastes (including agricultural film) are well-developed in Europe.

Product	No. of laws	Member States with EPR laws
Oils	10	AT, BE, CY, DE, HR, LV,,PT, SI, ES
Medical Waste, Old/ Unused Medicines	10	AT, BE, EE**, FI, FR, HR, PT, SE, SI, ES
Agricultural Film	8	BE, FI, FR, DE, IE, IT, SE, ES

Table Courtesy of GlobalPSC 2014.

- **Mattresses**

Old Mattresses pose significant problems for all operators of waste facilities. The bulk size, highly flammable textiles and wood frames, as well high tensile steel make these very difficult items to manage. Additional health and animal vector (in particular rat) problems can also arise when these items are not properly disposed of and typically they form a major element of 'fly tipping' and illegal dumping for local authorities.

- **Polystyrene and foam form manufactured products**

Landfilling of styrene and foam formed products like mattresses pose significant environmental and void capacity issues to operators of landfills. The materials cause major litter and processing problems due to their light weightand impact the transportation of wastes.

Introducing a phased in state- based program using existing collection systems would provide an opportunity to recover a complex waste that has major environmental issues but some resource recovery benefit if generators assist with its recovery process.

- **Batteries outside of the proposed Federal Product Stewardship Scheme**
- **Pharmaceutical wastes**

[5] Draft Waste Avoidance and Resource Productivity Strategy for Queensland (2014–2024) page vii
[6] www.agstewardshipaustralia.org.au/aspx/home.aspx

Program Materials

The following materials have been identified by WRIQ and their members as suitable for a State Based Product Stewardship Scheme

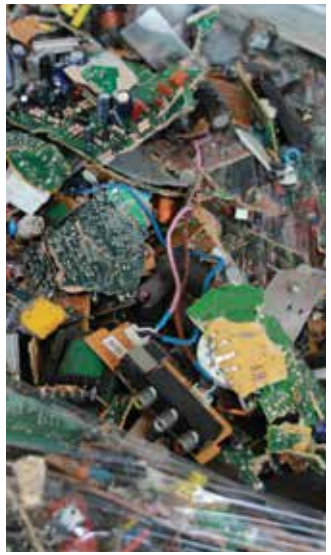
Proposed Material	Sources & Volumes	Current Markets
Mattresses	Volumes significantly increase under disaster management situations. Hotel, hospital and commercial accommodation refits generate significant quantities.	Currently sent to landfill in Queensland although metals, foams and textiles are suitable for recovery and both domestic and export markets exist. Mattress recycling growing in VIC and SA through the third sector. Saleable reuse of mattresses is unfeasible.
Electrical Wastes (small household)	Household, commercial and industrial, electronic and electrical wastes. Growing >5% per annum in Australia. State based program to focus on collection and diversion of all small electrical goods (all sources), and domestic appliances.	Domestic – Substantial existing infrastructure for the active disassembly of electrical wastes across Queensland exists (including some regional areas – large third-sector processing capacity in particular). Domestic capacity exists for complimenting the Federal program operations and providing expanded employment opportunities in the sector Export – Electronic parts, Rare Earths, Plastics, Glass
Polystyrene	Retail, food and bulk warehouse operations, fit out of commercial building and industrial facilities	Export currently Industry members have indicated that in the event commercial quantities increase local conversion and remanufacturing operations would prove economically viable
Batteries	All batteries – handheld through to motor-vehicle that fall outside the proposed federal scheme. - batteries of any chemistry weighing more than 5kg - batteries that are not covered by another arrangement such as the television, computer and mobile phone schemes	Processes of electronic and EWastes have capability to include these items for recovery.
Pharmaceutical Wastes	**The World Health Organisation report (2011) notes that "inappropriate disposal practices such as flushing unwanted or excess drugs down toilets or sinks and discharging them into household waste are common and may be the main contributor to pharmaceuticals in the environmental media such as surface water and landfill leachate".** Risk to human health, leachate, contaminated run-off into surface waters, contamination of ground water and soil, uncontrolled gas formation and migration of gas off-site. Risk to human health, tracking of infectious materials by vectors, Leachate, contaminated run-off into surface waters, contamination of ground water and soil. Risk to human health, leachate, contaminated run-off into surface waters, contamination of ground water and soil. Contamination of ground water and soil, loss of resources.	Preventative measures (regulation and policy) governing disposal practices at point source are necessary and are supported by WRIQ. A state-based Product Stewardship or take-back scheme for discarded (non-ingested) pharmaceuticals would also need to be implemented in conjunctions with a landfill ban.
Agricultural Trickle Tape (16, 22, 28 & 35 mm), D Tape, Fluming, Banana Bags, plastic grower bags	Risks to receiving environment when managed incorrectly consuming valuable air space, fire management issues, air-borne hazards when burnt on private property and potential to cause greater impacts	Can leverage existing AG Australia programs and target farm consumers already captured and contributing to similar plastic recovery schemes. Queensland Industry operators have the capacity to manage and process all recovered and diverted plastics

