

A Circular Economy Blueprint - An investigation of innovative waste reduction models for dissemination in Tasmania – Belgium, Sweden and the UK

Reported by Brad Mashman, Churchill Fellow

2019 Churchill Fellowship, and Rena Dare to study waste reduction models of Belgium, Sweden and the UK

Awarded by the Winston Churchill Memorial Trust



Indemnity Clause

THE WINSTON CHURCHILL MEMORIAL TRUST

My project scope was to investigate innovative waste reduction models for dissemination in Tasmania – investigating Belgium, Sweden and the UK.

I understand that the Churchill Trust may publish this Report, either in hard copy or on the internet or both, and consent to such publication. I indemnify the Churchill Trust against any loss, costs or damages it may suffer arising out of any claim or proceedings made against the Trust in respect of or arising out of the publication of any Report Submitted to the Trust and which the Trust places on a website for access over the internet. I also warrant that my Final Report is original and does not infringe the copyright of any person, or contain anything which is, or the incorporation of which into the Final Report is, actionable for defamation, a breach of any privacy law or obligation, breach of confidence, contempt of court, passing-off or contravention of any other private right or of any law.

Signed: Bradford Neil Mashman

Date: 30/09/2019

Acknowledgements

Special thanks to Rena Dare - without her dedication and expertise, this report would not have been possible. Thank you to Zachary Mashman, Maggie Butler, Patrick Dennell, Vickee, Keith and Karen Mashman and The Recovery Team for their continued support and hard work in our absence. And to my 2 other children Joshua and Sarah and my parents Wynne and Neil Mashman (Mr Fixit) for teaching me the value of stuff.

Thanks to the continued support of the Tasmanian Churchill Trust and Churchill fellows – Dean Maddock, Stephen Geason and Jono Craven, and to my associates – Christine Milne (Greens Global Ambassador), Jamie Wood (SEAM), Gayle Sloan (WMRAA CEO), Caroline Lambert (EU Counsellor to Australia) John Crispjin (WMRRA President Tasmania-VEOLIA), Mike Ritchie (MRA) , Gayle Sloan (WMRRA) Glenorchy community & Glenorchy City Council for their knowledge and encouragement.

A heart-felt thank to all those that made our trip such a valuable and inspiring experience; Michel Len of RREUSE, Cedric De Chevalier – Department of Environment (Bruxelles), Jourgen Blondeel of Komosie, Zeb, Elis & team of Zero Waste (Brussels), Fox Bernard of The Repair Café, Alessandro Cagnolati & Catherine Legein of Piet Riens, Lionel Deviliger & Lionel Billiet and team of Rotor DC, Maria Rincon of the European Commission Anna Bergstrom of RETUNA, Vessa Hiltua & Benny Bjork of Eskilstuna Lilla Nyby Recycle Plant, Weine Wiqvist, Tony Clark, Asa Hageline of Avfall Sverige, Dr. Richard Swanell of WRAP, Janet Gunter, Ugo Vallauri, Frances Cresswell, Neil Mather & team of RESTART, Tara Buttons – author of “A Life Less Throwaway, the Lost Art of Buying” and owner of ‘BuyMeOnce’, Alison Winfield Chislett of Goodlife Centre – London, Baroness Jenny Jones of the Greens (UK), Dr. Pauline Duetz (Geographer), Dr. Anne Kildunne (Plastics Researcher), all speakers at the Ellen Macarthur foundation Summit Roundhouse 2019 and many, many others we met with in the emerging, durable, second-hand first shopping hubs and those whom quietly get on with ethical reform and circular economic success.

Thanks to the world-wide waste-wise community for their inspiration, dedication and passion.

Contact: Bradford Mashman
www.recoveryshop.com.au

Key words Circular economy, Structural Reform, European Union Directives, Reuse, Repair, Industrial Symbiosis, Creative Thinkers

Contents

| | |
|---|----|
| Executive Summary | 4 |
| Itinerary | 6 |
| Introduction..... | 8 |
| An overview Waste Management & Social Behaviour | 10 |
| What is the Circular Economy?..... | 14 |
| Integrated European Union Policy Transitioning to a Circular Economy..... | 16 |
| Key Mechanisms of Circular Economic Transition | 18 |
| Champions & Circular Economic Business Models..... | 21 |
| BELGIUM | 22 |
| RREUSE Federation, Brussels..... | 22 |
| Bruxelles Department of Environment, Cedric De Chevalier Economist..... | 23 |
| OVAM Flanders..... | 27 |
| Komosie & De Kringwinkel Shops | 28 |
| Brussels – Zero Waste City Tour | 31 |
| Le Petit Reins | 33 |
| Cyclup | 35 |
| Rotor Deconstruction | 36 |
| Belgium – Second-hand First Commercial Landscape | 39 |
| SWEDEN | 43 |
| Avfall Sverige | 43 |
| Waste Prevention & Consumer Awareness..... | 45 |
| Tourism & the Circular Economy | 47 |
| Retuna Eskilstuna | 48 |
| Eskilstuna Lilla Nyby Recycle Plant | 52 |
| THE UNITED KINGDOM | 56 |
| WRAP | 56 |
| RESTART – Champions of the Citizens Right to Repair | 60 |
| A Less Throw Away Life: ‘BuymeOnce’ | 62 |
| Ellen Macarthur Foundation Summit Roundhouse 2019 | 64 |
| Brixton Circular Economy Business Activities, a Snapshot | 67 |
| The Value of Making, Repairing & Restoration, the Good Life Centre | 69 |
| Human Health and Incineration in London | 71 |
| Symbiotic Processes | 73 |
| Conclusions..... | 75 |
| Reference List | 81 |

Executive Summary

The current Australian waste crisis is an economic opportunity for effective and long-term industry reform. I applied to undertake a Churchill Fellowship to gain knowledge to provide guidance and practical examples of circular economic business, programs and outcomes in Belgium, Sweden and the United Kingdom for implementation in Australia.

In 2016, the European Commission reported circular economic activities such as repair, reuse & recycling generated €147 billion in value added outputs while standing for around €17.5 billion worth of investments. The economic transition occurred due to a range of complex values being restored to sophisticated products and materials in circulation; waste becomes materials that have sovereign, economic, commercial, aesthetic, social, cultural, and inherent values.

Critically, the European Union (EU) provided strong leadership in releasing Circular Economic Packages that were integrated into existing directive & frameworks subject to continuous improvement processes.

The EU transition when focused through the lens of the circular economic principle of restore through design, clearly required the restoration of relationships between stakeholders - civil society, government, manufacturers, producers, and the environment. These relationships were re-established through EU directives that necessitated structural reform. Importantly this structural reform required all stakeholders to participate; and allows for environmental, economic and social agendas to be delivered simultaneously.

This report provides insights into the critical success factors and future for Belgium, Sweden and the United Kingdom in transitioning their economic and waste policy practice from 19th century linear practice to 21st century circular economic practice.

Each country demonstrates both similar, and different approaches to implementing EU directives and frameworks – yet all three are working towards the same European vision of ‘A Recycling Society’.

Belgium provides leading and rapidly growing examples of re-use culture, with a mature and sophisticated policy system to drive circular economics. The government sector is a key driver of reform, working with all stakeholders, and setting ambitious authentic performance targets. Re-use operations are paid for every kilo their operations put back into circulation.

Sweden is one of the best examples of major investment by local government in materials recovery facilities including 'ReTuna' - the world's first re-use shopping mall, and attendant unfettered product and materials capture systems. Complimented by a strong focus on product design, eco design labelling and facility design to create new wealth, and change attitudes and behaviour towards waste.

The United Kingdom plans to be a global leader in driving circular economics & step change processes through systems, and partnerships between industry as producers, and civil society as consumers who are demanding authentic sustainable choices. Recovery, repair & restoration of products and materials in the waste stream is a key focus.

The overall conclusion is increasing circular economic activity presents an extraordinary wealth creation opportunity for Tasmania, and Australia. Tasmania is already very well positioned for this marketplace, with many current exemplary examples of circular economics - what is missing is a whole of government framework that all practitioners and actors can follow and confidently invest in.

This report provides substantial recommendations for implementation at its end.

A message to the reader: New beginnings are precious, the circular economy is a new, young idea, and like all young it must be nurtured, honestly attended to, and cared for. It was the EU's care and attention to detail through ongoing structural reform processes including system feedback, that has made the European Circular Economic transition so successful to date.

Itinerary

| Belgium | | | | |
|---------------------------|---|---|------------------------------|--|
| Date: | Organisation: | Person(s): | Purpose: | Other: |
| 22/04/2019 | Rotor DC Office | Lionel Deviliger | Introduction | |
| 23/04/2019 | Rotor DC Facility | Rotor Team | Tour | |
| 24/04/2019 | Cyclup | Cyclup Team | Tour | |
| 25/04/2019 | Brussels Transfer Station | Samuel Deaucabar | Tour | |
| 26/04/2019 | Creative Economy | Khadjia | Meeting | |
| 29/04/2019 | RREUSE Federation | Michel Len | Meeting | |
| 01/05/2019- 06/05/2019 | Brussels Circular Economy Hub Zero Waste Tour Marolles Flea Market Le Piet Reins 10+ CE Retail Outlets | | Meetings with shop owners | Investigating the emergence of the circular economy hub |
| 07/05/2019 | Brussels Environment Department | Cedric Chaevalier | Meeting | |
| 08/05/2019 | OVAM /Komosie Reuse Federation, Antwerp. | Jourgen Blondeel | Meeting | |
| 09/05/2019 | De Kringwinkel | Jourgen Blondeel | Tour | |
| 10/05/2019 | Petit Reins | Catherine Legein | Meeting/Tour | |
| 10/05/2019 | Rotor DC | Lionel Deviliger | Meeting | |
| 10/05/2019 | EU Commission | Maria Rincon | Meeting | |
| Sweden | | | | |
| 27/05/2019 | Eskilstuna Lilla Nyby Recycle Plant | Vessa Hiltua & Benny Bjork | Meetings and Tours | |
| 28/04/2019 | Eskilstuna Tourism | Helen Stromberg | Meeting | |
| 29/05/2019 | Retuna | Anna Bergstrom | Meeting | |
| 30/05/2019 | Retuna | Various business owners | Tour | |
| 31/05/2019 | Eskilstuna Heritage Centre | Various Retailers | Meetings and Tour | |
| 01/06/2019 | Zero Waste, Stockholm | Various Attendees | Tour | |
| 04/06/2019 05/06/2019 | Avfall Sverige | Weine Wiqvist, Tony Clark, Asa Hageline | Meetings | |

United Kingdom

| | | | | |
|-----------------------|--|--|------------------------------|--|
| 11/06/2019 | House of Lords | Baroness Jenny Jones | Meeting | |
| 13/06/2019 | RESTART | Janet Gunter & Ugo Vallauri | Meeting | |
| 13/06/2019 | Ellen Macarthur Foundation annual Summit, 2019 | Various Professionals | Networking | |
| 13/06/2019-19/06/2019 | Brixton Circular Economy Hub | Various Professionals and Retailers | Investigating and Networking | |
| 20/06/2019 | Saint Pancreas, London | Tara Buttons | Meeting | |
| 20/06/2019 | Good Life Centre | Alison Winfield-Chislett | Meeting and Tour | |
| 24/06/2019 | WRAP, Banbury | Dr. Richard Swanell | Meeting | |
| 05/07/2019 | Hull University | Dr. Pauline Deutz Dr. Anne Kildunne | Meeting | |

Introduction

I have always found waste a fascinating subject, as a 4-year-old I went to a landfill, in a disused clay mine owned by my family's ceramics factories, 'Mashman Brothers'. I was astonished by the intact books, toys and other products & materials strewn everywhere. I salvaged the books and toys and took them home with me. I still own the salvaged valuables, and I am still astonished by waste. Waste is an outcome of poor economic management, and the complete undervaluing of sophisticated products and materials and their history.

I have been engaged with waste management for over 40 years. As a hydraulic fitter on ships (heavy engineering) in the late 1970s, a key role was designing, building, repairing and decommissioning ships in Sydney harbour, salvaging and on selling recovered products and materials. In the 1980s, following in my family's industrial activities, I became an Architectural & Industrial Designer and sculptural artist - working primarily for Australian industrial and architectural companies in Sydney.

In the 1990s I moved to Tasmania to study at UTAS. At UTAS I conceived the circular economic 'Tipshop' concept and established and implemented broad spectrum products and materials resource recovery facilities at Glenorchy and later Hobart including elsewhere in Australia. I have written and contributed to numerous education programs, waste and social audits, concept commercialisation, training programs and product and materials recovery facility designs for Federal, State & Local government.

I am currently the Managing Director of Recovery (Tas) Pty Ltd operating the Glenorchy Tipshop for 26 years. As a founding member and executive of the Tasmanian branch of the Australian Waste Management Association, I am regularly interviewed by multi-media as a circular economic and waste reduction expert.

My business partner Rena Dare worked with me on the study tour. Rena has extensive experience in Tipshop management as a co-founder of the concept and played a key role in the start-up of Glenorchy, Hobart and Mornington Tip Shops. She has almost 30 years' experience working in the field of sustainability – commencing as a school holiday

programme leader for the then Tasmanian Environment Centre in her teens, to a proud triple bottom line company director. She is the co-author of this report.

We travelled with our company Recovery (Tas) Pty Ltd mascot 'Wanda Waste Not - Want Not Wallaby' (featured photo right). Wanda is a great enthusiast of the global waste wise community and adds everyone who is waste wise as a member to her flock.

