

Waste Lubricant Container Product Stewardship Programme

Final Report | 30 November 2019

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This Report has been prepared by 3R Group Ltd for the Waste Lubricant Container Packaging Working Group as part of a process to develop an industry-led product stewardship programme for Waste Lubricant Containers.

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1. Executive summary

The conscious consumer who makes decisions based on environmental and social causes is fast becoming mainstream in New Zealand. Demand for sustainable products continues to increase and this is being driven by the younger generations. According to the Colmar Brunton “Better Futures Report” undertaken in 2017, over half of all consumers are will pay a bit more to ensure their products are sustainable.

In the 2019 “Better Futures Report”, 72% of people surveyed expressed deep concern for the “build-up of plastic in the environment”, up 9 points. Take Out #1 from the report was “plastic is the lightning rod for consumption issues of our time”.

Single use plastic packaging has created a significant environmental issue globally and highlights the need to properly manage the use of our limited resources by transitioning to a circular economy.

Evidence from existing product stewardship programmes in New Zealand such as Resene PaintWise™, which has been operating successfully for more than 13 years, proves that consumers are prepared to pay a little bit extra upfront to ensure appropriate disposal of products when they reach the end of their life. 3R Group, who operationally manage PaintWise, state that in their experience an advanced disposal fee of around 3-4% of the new product purchase price is acceptable to most consumers. They are prepared to pay a little more upfront if it means disposal at the end of life is simple and free of charge.

This Report outlines the framework for a voluntary industry-led product stewardship programme that will allow consumers to responsibly dispose of their unwanted lubricant containers instead of sending them to landfill.

It covers the project managers findings on best practice internationally and what is currently happening in New Zealand as well as what the scope of opportunities are for processing on shore. It details materials flows and presents a financial model which has been built based on the discussions over the last 18 months.

It includes a range of appendices that will assist the Brand Owners as they begin to implement their programme.

The proposed programme aims to “close the loop on over 4,500,000 lubricant containers (20 litre and under) which are discarded every year” and contribute to the development of a circular economy in New Zealand by supporting investment in onshore processing and adding value to the collected material.

2. Background

2.1 Why recycle lubricant packaging?

- **Environmentally damaging packaging when uncontained**
- **Support market pull through for collected material**
- **Improved resource use and employment opportunities (especially regionally)**

Industry research estimates that over 4.5 million lubricant containers (≤ 20 litres) are sold each year in New Zealand.

While designed to meet the purpose of the contents, single use of lubricant containers is inefficient and environmentally damaging. Most lubricant containers are highly recyclable after pre-treatment to remove contaminants. They are manufactured from High Density Polyethylene (HDPE) with a smaller volume from metal, so this provides the ideal opportunity to capture these resources onshore.

The lack of sizable end use markets for recycled materials is also a significant barrier.

The industry is therefore focused on creating an environment for market pull through of the collected material and supporting the economy through improved resource use, infrastructure investment and employment opportunities. The programme will aim to “close the loop” on lubricant packaging and contribute to the development of a circular economy in New Zealand.

It is proposed that the programme will create a united industry position that will help bring positive behaviour change to the way that waste lubricant packaging has traditionally been disposed of.

2.2 Distribution and sale of lubricant packaging

- **National footprint**
- **Different needs for rural and urban customers**
- **Excellent B2B relationship opportunities**

The sale and consumption of lubricants in New Zealand is wide spread and covers both rural and urban markets. A large portion of the lubricants sold to market are used in heavy industry including the forestry sector, energy generation and roading and infrastructure.

Lubricants are sold at wholesale level through a business-to-business model engaging a direct service model through company representatives. This is particularly the case for large volume end users. The exchange or distribution of materials at this point offers a pathway for the return of those used end-of-life lubricant packages.

The retail sector also sells and distributes lubricants through own brand distribution in the form of service stations (Z, Caltex) and via third party stores like Farmlands, Repco and Supercheap auto.

2.3 Packaging in Scope

- **All lubricant packaging 20 litre and under**
 - high density polyethylene (HDPE)
 - metal
 - grease cartridges (HDPE & non-resinous fibre)
- **200L drums and intermediate bulk containers (IBC's)**
 - high density polyethylene (HDPE)
 - metal

Lubricant packaging sold in the New Zealand market is comprised of several different materials including high density polyethylene (HDPE), steel, polypropylene (PP) and non-resinous fibre.

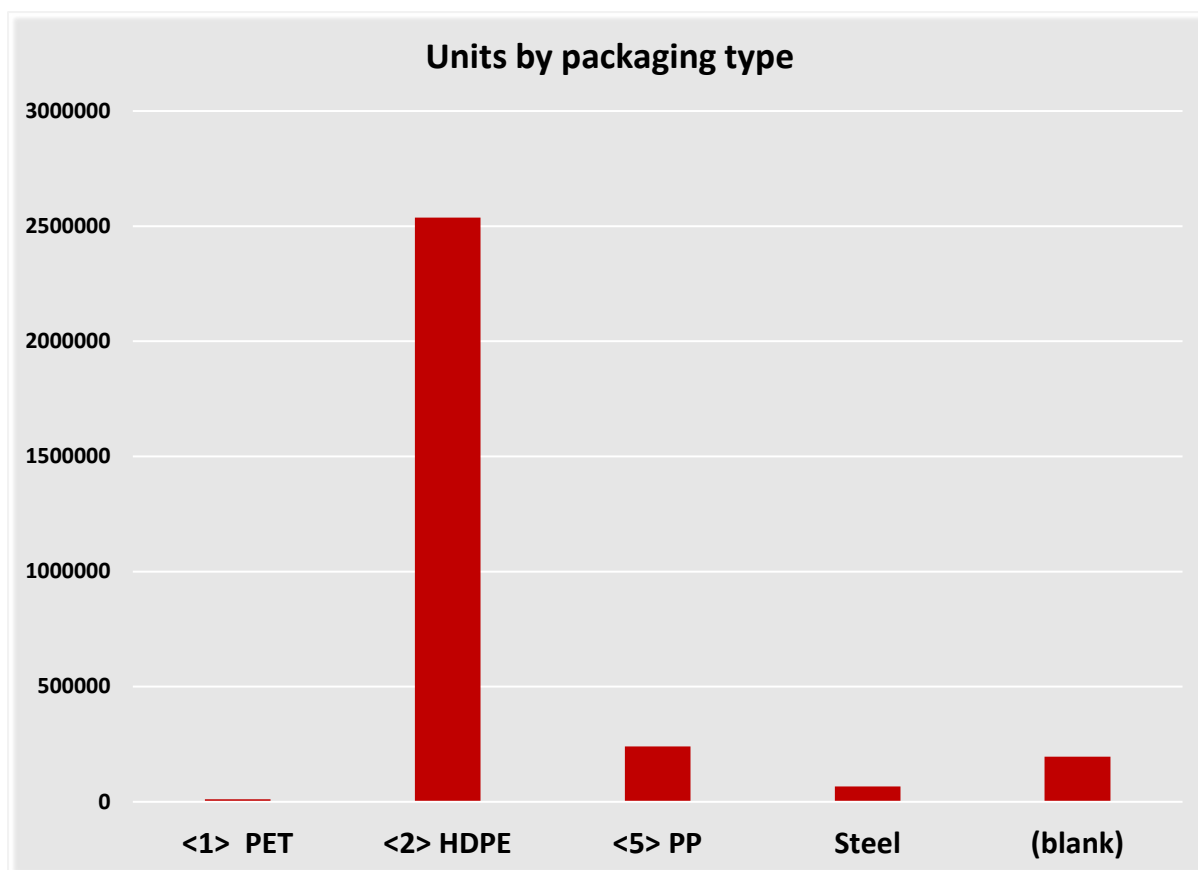
The most common by far is HDPE, one of the most consumed plastic resins worldwide. The high level of lubricant contamination with the packaging severely restricts recycling options.

In addition to contamination, lubricant containers present several challenges due to the diversity of size and shape which range from grease cartridges and smaller forecourt-sized containers, through to 20 litre commercial containers, 200 litre plastic and steel drums. Large amounts of lubricant are also provided in intermediate bulk containers (IBCs) made from HDPE with a steel exoskeleton.

The material types used for manufacture of lubricant packaging are as a result of procurement from offshore suppliers and its recyclability often not driven by our recycling infrastructure in New Zealand. The product is imported ready to use and subsequently, is predominantly single use due to the lack of re-filling onshore.

Grease cartridges are included in the scope of this project and, by unit volume, provide a significant portion of the packaging sold. Cartridges can be made from HDPE plastic alone or from a non-resinous fibre.

It is recognised that grease cartridges may need to be processed separately from the flow of HDPE packaging due to its contamination level, however can likely be collected using the same systems as the containers.



2.4 What legislation or regulatory controls exist?

Legislation relevant to this body of work includes:

- Hazardous Substances and New Organisms Act 1996 (HSNO)
- Resource Management Act 1991 (RMA)
- Health and Safety at Work Act 2015
- Waste Minimisation Act 2008 (WMA)
- Land Transport Rule: Dangerous Goods 2005

Code of Practice for Management and Handling of Used Oil

In June 2014 the Environmental Protection Authority released the Approved Code of Practice for Management and Handling of Used Oil (under the HSNO Act) EPA0344.

The intent of this code of practice is to:

“...provide guidance to used oil generators, collectors, transporters, processors and end users and regulatory authorities on compliance with regulatory and statutory controls on used oil.”

It contains several recommendations that need to be taken into consideration for this project. The full code can be viewed at the below link/web address.

http://www.epa.govt.nz/Publications/Management_and_handling_of_used_oil.pdf

Specific sections and their relevance are summarised in the following table:

Code of Practice: Extracts

Section	Heading	Relevance
1.0	Definition of used oil	Outlines status and controls placed on used oil. The oil in this project scope falls within the classification of this code.
2.0	The used oil collection system	Outlines typical process and expectations for industry collection of used oil.
3.4	Inappropriate methods of disposal of used oil (for small volume generators such as individual farmers)	Disposal options are limited for farmers and growers. Traditional methods of disposal such as dust control, weed abatement, burning or timber staining contravene the HSNO Act, RMA and/or National Standards for Air Quality due to potential adverse environmental impacts. Inappropriate disposal methods include unauthorised disposal onto ground, into watercourses, sewers or drainage systems.
4.0 – 4.3	Public collection sites	<i>“This section aims to encourage retailers of virgin oil to the public to recover the used oil, and local authorities to take a more proactive role in used oil collection. It also provides a guide on what is required to comply as a used oil public collection site”</i>
6.0 – 6.8	Collection and Transportation	Any service provider to a collection site would typically meet the definition of a ‘transporter’ under the code.
7.0	Storage and processing	Any end-user or recycler who receives used oil from this project would need to comply with this section of the code.

Comments regarding legal requirements:

The code of practice generally covers the collection of used oil in bulk tanks, as that is the most common form of consolidation and transport.

The code of practice does not specify “**controls for transportation of used oil in packages**”. This is taken to mean that oil transported in its original or similar container (e.g. 5L, 10L, 20L plastic container) is not subject to the same code.

In that case, the same Land Transport Rules would apply as for new oil distributed to retail. More investigation is needed to clarify this situation, as it may have an impact on selected collection methodology.

Several additional conditions come into play when storage volume at a site exceeds 1,000 litres.

Numerous comments and conditions relate to the flashpoint of collected material. This can be affected by collected materials being contaminated with solvents and other waste liquids. For this reason, it is imperative to have clear acceptance criteria that are enforced by any workers at point of collection.

3 Methodology

- **Cross Sector Collaboration**
- **Industry led solutions**

The Waste Lubricant Container Working Group (WLCWG) was established in mid-2018 and is open to all industry brands. Companies across eight different sectors nominated their decision-makers to be part of the WLCWG. They are assisted by independent product stewardship project managers, 3R Group Ltd, to work through the design and launch of a solution.

Stakeholders funding the programme design include:

- Allied Petroleum Ltd (Mobil) | Corrie Brink | Supply Manager
- Castrol NZ Ltd | Daniel Hibberd | Sales Support Manager NZ
- Farmlands Co-Operative Society Ltd (Gulf Oil) | Sander Kriek | National Manager
- Oil Intel Ltd (Total Lubricants) | Bob Foothead | Technical Support
- TransDiesel Ltd (ENI Lubricants) | Jonathan Crocker | Product Manager
- Z Energy | Steve McGregor | Lubricants Manager | Anthony Hume | Sustainability Champion

Non-funding Stakeholders who also had initial input to the programme design include:

- Aegis Oil Co | Paul Radisich | Managing Director
- FUCHS Lubricants | Chris Hughes | Commercial Account Manager
- Penrite Oil NZ Ltd | Michael Phillis
- Valvoline NZ Ltd | Rhyse J Moore | Country Manager

3.1 Purpose of the Working Group

The purpose of the group is to meet, discuss and participate in processes that relate to general cross industry management of waste lubricant containers and to promote actions and outcomes that will deliver a fair and consistent approach to the recycling of lubricant containers within New Zealand.

3.1.1 Goals

The WLCWG set goals they wished to achieve which are:

- Continuous improvement of industry best practice to ensure efficient and cost-effective recycling of lubricant containers.
- Promote necessary and appropriate action and a fair and consistent approach to management of end-of-life lubricant containers
- Engage with key and relevant stakeholders to ensure the end-of-life management of lubricant packaging is organised and funded correctly

3.1.2 Role

- Actively participate to promote its purpose.
- Ensure appropriate input from, and reporting to, WLCWG members of their companies' experiences and concerns and vice versa.
- Identify where their experiences may be of general industry interest.
- Identify relevant expertise to assist in promoting the purpose of WLCWG as required.
- Provide feedback on WLCWG positions on matters.
- Actively promote within their own organisations WLCWG initiatives supporting industry best practice.
- Promote compliance with the law.
- Be supportive of other industry competitors joining the group.

3.1.3 Principles of conduct

- Ensure integrity, respect, and ethical practice in all activities.
- Seek consensus from all parties in decision making.
- Maintain confidentiality as required.
- Ensure compliance with legal obligations including, in particular, competition law.

3.2 Commerce Act

All participation is within the boundaries set by the Commerce Act 1986. Strict adherence to the Commerce Act 1986 is of critical importance to the success of WLCWG.

All proposals and decisions at the WLCWG meetings is preliminary only and subject to legal advice.

The members of the forum are cognisant of the Commerce Act 1986 and its implications and agree to adhere to the following statements in their participation regarding general cross industry environmental matters:

1. Avoid making arrangements on pricing, production, inventory, sales, costs, future business plans, individual customers, markets or other matters of competitive significance, including those related to existing commercial arrangements with test certification companies.
2. Avoid any behaviour which will limit the ability of a company's competitors to compete or will result in competition being restricted within a market.
3. Avoid sharing with any other member information that is commercially sensitive.
4. Avoid any behaviour which will, or be likely to, fix or control the price of goods or services, restrict output or allocate markets.
5. Seek legal counsel where appropriate.