Appendix 1: Possible Product Assessment Method

The following table provides a method for assessment for prioritising products or classes of products being considered for the product list (for example batteries). The method has been derived by GlobalPSC following discussion at the first meeting of the Product Stewardship Advisory Group on 12 December 2012 where it was agreed that products or classes of products may be added to the list at any time for future consideration for Product Stewardship.

In proposing products for the list there needs to be a clear reason – a problem to

Batteries (as example)		
	Criteria	Comments – in relation to the objectives of the Waste Reduction and Recycling Act and Parts 2 & 3 of the Act; & the broader objectives of the Environmental Protection Act 1994
1	There is potential to significantly reduce the impact that the products have on the environment, or that substances in the products have on the environment, or on the health or safety of human beings.	Federal NEPM
2	There is potential to significantly increase the conservation or materials used in the products, or the recovery of resources (including materials and energy) from waste from the products. NB: the WG also considered economic factors in this criterion.	
3	Action will contribute to Australia meeting its international obligations concerning the impacts referred to in 1.	
4	Action will contribute to reducing the amount of greenhouse gases emitted, energy used and water consumed in connection with products and waste from products.	
5	The products in the class are in a national market.	
6	The products contain hazardous substances.	
7	Urgent action is needed for the proposed product (advice to be provided about when action should be taken for inclusion on the list - Year 1, 2, 3, or later)	
8	There is community concern and strong commitment for action by the community. NB: The WG agreed that this criterion was difficult to demonstrate across the products examined at this point in time.	N/A



Batteries (as example)		
9	Amenable to a product stewardship approach. NB: the WG modified this criterion from the original suggestion – "Preferred action is a product stewardship approach."	
10	Action is a priority for state and territory jurisdictions (i.e. the product is high on a priority list).	
11	Lessons from any previous attempts to regulate or better manage the product in Australia.	
12	Lessons from any product stewardship experience overseas in relation to the product.	
13	There is a high level of commitment from industry and the market and/or industry is ready for action (i.e. there is sufficient domestic recycling capacity to deal with the product to be collected).	
14	The consumer is willing to pay for action that reduces the impact that the products have on the environment, or that substances contained in the products have on the environment, or on the health or safety of human beings.	
15	Reusing, recycling, recovering, treating or disposing of the products involves a significant cost to the Commonwealth, or State, Territory or local governments.	
16	Action to reduce impacts will offer business opportunities that would make a contribution to the economy.	

5

WRIQ Action Plan 5

Disaster Waste Management

The Strategy has identified that under the Management, Treatment and Disposal objective that Queensland will reduce the impact of waste on human health and the environment through improved waste management practices. A key platform for achieving this is to develop a strategic plan and accompanying actions as this related to Disaster Wastes Management.

It is WRIQ's position that any such work adopted must include a macro understanding of the term "Disaster" and not place a system boundary on this from simple natural weather events. Such work must include, manmade disasters, oil spills as an example, natural events including earth quakes and fire as well as bio security incidents i.e. foot and mouth outbreaks.

Currently Queensland has no such scoping masterplan. WRIQ's considered opinion is that this action becomes a priority work area and that a whole of Government and Industry taskforce be formed to scope, design and sign off on this.