Wanda proved to be an excellent Ambassador, transcending both culture and language, and an easy travelling companion.



The Churchill Fellowship study tour encompasses the extensive circular economic system and activities of Belgium, Sweden and the United Kingdom driven by European Union reform. The data collected on the study tour has enabled the formation of recommendations for all levels of government, facilitating the opportunity to greatly increase circular economic outputs in Tasmania and throughout Australia.

When selecting Belgium, Sweden and the United Kingdom for the fellowship study tour, I considered the following:

- Economies demonstrating and delivering authentic circular economic waste reforms
- Federal, National and regional waste reduction models
- Integrated waste reduction & products and materials recovery management systems
- Evidence of innovative circular economic practitioners & actors
- Effectiveness of EU Directives, targets & their application
- Potential for the Australian Commonwealth to adopt EU directives
- Methods to harmonise & fund innovation for waste reduction rather than disposal

This report provides an overview of attitudes & policy of waste management in Australia, outlines the European Union process of structural reform to shift to a circular economy, and examines both policy and practices of circular economic development in Belgium, Sweden and the United Kingdom. The report is presented chronologically. It concludes with opportunities and findings for Tasmania & Australia.

An overview Waste Management & Social Behaviour

The volume and composition of the waste stream is an outcome of collective human behaviour, reflecting the predominant values of any society at a given time. In this current era termed the Anthropocene¹ the impact of human behaviour particularly hyper consumption, has led humanity collectively to a critical tipping point pertaining to our resource use.

There is global agreement that between now and 2040 humans will consume as much as we have since we first stood on two legs. In a finite system with increasing population, and higher economic expectations for production and consumption which currently leads to more wastage of valuable resources – the circular economic model has determined this type of thinking is no longer economically, environmentally or socially sustainable.

Data wise, there is simply not enough natural resources to maintain current use trends, as the Institute for European Environmental Policy² advises, 92.5 billion tonnes of resources entered the global economy in 2015, and the trend is accelerating and could double between 2015 – 2050 to 186 billion tonnes. Put simply, there are not enough resources left, but there is a lot of stuff already in circulation. As Tara Button (featured later in this report) points out, the average OECD household now has 300,000 items in it!

Collective human values are dynamic, they vary from nation to nation, culture to culture and environment to environment. Australia as a nation has undergone a dramatic behavioural social transformation relating to our waste production over time.

Aboriginal Australia

Australian aboriginal culture was a sophisticated society of many clans with villages, roads, industry, agriculture, food silos, on land fish farming and trading networks. According to Dr Bruce Pascoe, in his seminal work 'Dark Emu'³, waste as an output of agricultural residues was reused for further soil conditioning.

¹ Anthropocene –current geologic period as being human influenced based on overwhelming global evidence that atmospheric, geologic, hydrologic, bio-spherics and other earth systems are now altered by humans

² Cited in a Long-Term Strategy for a European Economy, Setting the Course for Success, pg. 1

³ Dark Emu, Dr Bruce Pascoe, 2014

Middens of used tools, shellfish and other animals were common with minimum polluting impact on the landscape. Aboriginals carefully managed resources for maximum gain and limited loss within their known country prone to fire & flood, glaciation and dramatic changes in sea levels for over 60,000 years.

19th Century Australia

In this first instance aboriginal landfills, known as middens, were mined to build European dwellings. From colonial Australia into the late 19th Century citizens were expected to dispose of their own refuse, usually in a backyard cesspit. Domestic waste was primarily organic, kitchen slops, sewage and broken, worn out products such as ceramics, shoes and clothing. Products were manufactured, repairable and purchased for long life, improving economic outcomes for the consumer.

From the 1890's onwards, landfilling was a popular means to fill in wetlands and bays, directly impacting on flora, fauna and fish breeding habitat. For example, in the Derwent estuary Hobart Tasmania, and Home Bush Bay Sydney, New South Wales. The introduction of industrial contaminants into clean environments was a precursor to diminished sea caught food supplies. Promisingly scrap metal and other sophisticated products & materials were always recycled.

Milk, beer and soft drink bottles were re-filled, newspapers were collected for reuse as packaging, branded packaging systems (wooden boxes) were returned to distributors for reuse and shops sold products and materials in bulk or as single items. The self-repair of products was common; and there was a thriving repair service industry, well into the 1970s.

20th Century

During WW2 a Commonwealth Ration Commission was created to ensure critical materials were collected for the war effort with penalties for non-compliance.

After WW2 waste volumes grew rapidly with the post-war economic boom in Australia.

Domestic, industrial, heritage and other products and materials were co-mingled and destroyed by incineration or disposed of in landfill.

Removal of Producer Pays Principle

To exacerbate the growing volumes of waste, non-refillable single use beverage containers were introduced in the 1970s, which eventually led to the removal of container deposit schemes excluding South Australia. Poor economic policy caused regional Australian manufacturers and re-fillers to close their operations. Single use products became the highest percentage of litter materials and remain so.

Incineration Phase Out or Not?

Incineration of waste in Australia was introduced initially as a disease control measure. Incinerators and waste to energy facilities operated in Australia until the early 1970s with the last facility closing in 1991 as government, industry and community became increasingly concerned with poor environmental management outcomes, and destruction of products and materials with economic value by incineration.

National Waste Reduction Target set at 50 % by 2020

In 1992, the Commonwealth Government invited Australian citizens to enter a new transformative era by releasing the *National Strategy for Ecologically Sustainable Development*. Waste was at the forefront with the Commonwealth Waste Policy of *Less Waste More Resources Strategy* establishing a national target of 50% waste reduction by 2020. The policies and attendant funding stimulated innovation and investment in the industry to recover sophisticated products and materials in the waste stream and actively reduce input flows at source.

The establishment of a national waste reduction target provided clear guidance for decision makers and created the right environment for my colleagues and I to develop, invest capital and launch the pioneering Circular Economy Tip Shop⁴ concept in Tasmania.

Amongst others, Reverse Garbage, Sydney and Canberra Revolve had shown the way.

The Commonwealth Government engaged leading experts with industrial design capacity including myself to develop a national program to roll out full resource recovery and reuse and repair nodes at all waste facilities across Australia, a world leading concept at the time.

⁴ The Tip Shop model developed in Tasmania was unique because it processed industrial, commercial, construction, demolition and residential waste for re-use and importantly must offer a minimum of 25 departments of sale.

Thirty years ago, Australia was leading the newly emerging circular economy economic model, and now 30 years on what has happened?

Largest Landfill in Southern Hemisphere

Australia now hosts the largest landfill in the southern hemisphere, we are discussing incineration once again (the EU will cease incinerating within 20 years) and re-introducing Container Deposit Legislation (CDL). The economics of the Tip Shop model continue to hold their own. Planet Ark, The Boomerang Alliance, The ABC War on Waste documentaries and other NGOS work to reduce wastage, and yet waste volumes continue to increase.

Australian Waste trends over time tell the story

| YEAR | WASTE GENERATED PER ANNIUM | WASTE GENERATED PER PERSON |
|-------------|----------------------------|----------------------------|
| 1996-1997 | 22.7 million tonnes | 1,200 kg |
| 2006-2007 | 43.8 million tonnes | 2,000 kg |
| 2014 - 2015 | 64 million tonnes | 2,700 kg |

Australian Bureau of Statistics Historical Waste Record.

In the late 1990's Australia was poised to introduce significant legislation to reduce inefficient and uneconomic loss of resources through waste production and management.

The European Commission by contrast over the same period became alarmed when waste figures approached 800 kilos per person which triggered a waste management rethink to design and implement an economic transition from a linear economy to a circular economy for secondary materials.

What is the Circular Economy?

The European Commission describes the Circular Economy as a system where: *the value of products & materials is maintained for as long as possible. Waste & resource use are minimised, and when a product reaches its end of life, it is used again to create further value.*

Background: The circular economy is an idea that emerged in the 1970's when academics and practitioners determined the continuous use of natural raw materials to create products destined to be destroyed was unsustainable in the context of the planet earth as a closed system. I.e. –no new raw materials entering the system; and as a closed system any inputs from humanity directly affect the system. For example, micro plastics are now present in the food chain, the planets five oceans, and circulating in the atmosphere.

Critically - the health dis-benefits of plastic contaminants remain unknown.

Acceleration of Transition

In December 2014, the EU Commission withdrew pending waste legislation to rethink the full economic cycle of production. Work began to align existing waste and production directives to harmonise the with planned circular economic frameworks.

After a year of extensive European wide consultation, the Circular Economy Package was approved by the European Parliament in December 2015 and shifting waste management from linear to circular became its centre piece.

N.B The pre-existing waste policy frameworks commenced in 1999 and are critical factors in what appears to be a swift transition to occur.

What is the purpose of the EU Circular Economy?

- To create markets for secondary materials that are not locked in by a low price
- To shift society from an unsophisticated linear throw-away society to a sophisticated recycling society
- To ensure critical raw materials supply is secure for use
- To transition existing workforces from linear to circular economic activities
- To reduce overall carbon footprints & environmental impacts –below 2 degrees warming
- To protect human health and change human/consumer behaviour
- To stimulate new innovative wealth creating business models, and material supply chains for maximum economic advantage to EU companies
- To prevent waste through circular design & production practices, re-use and repair
- To deliver the United Nations Sustainable Development Goals 2030
- Reduce dependence on imports and move to long term sovereign self sufficiency

The United Nations Sustainable Development goals & definition⁵ guide & underpin the foundations of all European policy frameworks. Why? In 2015, the United Nations advised that humanity has a 15 year window to change its collective behaviour before critical earth system tipping points⁶ are exceeded; seventeen sustainable development goals were set for 2030: **no poverty, zero hunger, good health & wellbeing, quality education, gender equality, clean water & sanitation, affordable clean energy, decent work & economic growth, industry innovation, reduce inequality, sustainable communities & cities, responsible consumption, climate action, life below water, life on land, litter on land, peace & justice & strong institutions & partnerships to achieve goals.**

Please note the goals in blue text directly relate to waste & the transformative power of a new circular economy to ensure a sustainable & prosperous future.

⁵ Sustainability was first defined in the Brundtland Report in 1987 as: forms of progress that meet the needs of the current generation, with comprising the ability of future generations to meet their own needs

⁶ The Tipping Point the point at which a series of small changes, or incidents become significant enough to cause a larger & more important change.

Integrated European Union Policy Transitioning to a Circular Economy

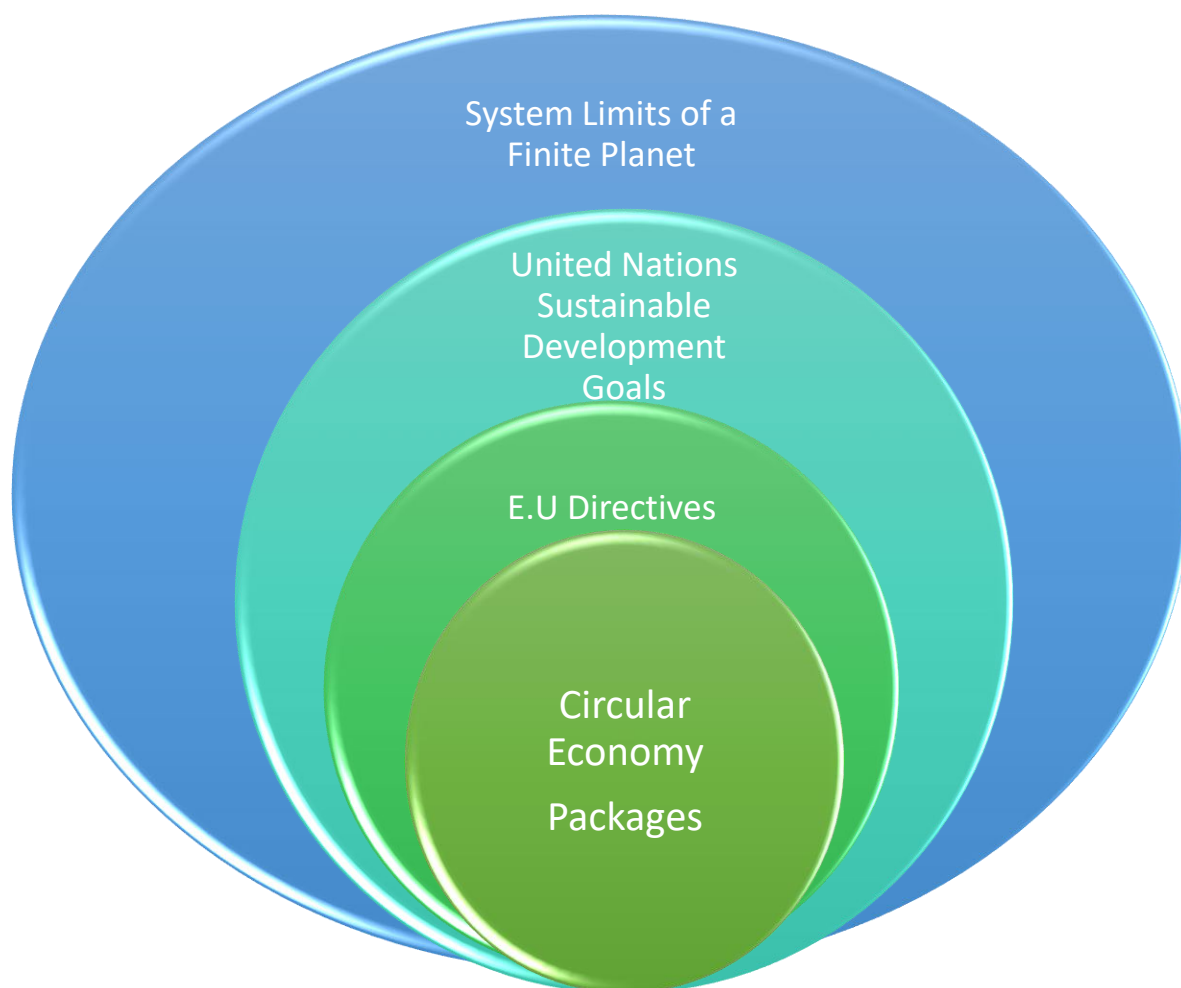


Figure 1.