3.3 Document review

External reports and papers on the waste lubricant packaging situation considered to be of relevance to our market conditions were reviewed to gather background and historical information.

The specific reports considered were:

1. Development of Reprocessing Options and End Markets for Used Oil Containers, Final Report, February 2000. David Shipley on behalf of The Plastics and Chemicals Industry Association Inc. and The Australian Institute of Petroleum
2. Australian Institute of Petroleum Australian Packaging Covenant Action Plan for lubricant oil bottles – July 2010 – June 2013
3. Life Cycle Assessment of Lubricant Oil Plastic Containers in Brazil Maria Clara Oliveira and Alessandra Magrini. Published 10 April 2017
4. Rural Waste Surveys Data Analysis Waikato & Bay of Plenty Waikato Regional Council and Bay of Plenty Regional Council. Published July 2014

3.4 Stakeholder consultation

Lubricants are used by every household and business to move people and goods from one destination to the next and to transform virgin materials into consumer goods. The amount of lubricant consumed is dependent on the type of industry, although transport and primary production are identified as primary users.

Each of these audiences plays an important role either in the consumption, sale and distribution of lubricants or in the collection and recycling services industry.

As project manager, 3R has undertaken the majority of stakeholder communications activity to date.

The audience and required information is separated into two segments:

1. Industry
2. Consumers and general public

The key objectives during the design phase have been to:

- Socialise the concept of waste lubricant container recycling, and a nationwide solution for collection and recycling / repurposing.
- To ensure that audiences are aware of:
 - the leadership role played by manufacturers, importers, retailers, other stakeholders and the project manager
 - why a product stewardship programme for waste lubricant container is necessary
 - how to engage with their area of interest such as collections, storage and handling.
- leveraging working group communications channels where possible
- provide news media with the information required to report on progress accurately

The table below articulates the key message of interest from each stakeholder group and the preferred source of information for this stage in the project.

Targeted Audience	Key Messages	Methods (current/future)
Brand Owners	How is it funded? Where do I get information from? What is the value proposition? How can I participate? What kinds of containers are accepted?	<ul style="list-style-type: none"> • Direct Contact • Website • Brand Owner Proposals and Agreements
Retailers	How is it funded? Where do I get information from? What is the value proposition? How can I participate? What kinds of containers are accepted? How should containers be stored and handled? What do I tell my customers? Who do I make arrangements with?	<ul style="list-style-type: none"> • Direct contact by Brand Owner Reps • Service Agreements • Websites • Email / E-news • Instore pictorials
Local / central government	How are containers collected? Governance structure? Mass balance data integrity? Reporting against KPIs?	<ul style="list-style-type: none"> • Print publications and Accreditation Report • Website • TA Forum via WasteMINZ
Recycling industry <i>Receivers of raw material</i>	Locations of collection points. Access to materials. Circular economy benefits. How do I get paid? What evidence is required?	<ul style="list-style-type: none"> • B2B relationship with Programme Manager and transporters • Printed materials • Website
Drop off points	What prep is required? How much will I be paid? Who do I talk to? What help might I receive? Who owns the material?	<ul style="list-style-type: none"> • B2B relationship with Programme Manager and transporters • Direct mail • Service Agreements • Printed materials
Collector/Transporters	How much will I be paid and by who? What condition will the containers be in? Where	<ul style="list-style-type: none"> • B2B Relationship with Programme Manager, drop off points and recycling industry

Consumer	<p>do I take them? What evidence is required?</p> <p>How do I participate?</p> <p>Environmental benefits – are you really recycling?</p>	<ul style="list-style-type: none"> • Printed materials • 0800 collections • Videos • Social media • POS Displays
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This table will initially form a communication matrix upon programme launch.

3.5 Learning from international examples

A desktop review supported by written enquiry to various countries who are running programmes that can or do manage lubricant packaging. These are either for the management of the packaging or the unused/unwanted contents, or both.

Refer to Appendix A: International Examples

4. Findings – New Zealand

4.1 Distributor business-2-business relationships

Lubricant distributors play an important role in delivering the product directly to the end user at site. In doing so, they create an opportunity for direct feedback from the customer as to the type and quality of the lubricant supplied, as well as the opportunity to engage on the effective removal of the packaging at its end-of-life.

This type of relationship provides benefits to both parties and enables effective exchange of information. For example, the distributor of the lubricants can match demand for products and quickly meet that with efficient delivery to site, either directly or through a 3PL provider.

The direct business-to-business model covers a significant portion of the market particularly for large industry sectors such as forestry, manufacturing, construction and transport. It is effective in terms of delivery and would be a cost-efficient retrieval mechanism.

4.2 Collectors and Processors

Currently there are operators who collect used oil and oil packaging from the urban sector from retail outlets and council facilities. Collectors for the R.O.S.E (Recovering Oil Saves the Environment) programme consist of Salters Cartage and Petroleum Services Ltd in the North Island, and Fulton Hogan in the South Island.

4.2.1 Rural

The Agrecovery Rural Recycling Programme have a partnership with Canterbury and Bay of Plenty regional councils to run annual rural pop up events for farmers and growers where they collect unused/unwanted lubricant packaging and its contents, among other agricultural waste. This partnership is formalised under the Rural Waste Project. User pays service and quality conditions are still to be worked through, however they are keen to work with this programme to provide services to farmers and growers through their pop-up events in specific locations.

4.2.2 Urban

R.O.S.E. (Recovering Oil Saves the Environment) is a programme set up with the purpose of managing and contracting the collection of used (waste) oil to be reused as an alternative fuel source to diesel, light fuel oil (LFO), and gas.

The programme is managed by Salters Cartage and Fulton Hogan with urban collection points including REPCO, Super Cheap Auto and various transfer stations.

Both Salters and Fulton Hogan arrange for, or clean, the packaging themselves as well as chip the packaging, with Salters delivering the clean HDPE chip to Astron Plastics in Auckland. Salters refine the oil themselves for use as bunker fuel, while Fulton Hogan use the waste oil and chipped plastic (trial stage) in roading (South Island).

Plastic chip in roading is seen as a long term opportunity by Fulton Hogan with the current test site in Christchurch in place to deliver durability results over a 3 – 5 year time frame.

4.3 Demand for processed packaging

- **Materials pull through in a process**
- **Charge for service**
- **Payment for raw material feedstock**

Contaminated material such as lubricant containers holds a lower commodity value than clean materials.

In the current environment where there is an excess of supply of “clean” HDPE, recyclers are charging for the service to recycle contaminated material.

During the discovery phase with collectors and processors, we found companies that will charge to take the contaminated HDPE, either clean it to increase the value for reuse as a resin (Astron Sustainability, Bin Hire Group), or accept and use the contaminated material for use in waste to energy solutions (PlastOil, Waste Rescue).

Reusing the product in resin form keeps it in the “reuse” cycle, waste to energy captures the residual energy but its lost for recovery in the future.

Over two days in January and March 2019, out of 22 interested parties, 11 collectors, processors and end market entities presented to the WLCWG, ranging from established businesses through to those with new processes in pilot phase.

Presenters were asked to cover off:

- a) Is this a current or new service offering?
- b) Who is involved?
- c) What is your experience in this area?
- d) What material types will you accept and in what condition do you require feedstock?
 - i. Range of packaging?
 - ii. Contaminated, drained, clean, chipped/granulated, resin?
 - iii. What service area do you cover?
- e) What, if any, investment are you seeking from the working group?
- f) Why does this opportunity appeal?
- g) Next steps

While processors of metal packaging didn't present, traditional metal recyclers have indicated their interest in receiving steel packaging once the collection methodology has been confirmed.

Company	Prep	Collector	Processor	Technology	End Use Output
	Drained	Y	Y	Granulation	To Astron
	Clean Chip		Y	Resin Production	Plastic Products
	No		Y	Wash-Granulation	Clean Granulate
	No		Y	Pyrolysis	Fuel/Oil
	No		Y	Pyrolysis	Wax/Oil
	Drained		Y	Wash Plant	Cleaned Material
	Unclear	Y	Y	Granulation Resin Production	Plastic Products
	No		Y	Depolymerisation	Fuel/Oil
	No		Y	Pyrolysis	Wax/Oils/Products
	No	Y	Y	Wash & Shred	Clean Shred Fuel Oil
	No		Y	Hydrothermal	WTI Crude
	No		Y	Pyrolysis	Fuel/Oil

Note that there are more "collectors" who will come forward on a tender notification basis.

More detail can be found in **Appendix B** – full copies of available presentations can be found in the

4.4 Materials Flow Mass Balance

Accounting for material entering and leaving a system (materials flow mass balance) enables accurate forecasting for both financial modelling and capacity requirements for collection and processing per region. Brand Owner First Importer participants of the WLCWG declared their market entry data through a secure system to enable more accurate forecasting.

The data on lubricant containers currently discarded (to landfill, illegal dumping, stockpiling or takeback) is weak; this is typical at this point in the design phase of a programme.

Research undertaken to date (excluding all 200 litre drums and IBCs) indicates that the problem equates to approximately **922 tonnes of plastic** and **850,000 grease cartridge units** requiring a solution each year.

Pack size	Number of packs per year	% of total	Lubricants (content of pack)	Proportions of lubricants (contents of pack)
200 ml Packs	15,145	0.5%	3,029	0.01%
500 ml Packs	106,529	3.5%	53,265	0.21%
1 L Packs	779,743	25.5%	779,743	3.04%
4 L Packs	689,728	22.6%	2,758,912	10.76%
5 L Packs	234,982	7.7%	1,174,910	4.58%
10 L Packs	10,008	0.3%	100,080	0.39%
18 L Packs	66,519	2.2%	1,197,342	4.67%
20 L Packs	381,066	12.5%	7,621,320	29.72%
Approx 60 litre drum	2,290	0.1%	137,400	0.54%
200 L Drums	51,266	1.7%	10,253,200	39.98%
Cartridges – Grease	702,157	23.0%	280,863	1.10%
Cartridges – Other Lubricants	939	0.0%	376	0.00%
IBC	1,284	0.0%	1,284,000	5.01%
Other	10,521	0.3%	unknown	unknown
Grand Total	3,052,177		25,644,439	

Table 1: Number of packs declared by WLCWG

Assumptions:

- Participants of the WLCWG represent 80% of the total lubricant market
- Declared packaging volume is 3,052,177
 - Therefore, based on declared packaging volumes, the WLCWG agreed to use the figure **4,500,000 packs per annum** for modelling purposes

4.4.1 Use of tariff codes (HS codes)

In addition to WLCWG participant declared data, we undertook a sense check of data for the same declaration period using [Statistics New Zealand Infoshare website](#).

This database is reliant on importers using the correct harmonised system codes (HS codes - an international system of names and numbers used to classify traded products) when they declare their imports.

To ensure accuracy, we would need to confirm:

- a) Whether the HS codes used in the table below are those used by the WLCWG companies and exclude or add those that aren't.
- b) What the information is telling us and how this impacts on materials flows for modelling purposes.
- c) Can we use Customs import data to verify future declarations for the purposes of an advanced disposal fee?

HS Code	Description
2710195619	Lubricating preparations; greases and other solid lubricants , other than those suited only for aviation use
2710196210	Lubricating preparations; other than greases and other solid lubricants, in containers of a capacity of 5 litres or more
2710196429	Lubricating preparations; other than greases and other solid lubricants, in containers of a capacity of less than 5 litres , not in aerosol containers
3403190109	Lubricating preparations; greases and other solid lubricants, (for other than aviation use), containing less than 70% (by weight) of petroleum oils or oils obtained from bituminous minerals, (not for the treatment of textile and similar materials)
3403191101	Lubricating preparations; containing less than 70% (by weight) of petroleum oils or oils obtained from bituminous minerals, in containers of 5 litres capacity or more , (not solid lubricants), (not for the treatment of textile and similar materials)
3403191919	Lubricating preparations; n.e.c. in item no. 3403.1, containing less than 70% (by weight) of petroleum oils or oils obtained from bituminous minerals, in containers (not aerosol) of less than 5 litres capacity
3403991919	Lubricating preparations; n.e.c. in item no. 3403.9, (not containing petroleum oils or oils obtained from bituminous minerals), in containers (not aerosol) of less than 5 litres capacity
3403991939	Preparations, other than lubricating; n.e.c. in item no. 3403.9, (not containing petroleum oils or oils obtained from bituminous minerals), in containers (not aerosol) of less than 5 litres capacity

Advisory notes:

- a) Customs have advised that there is no requirement to break down imports into individual container size. The only data available is quantity by KGM or LTR.
- b) Statistical unit is either KGM or LTR. These are confirmed to be kilogram and litre as per the [Working Tariff Document of New Zealand October 2018](#).
- c) For the purpose of this analysis, 1 kilogram is considered to be 1 litre.
- d) Sum of statistical units (KGM and LTR)

Code	2014-2015	2015-2016	2016-2017	2017-2018
2710195619E	1,503,373	1,626,329	1,583,742	1,946,324
2710196210A	46,963,668	76,132,003	91,894,853	61,208,264
2710196429E	6,543,078	5,548,028	7,360,485	27,425,610
3403190109B	97,325	95,855	145,284	144,909
3403191101B	2,040,026	2,201,385	2,170,170	2,342,104
3403191919F	466,776	323,382	376,927	348,970
3403991919E	810,374	668,792	732,718	682,279
3403991939K	58,315	93,058	62,301	70,232
Total	58,482,934	86,688,830	104,326,480	94,168,692

Table 2: KGM or LTR of lubricant imported by HS Code

Its unclear what this table above tells us – whether the codes captured are incorrect or our industry declarations are not capturing the correct data.

4.5 Local government landfill responsibilities

Typically, local authorities help promote and direct consumers to available product stewardship solutions that exist in their region. Most product stewardship programmes have a relationship with local authorities, ranging from consumer education and information on their websites, and through to hosting drop off sites at transfer stations.

The responsibility of waste management sits largely on the shoulders of local government. They are tasked with promoting effective and efficient waste management and minimisation within their districts.

Poorly managed waste is bad for the environment, our health, and our economy. The successful management of waste is therefore crucial to our ability to live sustainably.

Whilst there is no uniformity regarding waste management services and facilities across the country, all 67 territorial authorities must meet the requirements of the Waste Minimisation Act 2008 (WMA).

Under sections 43 and 44 of the WMA, all councils are required to develop and adopt a Waste Management and Minimisation Plan (WMMP), both of which must be linked to each council's Long Term Plan and be reviewed every six years to chart progress.

A WMMP must include objectives, policies and methods for achieving effective and efficient waste minimisation and management within the district as well as how the plan will be funded including the use of allocated waste disposal levy allocated by MfE.

The objective of each council will vary based on the facilities owned and operated and the services offered. Not all councils' own infrastructure and are therefore reliant on contractors for the provision of landfill and refuse transfer stations. Disposal charges for both waste and recycling vary from area to area as a result.