Queenslands demographics, coupled with a general lack of adequately appropriately designed landfills for managing major incidents wastes, coupled with our unique flora and fauna environment and sensitive environments, demands that such a scope of work is necessary.

Queenslands lack of adequately designed and located landfill operations for managing disaster wastes (natural, manmade and bio-security), is a prime reason for why the state needs a comprehensive disaster waste management plan for protection of our environment and public health amenity.

5 WRIQ Action Plan 5 continued

Background

WRIQ has advocated to government for many years that the collection, transport and disposal of all solid, liquid and hazardous waste materials, must be recognized as an essential community service. It's efficient removal from all sources of generation underpins the basic structure for maintaining a healthy, vibrant community and safe living environment.

Industry operators understand, clearly, the impacts that extreme weather events have on their operations, and it is for this reason all have emergency operational management plans in situ, to ensure when major weather events do occur, the collection and removal of waste in the community, in the most practical manner can be undertaken.

Local government has traditionally had the responsibility for cleaning up and removing wastes following major weather events. Typically an impacted local authority engages private sector contractors to assist / undertake the work. Usually this work is contracted out to the Landfill or preferred Council contractor but no structural or system boundary is observed across all jurisdictions for engaging of this work.

It is industry's observations, based on historical acts that have occurred (both manmade and natural weather events), that typically clean-up logistics and contractor / asset needs are only considered as an afterthought rather than known by all involved leading up to the event.

What became very clear and was proven from the 2011 and 2013 state flood events, is that whilst local government authorities may have disaster cleanup management plans in place, these typically only focus on households, street debris, parks, green waste or creek debris.

Cleanup plans conducted by local authorities were observed to have been done remarkably efficiently at a domestic household / street level, but what actually occurs is a significant failure of focus, by any level of government, to look at the cleanup at the macro level when these events occur.

The result being that in the overall approach to managing the problem, all post event cleanup plans fail to include any detailed, critical approach or analysis for the handling, removing, managing or disposal of the very significant quantities of commercial and industrial waste that are generated when these events occur.

Waste streams that are generated have to managed including quantities of hazardous, regulated, liquid and organic waste, generated as result of the broader communities industries and businesses

The future

WRIQ has advocated, for many years, for the need for Queensland to have a master crisis management plan for managing wastes generated, and for its removal in the event of a major bio security incident, oil spill or similar natural disaster occurring.

WRIQ members are committed to working with Government to ensure we get a definitive and more efficient and collaborative approach to managing waste as result of impacts from such events.

Queensland Industry has the capacity, capability and understanding for delivering such a master plan.

Such Plans should consider and include:

- Identifying when and how the sector is engaged and contract framework for payment of the services required prior to every summer season.
- Often Landfill and waste transfer operations, following these events, need to operate outside normal operating hours and outside of planning and environment approvals to take weather event related clean up wastes. Licenses for all operators need to reflect the ability to take these streams and manage them on site safely, where facilities are currently precluded from doing so, without fear of post event prosecution by regulators for accepting these streams.
- The lack of planning for temporary storage, locating and bulk out of flood clean-up wastes results in parks, car parks, streets and road reserves being used to deposit household and street waste. This results in significant operational, land contamination, leachate run off, and at times safety issues. It also impacts communities whose personal items are left exposed to all to see. Specialist locations need to be identified in all local authority jurisdictions for the temporary storage of affected material
- It was evident to industry that, resulting from past events, no central register is held, by either a Council or any state government agency, that lists and identifies critical business and industry facilities that could become potential environmental or bio hazard sites in the event of a natural disaster, ie poultry farms, food processing operations, abattoirs, meat and freezer stores, cold rooms, organic material stores, paint, regulated and hazardous waste storage locations. These need to be registered, for each region, to reduce post event hazards
- Hazardous and regulated waste removal and management is a critical issue that needs consideration from both an event management point of view and post event management
- Recycling and recovery of metals could have significantly reduced costs of disposal if more planning and thought was taken to temporally locate, store and then sort the waste rather than just send it all to landfill for disposal.