Figure 1. illustrates the successful EU integration of packages, directives and goals that are directly linked to planetary system limits. A 2018 report submitted to the EU demonstrating the implementation of the circular economy stated the Commission had succeeded in mainstreaming the circular economy principles of:

- Closing material loops & actions throughout a products life cycle
- Rethinking product & material processes & new value creation
- Playing a key role in implementing Sustainable Development Goals 2030

This adaptive & transformative public policy process has been continuous, taking nearly 30 years to incorporate sustainability into economic frameworks.

This is clear indication that transitioning to a circular economy is a highly complex, public & administrative policy task.

Transition of Policy

Figure 2 represents the EU process over time in designing & implementing the *policy tyre tread* to turn the wheels of a circular economy.

Each hexagon is a key component of the EU policy framework. When all key components are enacted & functioning concurrently - both momentum & traction are generated, therefore creating the circular economy.

Importantly the expansion of the *policy tyre tread* area over time illustrates the need for structural reform to transition an economy from linear to circular.



Key Mechanisms of Circular Economic Transition

The EU Waste Directives & Circular Economy Framework provides clear instruction to Member States, describing for members the role waste management plays in transitioning Europe to a circular economy. The 2018 Waste Directive required all members to rethink, with the key instruction being:

Make use of economic instruments and other measures to provide incentives for application of the waste hierarchy.

The Directive advises the waste hierarchy must be applied in the order of highest priority being - prevent, reuse, recycle, landfill, incinerate. Landfill & incineration should be avoided; re-use, repair & recycle must be recognised as higher value chain activities and incentivised.

All three countries we studied had aligned their waste strategies and plans to EU directives. EU recommended prevention, and incentive mechanisms referred to below represent 30 years of structural reforms now conveniently coalesced into the 2018 Waste Directive. This directive is now linked to circular economic packages.

Polluter Pay Principles

- ✓ Charging producers for the volume & weight of waste they produce
- ✓ Costs to reflect the real cost to the environment of waste generation

Producer Pays Principles – Extended Product Stewardship Programmes

- ✓ Applying extended producer responsibility: producers of products bear the financial responsibility or financial & organisational responsibility for the management of the waste stage of a products life cycle,
- ✓ Importantly prescribes a minimum of 80% of the cost of recovery to the producer/holder/distributor
- ✓ Product Steward financials are set at the cost of recovery only – not as profit making

Economic Incentives

- ✓ Send price signals e.g. landfill & incineration is the most expensive cost option
- ✓ Economic rebates applied at purchase or manufacture if using secondary materials
- ✓ Lower V.A.T tax on second hands goods & repair activities
- ✓ Deposit refund schemes and others to encourage efficient collection

Restriction & Separate Collection of Materials

- ✓ Restrict materials entering landfills and incinerators
- ✓ Require separate collection of (uncontaminated) materials in preparation for higher value recycling

Changing Consumer Behaviour

- ✓ Product label information explaining life cycles to enable informed consumer choice
- ✓ Company rebates for design & manufacture of goods that are authentically circular
- ✓ Economic incentives to support & reward sustainable consumer behaviour
- ✓ Action plans to change consumer behaviour & prevent waste generation
- ✓ Redirecting product life-cycle requirements for re-use, repair & recycling
- ✓ Encouraging second hand first & repair enterprises & network

Targets Integrated into Waste Management Plans

- ✓ Meet ambitious, ever increasing reduction, prevention & circular material & product flow targets.

Circular economic strategic targets were set in the 2018 Waste Directive as:

| Year | Specific Target |
|-------------|---|
| By 2025 | Prepared for re-use & recycling: a minimum of 55% municipal waste |
| By 2030 | Prepared for re-use & recycling: a minimum of 60% municipal waste |
| By 2030 | Packaging waste: 70% recycled |
| By 2035 | Prepared for re-use & recycling: a minimum of 65% municipal waste |
| By 2035 | Landfill limited to 10% |

Infrastructure & European Union Funds

- ✓ Planning & investment in waste management infrastructure using Union funds
- ✓ Access to European Investment Bank loans for projects meeting circularity categories, European Funds for Strategic Investment, European Structural Investment Funds & Circular Economic Finance Support Platforms

Structural Reform Performance Results

In 2015, the EU allocated over €10 billion in funds to progress the circular economic package.

In 2016, the Commission reported ⁷ circular economic activities such as repair, reuse & recycling generated almost €147 billion in value added outputs while standing for around €17.5 billion worth of investments.

The figures above demonstrate the value of the economic transition and the effectiveness of EU integrated waste & circular economy policy supported by funds & embedded sustainable development strategies. **Member States, stakeholders, business, industry, and civil society are encouraged and required to participate in actively re-shaping the structure, types of materials and consumer goods available in the markets.**

The first step to develop a circular economy is to rethink – rethinking occurred when the EU Directives shifted away from measuring the amount of waste materials collected, to the amount of product and materials entering the market for secondary use. The systematic reform was achieved by shifting structural costs from investment in disposal to investment in implementing innovative solutions creating new business and employment opportunities by reducing waste.

⁷ Report from the Commission to the European Parliament on the implementation of the circular economy action plan, COM (2019) 190 final.

Champions & circular economic business models

The EU economic transition relies on change agents and champions working at all levels of society to construct and turn the circular wheel.

The study tour brought us into contact with experts who have regular input into and translate EU waste & circular economic policy into everyday working practice in a commercial manner.

The following chapters feature change agents we had the privilege to meet, and discusses how they are participating, investing and benefiting from the circular economy.

The report explores the relationship of organisations and individual's activities stimulated and applied through EU waste & circular economy policy frameworks.

The inputs and outputs of Belgium, Sweden & United Kingdom in transitioning their waste management sectors from linear (disposal focus) to circular (recovery focus) are analysed and published throughout and at the end of this report.

The report findings are written in chronological order, we spent 4 weeks in Belgium, 2 weeks in Sweden and 3 weeks in the United Kingdom.

BELGIUM

RREUSE Federation, Brussels

RREUSE represents over 1000 social enterprises active in reuse, repair and recycling, with 29 organisation members across the EU and USA.

RREUSE lobbys the EU and other national governments to transition from promoting recycling and waste disposal to placing reuse and repair & second hand first.

We met with Michel Len, a Director of the RREUSE federation in Brussels leading an informed group of hardworking reuse experts. RREUSE plays a key role in the second hand first marketplace to drive circular economic transition.

In 2017, RREUSE reported that their members across the EU and USA had diverted 1,000,000 >tonnes of products and materials from the waste stream and generated €1,500,000,000⁸.

RREUSE advocates for durable repair friendly criteria:

- Easy to repair and long-life product design
- Spare parts availability must be guaranteed for the life of products
- Free access to repair service documentation and software

EU Waste Directives

RREUSE regularly submits papers to the EU, informing and guiding policy development.

As the EU waste directives and extended product stewardship (EPS) arrangements developed over time the European move to a recycling society created the unintended consequence of useful and functioning products and materials, as well as future parts, being recycled prematurely and destroyed through EPS.

EPS practice was not in accordance with the waste hierarchy higher order of re-use. Landfill bans adopted in some regions led to increases of product and materials destroyed by incineration. Consumer (the *actual* purchaser and owner of products and materials) access to information from manufacturers to enable reuse and repair of products was being withheld by manufacturers.

⁸ RREUSE Activity Report, 2017

RREUSE has intensively researched and lobbied the EU and other organisations inputting into EU policy to redress unintended policy outcomes. The organisation had substantive input into the corrective measures of the 2018 Waste Directive which resulted in new targets for preparing for re-use and recycling as:

55% by weight by 2025

60% by weight by 2030

65% by weight by 2035

The correction measures included obliging producers to not only pay for 80% of the cost of product stewardship, but to make available technical information allowing for reuse and repair of products and materials presenting in EPR schemes and waste streams.

Anti-competitive concerns oppressing the Reuse Sector

RREUSE remains concerned that extended corporate product stewardship propriety ownership of a products entire life cycle may unintentionally oppress & preclude products from entering the re-use or second-hand market at all and disenfranchise the purchasers and owners of the products and materials.

RREUSE is currently analysing and assessing the size and economic contribution of the re-use sector at the request of the European Union to ensure this corrective course continues.

Tax Arrangements as Incentives

RREUSE has demonstrated that because the European Commission's circular economy action plan encourages the use of economic instruments to help ensure the extension of a products life span through reuse and repair; and that such activities provide employment therefore meeting social agenda outcomes, the work of the reuse sector must be supported by incentives into the future. For example, RREUSE is advocating existing VAT⁹ repair incentives of some EU members be introduced and harmonised across the EU; promoting a level playing field for business, industry & community alike.

EU research and experience demonstrates differentiated VAT repair activities are cheaper than waste disposal, actively reduces waste and boosts jobs growth.

⁹ Value Added Tax is the EU broadly based consumption tax applied to goods sold, the rate varies across member states between 20-26%.

Bruxelles Department of Environment, Cedric De Chevalier Economist

Champion of the Circular Economy

The Brussel's Department of Environment (IBGE) is the environment and energy agency of the Brussels Capital Region of Belgium. IBGE is an active partner in driving circular economic change and implementing EU waste directives; IBGE intends to make waste a word of the past. We had the pleasure of meeting with Mr De Chevalier, IBGE to discuss Belgium's performance.

Belgium's 3 regions (Brussels, Flanders & Wallonia) lead products & materials recovery rates in the EU; many extended producer schemes are in place; and the country has a long industrial history of reprocessing materials. The move to a circular economy (CE) was championed politically by both the Minister for the Economy and Minister for Environment and Waste.

In 2016 the Government of the Brussels Capital Region adopted *Brussels Regional Program for Circular Economy implementation over 2016-2020*.

The program has 3 key objectives:

- *To transform environmental objectives into economic opportunities*
- *To relocate the economy to Brussels in order to produce locally whenever possible, reduce travel, optimise land use & create added value for Brussels inhabitants.*
- *To help create new employment opportunities*

IBGE implements circular economic package requirements & waste directives including:

- Eco design labelling, critical raw material lists, product stewardship schemes
- Provision of guiding documents for practitioners and actors
- Advice, subsidies, assistance & funding for innovation
- Working with local authorities and business
- Facilitating private & public partnerships to accelerate transitions

Authentic Circular Economic Activity

IBGE is a driver of the very big, very new circular economic idea, and fully aware of the need to establish appropriate operating frameworks and instruments that are effective in the marketplace – thus delivering an actual economic transition.

Work is ongoing to authenticate & measure the effectiveness of activities that fall within the circular economic framework.

The department acknowledges civil society is a partner in circular economic development. Citizens are encouraged to address their consumer behaviour by considering product and materials life cycle leading to preventing waste and changing demand in the marketplace; IBGE actively supports zero waste programmes, local businesses and champions, and provides education for school children to understand circular economy opportunities & benefits.

Creating the Environment for Transition

IBGE waste policy development processes include jurisdictional standard data modelling, finding ambassadors & community leaders to drive circular economic change, creating incentives – and all of which are supported by the rule of law.

Twenty-year plans are in place to phase out incineration; taxes on incineration will be increased in the meantime, landfills in Brussels have been closed; and enforceable proximity principles are in place; differential pricing is applied to encourage diversion of products and materials from the waste stream for redesign, reuse and repair.

Strategic Positioning for Regional Resilience

A key driver for Belgium's transition to a circular economy is to arrest decline in national design and manufacturing. The priority order for the conservation of raw materials is determined by the EU Raw Critical Materials List¹⁰ which acts as a guiding document for all member states & their governments.

¹⁰ The list contains 27 critical raw materials that are at high supply risk and of high economic importance to the manufacturing industry

The strategic aim is to reduce dependence on other countries by creating an internal market, protecting sovereign assets including intellectual property and critical manufacturing supply chains, and positioning for regional resilience.

IBGE is demonstrating strong and innovative leadership for economic transitions that are linked to strategic plans & visions for Europe at a regional level.

OVAM Flanders

The Flanders region in Belgium is famous throughout Europe for Re-use Centres trading as 'De Kringwinkel' translating as 'circular shops'.

There are 150 Circular Shops in the Flanders region, which generated €45,000,000 in 2018, and employ 5,500 people, from a population base of 5 million.

Reuse Policy

The De Kringwinkel model is underpinned by OVAM, the Public Waste Agency of Flanders which has ensured re-use is structurally embedded in waste policy.

Flemish social economic policy provides wage subsidies & training programs, and Flemish environmental policy has assigned a unique position to re-use in recognition as the higher order activity in the waste hierarchy.

Local councils are active partners providing premises for storage, processing and repair of reusables for De Kringwinkel retail sales. Tax rates have been structurally adjusted to provide market incentives.

Instruments favouring reuse and repair over disposal and incineration, and re-use operators receive incentive payments for every kilo of products and materials re-entering the marketplace.

The circular economy model has been incorporated into OVAMS long-term policy strategy 'Vision 2050' and set's specific targets for reuse.