Each landfill operator manages their own acceptance criteria covering the type of waste which can be processed and disposed of on site.

4.6 Legacy Lubricant Containers

End-of-life lubricant packaging has not yet been regulated under the Waste Minimisation Act 2008, however it is proposed to be in December 2019. While the current practice is predominantly disposal to land by the end user or collection through the R.O.S.E. programme, there is the possibility of cached piles of containers by commercial users or dumped containers on public or private land. The quantity of legacy containers has not yet been assessed but it is not expected to be large due to the current inexpensive cost of landfill.

A well-designed product stewardship programme will set funds aside to manage legacy material to ensure a customer's interaction with the programme is as simple as possible.

4.7 Orphan Lubricant Containers

Orphan packaging is that which was distributed by companies which have left the market and their products are either still in use or stockpiled. Again, a well-designed product stewardship programme will set funds aside to manage orphan material.

The issue is generally most prevalent in the early years of a programme as orphan or legacy materials are cleared through the system, but typically short-lived.

5. Findings - International

There are several stewardship programmes internationally which focus on either the end of life containers or the residual lubricant component, or a combination. Legislation within these regions influence the effectiveness of programmes by placing responsibility on different aspects or parties.

This ranges from 'polluter pays' legislation in the European Union through to legal obligations for producers to recycle packaging and submit material flow mass balance reports, and in the case of Korea, spreading responsibility between producers, central and local government.

The criteria we used to evaluate effectiveness of international programmes is:

- Region
- Programme Name
- Country of operation
- Companies involved (eg Brands/Retailers)
- Established Date
- Stage of development (Pilot, BAU, under review, Closed)
- Website
- Scale (Tonnes or Millions of Packages per year)
- Scope (some may also include lubricant capture) (what's in/out)
- Governance management model
- Regulatory support
- Funding
- % Recovery Rate
- Turnover
- Structure
- Collection Model
- Processing Model
- Lubricant Capture (if any)
- End Uses
- Known Difficulties/challenges

Refer to **Appendix A**: International Examples for the full detail and Appendix C: International Case Studies

5.1 Worldwide trends

Current schemes and programmes differ greatly in their scope and effectiveness. Aside from varying government regulations, programmes have some commonalities including the aim to have broad coverage across a country and the challenge of managing free-riders - defined as parties that enjoy the benefits without active participation or contribution.

The variance in the scope and models of the programmes globally, is matched by variance in the management of the programmes.

In the Canadian programme, the Used Oil Management Association of Canada (UOMA), the key driver comes from incentivising the collectors and processors via a Return Incentive (RI) where they are paid for delivery to the recycling facility. The retailers, wholesalers and first sellers pay an Environmental Handling Charge (EHC).

All retailers, wholesalers, or first sellers of these products must pay this EHC. The consumer also pays a charge. This programme is backed by industry and includes the recovery and reuse/recycling of used oil, oil and lubricant packaging, as well as oil filters, antifreeze and aerosol cans. Management of the programme is via UOMA.

6. Material flow and adding value

6.1 The Waste Hierarchy

The Waste Hierarchy is a set of priorities for the efficient use of resources. For this report we have used the Waste Hierarchy that is also used by MfE (refer Figure 2).

Working within the principles of a circular economy means we also need to understand the principals of the waste hierarchy and continually work toward achieving the highest value conversion of resources.

At inception, a stewardship programme typically focuses on landfill diversion while markets establish thanks to strength in the flow of materials – both in volume and consistency in supply. Over time, focus moves to adding value.

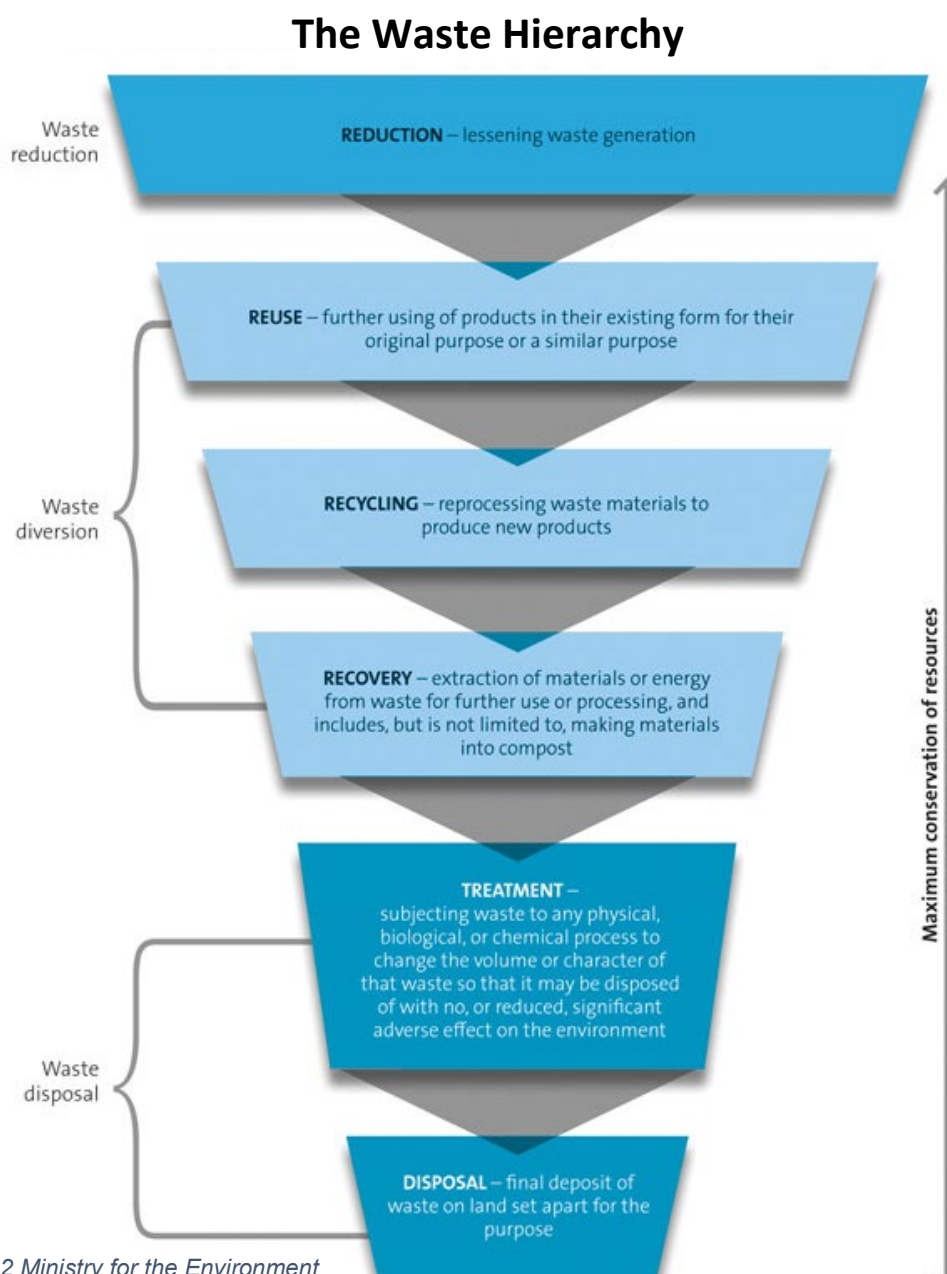


Figure 2 Ministry for the Environment

6.2 Resource recovery principals of the proposed programme

This proposed lubricant packaging stewardship programme will focus on the top four principals of the waste hierarchy: reduction, reuse, recycling and recovery. It will also go beyond the waste hierarchy to include the evolution of a circular economy, allowing waste lubricant containers to be a resource, not waste. This would see materials being returned to the system as substitutes for raw materials, not only reducing the need for virgin materials but allowing new products to cycle continuously through the system.

The **primary aims** for development of the Voluntary Waste Lubricant Container Stewardship programme are to:

- Provide an industry-led solution for the recovery, reuse and recycling of waste lubricant containers through the introduction of a product stewardship programme
- Minimise environmental harm stemming from improper disposal that creates public nuisance and environmental harm
- Maximise the recovery, recycling and reuse of lubricant containers in New Zealand, reducing the need for virgin materials to be extracted, manufactured and in some cases imported
- Maximise the number of lubricant containers diverted from landfill by providing a simple and easy to access solution for consumers
- Transition the lubricant industry toward a circular economy model
- Minimise the risk of free-riders by being inclusive
- Provide leadership in the circular economy through the provision of grants

6.3 Avoidance and reduction

Effective stewardship should also include the supply chain dis-incentivising customers to avoid unnecessary purchases thereby minimising wastage. While this forms part of the educational aspect of a stewardship programme it should also be reinforced by the participants as part of their social license to operate.

6.4 Reuse

While some brands do capture some containers/drums to **reuse** back into a lubricant container it can essentially be discounted as New Zealand does not re-blend or bulk dispatch lubricants.

Reusing containers for another product stream may be possible, provided that the material can tolerate some level of contamination from the residual lubricant.

6.5 Recycling

The options for lubricant container recycling and the financial value of this are largely determined by the level of contamination in the materials supplied.

Presenting clean material (*clean is defined as having been through some sort of wash process*) to a recycler enables a broader range of reuse options for that material without the limitation of contamination and subsequent restriction on end use. The process of cleaning lubricant packaging to an appropriate level requires a solvent-borne material miscible with the lubricant so it can be effectively removed. Creating a large surface area by shredding prior to washing also enables a more effective cleaning process.

6.6 Material recovery using catalysts

A potential pathway for 'drained' as opposed to 'clean' containers is for the HDPE plastic to be used as a feedstock for **waste to energy technologies**. These are low on the waste hierarchy but attractive for a waste stream which is contaminated and difficult to clean.

In this scenario, the plastic feedstock is used for the process of **converting the plastic back into a useable gas and other offtake products such as heavy fuel oil**. In this process, the use of a catalyst is required, typically via the addition of pressure and high temperatures to act on the polymer and convert it back to a monomer.

The gas can be extracted by condensing the liquid and extracting off the column. The oil likewise is heavier and can be taken off at another level for further refinement. This process allows the monomer to be reused in the production of new polymers. This has not been proven on scale.

Post depolymerisation, another form of chemical recycling using a catalyst would be used in pyrolysis and gasification. This is where the polymer or monomer are consumed during combustion to generate energy.

6.7 Transport

A key aspect of managing the containers at end-of-life is transportation. Transporting empty containers is inefficient over distance, with a marked reduction in weight/m³ per load able to

be transported. However, transporting whole containers does not require any in-field processing or consolidation offsetting some risks.

6.7.1 Debulking

To create efficiency in transportation the use of a debulking agent such as a shredder, granulator or baler greatly increases the payload and aids in the reduction of overall cost.

There are environmental and health and safety aspects to consider such as noise relative to people movements, exhaust fumes from onsite granulator/shredders and moving parts.

Drums (200L) and IBC's (1000L) offer a slightly different proposition in handling for transport but still have the same inefficiency issues as whole containers.

7. Product stewardship

Product stewardship (or more commonly known internationally as producer responsibility) is when a producer, brand owner, importer, retailer and consumer accept responsibility for reducing a product's environmental impact. The cost of managing the product through stewardship is paid for by the producer and the consumer of the product.

The payment is typically called a levy or an advanced disposal fee (ADF). In most programmes, the ADF is eventually paid for by the consumer.

Product stewardship is the cornerstone of the circular economy model and places greater emphasis on designing out waste and the ability to capture resources for beneficial uses guided by the waste hierarchy.

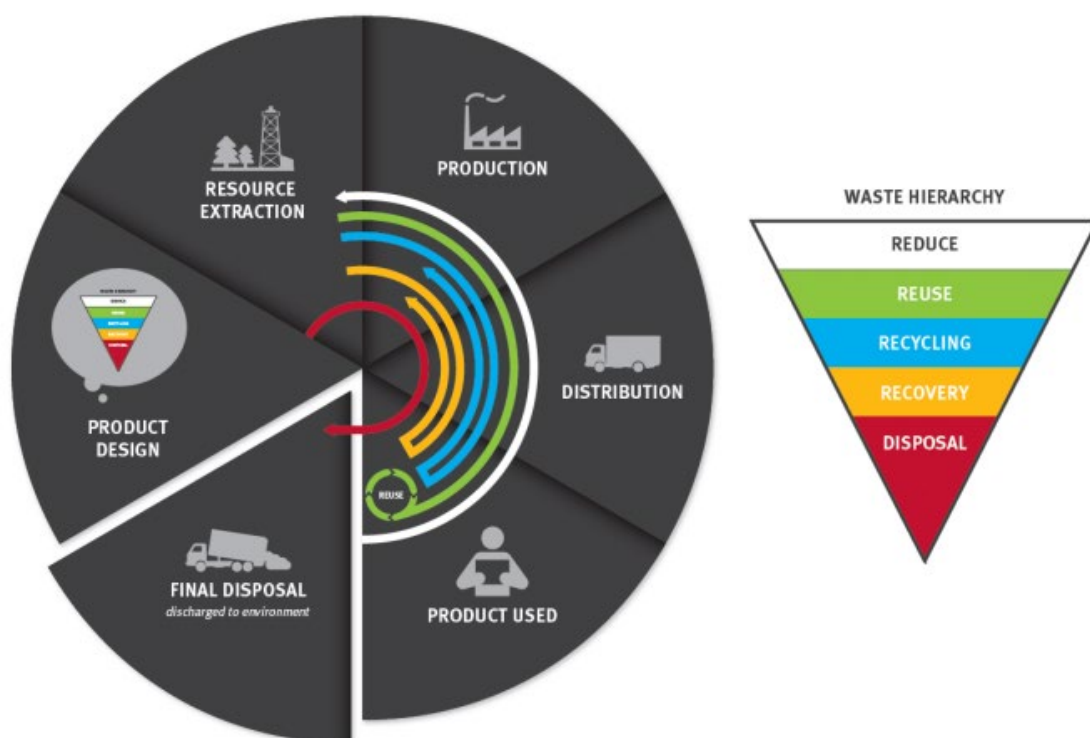


Figure 3 Ministry for the Environment Consultation 2014 – impact points of product stewardship on the supply chain

7.1 Product stewardship in New Zealand

Product stewardship programmes are not new, and consumers routinely interact with existing product stewardship programmes in their daily life. Actions such as recycling glass bottles, purchasing Resene Paint, using Fuji Xerox copiers, recycling mobile phones and recharging air conditioners are supported by existing product stewardship programmes which have commercial and consumer interfaces.

Under the Waste Minimisation Act 2008 (WMA), product stewardship may be **voluntary** or **regulatory**, and the term 'product' can include classes of products and product packaging.

Eighteen voluntary product stewardship programmes are accredited by the Ministry for the Environment (MfE). There are also a number of non-accredited stewardship and takeback programmes.