WRIQ Action Plan 5 continued

Recycled Organic Waste Disaster Relief Planning framework

There currently appears to be little planning for the safe and lawful processing of green waste in the aftermath of a natural disaster such as a cyclone or flood. Historically these types of disasters have generated significant amounts of green waste and generally occur in the summer when green waste receival is at its highest levels. As example the 2011 weather event in Northern Queensland alone generated more than 400,000 cubic metres of green waste vegetation.

There seems to be several strategies of dealing with this particular issue outlined as follows;

- Local Governments are risk adverse and protocols provide that it simply passes responsibility for the processing and storing of green waste onto the incumbent green waste processor, demanding in-situ and 'business as usual' maintenance of contract terms. Little consideration is provided to existing industry operators / incumbent Council contractors for the spike in processing and transport requirements or stewardship of the materials generated from major disaster events. Green waste processors are limited to process only the prescribed amounts of materials listed on the site license conditions and often taking the 'Disaster Wastes' leaves the legitimate sector businesses exposed from regulator enforcement .Local Government inherently avoids and escapes all regulatory liability.
- Consideration is to be made to understand how an un-forecast excessive amount of finished product, can be distributed and disposed of without leaving the private contractor liable? If a contractor has to factor in the provision for disaster management of green waste, as occurs every year in the northern parts of the state, this only increases the gate fee thus reducing a service cost which is not considered in the tender process
- Send it to land fill

WRIQ advocates:

- Green waste processing and management is considered as part of the disaster management program with a planned and effective response
- Where there is a sudden influx of green waste materials the incumbent processor should be given the first option to process as much as they can handle (within the budgetary and license constraints) at that point in time. Surplus material could be offered to the industry in a fair and equitable manner without jeopardising the existing processing contract.
- Local Government, as the representative of the community, demonstrates stewardship by committing to use the finished products derived from recycled products. This would not only protect the entire industry but also provide an incentive for them to provide feedstock that was as free from contamination as possible. It would also provide legitimacy for environmental management claims and be a cost effective source of materials for rehabilitation work.
- Local Government (or the lead agency) to recognise that professional, legal processing of waste materials is a responsibility which has a cost if it is to be performed properly. There is an inherent biosecurity risk in green waste, which is why its processing is restricted under Queensland Government Law, like other items such as sewerage, MSW, etc etc.

  Short cutting the process has environmental risk and sending materials to landfill is a cheap, lazy and irresponsible waste of "managing" the situation. There is a cost and benefit to recycle other materials, why is green waste considered any different?

It is absolutely critical that a master crisis waste and recycling management plan be developed with all key stakeholders to ensure the issues and observations that occured as a result of the weather events in 2011 -13 not be repeated.

All State plans must also be overhauled to address a more macro waste cleanup and waste type response, and include potential man-made events such as oil spills, bio security incidents and other disasters such as earth quakes.

Central emergency management centres should have overarching responsibility to ensure the master cleanup plans are enacted and all responsibilities are clearly understood by all stakeholders.

The management of business wastes from commercial and industrial sectors, food processing operations, abattoirs, and regulated, hazardous and liquid wastes must be factored into such a future plans. The plan after it is adopted should be reviewed and discussed with all stakeholders, at least once a year, to ensure it remains active and vibrant and stay's aligned to Queensland's growth and business activity.

In the case of household's it would really assist future clean ups from extreme weather events that prior to each summer period, government conducts a household hazardous and regulated waste cleanup event and households are encouraged to remove these wastes well ahead of summer events.

Such an event should also be made available to small business in some form.

Action Items

Master crisis waste management plan be developed capturing all potential disaster scenarios

The management of business wastes from commercial and industrial sectors, food processing operations, abattoirs, and regulated, hazardous and liquid wastes must be factored into such a future plans.

Annual household, farm hazardous and regulated waste cleanup events, be conducted in designated cyclone and flood zones in the state.

Review of current recycled organic waste protocols respect to disaster waste management be conducted.

Link to Strategy

Management, treatment and disposal

Queensland will reduce the impact of waste on human health and the environment through improved waste management practices.

Hazardous and regulated waste removal pose significant community health as well environmental risks and its future management must be factored into the design of the states disaster waste management master plan.

WRIQ

Essential for community Essential for environment

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