The current target is for 7 kg, per household of reusables to go to the Circular Shops by 2022.

Komosie & De Kringwinkel Shops

We had the pleasure of meeting with Jourgen Blondeel, Deputy Director of Komosie.

Komosie was founded in 1992 to create a Flemish Re-use Federation, and was funded for 5 years with a grant from the Public Waste Agency of Flanders (OVAM)

The strategic aim was to provide systematic branded opportunities for market development of a wide range of organisations in the reuse marketplace by:

- Developing positive marketing images for the Flanders region re-use shops
- Increasing waste stream products & materials diversion for public access & consumer participation in re-use
- Providing a centralised clearing house for reuse business development
- Harmonising branding as De Kringwinkel & apply quality management systems.

Komosie income is generated from service delivery to the Reuse shop network, philanthropic funding from banks, government funding; particularly work placements and training programs, and European Union Funds.

Members of Komosie, as operators of a De Kringwinkel shop and facilities pay an annual subscription fee for which they receive:

- A catchment region
- A binding contract
- Branding, marketing and business presentation standards
- Performance management systems, technology and operation manuals
- Collective advertising and marketing programs
- Business advice, auditing & performance management guidance & reporting



N.B. Over time members of Komosie have been encouraged to merge by OVAM to enable greater wealth creation, investment capital & capitalisation and to ensure higher operating standards across the sector.

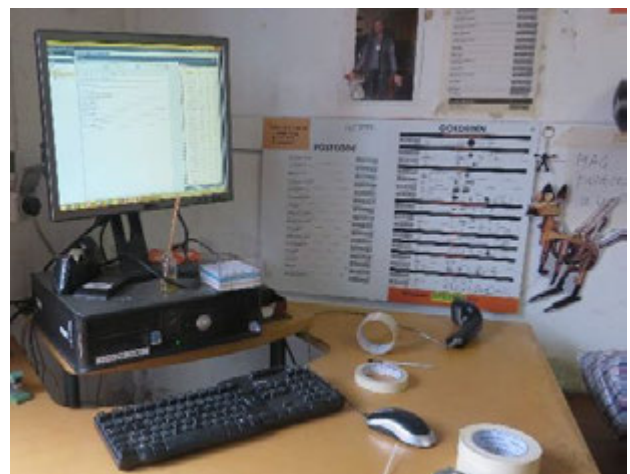
De Kringwinkel Shops

The 150 De Kringwinkel shops are a culmination of 25 years' experience in re-use; they are competitive, similarly styled shops, where customers can expect a high level of safety, service, brand delivery, and certainty when shopping in the second-hand sector. Photo right, a De Kringwinkel shop in Antwerp.



De Kringwinkel provide public drop off facilities; all items received are transported to separate storage premises where products & materials are processed including safety checks & repair. De Kringwinkel logistics management ensures products and materials are targeted to customer demand and do not over subscribe retail display systems.

The photo right features Wanda-Waste Not Wallaby admiring a scanning system developed with a grant from the EU to ensure the re-use sector can audit & record what is received by weight, postcode and goods. *The Glenorchy Tip shop has applied a similar methodology for 26 years.*



The photo right identifies De Kringwinkel Shops as high quality, well-lit, easily accessible, modern retail sale shops that display the value, beauty & utility of re-use objects.



De Kringwinkel retail design methodologies transform consumer attitudes by exemplifying the range of second hand first options.

It is extraordinary as re-use experts to travel across the world and identify the same re-use products, parts and materials presenting in the waste stream.

Photo right – Jourgen, Rena and Wanda.



Brussels – Zero Waste City Tour

Zero Waste Brussels (ZWB) is a community organisation encouraging consumers to make conscious sustainable choices that prevent waste generation. ZWB actively promotes local businesses as part of their Zero Waste City tours. We loved the tour; it is an authentic show case of circular economic business activity which is abundant in the commercial sectors of greater Brussel's.

ZWB receives funding and support from the Brussel's Department of Environment, IBGE. IBGE has created a labelling system (top right photo) for businesses that offer BYO food and beverage container waste free options.



The photo right: The Sister Café is a zero-waste pub café; dining settings & cutlery are second hand; any food waste is collected for composting. The menu is prepared from locally sourced and in season food and beverage suppliers. The business owner presented the commercial benefits & opportunities of the circular economy as part of the tour.



The photo right: Restore design, a Brussels business reusing wood panelling discarded by a local manufacturer to create beautiful hi-value design products & objects using laser cutting technology. The business won the Commence Design Brussels award in 2017.



Desmecht commenced trading in 1758, starting as an Apothecary, now operating as a chemist selling pharmaceutical and natural medicines. All products sold from the section of the shop featured in the photo right, come in paper bags; and all herbs are stored in wooden boxes, as timber has natural anti-biotic properties. Plastic containers are problematic causing herbal products to 'sweat' (moisture content supports harmful bacterial growth) reducing shelf life of the product. We learnt some surprising facts regarding modern medicines. Analysis of the Brussels sewage system is showing a new form of chemical wastewater pollutant – residual medicines.



The photo right features our Zero Waste Tour Guides Zeb & Elis, both enthusiastic, educated and informed Zero Waste champions. Please note the boxed community garden in the background of the photo. What was once a two-way street is now a one-way street. The street was unpleasant for local families due to drugs & prostitution. Buyers of such services were creating significant traffic



problems. The traffic thoroughfare is now blocked off by the community vegetable garden constructed from reuse materials and a repository for food waste as compost.

Circular economy actions can engender new, benign solutions to old problems.

The tour continued to demonstrate emerging circular economic activity from cafes with BYO cups, butchers that accept calico bags to good old-fashioned preserve shops selling only in season & locally produced food.

The tour show cases the new & old economy transitioning to a more aware, more communicative (and traditional) commercial marketplace where products sustainability credentials & story are key marketing factors determining consumer purchasing choices.

Le Petit Reins

'Le Petit Reins' (LPR) is the venerable Grandparent of Belgium re-use culture in business for over 80 years. Founded by Minister Abbe E Freidure, who saddened by poverty collected jumpers for children, then beds & furniture. LPR remains a not-for-profit offering quality goods for sale that would be otherwise destined for landfill or incineration. In 2018 LPR:

- Turned over €10.5 million
- Employed 300 salaried positions and 500 social contract recipients
- Operates 4 large re-use shops & 23 boutique stores including drop off facilities in Brussels & Wallacia
- Provided 850 additional collections points & offers collection services
- Managed eWaste repair & training facilities



The photo top right shows Le Petit Reins Shop in Brussels, it's a 4-storey second-hand department store with electricals, furniture & bedding, home wares, bric-a-bac, children's wear, sports & toys, carpets & fabric, clothing & accessories, & books. Each outlet also operates as a public drop point for reusables. Photo right: Wanda-Waste-Not Wallaby inspecting familiar wares.



Again, there is no place like home! *We travelled around the world, and composition of the re-use waste stream of Tasmania & Belgium is the same.*

In conversation with other experts, it is evidential re-use operations around the 1st world are all experiencing ever increasing volumes of re-use materials, as a result of ever increasing consumption of products and materials.



Growing the capacity of the second hand first market to reduce products and materials destined for incineration and landfilling is critical for circular economic development.

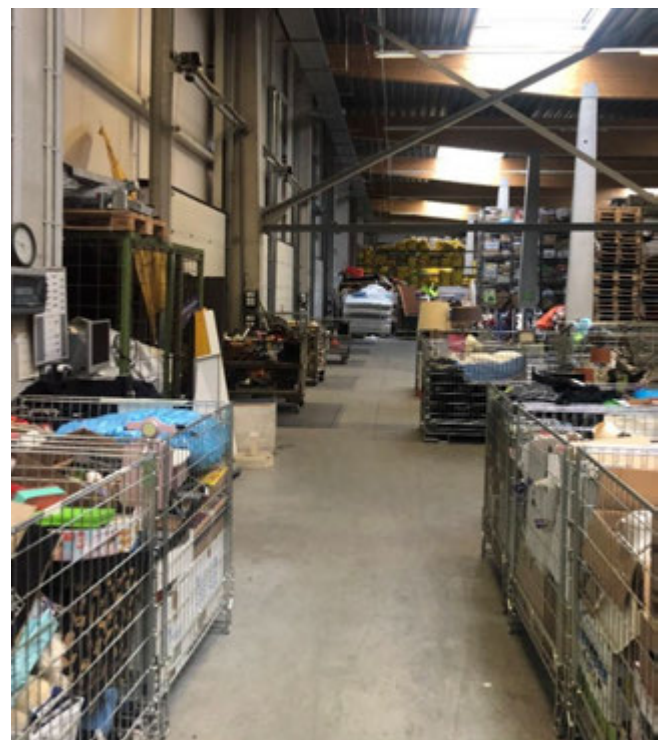
Storage Capacity

LPR operates an extensive multipurpose storage facility as shown in photo right. The processing and pricing of recovered products and materials is undertaken here.

European reuse models place equal importance on storage and processing facilities as on retail outlets for re-use & repair activities.

EWASTE

LPR works with a founder of the reuse and repair cafe model Mr Fox Bernard. LPR eWaste Repair Manager Mr Alessandro Cagnolati, operates a full scope eWaste reuse, repair and training programmes. The eWaste work area is well designed with multiple testing benches and parts storage to facilitate expert and safe testing, tagging and repairing of eWaste for warranted sale in Piet Riens stores.



CYCLUP

Cyclup are a not for profit business focussed on creative capture and re-design of products and materials in the waste stream. Cyclup employees 9 people including clothing designers and sells avant garde, high quality, market competitive, beautiful & creatively designed one off or short production run upcycled fashion garments and accessories.

Cyclup operates in Bruxelles; from a ground floor complex of five long window fronted shops. There is a pattern maker and fitter workshop, the shop window frontage allows the public to view the redesign and re-making of recovered products and materials into new.

The CYCLUP complex includes a well-lit and presented retail outlet, featured in photo right. The shop offers upcycled fashion garments: belts, pouches and wallets manufactured from tyres, & electrical products including remade lamp shades. There is an attached public drop off point for clothes & fabric.



CYCLUP labelling in the photo below demonstrates the creative potential of the circular economy to present a heart-felt modern consumer story which promotes sustainable values, as well as practically transforming discarded items into highly desirable ones.



Rotor Deconstruction

*'First we try not to take down what is already there.'*¹¹

Founded in 2005, Rotor Deconstruction (RDC) is a pioneering company developing the circular economic sector for salvaged building & construction components as well as whole buildings.

Based in Anderlecht Brussels, RDC expert teams dismantle, recondition and on-sell recovered products and materials, as well as providing advice to building owners, contractors and architects preparing for reuse of built infrastructure. RDC prefers to question the need for demolition, and instead focusses on deconstruction or refitting infrastructure with products and materials that are already present.

Starting from the consideration that all components of buildings are valuable; RDC extracts large quantities of materials, including decorative lighting fixtures, furniture, artifacts, partitions, timber, hardware, sanitary equipment, marble floors & masonry and other embedded products and building materials. Products & materials can be bought in bulk directly from the deconstruction site, on-line sales, and from their processing, retail & office facility in Anderlecht Brussels.

RDC is a European leading light in practical & economic sustainability practices; working across the EU, UK and USA delivering lectures and practical programs.

Intrinsic Value of Materials

We had the pleasure of meeting with Architect Lionel Deviligier, a co-founder of Rotor DC. Lionel is a Doctor of Philosophy, Architectural History & Theory, with a master's in architecture; and has a long expert interest in the value & history of building materials. Lionel's academic studies have focussed on the intrinsic value of materials increasing over time.

¹¹ Quote of Lionel Deviligier

Philosophy

RDC develops and delivers comprehensive methodologies delivering circular economic outcomes; and have transitioned their authentic expert commitment to environmental philosophy and sustainable development goals to the construction & demolition marketplace. The company promotes design & deconstruction philosophy as:

- Identifying and salvaging products & materials with the highest reuse value
- When appropriate maintaining products and materials in the project envelope
- Maintaining and reclaiming embodied carbon through product and materials maintenance and capture
- Creating a new suite of skills and abilities attendant to reuse through deconstruction
- Striving to maintain products and materials in region to honour and value the creativity, design, manufacture, building and technologies used.

A History of Leading by Example

In 2006, RDC built a trial structure titled RDF101. The structure was a small office designed and manufactured from pallet racking and other recovered components in a prominent public space. RDF101 attracted attention from industry, government, community and academia leading to comprehensive development of the RDC concept.

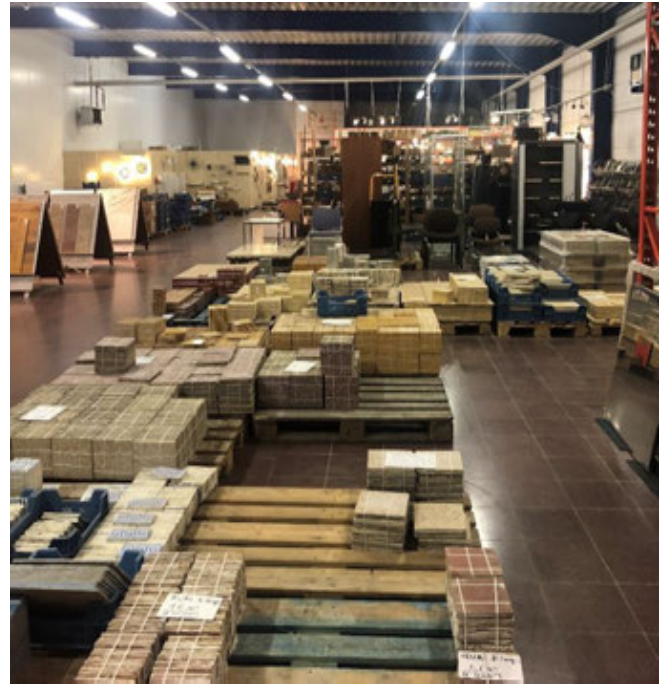
Waste & Circular Economic Directives

The important activities of RDC are supported by the Belgium government through the application of the Waste & Circular Economic Directives. For example, the RDC office, storage & retail sales area in the industrial quarter of Anderlecht are provided at no fee to RDC.