No regulatory programmes in place at the time of writing this report however the Associate Minister has signalled her intent to regulate certain products (refer section 8.6) and in addition to this, the working group made a submission on how this proposed programme would be able to meet the proposed Regulatory Guidelines outlined in Section 10: Programme Framework: Design Features

7.2 Voluntary programme accreditation

MfE encourages voluntary product stewardship programmes under the WMA. Voluntary product stewardship programmes can be put forward for accreditation subject to them meeting the requirements listed in the WMA (a summary of the requirements can be found here)¹.

The Act allows for regulations to be developed in support of voluntary programmes, including controls on disposing of products or waste; controlling the manufacture or sale of products containing specific materials; take-back services for products; labelling; and advance disposal fees.

7.3 Applying for voluntary programme accreditation

7.3.1 How are programmes assessed?

For a programme to be accredited, it must demonstrate that it can minimise waste and achieve reductions in environmental harm.

A programme will be assessed against requirements outlined in Part 2 of the WMA [<http://www.legislation.govt.nz/act/public/2008/0089/latest/DLM999802.html>].

This will be done by the Ministry or an external assessor commissioned by the Ministry.

Applications must be made in a prescribed manner, which is set out in section 13.

Under Section 15(1), a programme must meet the following requirements.

¹ <https://www.mfe.govt.nz/sites/default/files/measuring-success.pdf>

- Meets the requirements of section 14, which sets out the requirements for accreditation (including provisions for identifying the programme manager and members; setting objectives; arrangements for funding, decision-making, compliance, monitoring, reporting, and communications)
- Is likely to meet the programme's objectives within the time frames set in the programme
- Is likely to promote waste minimisation or reduce environmental harm from disposing of the product to which the programme relates without, in either case, causing greater environmental harm over the life cycle of the product;
- Is consistent with New Zealand's international obligations; and
- If the programme relates to product declared to be a priority product by the Minister for the Environment in the New Zealand Gazette, is consistent with any guidelines published under section 12. No priority products have been declared at this point. (*ref Regulated Product Stewardship above*)

Following this assessment, the Minister for the Environment is briefed to consider the application for accreditation.

7.3.2 Why apply for accreditation?

Accreditation is a form of recognition and a well-marketed programme may generate brand loyalty, particularly considering increased consumer awareness of environmental issues. While the voluntary approach allows for the implementation of flexible industry programmes, the lack of a regulatory approach can have a negative impact on a programme by the presence of free-riders.

Once accredited, the programme participants are allowed to publicise that their programme has been accredited by the Minister for the Environment under the WMA. Reviewing audit results from the assessors may also help programme participants identify areas where a programme could be strengthened.

The project manager recommends that the proposed scheme is accredited.

In our experience it delivers procurement opportunities and creates an environment that non-participating brands want to be part of.

7.4 Options for regulatory support

The government has a clear focus on solid waste and a shift toward a circular economy model. In 2018, Associate Minister for the Environment Eugenie Sage set up a task force of industry

experts to advise on opportunities to improve New Zealand's resource recovery and increase onshore processing capability.

The task force has provided a situational report to the Associate Minister with a number of recommendations that will now form part of the Ministry for the Environment's work programme. The following recommendations are relevant to the lubricant packaging conversation:

- Examining how product stewardship for packaging can be used to ensure **manufacturers consider what happens to packaging** once a product is used by the consumer.
- Undertaking feasibility studies around how to **increase New Zealand's** fibre (paper and cardboard) processing and **plastic reprocessing capacity**.

Under the WMA, the option exists for the Minister to declare a 'priority product', which requires a regulated product stewardship programme to be put on place. This must be accredited by the government (WMA section 22(1)(a)).

Packaging manufactured from Resin type HDPE 2 and PP 5 (used in the manufacture of packaging for lubricants) are proposed to be declared a priority product; the outcome of a declaration would entail the industry having a regulated stewardship programme in place within a twelve (12) month period from date of declaration.

7.5 Regulated programmes for a priority product

Throughout 2019-20, MfE will be working on regulating six waste streams – tyres, synthetic greenhouse gases, agricultural chemicals, farm plastics, e-waste and retail packaging. The scope of 'retail' packaging is yet to be defined, at present it is anything you would purchase at a retail outlet.

If producers and distributors of those products wish to sell in the New Zealand market, then they will have to evidence participation in a regulated product stewardship programme.

Before a Minister can declare a 'priority product', he/she needs to evaluate the waste stream against a set of criteria² which includes, but is not limited to:

- **Risk of harm:** The relative risk of harm the product waste stream, as currently managed in New Zealand, poses to the environment.
- **Resource efficiency opportunities:** The degree to which the product waste stream, as currently managed in New Zealand, is being maximised for resource efficiency or supporting new business opportunities in resource recovery, compared to

² <https://www.mfe.govt.nz/sites/default/files/media/Waste/priority-waste-streams-discussion-doc-pdf.pdf>

demonstrated results in other jurisdictions where data is available (social and economic benefit).

- **Voluntary measures insufficient:** A voluntary approach has been undertaken in New Zealand and participation rates and waste minimisation have been low.
- **Industry readiness:** There is significant New Zealand industry buy-in and willingness to engage to find better solutions. Significant sectors of the industry have approached the government seeking effective regulation to ensure a level playing field.
- **Current producers:** The waste stream is from a class of products which are currently entering the market in New Zealand and can be connected to producers and manufacturers for the purposes of designing product stewardship programmes (not just orphan or legacy products).

The WMA contains provisions for the development of regulated product stewardship programmes. Regulated programmes could be required where there is significant advantage in having a product stewardship programme, but this is either unlikely to be developed, or an existing voluntary programme is not effective. If a product or class of products is declared by the Minister for the Environment to be a priority product, then product stewardship programmes must be developed. Any programme for a priority product must be accredited by the Minister.

The Minister must not declare a product to be a priority product unless he or she is satisfied that its waste will or may cause significant environmental harm; or there are significant benefits from the waste minimisation or treatment of the product.

The Minister must also:

- be satisfied that the product can be effectively managed under a product stewardship programme
- consider the effectiveness of any relevant voluntary product stewardship programme.
- Before declaring a priority product, the Minister must give the public an opportunity to comment on the proposal and consider any public concerns about environmental harm associated with the product when it becomes waste (including concerns related to its disposal). The Minister may also publish guidelines on the expected contents and effects of a mandatory product stewardship programme.

8. Programme structure

Product stewardship programmes are typically “held in trust” by the Product Stewardship Organisation (PSO) - for argument sake, the *Waste Lubricant Container Stewardship Trust*.

Typically, a Trust Deed for a not-for-profit trust is established, describing the purpose of the trust, how it holds and manages funds on behalf of the fee payers, and how the Trust itself will be governed and oversee responsibilities of its programme operations.

8.1 Governance structure

A typical programme governance structure has a set of trustees nominated to represent the industry sectors as well as having legal and accounting expertise, materials handling and logistics experience. These trustees may undertake their duties voluntarily or charge a stipend – however they always work directly on behalf of the industry funders and have oversight of the operational aspects of a programme (programme management).

Trustees who are elected/nominated to that position should have no financial reward or benefit from the product stewardship programme itself, as one of their functions is to receive fee declarations and make decisions on funding allocation to programme recipients which may be confidential. This is commonly referred to as the “Black Box” function.

The Trust Deed typically allows for the appointment of Advisory Groups which may come together for certain issues and then be disbanded when the issue has been resolved – this might be a technical advisory group and a logistics advisory group (for example).

Note that Advisory Groups have no voting rights and can only make recommendations to trustees. Typically, the advisory groups would also be available to Programme Management to provide advice on operational or technical aspects from time to time.

8.2 Programme management

Programme management is undertaken independent of any one of the industry participants and is a function contracted directly with the Product Stewardship Organisation (PSO).

Programme management can be delivered by an organisation or a person. The driver for this decision is the capability and capacity to deliver the duties and functions against the desired outcomes.

The function is to manage the day-to-day operations of the programme and be the single point of contact for the programme.

In addition to this, the programme management responsibilities are to:

- Represent the industry product stewardship programme on behalf of participants
- Accredite and audit collectors, processors of the stewarded material

- Manage spending in line with approved operational budgets
- Manage any contestable funding and make recommendations to the PSO
- Work directly with the processors to ensure that the volume of collected material is processed onshore, and that over time the value of that product is increased
- Attract new brand owners and reduce impacts of free riders
- Work with other industry programmes (ie R.O.S.E, Agrecovery, Oil Filter Recovery) to maximise delivery and minimise costs
- Work with territorial authorities and central government on waste management and regulatory requirements
- Capture and report on mass balance data including collection, recovery and recycling volumes
- Report on the performance of the programme to the PSO and to the industry funders
- Manage the marketing and communication activities including media management, programme promotion and digital communication channels
- If accreditation is sought, apply for and/or maintain the programme accreditation deliverables for the 7-year accreditation period

Note that the working group have documented how their voluntary programme structure can fit within a regulated programme structure as per Section 10: Programme Framework: Design Features.

9. Programme Framework: Management System GAP analysis

- **What framework is necessary for a successful product stewardship approach**
- **Future focus on driving value for the resource**

The World Business Council for Sustainable Development produce a framework for effective management systems for product stewardship programmes¹²

We have used this framework to analyse the gaps between New Zealand's current situation and what would be necessary for a successful product stewardship approach to lubricant packaging.

The challenge and opportunity for all stakeholders is to create a system where the packaging is considered a valuable resource entering useful end use markets.

Below is a table showing the framework for an industry best practice product stewardship approach taken from.

Functional requirements	Currently exists in NZ
Step 1: Managing packaging disposal	
<ul style="list-style-type: none"> • Disposal fee charged to fund the process (either at distribution or at point of entry to country) and shown as separate line item on invoice 	Does not exist.
<ul style="list-style-type: none"> • Network of authorised collection points which are responsible for appropriate handling 	Partially exists. We have a network of collection points (REPCO/Super Cheap/B2B) and Agrecovery Rural Recycling have some rural pop-ups and collection sites at rural retailers - they are not required to be registered or authorised.
<ul style="list-style-type: none"> • Fees paid to collection point based on market value of the material or cost of handling 	Unsure of financial arrangements for R.O.S.E.

Step 2: Collect, sort, transport to processor	
<ul style="list-style-type: none"> • Network of authorised collectors and transporters 	Partially exists. Yes, there is a network that are ready to participate, but they are not registered or authorised.
<ul style="list-style-type: none"> • Collectors and transporters paid by the retailer/distributor or collection point 	Yes, any collectors and transporters would be paid.
<ul style="list-style-type: none"> • Regulated storage/sorting facilities 	Only regulated by council land use consents and local by-laws (if any apply in terms of land use, and if contents are considered).
<ul style="list-style-type: none"> • Defined process for sorting packaging for any reuse 	No, doesn't exist and probably would not want this to be part of a NZ programme.
Step 3: Processing	
<ul style="list-style-type: none"> • Processing companies to shred/grind (ie de-bulk) plastic 	Yes, we have processing companies and we have capacity from interested parties.
<ul style="list-style-type: none"> • Processing companies paid (or charged by) collector or third party 	In some cases, the collector and the processor are the same company, so no payment is made. Processors charge for contaminated HDPE @ \$400 - \$500/t.
Step 4: Recycling	
<ul style="list-style-type: none"> • Recovery companies who will use recycled plastics for energy generation 	Some pilot plants in NZ at present. There are potential companies who could use HDPE plastic (clean or contaminated) as a process supplement.
<ul style="list-style-type: none"> • Recycling companies who will use the secondary raw materials (e.g. grind) to make new products (e.g. civil engineering products) 	Yes, some exist currently.
<ul style="list-style-type: none"> • Recovery or recycling companies pay (or charge) for secondary raw materials 	Generally, there is a charge unless there is a boutique market for the raw material.

Research, accountability & legislation	Currently exists in NZ
Research & Development	
<ul style="list-style-type: none"> Industry R&D projects to develop new applications for lubricant packaging derived products 	No, generally funded privately. Trial pyrolysis plant has been partly funded by Waste Minimisation Fund. We are aware of other projects in trial stage.
Accountability	
<ul style="list-style-type: none"> A manifest system to document the disposal route 	No, doesn't exist specifically for end of life lubricant packaging. Systems exist.
<ul style="list-style-type: none"> System to manage packaging on basis of weight 	No, doesn't exist specifically for end of life lubricant packaging. Systems exist.
<ul style="list-style-type: none"> Verification of process to ensure safety and environmental standards are met 	No, there is no specific verification other than meeting Resource Management ACT requirements.
Legislation: that specifies:	
<ul style="list-style-type: none"> Lubricant packaging is a non-hazardous waste 	No.
<ul style="list-style-type: none"> Clearly defines responsibilities and obligations of all stakeholders in the end of life lubricant packaging management programme 	No, doesn't exist.
<ul style="list-style-type: none"> Illegal dumping and uncontrolled land filling are banned activities 	Yes, illegal dumping is banned. No, landfilling is not banned.
<ul style="list-style-type: none"> A separate line item on sale invoice showing the environmental stewardship / disposal fee is required 	No, legislation does not specify this. Best practice recommendation.
<ul style="list-style-type: none"> Transporters to be registered and have a permit (includes background check, performance bond used to clean up illegally dumped materials). 	Partially exists.
<ul style="list-style-type: none"> Storage must comply with environmental and safety guidelines (length of time, volume, configuration) 	Partially exists. No central legislation controlling lubricant packaging unless it

Research, accountability & legislation	Currently exists in NZ
	has residual oil for storage. Some local controls via consents for land use.
<ul style="list-style-type: none"> Contaminated packaging derived products are designated as secondary raw materials or alternative energy 	No, doesn't exist.
<ul style="list-style-type: none"> Promotion of use of lubricant packaging derived products in public contracts 	No, doesn't exist.
<ul style="list-style-type: none"> A reliable reporting or manifest system is set up to record weight/volume, reporting/audit requirement every time lubricant packaging changes hands in the process from retailer/distributor to collector to recovery or recycling 	No, doesn't exist.

10. Programme Framework: design features

The WMA2008 application form to have a voluntary product stewardship programme accredited sets out a series of design features that would be expected for governance. In October 2019, MfE consulted on a range of governance and programme design features that would reasonably be expected of an accredited, regulated product stewardship programme

As lubricant packaging is proposed to be declared a priority product in 2019, this programme has been designed to meet proposed regulatory design features.