In addition, the management of construction materials has recently been included in the circular economic frameworks of the EU, creating new opportunities for the deconstruction industry. In 2019 the EU has developed a building demolition protocol and guidelines for material audits before demolition, leading to value added deconstruction of built infrastructure. The decades of work by RDC have been instrumental for the development of EU protocols and guidelines.

Rotor DC Facility

We thoroughly enjoyed touring the RDC retail outlet. The exterior yard consists of storage, processing and sales areas with the customer carpark situated in the centre of the facility. Additional parking is available in the streets adjacent. A small materials recovery facility features in the yard, allowing high volumes of material to be unloaded onto a concrete pan for sorting by expert resource recovery personnel.



The warehouse is on 2 levels providing office, display and retail space for a wide variety of building components & bespoke fittings. A value adding innovation is the processing and rebranding of recovered products, materials & fittings into packaged ready for use products.

Brad says as a waste reduction expert, industrial designer and artist, 'I was struck by the recovered high-quality products and fittings. Many are made of durable metals, are designed for long life & repair and allow innovative heritage decorative reuse options. I purchased the flower featured in the photo bottom right for our home; reuse materials have endless unique & personalised applications'.

The product selection demonstrated RDC honouring and respecting historical building and industrial design & their designers and makers.



Belgium – 2nd hand First Commercial Landscape

Waste policy structural reform has led to an increase in the number of products and materials entering second hand first markets, energising innovation and business growth.

Further investigations across greater Brussels resulted in numerous meetings and tours. The investigations demonstrated the value of harmonising waste policy across the EU for new employment and innovative wealth creation.



In Brussels an area bounded by Anderlecht, Molenbeek-Saint-Jean and Saint-Gilles is a vibrant **emerging circular economy hub** stretching into greater Brussels. Start-ups and mature organisations alike are transitioning and harmonising, developing new relationships and capture systems, melding new and old concepts determining the shape of the emerging circular economy and beneficially reducing waste and carbon emissions.

The commercial landscape features electrical repair shops, sole traders offering 2nd hand & new wares. Clothing shops that are a frenzy of activity and competition with a bulk purchase price of €15 per kilo being ideal for sole traders who are able to select items for value added resale in their out-lets, huge re-use outlets, repair cafes; even barber shop windows offer found object art for sale. The photo right features a typical circular economic concept store.



An ancient and venerable practitioner and actor of the reuse industry

Photo right is the famous Marolles Flea Market. The market commenced sales in 1919, is open year-round, allowing professional dealers of secondhand products to sell there, and is in a large square close to the heart of Brussels. Stalls offer a multitude of secondhand



products and materials. Flea Markets, Antiques Centres, Collectable & second-hand dealers and auction houses are ancient and venerable practitioners and actors of the reuse industry creating wealth from second-hand products.

Creative Economy

The Circular economy is a creative economy¹² the idea of *engaging creative imagination increases an idea's value; an economic system where value is based on innovative imaginative qualities rather than just the traditional resources of land, labour and capital. We were amazed by the superb piece of found object art featured photo right in a redesign for reuse shop.*



It is obvious Belgians have a love of national architectural, industrial and fashion design and manufacturing significantly aiding growth in waste prevention. The National Design Museum in Ghent suggestion box featured in the photo right, captures ideas for designs that preclude waste generation from visitors to the museum.



¹² The Creative Economy, How People Make Money from ideas, by John Hollow 2001

Found Object Art



Found object art is a prominent component of Belgium city scapes, whether as sculptures, themed series of quirky characters, furniture or simply art. Not only in leading galleries but frequently in shop fronts from hairdressers to book shops.



This growth has been recent with many of the artists we met being newly inspired by recovered products and materials. Increased access to second hand first supply chains enable artists and designers to express their comprehension of the future– which is a primary function of modern art to engage in important social discourse.



Consumer Trends Determine The Market Place

Coco-Cola is trialing re-introducing glass refillable bottles to Belgium. The company is responding to consumer trends and demands for sustainable products. **From a waste prevention perspective – excitingly, sustainable consumer behaviour is shaping the nature of supply.**

Popular culture magazines such as ELLE are tapping into the Belgium cultural ambition of no waste. The magazine cover featured photo right translates as *Zero Waste for Dummies; a thousand steps to reset counters to Zero.*



Everyday Recycling Opportunities

The capture of recyclable materials is a daily occurrence in Belgium; business & residents are always presented with the opportunity and responsibility to authentically recycle at the end of their street.

The photo featured right is a recycling station for glass; high



volume collection bins are installed below street level; and hook lifted out reducing the need for multiple vehicles and recycling receptacles, thereby managing the logistics chain efficiently.

Exemplary Circular Economic Hub

Belgium provides leadership excellence in the up-take of circular economic ideas throughout the EU with exemplary operators including sustainable value adding building practices by Rotor DC, Komosie as a powerhouse of re-use outlets, to Le Petit Rein – the pioneers and venerable grandparents of the reuse economy.

All practitioners including the RREUSE Federation regularly host delegations of visitors across the world learning from Belgium’s leading expert re-use sector & culture.

Sweden

Avfall Sverige

Avfall Sverige is *the* Swedish waste management association. Membership encompasses municipalities, private associates, manufacturers and waste managers. Avfall is an international leader striving to implement the Swedish vision of a zero-waste society; whilst disseminating and sharing knowledge through the International Solid Waste Management Association, Municipal Waste Europe, and EU reporting requirements.

Whole of Government Approach

In the face of ever-increasing consumerism resulting in ever-increasing volumes of products and materials entering the waste stream, Avfall works to establish a whole of government approach to resource and materials management supported by systems and civil society.

Avfall actively engages in strategic dialogue planning Sweden's societies needs and has just completed work to re define the roles & responsibilities of municipal waste management into the future.

Avfall works at all levels of the waste hierarchy, prevention, re-use, recycling, landfilling and incineration providing substantial guidance to ensure efficient transitions; as well as implementing campaigns¹³ and initiatives to change consumers perceptions & attitudes towards materials & products.

Response to EU Directives 2018.

Avfall works closely with the Swedish Government. Through member consultation the association develops new strategies in response to new EU Directives. These strategies inform and guide government to develop supporting legislation. This policy cycle demonstrates an informed, innovative and economic working partnership between government & the waste the sector. The introduction of the 2018 EU Waste Directive required member states to shift their focus from collection of materials for landfilling and incineration to the circulation of products and materials.

¹³ Please see page 48, on labelling.

Anfal's response is to refocus its work on prevention, reuse, raw materials & disposal. Avfall went so far as to set higher target's than the national waste plan to reduce food waste by 25% by 2025.

Further, the 2018 Waste directive included instructions for preparation for re-use, in response Avfall undertook a national waste audit (2019) finding 20% of the waste stream comprises re-use products.

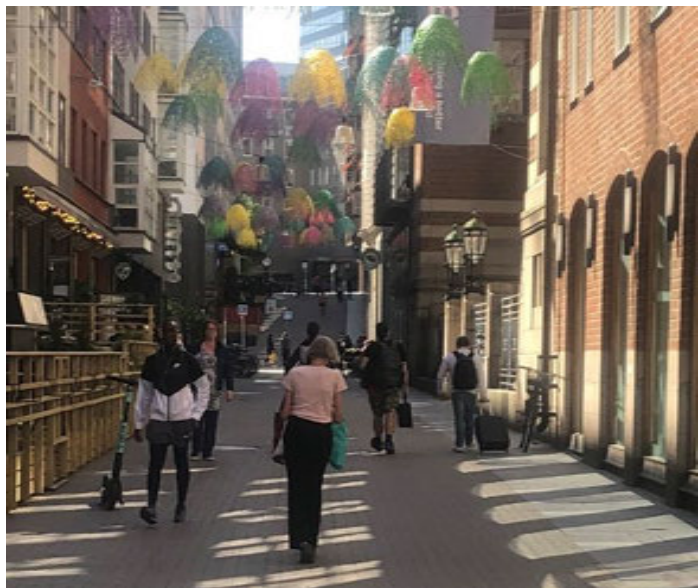
Fiscal Strategy

Sweden is well advanced developing and implementing extended product stewardship arrangements.

Sweden did not abandon deposit refunds for beverage products that are produced in Sweden, nor did it export the nations design, manufacturing and production capacity. For example, glass bottles are either refilled, recycled or reprocessed as insulation products in country.

Avfall activities, policies and arrangements demonstrate a clear fiscal strategy where producers pay for the collection of products, and for their reprocessing – not the municipality or the rate payer.

The photo right shows a woman in Stockholm carrying plastic bags filled with beverage containers that have a deposit refund on them, when asked why she collected the containers, she said 'because I love chocolate.'



Waste Prevention & Consumer Awareness

Under waste, circular economic, and eco design directives & plans, EU member states are required to implement systems that *actively change consumer behaviour*. EU systems direct producers & manufacturers to ensure their entire manufacturing chain has an authentic minimal environmental footprint; and at the end of product life materials become available for secondary use re-entering the circular economy.



Sweden effectively applies product labelling, demonstrating labelling is a key tool in market change, and a marketing edge for Swedish products. For example, the photo above right shows the Blue sign label certifying the product is: safe for the consumer, manufactured with lowest possible impact on people & environment; and represents a responsible use of resources.

Product labelling promotes the manufacturer's commitment to sustainable processes and allows the consumers to make sustainable competitive consumer choice.

Creating New Role Models

The Swedish approach to behaviour change is typically Scandinavian i.e. societies goals are taken up by the individual for the collective good of all. In 2015, Avfall launched new labelling titled Miljonar Vanlig¹⁴, being a play on words demonstrating you can save the environment as well as saving money. The labelling provides contemporary role model imagery to encourage consumers to recognise the economic savings and glamour of waste prevention, re-use & recycling; and businesses can market themselves as working towards prevention, repair & reuse in the circular economic marketplace.



¹⁴ In 2018, Avfall Sverige won the 2018 International Solid Waste Association Award for communication.

Textiles as Plastic Pollutants

Over the next 2 years in Sweden the textile and fashion industries will become a focus of attention for economic opportunity and environmental remediation. The fashion and textiles industry have generated a new environmental pollutant, micro-plastics,¹⁵ attributable to the recent emergence of the global fast fashion industry.

This fast design ethos has led to an increase in poor quality, cheap synthetic polymer clothing, often only worn once or twice, and then disposed or donated to oversubscribed waste management systems. The low quality of fast fashion products guarantees early entry into landfill or incinerators; and therefore, places fast fashion inside of the EU & Swedish waste prevention strategies.

Some fast fashion retailers offer voluntary product stewardship schemes providing a return box for clothing at their Swedish stores. However, if the fashion & textiles industries are to authentically participate in the new circular economy, they must transition their thinking to waste prevention through designing and manufacturing for long life and repair. The Swedish company 'Nudie Jeans' is an international leader for the industry.

The Circular economy in action

'Nudie Jeans' established in 2000, now sells globally. All products are designed for longevity. The company offers a free repair service at their retail outlets. A 20% discount is applied on new purchases when used jeans are returned, and those used jeans are on-sold as second-hand items in their stores. The photo right, is of the repair workshop, centrally located inside of 'Nudie Jeans' Stockholm store.



¹⁵¹⁵ Micro plastics are released from clothing when washed and enter the environment, regularly presenting in the food chain. The first known death of a mammal (Dugong) occurred in August 2019 due to plastic contaminants in its stomach lining

Tourism & the Circular Economy

Local Pride in International Achievements

The Swedes have a national mission for the 21st Century- to save nature from humanity. Any innovation furthering the mission is celebrated, and due to the collective nature of Scandinavian society, the achievement is shared & promoted by all.

Swedish national pride is most evident in Eskilstuna, home of 'ReTuna' the world's first re-use shopping mall. Representing a whole-of-government approach, the municipality has aligned its tourism branding and plans with circular economic innovation promoting the re-use sector & ReTuna.



The Eskilstuna Tourist Information Office is a proud and enthusiast promoter of ReTuna. The office books visitor tours for ReTuna, and actively promotes re-use culture through media including travel magazines featured in the photo above and tourist maps identifying regional attractions.

Eskilstuna is experiencing a steady increase in national and international visitors touring ReTuna highlighting global interest in circular economic innovation and operating models; as well as demonstrating the indirect economic benefits of re-use operations.

ReTuna Eskilstuna

Where the idea started

The idea to establish the world's first re-use shopping mall was championed by one brave and innovative politician in the Eskilstuna municipality. The need to take responsible action to mitigate climate change, and to achieve United Nation Sustainability Development Goals of 2015 were the key drivers.

As serendipity would have it, multinational logistics company DHL were down-sizing operations at a large mail processing facility in Eskilstuna. The local municipal company decisively purchased the redundant infrastructure, buildings & hard stand areas. The reused & repurposed DHL infrastructure provided the retail sales space for products and materials recovered from the waste stream including a drop off facility for community, industry and business. To complete the capture of products and materials in the waste stream a new materials recovery transfer station was co-located.