The design features fall under x categories which are addressed in detail on the following pages:

- Intended Objectives and Outcomes
- Fees, funding and cost effectiveness
- Governance
- Non-Profit status
- Competition
- Stakeholder engagement and collaboration
- Compliance
- Targets
- Time Frames
- Market Development
- Performance standards, training and certification
- Liability & Insurance
- Design for the Environment
- Reporting and Public Accountability
- Public Awareness
- Monitoring, compliance and enforcement
- Accessible Collection Networks

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
1.Intended objectives and outcomes	a) Specify the expected reduction in harm to the environment from the implementation of a scheme and/or the expected benefits from reduction, reuse, recycling, recovery or treatment of the product to which a scheme relates.	The programme aims to “close the loop on over 4,500,000 lubricant containers (20 litre and under) which are discarded every year” and contribute to the development of a circular economy in New Zealand by supporting investment in onshore processing and adding value to the collected material. The measurement of success will be detailed in the targets and objectives of the programme to be achieved over the initial 7-year accreditation period.
	b) Specify the expected quantifiable waste minimisation and management objectives for the product to which a scheme relates, and the plan to achieve significant, timely and continuous improvement.	Setting of targets and objectives incorporated within two areas: <ol style="list-style-type: none"> 1. the financial model with a target to recover volume to market from participants trending upwards from Year 1 of accreditation at 60% to 85% by Year 7 of the first programme accreditation period 2. the resource recovery principles set by the programme design working group which include: <ul style="list-style-type: none"> • Provide an industry-led solution for the recovery, reuse and recycling of waste lubricant containers through the introduction of a product stewardship programme • Minimise environmental harm stemming from improper disposal that creates public nuisance and environmental harm • Maximise the recovery, recycling and reuse of lubricant containers in New Zealand, reducing the need for virgin materials to be extracted, manufactured and in some cases imported • Maximise the number of lubricant containers diverted from landfill by providing a simple and easy to access solution for consumers • Transition the lubricant industry toward a circular economy model • Minimise the risk of free-riders by being inclusive • Provide leadership in the circular economy through the provision of grants

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	c) All schemes will be designed to incentivise product management higher up the waste hierarchy in priority order: waste prevention, reuse, recycling, recovery (materials and energy), treatment and disposal.	Covered by: The programme design principles specifically to maximise the recovery, recycling and reuse of lubricant containers in New Zealand, reducing the need for virgin materials to be extracted, manufactured and in some cases imported; and Recognising the materials recovery catalysts are low on the waste hierarchy but attractive for a waste stream which is contaminated and difficult to clean. (therefore, may be suitable only for grease cartridges).
	d) For products containing hazardous materials: industry certification and compliance with other legislation for installation or use, maintenance, collection, transport, storage and disposal pathways.	The programme is proposed to have its own accredited suppliers/providers that are audited against the programme quality and compliance criteria.
	e) All schemes will be designed and financed to manage orphaned and legacy products, ³ as well as current products entering the market.	The financial model includes for setting aside 3.5% of its funds annually to cover community grants and orphan/legacy clean ups in a staged approach as facilities come online to process material collected.
2. Fees, funding and cost effectiveness	a) The full net costs of collection and management of the priority product (reuse, recycling, processing, treatment or disposal) will be covered by producer and product fees associated with the scheme (eg, 'producer pays' or 'advance disposal fee'). ⁴	The advanced disposal fee proposed covers the cost of collection and transport FIS to processors. As the types of processing are many and varied including how they wish to receive the material, some may charge for the cleaning of collected contaminated packaging, some may require it in its contaminated state as it enhances the end material. Provision has been made in the financial model for the flexibility of application of the advanced disposal fee on a regional basis.

³ Legacy products include those sold into the market in earlier years that are now obsolete or banned (eg, agrichemicals containing POPs). Orphaned products include current or recent products for which a liable producer is no longer present (eg, e-waste marketed by companies no longer in business).

⁴ The WMA defines producers to include people who: manufacture and sell a product in New Zealand under their own brand; are the owner or licence holder of a trademark under which a product is sold in New Zealand; import a product for sale in New Zealand; or manufacture or import a product for use in trade by them or their agent.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	b) The impact of more than one accredited scheme and opportunities for maintaining competition should be considered in terms of net cost effectiveness (including monetary and non-monetary costs and benefits).	At the time of seeking accreditation for the programme there is no other accredited programme for lubricant packaging. However, there are complimentary accredited programmes such as R.O.S.E and Oil Filters NZ Ltd and Agrecovery Rural Recycling which propose to work collaboratively together as they have consumers in common.
	c) Specify plans to manage risk to sustainable scheme income, such as price volatility and leakage of materials into other markets.	For the initial 7-year accreditation period, the financial model has been built with a nil return to the programme of sale of processed packaging – this is seen as a financial reward to the processor. The income for the programmes relies entirely on payment of the advanced disposal fee. However, good governance would see that this situation is reviewed at least every three years to incorporate any market changes for materials value.
	d) Specify how existing and emerging technologies will be used to help track and manage product or waste throughout the supply chain (eg, bar codes, radio frequency identification (RFID), and block chain).	The financial model for the programme incorporates the provision for waste tracking software which will track the volumes collected and processed through the supply chain. This will be fully electronic and based on the use of bar code and RFID technology. The platform that hosts the software is SQL based therefore the aggregate data can be included into a block chain platform when it becomes available to capture national waste data (held by authorities).
3. Governance	a) The scheme governance entity will be independent, non-profit and represent producers and wider stakeholders, including public interest.	The programme will be held within a Product Stewardship Organisation (PSO) delivered under a not-for-profit trust deed and structure. Independent trustees will be nominated that represent the stakeholders but who are at arm's length from payment of the advanced disposal fee or benefit from payment for services. An independent chair is also anticipated to be nominated. The matrix of skills to deliver good governance will be in accordance with best practice as laid out by the Institute of Directors, specially paying attention to the Commerce Commission requirements for an industry led product stewardship programme.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	b) Governance should include wider stakeholders in two types of advisory groups: those including product producers and recipients of product management fees who have technical or supply chain knowledge, and other stakeholders who represent wider community and consumer interests.	The PSO will be able to appoint advisory groups on an as needed basis – these advisory groups may include programme participants that can give specific industry and programme advice to both the PSO the programme manager. An example would be the Motor Trade Association or AA
	c) Structure and accountability of the scheme governance entity will be specified. Clear mechanisms will be implemented to fully control scheme operation, manage non-compliance and report on outcomes.	The structure, accountability and governance responsibilities will be incorporated within the Trust Deed. This includes best practice for managing a tender process and appointing contractors, financial and legal literacy and dispute resolution.
	d) The selection process for scheme directors will be transparent, and scheme governance provisions will follow best practice guidelines for New Zealand. ⁵	The selection process of programme directors (governance) will be prescribed in the Trust Deed and will be audited against Policies and Procedures which incorporate best practice guidelines for governance.
	e) Given the size of New Zealand’s population and market, the default expectation will be that either a single accredited scheme per priority product, or a clear platform for cooperation between schemes for efficient materials handling, will be part of the design.	The Lubricant Packaging Stewardship Programme is proposed to be the single accredited programme for resin code 1 and 2 packaging whose prior used with oil lubricants distributed by the lubricant sector in all sizes up to 1,000l. It also includes all other packaging types used for the purpose of transporting lubricants including metal, not included in the priority product scope. A differential Advanced Disposal Fee will be applied to packaging above 200L to recognise reuse/alternative value
4. Non-profit status	a) Given the prominence of expected net public good outcomes, the default expectation is that all priority product stewardship schemes will be operated by non-profit entities representing key stakeholders.	The Programme will be operated by the Product Stewardship Organisation (PSO) which is a not for profit trust representing key stakeholders.

⁵ For example, the Institute of Directors of New Zealand *Code of Practice for Directors* (www.iod.org.nz/Portals/0/Publications/Founding%20Docs/Code%20of%20Practice.pdf).

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
5. Competition	a) The scheme will clearly provide for transparent, non-discriminatory and competitive procurement processes for downstream services, such as collection, sorting, material recovery and disposal.	The programme design includes for a clear and transparent tender process for all contracts to deliver the services of the programme including programme management, collection sites, transport and materials recovery. This will be managed by the PSO and its Programme Manager (where appropriate) and its policies and processes will be available on the programme website for review at any time.
	b) The scheme will ensure that no collectors and recyclers (whether existing, new entrant or social enterprise) are unfairly excluded from participation. This includes making service packages of suitable scale (whether geographically, by material or other measure) to allow both large and small providers to compete fairly.	As the programme will rely on the provision of regional services feeding into a hub and spoke model, to be successful, the programme will be reliant on regional service providers provided by social enterprises, collectors and recyclers within all regions. It will also rely on the participation of member brands as well. The sales model for lubricants is such that the field staff/ reps have a key relationship with their larger customers and may be able to provide a take back service as part of the service provision, like wise some lubricant suppliers have the potential to provide collection points at their premises.
	c) Multiple accredited schemes will be considered if the net community and environmental benefit (including cost-effectiveness and non-monetary impacts) is likely to be improved.	This is understood.
	d) Provision will be made for regular independent audit of agreements among competitors.	This will be part of the PSO function and will also be transparently provided as part of the initial programme audit for accreditation as well as subsequent audits of the operational functions of the programme.
	e) The design process for the scheme will have adhered to guidelines on collaborative activities between competitors as issued by the Commerce Commission, including, but not limited to, applying for collaborative activity clearance from that	The programme design process has been guided by the Commerce Commission guidelines using an independent programme designer, and the provision of legal counsel at working group meetings. It is recommended that legal counsel is retained on the PSO.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	commission (eg, Commerce Commission, 2018a, 2018b, 2018c and 2019).	
6. Stakeholder engagement and collaboration	a) The scheme will specify how wider stakeholders will be involved in decision-making by governance group (eg, use of stakeholder advisory groups).	Covered in 3 (b) above – the programme design complies with this design feature.
	b) The scheme will have been designed with the active engagement of stakeholders currently involved in the product end of life (eg, collectors and recyclers).	The programme has been designed with the active engagement of all stakeholders and can be evidenced by the minutes of the working group meetings and consultation/presentations made with and by collectors and recyclers.
	c) The scheme will specify how use of existing collection and processing infrastructure and networks will be maximised and new infrastructure and networks co-designed and integrated between product groups.	The programme design includes for collaboration with existing collection networks (such as R.O.S.E and Agrecovery Rural Recycling) and also with local government Hazmobile events and collection sites hosted at landfills. New infrastructure requirements specifically for this programme will be limited as providers are currently gearing up to process mixed plastics and/or end of life tyres – or are currently operating such as the case with wash plants and recyclers, and transport providers.
7. Compliance	a) The scheme will have a clear means of enforcing compliance of all participants and reporting liable non-participants to the government enforcement agency.	The PSO will be able to report non-payment of the advanced disposal fee for any distributor of product in scope (should this become a regulated programme) to the appropriate authorities. The programme design and financial model includes for all providers to be registered with the programme against its guidelines and for the programme managers to be able to audit performance against those guidelines and cease service provision with non-complying contractors following a remediation period.
	b) The scheme will have strategies to reduce ‘leakage’ of higher value end-of-life products (eg, ‘cherry picking’ of e-waste components by informal collectors).	The programme design is such that payment for services is not made unless evidence of activity is made in accordance with the guidelines of the programme. As the material in scope is contaminated with lubricant it is unlikely that any leakage of material will occur that could

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
		materially impact on the programme. However, should that occur there will be policies in place to address this.
8. Targets	<p>a) All schemes will be expected to set and report on targets that have the following characteristics:</p> <ul style="list-style-type: none"> • significant, timely and continuous improvement • benchmarked against and aspiring to attain best practice recovery and recycling or treatment rates for the same product type in high-performing jurisdictions • a clear time bound and measurable path to move toward attaining best practice • targets for new product and market development to accommodate collected materials. 	This is understood and is a feature of the design of the Lubricant Packaging Stewardship programme.
	b) Results against targets will be publicly reported at least annually.	This is understood and designed for.
	<p>c) Material collection, recovery and disposal rates will be measured against one of the following:</p> <ul style="list-style-type: none"> • actual trend data, if the scheme has pre-existed as a voluntary scheme • the average aggregate weight or count of products sold into the market in the previous three reported years • another specified method where market entry information does not yet exist. 	<p>Mass balance data is currently available through use of some of the customs codes for import data. There is a great deal of variation in this data and currently it is deemed unreliable. Until or if this can be remedied, programme participants will be required to declare their sales data to the independent financial entity (black box) so that data can be aggregated and provided to the PSO and the Programme Manager for preparation of reports and for setting goals and targets.</p> <p>In the design process average weights of products have been used to calculate the advanced disposal fee quantum across the range of participants and products. Operationally the Programme Manager would undertake random audits to check average weights are still within range.</p>
	d) Plans will be specified for review, adjustment and reporting on performance targets preferably annually and no less than every three years, taking account of changes in the market, natural events and technology.	The programme design allows for an annual review of all targets and objectives prior to setting operational budgets for the coming year. This informs any areas of performance that focus needs to be applied to financially and operationally.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	<p>e) A clear distinction will be made between funding arrangements and market capacity to manage both potential high volume legacy and orphaned product collections in earlier years and ongoing continuous improvement of collection rates.</p>	<p>The programme design and financial model enable a slower start-up of collection material while processing capacity comes to market. Currently, there is enough capacity to meet start up demand, with future capacity coming on line over the ensuing three years.</p> <p>As capacity comes on line the collection rates can increase as result of marketing activities; there is no known legacy or orphaned product in high volumes nationally however this can never be discounted and has been allowed for in the programme design and financial model.</p>
	<p>f) Performance targets will include measures for public awareness of scheme participant satisfaction and a record of response by the scheme to concerns raised. This will be made available to scheme auditors.</p>	<p>This is understood and an essential indicator for the PSO for operational delivery excellence.</p>
<p>9. Timeframes</p>	<p>a) The timeframe within which an application for accreditation or reaccreditation of the priority product scheme is expected to be made after declaration of priority product is as follows:</p> <ul style="list-style-type: none"> • priority product categories with existing accredited voluntary schemes (eg, refrigerants, agrichemicals, farm plastics, packaging): within one year from the date of priority product declaration • priority product categories with accreditation proposals that have been developed through a multi-stakeholder consultation process including, as a minimum, producers, local authorities, major users, existing collectors and recyclers (eg, tyres): within one year from the date of priority product declaration or the date of proposal completion, whichever comes later • other priority product categories: within three years from the date of priority product declaration. 	<p>The programme design will be completed by 30 September 2019 at which time a submission for accreditation of the stewardship programme can be made.</p> <p>The programme implementation phase (year 0) can commence from 01 April 2020 subject to approval of the implementation budget by the programme participants.</p> <p>The programme would be operationally ready within 12 months of submitting the accreditation or 1 April 2021 whichever the earlier.</p>

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	b) Within the accredited seven-year period, at least one full review will be undertaken of scheme costs and effectiveness. The results of reviews and proposed scheme amendments to improve cost effectiveness will be reported via the annual reporting process.	This is anticipated and the full review is recommended/likely to occur at three-year intervals.
10. Market development	a) The scheme will have a research and development budget to develop new recycled products, encourage transition to circular product and recycled product materials design, and cooperate with other stakeholders to enhance onshore infrastructure.	2.5% of the advanced disposal fee is proposed to be set aside for research and development. It will have guidelines around the distribution of the fund and could be a mix of contestable funding, scholarships and direct contracts with infrastructure providers.
11. Performance standards, training and certification	a) The scheme will have clear means for ensuring adequate training and certification of all people recovering and managing a product throughout its life cycle, to ensure best practice in prevention and reduction of harm to people and the environment.	This will be built into the contract of the Programme Managers who will be responsible for ensuring that all providers are adequately trained for the provision of the contract. This will include compliance with Health & Safety Legislation as a PCBU, dangerous goods certificate and handling (should that be required) and environmental management plans for collection and processing sites.
	b) Any relevant standards for best practice will be referenced in training, supplier accreditation and monitoring (eg, AS/NZS 5377 for e-waste collection and processing). The scheme will participate in the development and revision of relevant standards.	This is expected.
	c) The scheme will have clear chain of custody arrangements for monitoring processing of materials and reduction of harm, both onshore and offshore, including annual reporting of findings.	This will be clearly articulated in the providers contracts and monitored and enforced by the Programme Manager. This will be reported on quarterly to the PSO and annually as part of the accreditation report.
12. Liability and insurance	a) The scheme will have clear chain of custody arrangements for monitoring receipt and processing of materials and reduction of harm, both onshore and offshore, including annual reporting of findings.	This will be clearly articulated in the providers contracts and monitored and enforced by the Programme Manager. This will be reported on quarterly to the PSO and annually as part of the accreditation report.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	b) The scheme will ensure that liability of parties is clear for each stage of product and materials handling, and adequate insurance for liability is in place at each stage of the process.	The programme design and the financial model allow for the appropriate insurance cover for liability. Contracts with providers will include evidence of liability insurance and this will be monitored by the Programme Manager.
13. Design for environment	a) The scheme will contain financial or other incentives for diversion of collected products to highest and best resource use, weighted for applications higher up the 'waste hierarchy' (in priority order: reduction, reuse, recycling or composting, energy recovery, safe treatment and disposal).	Yes, reference Design Feature 1 (b) and (c)
	b) The fees paid by a producer to a collective scheme will, as far as possible, be linked to actual end-of-life treatment costs of their products, such as through variable or modulated fees.	The financial model is built from a ground up basis taking into account all costs for processing of the different packaging types, contamination, sizes and reuse opportunities. This enables a modulated fee model to be put in place to incentivise outcomes for the more difficult and environmentally harmful residues in the packaging.
	c) The scheme will facilitate good communication, feedback and incentives between designers, manufacturers, sales and marketing teams, distributors, retailers, consumers, collectors, recyclers and end disposal operators, to inform improved design of products and systems.	The structure of the advisory groups will facilitate this. The programme design acknowledges that the majority of lubricants are imported into New Zealand either pre-packaged or in built which means that the opportunity to influence design given the relative size of NZ's market influence is low. However, all brand owner participants plan on encouraging best practice up and down their supply chain.
	d) The scheme will fund initiatives to improve circular resource use by reducing the 'end-of-life' components of the product(s) and improving design for reusability and recyclability of the priority product(s).	The circular economy principles are incorporated into the design of the programme only limited by the residual contents of the packaging itself. Some reuse of drums and 60L containers already occurs.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
14. Reporting and public accountability	a) The scheme will provide for clear, regular and open reporting and communication with stakeholders.	This is planned for. During the design phase the participant brand owners have communicated progress via e-news, direct mail outs, consultation and through a website dedicated to facilitating conversations and providing information about programme design and how to engage. Some of the brand owners already report publicly via their sustainability reports/annual report - their participation in the programme as part of their stewardship responsibilities and their social license to operate is likely to be communicated about with their customers and supply chain in many different ways.
	b) Annual reports will be made public. These will include measurement of outcomes and achievement of targets, fees collected and disbursed, and net cash reserves held as contingency.	The programmes annual report will include this information as will the website transparently disclose achievements against objectives and targets.
	c) Provision will be made for regular independent financial, compliance, enforcement and environmental audits of scheme performance.	The PSO will be responsible for appointing an independent auditor to audit compliance with their fiduciary duties. The PSO will audit (or make provision to audit) the Programme Manager for performance of its contract which will include their oversight of contractor compliance with the programme against contractors' guidelines and environmental management plans.
	d) Scheme plans will address the following: data availability, especially when several PROs (also known as a PSO) are in competition; materials' traceability; precise definition for data collection and reporting (eg, recycling rates and operational costs).	Policies and procedures will be in place for the methodology of the collection of mass balance data, all data will be available in aggregated form to ensure that there is no breach of the Commerce Act. Materials traceability will be delivered by the Waste Management software. Should there be multiple PROs/PSO's then a data sharing agreement would be a logical provision to have in place.
	e) The scheme will have mechanisms in place to protect competitive information relating to detailed operational costs	The PSO will appoint an independent financial provider to receive sales declarations for product within scope of the programme and invoice the advanced disposal fee and collect funds as a result of this

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	(eg, 'black box' data collection by third party with aggregate reporting).	declaration. They will also manage the funds and provide aggregated data to the PSO and the Programme Manager.
	f) Scheme performance measures will be harmonised between schemes as far as possible.	At this stage it is not envisaged to have multiple programmes for the collection and processing of lubricant packaging within scope however should there be, then performance measures would be put in place by the PSO.
15. Public awareness	a) Branding and clear information on how and why the scheme operates will be easily available at point of distribution (intercompany) and purchase (consumer), point of waste product collection and online, and a link to the online information will be on the product or product packaging.	The programme design and the financial model allow for investment in brand guidelines which include point of sale material, labelling to clearly articulate to the purchaser what to do with the packaging at end of life, and guidelines for collection sites private or public. This activity is planned for in the implementation year (Year 0)
	b) The scheme will provide for transparent product stewardship fees at point of purchase.	The programme design allows for transparent disclosure of product stewardship fees. It recognises that this may take different forms whether it is a B2B relationship, wholesale transaction or retail transaction.
	c) The scheme will ensure that consumer labelling standards for the product are complied with (eg, under the Hazardous Substances and New Organisms Act 1996 for hazardous substances).	The labelling guidelines will comply with any relevant standards and regulations for the industry per product. It is expected that the labelling guidelines will incorporate the features of the Australian/New Zealand product recycling labelling for any consumer retail products.
	d) The scheme will regularly measure and report on public awareness and scheme participant satisfaction, and improvements made accordingly.	Baseline surveys undertaken by the Programme Manager for the PSO will be undertaken regularly as one of the tools to evaluate effectiveness against campaigns. Brand Owners themselves will also be involved in the public awareness of their programme and it is likely they will be involved in satisfaction surveys with their own customers.
16. Monitoring, compliance and enforcement	a) The scheme will have a clear means of enforcing compliance of all participants and reporting liable non-participants to the government enforcement agency.	Covered in 3 (c) above. The programme will be able to respond to this more fully when the process for reporting to the government enforcement agency is understood.

Design feature	Proposed Waste Minimisation Act 2008 (WMA) section 12 guidelines for priority product programme accreditation (regulated)	Proposed Guidelines for Lubricant Stewardship Programme (voluntary)
	b) The scheme will have strategies to reduce 'leakage' of higher value end-of-life products (eg, 'cherry picking' of e-waste components by informal collectors).	Covered in 7 (b) above.
	c) The Government will enforce WMA regulations.	This is understood and ties in with 16 (a) above
	d) Revocation of accreditation is possible under WMA section 18 if reasonable steps are not being taken to implement the scheme, and the scheme's objectives are not being met or are not likely to be met within the timeframes outlined in the scheme.	This is understood.
17. Accessible collection networks	a) The scheme will provide for an end-of-life product collection system that is reasonably accessible for all communities generating that waste product, whether metropolitan, provincial or rural.	The programme design includes for a range of collection systems relative to where the products are used (rural, commercial, garages, at home) and where users are likely to need to dispose of the packaging at end of life (via their rep, on the forecourt, from home).
	b) Collection will be free to the public (fully funded by the scheme) for all products covered by the scheme.	Collection of the product in scope of the programme is fully funded by the programme and will be free to the public (and in fact all consumers whether commercial or public).
	c) Collection will be based on the product, not proof of purchase.	Collection is based on the product
	d) Collections will, as far as possible, share infrastructure and public information with other collection schemes in the area.	Yes, covered also in 2 (b) and 6 (c) above. As well, some of the brand owners may share collection services within their regions especially in smaller, rural areas as this reflects the desire to put the consumer at the top of the process.

11. Programme funding models

It is entirely discretionary, and it is the right of the participants to make individual decisions about how they place the fee, where they place the fee, what quantum (if any) of the fee they on-charge and how they recoup any additional costs of participation.

Any fee quantum is set by the managing entity not the scheme participants.

When establishing a funding model, the programme participants recognise that stewardship is meant to be a sharing of responsibilities by all involved in the whole product lifecycle, not just a shifting of the waste disposal burden.

Stewards are:

- brand owner first importer, franchisor or distributor; or
- retailer.

Both are responsible for all the packaging supplied to consumers either indirectly as brand owner first importer or as the retailer who has the last point of contact with the consumer of the product.

The first step in establishing the funding model is determining where the responsibility for stewardship sits.

11.1 Brand Owner First Importer (BOFI) funding

The first option is commonly called the BOFI model, which is where the brand owner or first importer who has committed to the programme pays an advanced disposal fee (ADF) to the PSO for every product in scope that is sold or supplied into the market.

This option is considered the most efficient and the method by which the “brand owner” has the most control over stewardship of their product.

Best practice recommendation is for participants to display the fee transparently to consumers on the invoice when they purchase the product. This encourages sustainability purchasing decisions by the consumer and enables an interaction between the seller and the consumer about the purpose of the fee and where to take the packaging at end-of-life.

Typically, participants would submit quarterly reports showing the number of packages in each product category sold in that quarter. This is then treated as a self-generated invoice and the participant makes payment on the ‘fee’ due.

Typically, the BOFI on-charges the fee to their distributor/retailer who in turn charge it to the consumer who pays the fee at Point of Sale.

It is expected that funds to support the administration, collection and recovery activities of programme are covered by the remittances.

11.2 Retail / Point of Sale funding

The second option is commonly called the Point of Sale (POS) model, which is where the retailer places the fee on the item at POS, directly charging the consumer.

This requires declarations of sale from the retailer and for that reason can be administratively heavy and, in some situations, means that the 'brand owner' has less say in the stewarding of their end of life product.

11.3 Turnover participation charge

The third option is where the PSO charges a fee to participants based on their company turnover.

The amount charged covers the cost of administering the programme, including all its activities.

Typically, the cost is seen as a marketing' or 'sustainability'' cost and not attributed directly to the cost of sale of the product.

It is the least preferred option as the true cost of stewarding the waste stream is typically lost and payment by turnover can be open to interpretation (i.e turnover as a portion of the product to be stewarded or total turnover).

The simplest and most effective model is the Brand Owner First Importer as that enables them to collaborate and encourage their supply chain directly.

12. Financial Model

The DRAFT Financial Model supplied is based on 3R Group's experience in designing and delivering product stewardship and take back programmes across a wide range of materials from hazardous chemicals and farm plastics, through to paint and packaging and child restraints.

Subject to the assumptions listed below, the Project Manager has established that an Advanced Disposal Fee would be payable by participants in the range of:

- \$2.70 per KG 0 – 60L Containers (inclusive of collection, transport, preparation for recycling and recycling)
- \$0.95 per Grease Cartridge

Subject to actual costs for collection and processing which will inform the financial model after the tender process is complete, per pack this is modelled as:

Pack Size	Kg per Pack Size	Packaging Weight KG	Advanced Disposal Fee
200 ml Packs	0.20	0.01	\$ 0.03
500 ml Packs	0.50	0.03	\$ 0.07
1 L Packs	1.00	0.05	\$ 0.14
4 L Packs	4.00	0.21	\$ 0.58
5 L Packs	5.00	0.27	\$ 0.72
10 L Packs	10.00	0.54	\$ 1.45
18 L Packs	18.00	0.96	\$ 2.60
20 L Packs	20.00	1.07	\$ 2.89
Approx 60 litre	60.00	3.21	\$ 8.67
Grease cartridges		0.04	\$ 0.95

The Financial Model has been built using the following assumptions:

- 12.1 The model is built based on **initial quantities by pack size** provided by WLCWG participants. As there are different characteristics for the grease cartridges these have been separated out and modelled independently from the other pack types and sizes.
- 12.2 The **weights per pack size** were provided by two participants and these were used to calculate a “packaging weight per litre rate” that was applied across the board. **This equated to 53.5 grams of packaging weight per 1 litre container.**
- 12.3 The overall weight is a total of the pack sizes x container per litre rate.
- 12.4 **Grease cartridges** are modelled based on the **number of units**. The total quantity of grease cartridges used in the model are from cumulative participant information provided. They have been kept separate as it is assumed that the processing

treatment may need to be handled separately. (i.e. via a social enterprise such as Kilmarnock)

- 12.5 Industry Participation assumes that those who are currently involved in this design phase **represent 60% of the total industry**. The brand owner participation is forecast to increase through the years and reach 95% participation rate by year 10.
- 12.6 The market was split into **Business to Business (B2B)** and **Retail**. Based on experience, the rate of recovery differs significantly for these with a higher recovery rate from B2B due to the ability to collect end of life containers and cartridges when delivering new supplies as opposed to those that have less influence over the supply chain.
- 12.7 **Recovery rates** for B2B start at 65% and are expected to increase to 90% by Year 5 and then plateau as it is likely that good systems and procedures will be in effect by then by participants.
- 12.8 The retail market starts off at 40% as consumers will take more time to become aware of the programme and change their behaviours. The forecast is for the recovery here to increase to 65% by Year 6 and then remain unchanged for the subsequent years of this model.
- 12.9 Based on these assumptions the **Overall Recovery Rate will start at 60% Year 1 and increase to 85% by year 6**. Note this is applying the recovery rates only to the volumes/quantities for the Working Group. There is no allowance for any recovery of containers from non-funding participants.
- 12.10 **Grease cartridges** will require collection, cleaning and processing. The cleaning is based on a per unit basis (**50c per unit**) as this may be a manual process. This cost is based on indications of charges from social enterprises and commercial processors.
- 12.11 The net weight of cartridges is expected to be **36 grams per cartridge**. The weight is then used for calculating the **collection cost (\$1 per kg)** and the **processor charge (\$200 per tonne)**. The overall cost for Grease Cartridges is high due to the cleaning cost which makes up 92% of the costs.
- 12.12 Containers have only 2 cost components. These are collection (including debulking) and **processor** charges.
- 12.13 The expectation is that the collector will also debulk the containers as it will be far more efficient to debulk these early and transport them. The cost of \$2.65/kg to collect and debulk and is based on 3R's past involvement with Agrecovery Rural Recycling collections. It should be noted that there are **various ways the containers could be collected and debulked** so there could be variations to this cost based on the final contracts issued.