The photo below shows ReTuna – please note the three-lane under cover drop off area where the truck is parked.



The Model

Every aspect of ReTuna's operations are designed to ensure that re-use products, materials and businesses are not locked in at a low price. Infrastructure is made fit for purpose, and high retail standards are deliberately applied to shift consumer perceptions and change social attitudes towards waste.

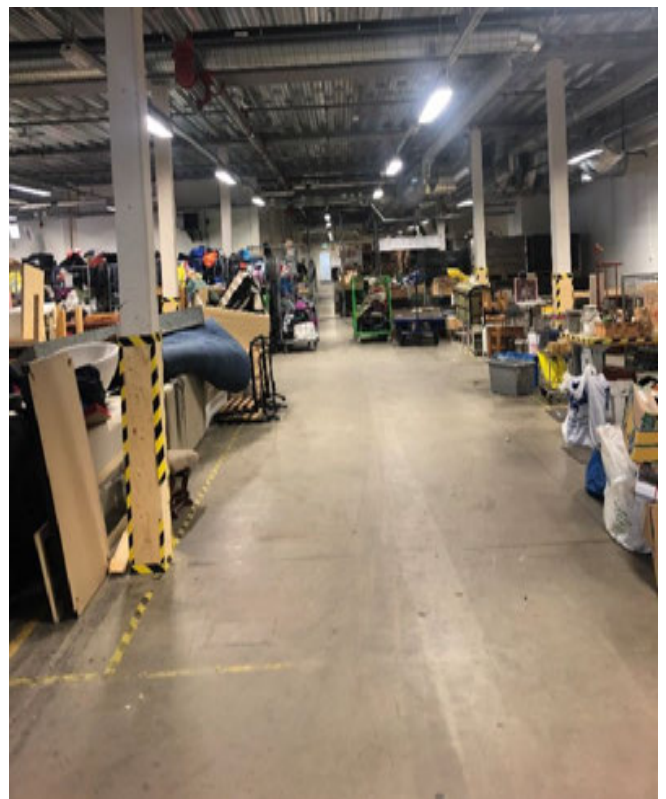
The ReTuna shopping mall features 11 retail stores selling recovered furniture, electricals, bric-a-brac, kitchenalia, & garden wares including a small volume of building materials.

Most retail stores are tenanted by commercial operators. Prospective tenants provide a business plan to the ReTuna board as the key component of the licensing and lease agreements. The agreements set performance, safety, design, retail presentation and customer service standards.

The municipal company is part of the re-use supply chain, its employees receive re-use materials at the *Returen Depot*, a three lane drop off area, next to ReTuna.

They then sort reusables into categories and assign volumes for each business. Large storage areas featured in the photo right, are provided for tenants' stock, and all stock is provided at no charge.

The large storage areas enable effective stock management by tenants who can plan the release of their stock-lines just like any other retailer.



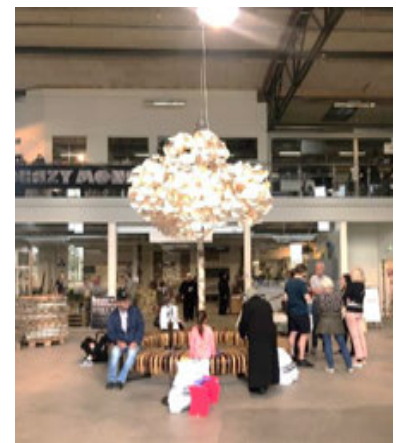
ReTuna understands to change consumer behaviour is to change the way consumers value second-hand materials in a commercial marketplace, not as free items, or items to be given away or shared, but as products and parts and materials that contain high economic values and support new wealth creating economic models.

ReTuna customers are informed through high display standards & pricing structures demonstrating second-hand materials are inherently valuable – with retail values, aesthetic values, and conservation values embedded in existing products and parts.



The photo above demonstrates high retail standards.

The ReTuna mall includes a café, enjoyed by locals and visitors alike and offers a sustainability conference centre. ReTuna is a purposeful creative environment designed to stimulate rethinking; and includes installations exhibiting innovative re-use design concepts, products and art. Photo middle right shows the front foyer of ReTuna.



A Hopeful Vision with International Resonance

The ReTuna model offers a practical proven vision for the new commercial landscape, where second hand first is the normal expectation for everyday consumer behaviour and choice; where municipalities work with business to provide infrastructure that is designed to ensure the capture of valuable materials for the circular economy, rather than for costly disposal and incineration. The vision of ReTuna has strong international resonance; 6,000 tours have been conducted, with delegations from 25 nations.

Small Business & First Mover Advantage

Meeting with the business operators at ReTuna, it is clear the shared vision for a new commercial landscape is embraced by them; the idea of being a pioneer in creating a new circular economy remains an attractive investment opportunity.

The operators are planning for the day when the ReTuna model is replicated in Stockholm and other cities, providing the risk reward as investors in first mover advantage¹⁶.

¹⁶ First mover advantage is an economic term; it's the advantage gained by initial significant occupation of a market segment.

Eskilstuna Lilla Nyby Recycle Plant

There is little to indicate the Eskilstuna Lilla Nyby Recycle Plant commenced life as a landfill in 1960. The pleasingly designed facility and infrastructure looks and feels like a modern industrial park. It's a modern integrated materials recovery facility, owned and operated by the local municipal company.



A Seismic Shift in Waste Management Culture

This facility represents a seismic shift in waste management culture. The presentation for visitors to the site starts with the following flavour – this facility operates with the clear understanding that humans have had a major environmental impact, significantly reducing and mis-using resources, as well comprising the health of natural ecosystems and that this trend must cease. In the waste ladder (Swedish description of waste hierarchy) landfill & incineration are end of life process removing resources from the marketplace. The facility works on the premise of reclaiming materials; and maintains contractual control across material flow.

The professionalism, care and circular economic drive of Director Environmental Services Vessa Hiltua, Process Manager Benny Bjork Process Manager and their team is inspiring & impressive alike, and they are motivated by authentically reducing environmental harm.

They actively work with private companies and public institutions to develop supply chains for secondary use of materials that enter the facility. They strive to provide the conditions for the creation of new business employment opportunities in Eskilstuna where unemployment is at 8%, twice the national average.

Optical Multi Coloured Bag Sorting

Eskilstuna municipality introduced the optical multi coloured bag system in 2011 for the collection & processing of household waste. The municipality set their focus on capturing recyclables and materials for recovery and repurposing; and to align their collection with EU 2008 Waste Directive¹⁷.

The system requires house owners to be active waste reduction participants by sorting their waste into material types including organic food waste, plastic, metal, paper, packaging, newspapers, household waste and textiles. Each material has its own designated coloured bag placed into the same (single) wheelie bin when full. The bins are collected, and the bags are then machine sorted by optical colour identification systems at the Lilla Nyby Facility; and materials are streamed for further reprocessing by material type. Differential pricing is applied to each bag material type. This innovation ensures the less you *consume*, the less *you pay* for waste management services.

¹⁷ The 2008 Waste Directive, article 11, required member states to have separate household collection systems for recyclables by material type.

Food Waste

Food Waste has a high innovation and commercial value with a variety of established & emerging markets.

At Lilly-Nyby food waste is processed into biogas. The photo top right features Benny & his bio-gas vats.



The photo right is a government bus powered by biogas in Malmo.



Food Waste has Values for other industries

Lilly Nyby and Uppsala University are working on a pilot project considering and measuring the use of a non-intrusive fly larvae to digest food waste, the fattened fly larvae can then be sold to the local aquaculture industry as fish food – which is the bioeconomy in action.

Lilly Nyby Facility and ReTuna.

The facility includes diversion bays onsite, for the storage and transport of re-usables to Return, the drop off depot at ReTuna.

Education

Swedish primary school children are educated in sustainability principles and United Nations sustainability goals. Local area children visit the facility as part of compulsory studies and are schooled in material values & flows in the new circular economy.

Rademacher Forges Heritage Industrial Complex

On the edge of the Eskilstuna city centre is the Rademacher Forge, once a manufactory for weapons and other metal products, the complex is now a reused heritage precinct of museums, artisans and cafes. The buildings have heritage value and have been in continuous use for 400 years consequently achieving a high embedded carbon value.

Of the many artisans 2 exemplify the new business opportunities emerging through waste reduction and the circular economy. Ann Gustafsson – Rock's 925' and Maud Rundqvist 'Retrash', who design and manufacture long life products for everyday use from recovered materials. Their products are sold at ReTuna.

Outcome Driven

Eskilstuna is an excellent example of a municipal company & employees driving circular economic outcomes through investment in infrastructure designed and managed to ensure the highest possible capture of products and materials, maximising economic value and reducing lost opportunity costs through disposal and incineration.

ReTuna is a leading light in shifting consumer behaviour from costly disposing of products and materials to reusing, repairing and reimagining second hand products in the new circular economic market place; and critically ensuring the re-use sector is not locked in at a low price or failing because of inadequate infrastructure, systems and poor economic modelling and comprehension.

The Eskilstuna Tourism bureau has realised that this new circular economic marketplace is a tourist attraction; and has linked ReTuna as a key brand for Eskilstuna. Eskilstuna is leading the charge to a more sustainable world, and the national waste management association and national governmental has set the bar at zero waste.

The United Kingdom

WRAP

WRAP's vision is a world in which resources are used sustainably.

WRAP (Waste Action Resources Program) was established by the UK Government to deliver waste policy under the Environmental Protection Act in 2000. We had the pleasure of meeting with Director Dr Richard Swanell, Banbury in a 400-year-old pub. WRAP is a government authority working with business and community to deliver practical solutions to improve resource efficiency and is outcome orientated!

WRAP is a leading example of a government authority acting as a champion planning for and delivering the circular economic reform. In 2018 WRAP warns:

Meeting current demand is increasingly difficult as businesses face uncertainty and risk over the availability and cost of essential raw materials, ingredients and energy. European manufacturing firms already spend around 40% of their total costs on raw materials. Unless business models change, growing scarcity and volatility will have a substantial effect on business profitability and resilience.¹⁸

As an enthusiastic and progressive player in transitioning the United Kingdom to a circular economy, WRAP completed the Resources and Waste Strategy in 2018, a strategy to revise the UK Environment Protection Act and regulation. The strategy is to drive a *Resource Revolution*, and aims to divert by 2020 (yes, in one year) an additional¹⁹ 20 million tonnes of secondary materials for development of the circular economy, representing an increase of £2 billion of value-added outcomes and creating 10,000 new jobs in re-use and recycling.

The Resource Revolution strategy will, *re-invent, re-think and re-define how we use materials*, with three priority areas being Food & Drink; Clothing & Textiles and Electricals & Electronics.

¹⁸ Resources and Waste Strategy, WRAP 2018, pg. 8

¹⁹ Between 2010-2015 WRAP programs had reduced waste by 4 million tonne and diverted 29 million tonnes from landfill.

The table below demonstrates WRAPS shifting waste policy from disposal to developing circular economic policy implemented at a strategic level. The strategy directly targets problematic products by type by collaborating with industry to achieve step process changes. Economic estimates, targets and goals measure performance, and data provides transparency and certainty for stakeholders.

| Priority Area | WRAP Aim | Circular Economy Benefits | Target/Goal 2020 |
|---------------------------|---|--|--|
| Electricals & electronics | Work with the electronics industry to achieve a step change in business resilience, product durability and re-use. | Repair & reuse activities potential to generate €800 million in new come 300,000> new employment positions are expected to be created by 2030 | Increase re-use & recycling |
| Clothing and textiles | Will develop a step change in the sustainable production and use of clothing and textiles. We will reduce resource use in manufacturing, drive re-use and increase recycling. | Potential Consumer savings of €5 billion pounds per annum | 15% reduction in carbon footprint, water footprint, and waste to landfill 3.5% reduction in waste arising over the whole product lifecycle. |

Leadership in Innovation

WRAP proactively drives consumer and industry behaviour and attitudes changes to waste. It uses all forms of modern media in its campaigns from Facebook, to blogging, to advertising. The modes -operandi of each targeted campaign is the same – starting with communicating the extent of a problem, asking people to change their behaviour, and promoting solutions as they are found.

For example, to encourage an increase in household recycling rates, in 2010 WRAP created a Recycle Now Campaign to encourage participation and developed a new recycling label for producers to apply to their recyclable products, featured top right.



The label was designed to be recognisable nationally and is now one of most recognisable labels in the world. Consequently, UK Household recycling rates have increased from 11% in 2010 to 40% in 2018.

WRAP prefers to apply voluntary agreements, and to work in collaboration with directly affected industries and manufacturers to develop new waste reduction initiatives. Adopting a systems approach, WRAP partners with industry in the development of new standards to align design processes and products with circular economics and supporting those products in the marketplace through labelling and other targeted consumer campaigns.

Innovative Legislation

In the spirit of innovation and ethics, the Welsh Government passed into legislation the *Well-being of Future Generations (Wales) Act 2015*, setting out seven well-being goals: a prosperous Wales, a resilient Wales, a healthier Wales, a more equal Wales, a Wales of cohesive communities, a Wales of vibrant culture and thriving Welsh language and a globally responsible Wales. This act reflects the importance of sustainability, intergenerational equity and economics.

WRAP is proud of Wales achievements, leading waste reduction in the United Kingdom, achieving a 63.8% recycling rate in 2017, and aims for 80% by 2025. Wales has consistently linked EU waste directives and targets to zero waste strategies.