- 12.14 The calculations for the **Advanced Disposal fee** charged by the PSO have also been separated with the Grease Cartridges having a per unit fee and the balance having a charge per kg of packaging weight. As we have used an average packaging weight the result is the fee for a 1 litre pack will equate to 53.5 grams of plastic packaging which will incur twice the fee as a 500ml pack.
- 12.15 The other costs that have been included relate to the **management of the programme**. This includes a stipend for Board members and the Project Manager Professional fee (this is set at \$130,000 for year 1 and then increases by inflation rate each year thereafter plus KPI's set at 0.8% of revenues).
- 12.16 The operational costs include employment of a Resource and Logistics Manager, compliance, travel, marketing, insurance, legal and accounting fees. A cost to develop a website is included in year 1 and then a lesser amount in years 5 and 8 for updates to the website.
- 12.17 Included in the budget are allowances for a **Research and Development Fund** that can be used to identify new methods of processing or for incentives for end markets to use the materials. An allowance is made for any **legacy clean ups** where there may be dumped product that would tarnish the programmes reputation without it being dealt with – they are unknown at the time of writing the report, however can become apparent at programme launch. Lastly, there is a fund for **community grants** to assist any community ideas to increase collections.
- 12.18 As the recovery rates start out lower and climb the programme is likely to **build up some reserves** in the earlier years that are then used to fund growing costs in the later years.
- The model does show a surplus over the 10 years but as can be seen changes would need to be made by the end of Year 10 to bring the programme into at least a breakeven position for future years. By this time volumes should be much better understood along with recovery rates and thus more accurate costs can be used to determine future advanced disposal fees. It is also an opportunity for the programme to make decisions about future infrastructure investment.
- 12.19 Note that throughout the model an inflation rate of 1.5% has been used as it is likely that costs will increase over time. However, the advanced disposal fee only has an increase of 10% in Year 5 as regular increases will be more difficult to implement.

The Financial Model, P&L and Cost Spreadsheets are provided as a separate EXCEL file.

13. Steps to Launch

This report provides all of the information required to support the business case to launch the Lubricant Packaging Stewardship Programme. The steps listed below are the shared responsibility of the establishment brand owners and the project/programme manager.

Immediate

- A. Set implementation start date – recommended 01 April 2020
- B. *Independent Function:* Calculate a fair portion of the Advanced Disposal Fee (ADF) to cover implementation year costs (recommended in the Financial Model as price/kg)

Implementation Year

1. Prepare and Submit MfE Accreditation as per guidelines <https://www.mfe.govt.nz/publications/waste/guide-product-stewardship-non-priority-products-waste-minimisation-act-2008-3>
2. With the establishment Brand Owners, assist in the establishment of a Not for Profit Trust that will provide governance for the programme once it commences operation (note the appointment of trustees will be by the PBO's)
3. Creating a Brand and Brand guidelines for the programme including labelling guidelines for customer information
4. Establishment and implementation of all systems, policies and operational procedures for delivery of the programme
5. Action of the declaration process for PBO's to advise the volumes of packaging they are introducing to the market
6. Calculation of a joining fee for onboarding new Brand Owners
7. Development of systems and processes to manage the collection, transport and suitable end use for all lubricant packaging covered by the programme
8. Running a tender process for the supply of services to the programme related to the material flows through to end use of the lubricant packaging covered by the programme and working with the PBO's to evaluate and award these tender(s)
9. Working in collaboration with existing and emerging product stewardship and takeback programmes to ensure that access to services is maximised and the ADF is targeted at service delivery where none exists already.
10. Validating the financial model once the supply chain tender process has been completed and providing the PBO's and Trust of the effects of this on the proposed ADF.
11. Promote the programme to businesses and consumers raising public awareness.
12. Managing the accreditation of the programme by Ministry for Environment including the independent audit of the programme for the purposes of accreditation and annual reporting against agreed KPIs
13. Manage communications and marketing for the programme
14. Re-design the project website for operational purposes, and continue to keep the website fresh and relevant
14. Onboard non-participating Brand Owners by promoting the responsibility for end of life of their packaging
15. Establishing the criteria and timing of the R&D funding rounds.

Appendix A: International Examples

Region	North America	South America	Australia	Asia - Pacific		Europe		Africa	Global
Programme Name	Used Oil Management Associations of Canada	Jogue Limpo	Australia Institute of Petroleum Program	Korea Environment Corporation (KECO) - Extended Product Responsibility	Singapore Packaging Agreement	Alternative Waste Management System Packaging SSED-RECYCLING	The Waste Framework Directive: The Waste Oil Directive and the Packaging Waste Directive	Recycling Oil Saves the Environment (R.O.S.E)	Extended Producer Responsibility
Country of operation	Canada	Brazil	Australia	Korea	Singapore	Greece	European Union	South Africa	Global
Companies involved (eg Exxon, Shell...)	http://usedoilrecycling.com/uoma-members/	Shell Brazil, https://www.joguelimpo.org.br/institucional/associadas.php	950 member companies with Australian Packaging Covenant Organisation	Most of the producers in the country.	199 signatories; https://www.nea.gov.sg/docs/default-source/our-services/waste-management/list-of-signatories-as-at-23-apr-2018.pdf	170 companies contracted with KEPED (the oil packaging centre).	EU countries.	Engen Petroleum lmtd, Total, Shell, Fuchs Lubricants, BP and Castrol, etc. https://rosefoundation.org.za/wp-content/uploads/2018/06/ROSE-Member-Companies-2018.pdf	N/A
Established	1988-1991 began the process	2005	2004	2003	2007	2003	2007	1994	1961
Stage of development (Pilot, BAU, Under review, Closed)	BAU	BAU	Closed	BAU	BAU	BAU	BAU	BAU/ Closed	BAU
Website	http://usedoilrecycling.com/	https://www.shell.com.br/motoristas/oleos-e-lubrificantes/instituto-jogue-limpo.html ;	https://www.aip.com.au/programs/waste-management-and-recycling http://www.environment.gov.au/protection/national-waste-policy/product-stewardship/projects http://www.environment.gov.au/protection/used-oil-recycling/product-stewardship-oil-program/benefits	https://www.keco.or.kr/en/core/operation_extended/contentsid/1980/index.do	https://www.nea.gov.sg/programmes-grants/schemes/singapore-packaging-agreement	https://www.eoan.gr/en/content/329/packaging-waste http://dias-aekk.gr/en/company-profile/	http://ec.europa.eu/environment/waste/framework/ http://ec.europa.eu/environment/waste/index.htm	https://rosefoundation.org.za/	http://www.oecd.org/environment/extended-producer-responsibility.htm
Scale (Tonnes or Millions Packages per year)	N/A	90.6 million containers in 2016	430 collection sites with ~500 tonnes of plastic recycled	N/A	About 4,800 / year though not specified	95% of lubricants market	N/A	N/A	35 member-countries worldwide
Scope (some may also include lubricant capture) (what's in/out)	Oil, oil filters, oil packaging, antifreeze, antifreeze packaging.	Plastic oil containers.	Oil in another initiative than lubricant packaging. Current Product stewardship priorities are plastic microbeads, batteries, photovoltaic systems, electrical and electronic products, and plastic oil containers.	Lubricants, packages that contain synthetic resin material, and other products. Lubricant containers since 2011.	Other packaging products mentioned, but lubricant oil and packaging not mentioned.	Lubricant packaging and most other forms of packaging (plastic, paper, metal, wood, etc).	Most waste that would be considered to endanger human health or environment, or that causes a risk or nuisance to the countryside. Oil was included in 2010. Oil packaging not specifically mentioned.	Collect waste, drums, pans in forecourts; oil filters; other oil soaked items at garages like rags.	Any product someone produces and wants to be less environmentally damaging.

Region	North America	South America	Australia	Asia - Pacific		Europe		Africa	Global
Governance Management Model	Industry-led stewardship program.	Reverse Logistics. Mainly operate as an overall manager rather than doing daily tasks.	Anecdotal largely defunct. Industry led program that is now on a volunteer basis through the Australian Department of the Environment and Energy. In the Covenant if the business was involved in the packaging supply chain and had an annual turnover of \$5 million or more they could either sign the covenant or meet equivalent individual compliances under the NEPM.	Legal obligation of recycling is on producers, there are shared duties between all (consumers, local governments, and state governments).	Joint program with government, industry, and NGOs. A voluntary program for industries. Overseen by a governing board that includes some industry members.	A non-hazardous waste management scheme. The SA-KEPED includes a scheme for lubricant oils packaging. In total, owned 65% by producers and 35% by local authorities. Total 1,651 producers. Mostly from food industry.	The European Union set the basic directive of waste management and explains some principles for recycling. "Polluter Pays Principle"	The government no longer supports used oil re-refining, so ROSE has been set up by the major lubricant companies themselves in South Africa.	OECD is a multinational forum that allows governments to work together on shared problems. The Extended Producer Responsibility focuses on waste from over-packaging or other problems.
Regulatory Support	National Used Material and Antifreeze Advisory Council (NUOMAAC) coordinates all of the provinces recycling standards.	Ministry of Environment has certain targets set. National Solid Waste Policy, Law 12305-2010 https://www.joguelimpo.org.br/institucional/legislacao.php	Australian Packaging Covenant by National Environment Protection (Used Packaging Materials) Measure 2011 (NEPM) Product Stewardship Act 2011 - Plastic oil containers listed in voluntary product stewardship legislation in 2017.	Ministry of Environment monitors KECO, established by the KECO act. OECD (global program).	National Environmental Agency	Hellenic Recycling Agency (E.E.A.A SA) Directive 94/62/EC into national law by Law 2939/2001. KEPED SA approved by No. 105857/2003	Directive 2008/98/EC	South African Waste Information System was developed by the Department of Environmental Affairs. These do not set regulations but are a reporting service of the data ROSE captures on waste generated, recycled, and disposed of in South Africa.	The Organisation for Economic Cooperation and Development (OECD).
Funding	Environmental Handling Charge (EHC), not a tax. All retailers, wholesalers, or first sellers of these products have to pay. A Return Incentive (RI) is paid to the private sector collector and processors for delivery to the recycling facility.	N/A	An excise on lubricant sales.	Advanced Disposal Fee or waste charge put on producers and importers of material that is difficult to recycle. Allowed to add bond money to consumer prices to encourage collection	N/A	The package maker and/ or the importer of finished goods is responsible to pay a financial contribution to the collective alternative packaging management system.	N/A	Provided by the industries that participate.	N/A. OECD suggests putting the price on the polluter to help incentivise them to change.
% Recovery Rate	90+%	Not available	Not available	Not available	39,000 tonnes of packaging reduced overall.	53% of packaging volume produced after six years of the initiation of the system.	Not available	Not available	Not available
Turnover	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available

Region	North America	South America	Australia	Asia - Pacific		Europe		Africa	Global
Structure	The NUOMAAC is the leading organization across all of Canada. They mandate the other provinces programs which then deal directly with citizens and industry.	Jogue Limpo hires logistic operators for the state it operates in. Then these companies are responsible for registering who the generators are, collecting the packaging, and the storage centres. Have fleets of trucks equipped with smart technology for monitoring purposes.	An AIP board with chief executives and other representatives of oil and gas companies in Australia and the Institute's Executive Director decide the Institute's strategy and resources.	The Minister of Environment mandates the item to recycle, the companies have to submit a recycling plan, then submit sales & import record of products and packaging for the past year, submit a recycling report, and notify payment of recycling charge.	The NEA demands mandatory reporting of packaging data and waste reduction plan.	The SSED monitors the industries then reports to the Ministry of Environment. There is an annual report sent to the EU about progress on all recycling in packaging material.	The EU requires that member states create national waste prevention programmes and meet certain objectives. It seems that since 2010 the waste oil directive was repealed.	The R.O.S.E foundation is a conglomerate of industries that set rules and prices on recycling oil and related waste. They require that a "generator" of the waste has to give the waste to a recycler or someone else that can either reuse, recycle, treat, or dispose of it within 18 months after generation.	A forum where governments have come together to hear other's opinions.
Collection model	Each litre of oil, oil container, and oil filter has a charge applied.	Collect and recycle used oil containers at gas stations, car dealerships, and supermarkets. Containers are drained and most likely ground for accredited recyclers.	N/A	Transparent recycling contracts. To reduce the free rider problem, KECO screens the list of producers and importers and assigns responsibility for take-back and recycling to them.	N/A	Set out special bins for lubricant packaging waste to be deposited. Typically near garages or service stations and/or inside industry. For the total packaging waste, an inventory is held, and the collected waste is subsidized and/or other actions. The SSED gives out special 35 litre bags to use and also share the appropriate information (education).	Depends on the individual country.	ROSE collectors go around to the businesses and garages to pick-up the used oil. There are recycling drop-off points for 'do-it-yourselfers'.	Depends on the individual country.
Processing model	Depends on the individual province.	The plastic goes through a decontamination process and is then transformed into raw material.	N/A	Producers or PROs should submit recycling implementation results to KECO every year.	N/A	The Materials Sorting and Recovery plant (KDAY) separate and forward the material onto further recycling facilities.	Depends on the individual country.	Several methods to process: thermal evaporation, static separation, low and high speed centrifugation, filtration, blending, distillation, hydrogenation and cracking. Still performed by a ROSE licensed processor.	Depends on the individual country.
Lubricant Capture (if any)	Depends on the individual province.	N/A	The Product Stewardship for Oil Scheme focuses on oil recycling by the Department of Environment and Energy to re-refine or re-use it. There is a levy for the new litre of oil, and it helps oil recyclers.	There are lubricant capture mechanisms in place, but not specified.	N/A	N/A	Some, though not well defined.	ROSE licensed collectors are responsible to pick-up, transport, store, and process the used oil. Also can remove used oil filters, rags, and oily sawdust.	Depends on the individual country.

Region	North America	South America	Australia	Asia - Pacific		Europe		Africa	Global
End Uses	Refilling opportunities, plastic used for park benches, posts, railroad crossings, plastic pipe, or new containers; re-refined lubricating oil, industrial burner fuel, metal used to manufacture industrial products.	Flexible conduits, pipes for rainwater drainage, and/ or packaging.	Sustainable packaging, re-refined oil, the solutions are left to individual companies.	Re-refine oil, new recycled material or products, recycle to energy, gasification, etc.	Miscellaneous recycling.	Recovery into new products, raw material, or incineration.	Incineration for fuel (oil), the rest recycled based on individual member-state opinion.	Most of the used oil is processed into industrial heating fuel, but some are re-refined into base oil.	Depends on the individual country.
Comments	7 out of 10 provinces are involved.	A good source of information for recycling plastic containers because this is what they specialize in.	Australia has agreed that 100% of packaging be recyclable, compostable, or reusable by 2025. The Australia Institute of Petroleum has three major programs: waste oil collection / recycle, collect / recycle used plastic lubricant containers, and Australian Packaging Covenant. Although the plastic lubricant program has officially ended, plastic containers are now involved in the Covenant plan.	Lubricant is a mandatory recycling product from the Extended Producer Responsibility (EPR) requirements.	Does not specifically mention waste lubricant containers but still a good program for packaging waste. Uses packaging weight benchmarks which gives them more information on improving their products.	The KEPEO SA management specifies Lubricant Oils Packaging.	In the future, there will be a requirement for all member states to create their own national waste policy. Many countries have already set up their own policies, though information about recycling the packaging is limited. This is a large scale requirement that the EU has set on its countries. It does not have many specifics because it is trying to let the countries decide what fits best for them which is a successful option.	Does not mention the packaging specifically, but they are re-refining oil and melting plastics for energy. They claim on their website to take oil and related wastes.	A multi-country program that shifts the responsibility onto the government and companies rather than on the consumer. A more generic guideline.
Known difficulties / challenges (Media Articles)	Increased pressure on smaller garages if the bigger suppliers drop out of the project. https://www.cbc.ca/news/canada/british-columbia/small-garages-swamped-with-used-oil-after-large-retailers-shrink-recycling-programs-1.4415268 Program success dependent on the customer engagement. http://www.alaskahighwaynews.ca/regional-news/local-news/oil-s-well-that-s-disposed-of-well-1.1154493	Jogue Limpo is trying to expand and make their program a national scheme that would include specialized drop-off points. Though this was not passed through in 2016. There are still a couple of states that are not agreed on this program. https://issuu.com/fecom/b/docs/relfec2017ingfinal http://www.mbenhenaria.com/conteudo/noticias.php?cod=48	Free Rider problem - the large corporations were paying everything because it was volunteer based.	The system is mostly successful. There is a fine if the quota is not met. https://sustainabledevelopment.un.org/index.php?page=view&type=99&nr=81&menu=1449 https://www.oecd.org/environment/waste/OECD_EPR_case_study_Korea_revised_140522.pdf	They do not have good enough definitions to demand better recycling and many people do not respond to the requirements since it is voluntary. http://www.eco-business.com/opinion/why-the-singapore-packaging-agreement-has-no-teeth/	Limited information, the website I found had 2010 as the most recent time.	It is not very specific, so countries may be able to ignore the requirements. I did not find specific consequences if this was not respected.	Collectors struggle with compliance because of fluctuating oil prices. There is also a small free rider problem, but if everyone were involved this would be solved. http://www.infrastructuure.ws/2017/03/22/new-rose-foundation-ceo-prioritises-helping-oil-collectors-and-processors/	There are many ways to interpret these suggestions, and there is no legal action if a country does particularly bad.

Appendix C: International Case Studies

UOMA – Used Oil Management Association of Canada



Overview

UOMA is an industry led stewardship programme that takes back used plastic oil/antifreeze/DEF containers as well as used oil, oil filters, antifreeze and aerosol cans.

This a long running programme was developed following the 1988 Canadian Government identifying used oil as the country's largest single source of potentially hazardous material if not properly managed and requesting that the industry address the issue.

In response the Canadian Petroleum Products Institute (CPPI) commissioned a task force on used oil materials recycling. What developed is a government-approved, industry-led used oil materials recycling program model that has been acknowledged world-wide as working environmentally, economically and socio-economically.

Since the first program was launched in Western Canada in 1997, this recycling model has gained acceptance throughout most of Canada – now available in seven provinces. The goal is to have fully integrated programs in all provinces and territories of Canada. The programme works environmentally, economically and socio-economically.

Inter-provincial cooperation of the provincial Used Oil Management Associations (UOMA) is formalized through the National Used Oil Material and Antifreeze Advisory Council (NUOMAAC) which coordinates the Canada-wide used oil and antifreeze materials recycling effort and encourages consistent national standards for this unique and successful industry-led stewardship recycling program.

How it works

Under the program, a network of return collection points is established. Year-round collection facilities, easily accessible, are the cornerstone of Canada's used oil and antifreeze materials program. The programme acknowledges that it is a messy business, and a location has to be equipped to properly manage these potentially hazardous materials.

A Return Incentive (RI) is paid to private sector collectors and processors to pick-up and deliver to government approved recycling facilities where the materials are processed into new products. For example, consumers in B.C. pay a “eco-fee” when purchasing oil, which later pays for services like oil recycling. Garages are paid 30 cents for every litre of oil they take back from the public.

Of the recovered materials;

- Used oil is reprocessed into re-refined lubricating oil, industrial burner fuel and other products.
- Used antifreeze is reprocessed back into reusable antifreeze.
- Used oil filters are processed into structural metal shapes for the manufacturing of industrial and agricultural products.
- Used plastic oil/antifreeze/DEF containers and pails are recycled into industrial posts, railroad crossings, plastic pipe and new containers. Plastic 20-litre pails may also be refilled with bulk lubricants or cleaned and re-used for a wide number of applications.

No used oil or antifreeze materials recovered under Canada’s provincial UOMA programs go to landfills. In most provinces, used oil is not spread on roads.

How it is funded

The program is funded through an Environmental Handling Charge (EHC) remitted by all retailers, wholesalers or first sellers on lubricating products including filters, antifreeze and plastic containers. The EHC is remitted to the association(s) in the province(s) in which the company does business.

The associations use an electronic payment system by which members remit the Environmental Handling Charges (EHC). The form is accessed through the secure EHC portal connected to each association’s website.

An e-claims tracking system improved data collection on volumes of materials recovered and speeds up Return Incentive (RI) payments to collectors/processors.

Who is involved

There are 507 members, ranging from large oil companies to small garages.

Quantities/Success

The proof is in the numbers. The overall amount of each product type collected for the current reported fiscal year, 2016, is down marginally over 2015 but this matches the lower sales numbers over the same period.

UOMA	OIL (million litres)	FILTERS (millions of units)	PLASTIC OIL CONTAINERS (million kg)	GLYCOL / ANTIFREEZE (million litres)	ANTIFREEZE CONTAINERS (million kg)
British Columbia	46.44	5.57	1.61	2.61	Combined with plastic oil containers
Alberta	86.12	7.41	2.17	N/A	N/A
Saskatchewan	18.33	1.99	0.43	0.31	Combined with plastic oil containers
Manitoba	14.3	1.54	0.26	0.39	0.03
Quebec	60.38	9.64	2.15	1.76	0.09
New Brunswick	3.69	0.97	0.24	0.12	0.01
Prince Edward Island	0.15	0.11	0.06	0.02	0
TOTAL	211.08 (million litres)	27.23 (million filters)	6.92 (million kg)	5.21 (million litres)	0.13 (million kg)



Figure 4 British Columbia Bottle & Recycling Depot incorporating used oil & oil filter takeback

Jogue Limpo – Brazil



Mission

To offer solutions in the management of reverse logistics systems, to prioritise recycling waste, in order to maximise value for the environment, its associates, society and future generations.

Vision

To be a leader in activities undertaken, recognised as an efficient management system and transparency.

Values

- Commitment to best practice
- Ethical, integrity and credibility
- Respect for people
- Environmental Responsibility
- Confidence in operations

Overview

Jogue Limpo is a reverse logistics system to sustainably manage plastic packaging from lubricants. Jogue Limpo is a pun on the sporting metaphor of “playing dirty” and translates to “Play Clean”

Created in 2005 by the National Union of Fuel and Lubricant Distributors (Sindicom), the current Jogue Limpo Institute is an association of manufacturers or importers of lubricating oils. Producers are required to have a reverse logistics system in place as per the Sector Agreement signed with the Ministry of Environment in December 2012, as well as the law 12,305 / 2010 (PNRS). Jogue Limpo ensures compliance and operates in 14 of the 26 states of Brazil as well as the Federal District.

In 2013 the associated manufacturers understood that it would be necessary to broaden the horizons of the system. It was identified that Jogue Limpo needed to be an independent institution so that it could grant access to other manufacturers and importers of lubricating oils, and not be restricted to those of Sindicom.

In 2016, 94% of the plastic packaging of lubricating oils received through the programme were recycled into products such as conduits, light boxes, cleaning products and other lubricant packages. Since its foundation, around 675 million packs of different companies have been recycled.

The programme has strong social and environmental goals, committed to the UN Global Compact and is Green Seal Certified.

How it works

The Jogue Limpo Institute provides a free service for registered collection points. The programme is responsible for the logistics of registration and receipt of packaging, administration of storage centres, and has a fleet of trucks equipped with high technology, which meet all requirements for safety, control and care for the environment.

The programme accepts 1, 4 and 20 litre containers. Collection sites are available to the public, and may be found at services stations, tyre stores, garages and supermarkets. Packages are collected in large plastic bags, then placed in a special plastic skip when full.

Industrial packaging is not accepted – industry has their own system of recovering packaging.

Jogue Limpo hires logistic operators in the states where it operates. These companies are responsible for the registration of generators, collection and reception of the packaging and administration of storage centres.

Specialized trucks visit collection sites and pick up the collected plastic packaging. The packaging is weighed at pick up and this data automatically captured and recorded in the system. At the time of weighing, a receipt is issued that may be required by the environmental agency during the licensing or inspection process. The collected containers are taken to the Receiving Centre, where the material is pressed, stored and then sent to a recycler.

The recovered material is crushed and after being subjected to a process of decontamination of the residual lubricating oil, it goes through the extrusion process to be transformed into raw material for new packaging and other plastic products.

How it is funded

While information about how the programme is funded is not easily available it appears that the costs are covered by the members of Jogue Limpo. The director of the Jogue Limpo Institute is quoted as saying “because they are the ones who pay the bill, of each \$ 10 that we spend, we managed to recover only R \$ 2. The other R \$ 8 are prorated among the members.”

Who is involved

There are 30 partners listed on the website, these includes the large companies such as Castrol, Shell, Cosan (Mobil), Fuchs etc.

The programme appears to have strong links with government. There are a number of articles showing meetings and collaboration between Jogue Limpo and Government agencies.

Quantities/success

Over 675 million plastic containers have been recycled since 2005.

The Jogue Limpo Institute complies with the 10 principles spelled out in the Global Compact and is committed to making them its principles and part of the strategy, culture and day-to-

day operations. Engaging in projects that promote the broader development goals of the United Nations, in particular the Sustainable Development Goals.

Jogue Limpo is Green Seal Certified, an award given to organisations that seek responsible social and environmental management in all their businesses. The programme also tracks the total CO₂ emissions in the reverse logistics operations, as well as the avoided emissions through the recycling of the packages of lubricants to measure the overall benefit to the environment.

The programme includes a behaviour change/education aspect, in particular focusing on children and young people with an annual writing competition for school students, as well as a range of educational materials that raise awareness among children about the importance of sustainability.



Appendix D: Programme Information for Participants

WHAT AM I?
Temporary images need to be purchased



WHAT DOES THIS MEAN?



DO I HAVE TO PAY?



DO I GET PAID BY [THE PROGRAMME]?



ANY SMALL PRINT I SHOULD KNOW?



Lubricant Importer / Distributor



You are an organisation which imports lubricant into NZ.
- Pre-packaged
- In bulk and packages on shore for distribution

YES
'The Advanced Disposal Fee' is captured for all packaged lubricant at the first point of importation or sale.
- If pre-packed, declaration based on packaging
- If bulk, declaration based on packaging volume at first point of sale

NO

All Brand Owner First Importers would sign a Brand Owner agreement which sets out participation criteria and is underpinned by the Accredited Stewardship programme under the Waste Minimisation Act 2008 Priority Product legislation.

If a Brand Owner First Importer is not the first point at which the product is packaged, then their agreement would cover up to that point as the ADF is payable on the packaging in market.

Consumer



You are 'Joe Public'.

When you buy lubricants, you need to get rid of the empty packaging
OR
You may have empty packaging for other reasons that you need to get rid of.

NO

The cost of used packaging return is built into the sale price of all lubricant packaging. This is called **'The Advanced Disposal fee'**.

NO

You do not get any money for recycling your used packaging.

Increasingly landfills will no longer accept used lubricant packaging.

You must recycle your used packaging via a registered return site, **or you can leave them with the company that you original purchased the lubricant from.**

AND

Any drums and/or IBC's can be collected by special arrangement (ref website).

Generator



Either:

You use packaged lubricant's as part of your business activity (a garage, service center, call out service etc.)

OR

Are a large user of packaged lubricants which are replaced on-site (large trucking company, mining operation etc)

NO

Any lubricant packaging that you take from your customers or generate as part of your business activities are collected for free or can be returned to a drop off site for free.

NO

You cannot charge customers for taking back their old lubricant packaging as you get it collected for free,

Packaging returned to you can either be kept by you for collection **or** taken to a **drop off site for free.**

Drop off Site



You are a place where **Consumers and/or Generators** can drop off used lubricant packaging

NO

Any lubricant packaging that you receive at your site are collected by **[the programme]** for free.

DEPENDS UPON COMMERCIAL ARRANGEMENT

Drop off sites can be paid a nominal service fee by **[the Programme]** to act as aggregation points for used lubricant packaging to be collected.

Payments are on a sliding scale (Very busy sites would get paid more than small sites); brand owner first importers acting as collection sites may have different arrangements.

You must be registered with **[the Programme]** as an approved **Drop off Site.**

Your will be asked by **[the Programme]** to provide auditable reports on your volumes available for collection.

A **Generator** could also act as a **Drop off Site** and aggregate packaging for **Customers** and other **Generators.**

Transporter



You collect lubricant packaging from **Generators and/or Collection Sites** and deliver them to **Processors**

NO

All lubricant packaging is collected at no charge to the **Generator or Collection site.**

YES

[The Programme] pays you for the deliveries you make to a **Processor**

You must be registered with **[The Programme]** as an approved **Transporter.**

So you get paid, you or **[The Programme]** must have a contractual relationship with a **Processor / Manufacturer** to accept the lubricant packaging (to avoid stockpiling, unintended consequences)

Your may be asked by **[The programme]** to provide auditable reports on your transported volumes.

Processor/Manufacturer



You **transform** the lubricant packaging in some way so that the recovered material can be put to a good end-use.

YES

You may pay **Transporters** to deliver the lubricant packaging you need,

Or

You may contract with **[The Programme]** for deliveries

(This is for you to negotiate – **[The Programme]** does not have to get involved.)

YES

[The Programme] makes a payment per tonne of lubricant packaging processed by you

The level of payment depends on what commercial arrangements are negotiated

You must provide evidence of the receipt of material in order to receive payments from **[The Programme]**

Your reports may be subject to audit by **[The Programme]** as part of our obligation to collect mass balance data on the import and collection of used lubricant packaging

Appendix E: Operational Interactions: Money and Materials flow

Product Stewardship Model for Lubricant Packaging
Based on Brand owner/first importer of packaging declarations