EU Directives

WRAP is guided by EU directives. The United Kingdom is positioning itself as an international leader in circular economic development. WRAP is a turn-key organisation working in collaboration with UK manufacturers to actively reshape the value and purpose of products and materials in the UK economy.

British Circular Economic Standards 8001:2017

Demonstrating world leadership, the UK was the first country to introduce a circular economic standard for business, *8001:2017 Framework for implementing the circular economy an organisations guide*, providing practical processes for business to implement circular economic principles of:

- ✓ Innovation
- ✓ Stewardship
- ✓ Value optimisation
- ✓ Transparency
- ✓ Systems thinking

RESTART – Champions of the Citizens Right to Repair

Our motto: *'Don't despair, just Repair'*

It was inspiring to meet the RESTART team based in Brixton. Founded by Janet Gunter and Ugo Vallauri in 2013, RESTART manages a range of lobbying, networking and data collection programs to inform their practical programs enabling people to reuse and repair electronics by sharing each other's unique skill sets.

RESTART works with schools and government, business and community to promote the benefits of designing and repairing electronics for long life; as well as promoting new employment opportunities in the repair economy.

RESTART 's primary goal is to ensure the right of citizens to undertake repairs of the electrical products they purchased, invested in and own, to be enshrined in legislation.

European Union WEEE Directives

RESTART has focused efforts on the effectiveness of European Union Waste Electrical and Electronic Equipment Directives (WEEE) with respect to repair.

When introduced in 2002, the EU WEEE scheme was the first extended producer responsibility scheme for the electronics sector directing producers to collect and recycle Ewaste.

In 2012, the WEEE Directive was substantially modified to incorporate EU Eco Design Directive principles requiring producers to adopt a whole of product life approach including access to product specifications, repair manuals, parts, repair, upgrading, re-use and disassembly. **A target of 65% recycling rate of electronic equipment was set for 2019, however, to date no target has been set for re-use and repair.**

Problems with product stewardship schemes

There is real concern in the reuse and repair industry and among consumers that extended product stewardship schemes could lead to corporate control of supply, design, production, sales and post-consumer chain management of products and materials which would exclude the reuse sector's access to supply and be an inauthentic use of the circular economy directives.

WEEE schemes consistently set a target for recycling, in other words targets to end sophisticated product life without the opportunity for reuse and repair.

RESTART is not afraid of complex considerations – they argue that the current producer paradigm of designed obsolescence and high profits through high volume, supported by a hidden fiscal strategy of consumers and ratepayers paying postconsumer management; with citizens being denied the opportunity of realising the value of their private investment through repair-where is the motivation to stimulate re-use and repair in the circular economy and to implement higher order activities in the waste hierarchy which prioritises prevention first?

Manchester Manifesto

Restart’s work is guided by the Manchester Manifesto,²⁰ developed by Manchester University Institute for Science, Ethics and Innovation. The manifesto explores the relationship between science and technological outputs, society and the economy, and asks the question, who owns science?



The answer to this question will have broad-ranging implications: for scientific progress, for equity of access to scientific knowledge and its fruits and for the fair distribution of the benefits and the burdens of science and innovation – in short, for global justice and human progress.

Legislating to protect Citizens Right to Repair

To progress public policy debate and legislation, RESTART created a repair network platform called the Manchester declaration, which asks policy makers, product designers & manufacturers to ensure products are easy and affordable to repair. Political leaders are specifically lobbied to endorse the declaration and legislate for citizens right to repair.

²⁰ <http://www.isei.manchester.ac.uk/TheManchesterManifesto.pdf>

A Less Throw Away Life: 'BuymeOnce'

My grandmothers tights used to last forever. They were so strong people could tow cars with them and did! Granny got two pairs – one to wash and one to wear. But then the manufacturer decided to change the way their stockings were made and not for the better. So today when I reach for my tights it's like playing Russian roulette. Which pair will break this morning?

This is the opening paragraph of Tara Button's book 'A Life Less Throwaway, the lost art of buying for life', whom we had pleasure meeting. Tara explores the history of modern consumption, marketing tricks used to encourage people to consume 'guilt' free through ever increasing consumerism and provides reader's with exercises to counteract marketing leading to a less throw away life.

Tara is an expert copy writer and wise to the social engineering strategies of corporates and marketers, and she wants to share their tricks with you. Tara cites the encouraging of 'psychological obsolescence' – a post Great Depression concept, particularly of relevance to modern consumers...*a state of mind that is highly suggestible and open; eager and willing to take hold of anything new either in the shape of a new invention or new design, a readiness to scrap or lay aside an article before its natural usefulness is completed in order to make way for new things.*²¹

Prevention & Longevity

Focusing on the top priority of the waste hierarchy prevention, Tara has started an online business 'BuymeOnce' launched in 2015 selling products designed for durability and longevity, preferably for life.

Tara has been described as an industry disruptive, as all innovation is, because she has successfully used language, economics, products and IT platforms to inform and wake consumers up so they can begin to transform their shopping habits from fast & unmindful and depressive experiences to rewarding exercises in 'masterful mindful curation'²².

²¹ Pg. 28 & 29, A Less Throw Away Life, Tara Button, Thorsons, 2018

²² Tara's description as being mindful about what we buy – no impulse spending! actually saving money for long lasting products that fulfil our needs without compromising sustainability, pg. 3

Champion of Better Product Design

Tara challenges social aspects of consumption politically and commercially. She is a tireless champion of sustainable product design. She meets with UK based manufacturers to advise and encourage better design standards and is in communication with the European Union to assist strengthening of Eco Design Directive requirements for longevity and repair, life cycle label requirements and enabling informed sustainable consumer choices.

Ellen Macarthur foundation Summit Roundhouse 2019

Founded in 2010, by Ellen Macarthur, the foundation is a global leader in circular economic policy and practices. The foundation works with business, government and academia driving and accelerating transitions to a circular economic model, worldwide.



We were invited to the foundation's annual summit, at the Roundhouse, Camden. The summit is a show case of new circular economic concepts, barriers and successful business outcomes featuring policy specialists and innovative business models. The summit provided real time insights into future trends and economic opportunities.

Joaquin Ruiz, director of the earth systems research facility Biosphere 2

Founded in 1987 biosphere 2 is a complex designed to test and inform climate change modelling. Biosphere 2 provides practical modelling to explore the impact of carbon emissions in a closed environment. Ironically the experiment revealed the health of the relationships between the people involved in the program was just as important for survival as environmental health!

Dr Rhianna Gunn-Wright Green New Deal, & Sunrise Movement

Often expert organisations & decision makers looking to reduce carbon emissions exclude the most vulnerable and least wasteful people in societies. The Green New Deal²³ is a United States based campaign led by the Sunrise Movement, for legislation to address climate change and economic inequality through direct engagement with, and representation from those most affected.

Tristram Stuart, co-founder of Toast Ale and the Pig Idea

The 'Bread to Ale' business model is an inspiring demonstration of vision, proof of concept, embedded carbon savings, waste reduction and new wealth creation.

Food production is one of the biggest contributors to climate change in the UK with up to 1/3 of food purchased or produced becoming waste per annum. 'The Toast Ale' program

²³ Sunrise Movement www.sunfrisemovement.org

works with bakeries and sandwich makers to prevent waste. Ales and beers are produced using the yeast embedded in waste bread previously disposed of daily (just one maker of many disposed of 13,000 slices per day). The Toast Ales are now commonly on the shelves as a beverage across the UK. Toast Ales returns the profits realised from the Ale sales to fund charities removing wicked problems in food production. Tristin said *You can enjoy a cheeky pint and toast the circular economy, so we did.*

Siddharth Hande, founder of Kabidawalla

India has a long history of reuse and recycling. Long before reuse and recycling were fashionable in the West, Indian entrepreneurs were diverting and collecting products and materials to repair and or to recycle into new products on a regional basis.

Siddharth became concerned existing small to medium reuse and recycling businesses in his province would be disadvantaged by the emergence of large overseas corporations moving into the recycling market. Siddharth engaged his skills as an IT logistics manager to work with the disparate organisations to form a Federation to protect reuse and recycling supply value chains. The model produces circular economic benefits including:

- Reducing transport costs
- Increasing capacity to capture greater volumes of products & materials
- Sharing of knowledge
- Cooperative competition
- Maintaining wealth in the regional market, including taxes, charges & import reduction

Hugo Spowers, founder of a hydrogen fuel cell car company

An industrial innovator developing a low emissions hydrogen vehicle, owned, repaired, and serviced by the manufacturer for the products lifecycle leased by the customer.

Enrica Arena, co-founder of Orange Fiber

Orange Fiber is experimenting with organic waste materials including orange peel to manufacture and on sell baby clothes.

Tom Leenders & Dorus Galama, co-founders of Gerrard Street

Makers of head headphones from recovered eWaste and leased to customers returned to the manufacturer at end of life.

Peter Svenson, co-founder of Continued Fashion

Currently only 20% of clothing is reused or recycled, Vigga offers a subscription service for children’s clothes, up sizing as your children grow and then returning the long-life clothing to Vigga for further reuse including cleaning and repair for the next customer.

Ironically the Summit was held in an early coal powered Locomotive Works “The Roundhouse” a building responsible for accelerating the industrial revolution.

Photo right shows he LNWR Locomotive Round House built 1847.



Brixton Circular Economy Business Activities, a snapshot

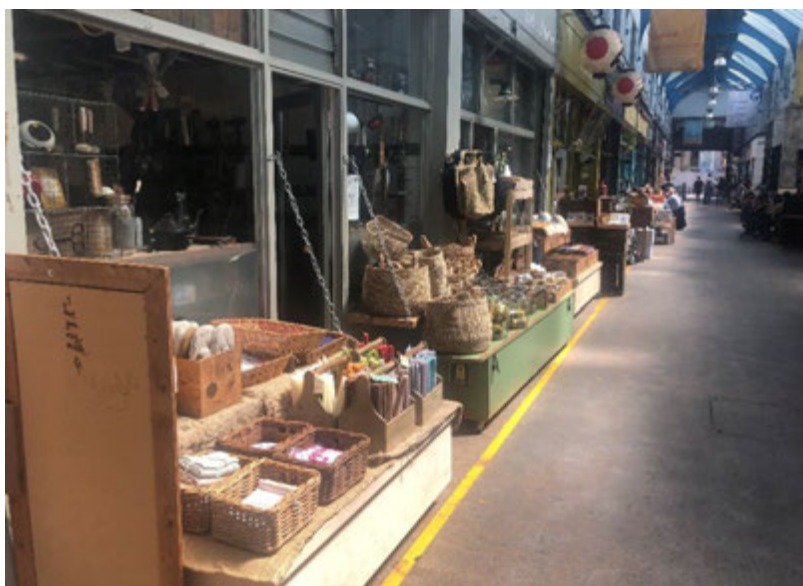
In Brixton, 5 kilometres from the London CBD, street markets and small to medium enterprises thrive. Brixton has provided opportunity for traditional business and small entrepreneurs since the Industrial Revolution. Investigating greater Brixton, meeting with shop owners and retailers demonstrates that even with a distracted government (Brexit,) consumer demand for long life repairable products is beginning to drive circular economic change.

Many small businesses owners are making a living collecting, purchasing and selling products and materials that are often lost (at an increasing rate in London due to incineration) to the waste stream. Other entrepreneurs are building new business replacing single use products and cheap short life products with long life and durable products and materials.

Below are selected case studies reflecting this business and community trend.

Cornucopia

Cornucopia is an authentic circular economy business, a medium size shop located in a re-purposed Georgian factory and is one of a growing chain. **The shop is plastic products and materials free** offering a suite of sustainable consumer choices from durable household products and woollen blankets



made from production seconds. All product packaging is reused, as packaging. Products and materials are sourced from local, regional and UK based manufactories. It is surprising to analyse the shops contents and recognise the loss that the Australian economy has suffered, and the wicked problems created by moving business offshore and reducing in country manufacturing.

Ani Charity Shop

Ani Charity Shop work with a local council, collecting white goods and other electronics for reuse, refurbishment and repair. Ani provide a 3month warranty for their products and are developing a parts library to assist their business, customers and potentially other repairers.

Ani has developed a growing market for their reused products and parts and require full access to the waste stream to realise greater benefits not only for themselves, but for the less fortunate citizens in their community who can enjoy a quality recovered and repaired product.

A multitude of 2nd hand electronics

Investigating further a multitude of shops buy, exchange and procure second-hand electronics, particularly computers & peripherals, phones with a small component of their stock lines selling brand new compatible equipment and peripherals.

All the small to medium enterprise proprietors provide parts and repair services.



The greatest barrier to their continuing success and wealth creation in the circular economy is product stewardship schemes disrupting the flow of products and materials into the second-hand market.

Fortunately, our next 2 meetings were with RESTART a Brixton based organisation aware of the loss of second market products and materials, working intelligently, innovatively and economically to remedy this poor consumer outcomes.

The Value of Making, Repairing & Restoration, the Good Life Centre

The Goodlife Centre in London is an excellent business model based on teaching and delivering value in repair and restoration activities. We had the pleasure of meeting owner Alison Winfield Chislett, a multi-talented designer maker who has built her business around teaching people to undertake their own repairs and restorations.

Alison says there is no such thing as waste, purity of living is important. Her family included crofters²⁴ needfully making, reusing and repairing products and materials for long life. Alison still works, shops and lives local, because it's just so sensible. Her professional skills are extensive including set-illustrator, designer, woodworker, clothes, furniture, miniatures, jewellery, electronics & plastics. Making, repairing and restoring is in her DNA.

In 2009, Alison commenced to teach women basic DIY skills, renting community halls for her successful *Tools for the terrified*, one-day workshop. In 2011 Alison co-authored a book *DIY for Woman*, and by 2014 she had obtained an old factory, repurposed it and opened the Good Life Centre. Alison deliberately chose to teach people skills, rather than offer just a repair service. Alison believes practical and creative skills are essential to leading a good life.

Where Good Things Happen

The Goodlife Centre is an impressive repurposed factory workshop, employing professionals to teach a wide variety of practical skills in DIY, home maintenance, decorating, upholstery, woodwork & carpentry, furniture upcycling & restoration and various traditional hand crafts. Trade qualification courses are also available. Photo right, Wanda Waste Not, inspecting an upholstery course repair kit.



²⁴ Crofters live in communities on the small islands in the UK, they are famous for living in a harsh and isolated environment, and in the most part self-reliant. Community life ensures any abundance and skills are shared.

The business model is receiving international attention with visitors coming to learn transferable repair, restoration and good life skills.

The Importance of Creative Thinkers

Creative thinkers and skilled makers are critical to the development of the circular economy. They do not need to be educated in sustainable practices, because respect for quality raw materials and human labour is inherent in the application of their crafts. Their capacity to visualise different processes, and practical skill sets of repair and restoration are highly valuable to the circular economy, especially in ensuring products and materials stay in circulation for as long as possible.

The photo below is a classroom set up for a DIY plumbing workshop.



Human Health and Incineration in London

In London we had the pleasure of meeting with Baroness Jenny Jones, a Greens member for the House of Lords, we discussed UK government environment policies including London's increasing reliance on incineration of products and materials in the waste stream, and air quality. Jenny, as she prefers, is a past deputy Mayor of London, and possesses a detailed understanding of air quality matters.



Declining London air quality became relevant to the study tour as three planned meetings I had arranged including touring waste recycling facilities and incinerators in the UK proved to be frustratingly elusive.

Upon investigation, the answer came from London's Mayor Sadiq Khan. In 2017, he communicated that London's Emission Inventory revealed 95% of the population lived in areas that exceeded World Health Organisation Air Pollution Guidelines by 50%.

In May 2019, the Mayor's communique regarding plans for more incinerators confirmed concerns regarding London's declining air quality and incineration:

London's air is a toxic air health crisis and the last thing we need, in our modern green global city is another harmful waste-burning incinerator polluting our city. Emissions from incinerators are bad for our health, bad for our environment and bad for our planet. Instead of granting permission for an unnecessary new incinerator that will raise pollution levels in the boroughs of Bexley and Havering, the Government should focus on boosting recycling rates, reducing the scourge of plastic waste and tackling our lethal air.

The UK Government's Resources and Waste Strategy 2018²⁵ targets are:

- All packaging waste to be re-usable, recyclable or compostable by 2025
- Eliminating food waste to landfill by 2030
- Eliminate plastic waste over 25 years (2043)
- Eliminate wastes of all kinds by 2050

²⁵ Our Waste our Resources, a strategy for England

The unfortunate tale of London's air pollution demonstrates what happens when the relationship between human health, good public policy, economics and the environment is wastefully manipulated or ignored - a clear aim of the circular economic transition is to restore this relationship.

Symbiotic Processes

We had the pleasure of meeting with Dr Pauline Deutz, a reader of Geography, at Hull University, Dr Deutz is an innovative thinker, with a focus on systems analysis and solutions.

Industrial Symbiosis

As a geographer, Dr Deutz has extensive capacity considering and developing industrial symbiosis – a subbranch of industrial ecology²⁶. Dr Deutz is a world leader in rethinking industrial symbiosis as a key component for continuing development of the circular economy. Industrial symbiosis is a sensible current and future planning tool. For example, the design of new industrial manufacturing hubs can ensure one producer's secondary materials and other waste outputs can be efficiently and cost effectively delivered to another producer co-located in the same hub or geographical area.

When asked about the rethinking aspect of the circular economy Dr Deutz said the most important transition is language, *when* waste becomes a *resource* new economic transitions are possible. Importantly, as an ethical sustainability expert, Dr Deutz wants to ensure the new circular economy does not create unintended social disadvantages.

Dr Deutz and team are providing academic leadership in the circular economy, in February 2018, Dr Deutz received a grant from the European Union to further analyse the process of transformation to a circular economy, and to critically analyse relationships between social, technical, environmental, and geographical factors. The study asks important questions:

How do the players of the circular economy interact?

What will the future geography of employment look like?

What are the economic development opportunities?

What will disappear? What will arise?

What relationships need to be developed so we can be smarter with resource use?

²⁶ Robert Frosch and Nicholas Gallopoulos: *the use of energies and materials is optimised, waste and pollution are minimised, and there is an economically viable role for every product of a manufacturing process.*

The Plastics Collaboratory

We also had the pleasure of meeting with Dr Anne Kildunne, a collaborator with Dr Deutz. Dr Kildunne and her team have a very important study underway analysing plastics use and supply chains.

Applying industrial symbiosis principles of a collective approach to resource efficiency and reducing environmental impact, the project aims to create a road map for a new plastic economy.

In the EU and UK researchers are engaging with key stakeholders including manufacturers and large users of plastics to better understand their current use, and to identify barriers to transitioning processes, as well as investigating more sustainable material replacement options.

This report demonstrates that the rapidly growing circular economic benefits being realised and driven in the EU and UK by a manifest range and number of people and organisations will have significant innovation and wealth benefits for all the practitioners and actors involved.

Tasmania and Australia can transition from a 19th century waste economy to a 21st century circular economy. Now.

Conclusions & Recommendations

The European circular economic transition key critical success factors include:

- A whole of government (3 tiers) strategy to transition the economy through the adoption and implementation of the EU Circular Economic Package and Action Plan (2015) which are linked to national visions and strategic plans
- Government is the driver of circular economic development, and required to at least provide purpose fit facilities for retail sales, storage and processing to the re-use sector, & works to remove barriers to supply without oppression or constraint
- A commitment to continuous improvement processes. For example, in August 2019 the EU stated it will revise the Eco Design framework to include new regulations for reuse and repair of electricals to meet the Circular Economic Action plan goals
- Linking waste directives to product stewardship schemes as part of fiscal strategy
- Waste Directives has led to rethinking & transforming Waste Management Plans into Resources and Materials Recovery Plans, and restored the top order priorities of the waste hierarchy being prevention (eco-design) reuse & repair and recycling, with a policy away from landfill and incineration
- Application of targets and extended time frames for transitions, enabling producers, manufacturers, and retailers to plan for their changes as well
- The use of economic instruments to create incentives
- Reshaping consumer and producer behaviour through eco design directives, plans, labels and waste directives
- Making available ongoing funding from a variety of organisations to develop system innovations, and invest in infrastructure

Commonwealth of Australia

Australia can create a circular economic framework and market sustainability as a new exportable strength.

The Commonwealth of Australia to establish a Circular Economy (CE) Commission with departments or units in each state and territory engaging all waste sectors, Australian standards, design, manufacturing, consumer and resource recovery and residual (waste) management.

This Commission and Departments to be over-sighted by Treasury so it can guide economic structural reforms. The CE Department would play a leadership role in:

- ✓ Consultation & development of frameworks, monitor & report on progress over time, review and adjust system as necessary
- ✓ Actively remove barriers for circular economic implementation: market, trade, & structurally related
- ✓ Develop policy to reshape the market including product labelling standards and consumer protection requirements.
- ✓ Ensure cohesion & harmonisation of national policy across the states & territories & local governments
- ✓ Work with industry sectors to deliver first mover advantages in the new marketplace & assist in translating rethinking into real world
- ✓ Establish an ISO Australian Standard as per the British *8001:2017 Framework for implementing the circular economy in organisations guide*
- ✓ Develop obligatory manufacturing and production standards to drive circular economics
- ✓ Establish a national vision - Australia to become a global leader in sustainability
- ✓ Establish a critical raw materials framework to protect Australian sovereign capacity if conflict occurs, with the intention and becoming a global processor and supplier secondary critical raw materials
- ✓ Audit manufacturing capacity and determine where secondary materials flows can go

Recommendations and Opportunities for Tasmania

Clean, Green & Clever

The circular economic marketplace presents Tasmanian business and community with many opportunities. The language of sustainability is already well understood and practised at a local level. We already have:

- ✓ A well-established re-use economy of an international standard - thanks to the Tasmanian Tip Shop model introduced in 1993
- ✓ A burgeoning plastic recycling economy – thanks to Replas & Environex
- ✓ Perhaps the world’s first waste free super-market established in 1979, Eumarrah
- ✓ Outstanding natural values of universal importance as recognised by the UN
- ✓ A business community aligned with consumers expectations - Hill Street Shop’s
- ✓ An international reputation as world leaders in developing a clean, green & clever economy, of thinking globally and acting locally.
- ✓ Creative thinkers, highly skilled designers, restorers and repairers
- ✓ Wonderful products and businesses that have authentic sustainable stories to tell

Value Creation Production Cycles²⁷

Tasmania can develop a circular economic action plan, starting with accepting all levels of government have a responsibility & constructive role in shaping the circular economy. The action plan would include strategies for valuation creation, including

- The re-use & repair, heritage and restoration economy
- The plastics economy
- The bioeconomy
- Durable economy
- The creative economy
- Innovation funding plans

²⁷ A production cycle is a fluid economic term applied to activities that generate wealth, that wealth is then accessed by other stakeholders to build upon or extract.

- Assessment of current infrastructure capacity; and develop infrastructure and economic plans that are linked to each new economy in consultation with industry experts & leaders

The Tasmanian government and other important stakeholders should lobby for the establishment of a Commonwealth Circular Economy Commission.

Brand Tasmania

Tasmania can align 'Brand Tasmania' with circular economics and create new marketing and promotion strategies for whole of state application including eco design product labels, and authentic branding for businesses and organisations primarily engaged in circular economic activities.

Tasmanian can link its local area, regional, and state tourism strategies and publications with circular economic activities, adding a new layer to the visitor experience of the Natural State.

Education and Training

Tasmania can establish training systems for reuse and repair working with the Australian National Training Authority (ANTA).

Waste Management Resource Recovery Association and & ANTA work with TAFE to deliver new training and employment opportunities for recovery, reuse and repair of sophisticated products and materials in the waste stream.

Specific Recommendations for Structural Reform

Listed below are specific recommendations relating to structural reform which are best implemented by whole of government:

- Remove or decrease GST on goods that are second hand, and on repair and restoration services, and or comprise secondary materials
- Increase the GST on goods & products that are linear and short life by design
- Establish a company tax sliding scale for producers of circular products, to pay a lower company tax for a period no less 3 years; companies must demonstrate ongoing investment rather than profit extraction to be eligible

- Require government to remove oppression of industry: minimum contribution provisions of buildings/land that is fit for purpose; and commercially appropriate
- Provide incentive payments for business, manufacturers and producers based on volume of secondary materials put back in circulation
- Set a high base price for landfill & incineration, charge by volume, and increase price if loads are mixed waste with high level of contamination

Dissemination and implementation; includes, but is not limited to:

- Research and development will be ongoing working with the Churchill Fellowship for next decade
- The report will be tabled by Andrew Wilkie, MP in the Federal House of Reps
- An abstract will be provided as a submission for the State Governments Waste Action Plan
- The report will be disseminated to all local government reps and members of parliament
- The report will be submitted to the Tasmanian Environmental Protection Authority
- Brad Mashman will be keynote speaker at the annual November 2019, Waste Management and Resource Recovery Association conference in Hobart in November. The new Commonwealth Minister for Waste will be attending the Hobart Conference
- Waste Management Resource Recovery Association will provide networks and supports through the newly formed resource recovery committee and I will be on committee in Tasmania
- Gather support for a new circular economic vision via regular multimedia interviews and publications, both locally and nationally
- Continue to grow our circular economic community through via Recovery social media outlets (4,500+ followers and 150,000 customers per annum) and online presence
- Developing a lecture series for interested parties and education institutions

Thank you for taking the time to read this report.

Reference List:

Landfill Directive, Directive 1999/31/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031>

Waste Directive, Directive 2008/98/EC

<https://ec.europa.eu/environment/waste/framework/>

Waste Directive, Directive 2018/98/EU,

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L0851>

Waste Electrical and Electronic Equipment Directive 2002/96/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002L0096>

Waste Electrical and Electronic Equipment Directive 2012/19/EC

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0019>

Ecodesign Directive, Directive 2009/125/EC

<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0125>

EU Eco Design Working Plan, 2016-2019

<https://ec.europa.eu/docsroom/documents/20375>

R. Pardo, J.P. Schweitzer (2018) A long Term Strategy for European Circular Economy – setting the course for success, THINK 2030

Report on Critical Raw Materials in the Circular Economy 2018

<https://ec.europa.eu/docsroom/documents/27327> &

https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en

Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2019) 190 final

<https://ec.europa.eu/commission/publications/report-implementation-circular-economy-action-plan-1>

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, on a monitoring framework for the circular economy, COM (2018) 29 final.

Our Waste, Our Resources a Strategy for England, 2018

<https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

Avfall Sverige, Annual Report 2018

RREUSE Federation Annual Report 2018

Komosie Annual Report 2018

A Less Throw Away Life, Tara Button

WRAP Resources and Waste Strategy, 2018



Front and back cover photos are of a stone circle in the Lakes District, United Kingdom. Stone circles were a meeting place where different tribes negotiated social issues & resource use.